

The Hotel Inference Challenge

If you are interested in deep truths about yourself, please allow me to present you with a challenge—'the hotel inference challenge', I call it.

The hotel inference is an analogy I use for some very simple probability reasoning that forces you into accepting the truth of a radical view of what you are, a view I call 'universalism'. The challenge will be to avoid accepting the inference to universalism either by rejecting the hotel inference or by showing a relevant difference between the hotel inference and the inference to universalism. I don't think anyone can do either—and I think, therefore, that accepting the hotel inference should make accepting universalism unavoidable.

Those who are familiar with the Sleeping Beauty problem should be able to spot an interesting similarity between the hotel inference and Sleeping Beauty's inference at the heart of that famous problem in probability theory. Sleeping Beauty's inference is the hotel inference but restricted to one person and stretched out through time.

I discovered the Sleeping Beauty problem in connection with thinking about the hotel inference back in the 1980s. I won't be discussing Sleeping Beauty any further now, but I maintain that fully understanding that problem and its solution requires dealing with the hotel inference as well.

Before I can challenge you with the hotel inference, I need to get across to you what the view I call 'universalism' is.

Let me begin my explanation of universalism with observing that there are countless conscious things in the world. And I ask you a simple question. 'How do you know which of all those conscious beings you are?'

You don't discover which you are by checking an objective description—that you are the one with a certain name or a certain origin.

For before you can consider any such objective facts about yourself, you much more simply know that you are the conscious being whose experience is immediate, first-person in its style. You are the one that seems to be at the

centre.

But now consider that every conscious being has experience that fully shares that character you thought belonged only to the one that was you—the immediate, first-person character of experience that supposedly distinguishes you from all the others. All consciousness in every conscious thing is equally immediate and first-person.

The claim of my view, universalism, is that I am equally all conscious things but it falsely seems in each that it is the only one that is me because the specific content of experience in each one is cut off from the specific content in all the others. It everywhere misleadingly seems to me that this or this or this is the only experience that is immediate and therein mine.

And I have many ways of proving that universalism must be true.

There are arguments showing that the view that you are limited to being only one conscious thing is incoherent.

For instance, that view cannot deal coherently with brain bisection.

In actual cases in which the connection between the right and left hemispheres of a brain has been cut, there can be unconnected experiences at the same time processed in the two disconnected hemispheres. Each is felt to be the only experience the possessor of that brain could now be having, but there is no way the original person could not be equally having both (but just wrongly thinking in each that it is the only one that is 'mine').

It can be illuminating to get deeper into just why brain bisection is problematic. After all, there is nothing even in the usual view of what you are against a lot of differing unconnected experiential contents all belonging to you. Your present moment of experience is not intimately connected with most of the widely varied experiences of your life, but you still think that they were all fully yours. Yet, what does seem at first glance impossible in any view is that one person could ever be entertaining two mutually excluding experiential contents at the same time.

But this very natural thought depends on a confusion. What would indeed be impossible would be that a single content of experience somehow could have, crammed into it, the two excluding contents—that would be a contradiction. If they are mutually excluding, then they are mutually excluding. But mutually excluding contents could be had in one's experience at the same time if each is had separately from the other.

And that brings us back to brain bisection. In brain bisection, people who were operated on for epilepsy had the connection between the right and left hemispheres of their brains cut. Eventually these split-brain patients participated in experiments that showed they could have simultaneous mutually excluding experiences. For example, if a spoon and a brush were each held out of sight in a different hand, one hand would point to a picture of a spoon and the other hand to a picture of a brush if the patient was asked which object had been held. Two mutually excluding contents of experience, one with the feel of only one object and the other with the feel of only the other object, were experienced by that one patient at the same time.

Here is a hypothetical variation of such a real-life case: Imagine I had hold of a push button connected to a device adjacent to the bridge of nerves, the corpus callosum, through which are integrated with each other the activities of the hemispheres of my brain. If that button is pressed, the device to which it is connected will pump anaesthetic into the corpus callosum; and that will temporarily stop the integration of the hemispheres with each other.

Then, after the button is pressed, into the right ear the music of a wonderful concert is fed and into the left ear the sound of a boring lesson on a subject that I need to be studying. There will thus occur for me simultaneously both the undisturbed experience of a wonderful concert and the unrelieved boredom of the studying.

But these experiential contents will not particularly seem to me simultaneous. Each will seem within it to be mine and to be the only thing I am experiencing at the time, just exactly as they would seem if instead first one hemisphere had processed one experience (while the other hemisphere was anaesthetised) and afterwards the other hemisphere processed the other experience. The objective simultaneity has no effect on whether both these experiences can be mine.

When the anaesthetic wears off and the memories of the two hemispheres are integrated with each other, it will be remembered that a wonderful concert was experienced and also that a boring lesson was experienced—and the memory of each will be of a first-person immediate experience that is therein being remembered as mine. But the later integrated memories won't be somehow retroactively making both experiences mine. They will simply be revealing what was true at the time but not known within either experience, that both mutually excluding experiential contents were equally mine when they happened.

The thought that could have occurred within either experience that anyone who was having a different experience at this time would have to be somebody else and not me would be illusory. And this illusory thought that makes brain bisection seem paradoxical can block me from understanding that all the mutually excluding experience now had by experiencing beings can equally belong to me—without integration—simply on account of the first-person immediacy that is in all of it.

Nothing in the logic of experience prevents the same person having any number of mutually excluding experiential contents at the same objective time. We could label this insight 'the irrelevance of objective simultaneity'.

Perhaps the most interesting argument for universalism is a probability argument.

First consider an analogous bit of reasoning. Imagine that a coin that has been tossed a thousand times consecutively has landed heads every time.

That result will be our evidence in this inference. And we shall say that we also know that there were two different coins available for the tosses. One was fair and the other loaded to land heads every time.

So, we have two hypotheses competing to explain our evidence. If the fair coin hypothesis is true, the evidence could have occurred. But that evidence, a thousand heads, would have to mean that something extremely improbable had occurred when combined with the fair coin hypothesis. And it is improbable that something improbable has happened. Therefore, we can reject as improbable the

hypothesis that the coin was fair. We can know that it is extremely more probable that the coin is loaded.

I think that all empirical reasoning works this way.

According to the ordinary hypothesis concerning who you are, it was an extremely improbable coincidence for you that all the constellation of factors required for you to exist—instead of only others existing—happened to have been in place. (For example, just the right sperm cell had to get first to the egg in your begetting and, before that could have happened, in each begetting of your ancestors going back to way before the dinosaurs.)

But, according to the hypothesis of universalism, that which is your evidence—that you exist—was bound to happen as long as any conscious thing had existed. Universalism was like the loaded coin hypothesis guaranteeing the occurrence of the all-heads evidence in that parallel inference.

Let me next deal with a pesky common mistake in thinking about such inferences. When something is already there as our evidence, like the coin having landed heads a thousand times consecutively or you having found yourself to exist (and according to the usual view having had to win all the countless tougher than tough ancestral begetting lotteries), some people are tempted to think that the thousand consecutive landings of heads or your existence has now been endowed with a probability of one no matter how it may have come about, simply by virtue of our accepting it as evidence—as having already occurred. But that is a confusion.

What we are testing against the evidence are hypotheses regarding how the evidence came about. We accept that the coin has landed a thousand times consecutively, but that is hardly an acceptance of a fair coin being just as probable as a loaded coin to have produced that result.

A big box of coins has been dumped out on a floor, and every one of the hundreds of coins we can see has landed heads up. We know there were two boxes of coins—one full of only double-headed coins and the other full of only fair coins. It is madness to say, ‘Since this has already happened, it is now

certain that all the coins we can see landed heads-up either way, so we currently have no basis for deciding which of the two boxes this may have been’.

If the box was the one of fair coins, landing all heads was, is and always will be in any random single drop an improbable event. Within the fair coin box hypothesis itself, the evidence that we have would have been massively improbable to have occurred. And it always was, is and will be massively improbable that a massively improbable event happened, is happening or will happen. We can only rationally believe that such an improbable event has happened if its not having happened would have been even more improbable given other evidence. But that forced acceptance will not somehow digest away that improbability; and we will reject that hypothesis if the pressure to accept it somehow diminishes enough. Having already happened wouldn’t make the improbable be probable.

Now we finally turn to a closer analogy than the coin flipping to the inference to universalism. This is the awakening game—hard or easy—in the hotel of countless rooms.

Please imagine a hotel with countless rooms—and on the bed in each room a single occupant who is being caused to remain in a dreamless sleep.

In the easy game all these sleepers will be awakened. In the hard game only one random sleeper will be awakened. The rest will sleep forever.

You find yourself awake, and you are made aware of the two possible games.

You must infer that if these conditions apply it is overwhelmingly more probable that the easy game and not the hard game is being played.

Your evidence for this inference is that you are awake. One of the available hypotheses to explain this evidence, that the hard game is being played, would require this evidence, your being awake, to have been an unimaginably improbable occurrence, whereas the other hypothesis, the easy game, involves no such improbability. You are required by the basic logic that powers all our empirical knowledge to reject as absurdly improbable that the hard game is the one being played and believe instead that it’s the easy game.

Of course, the incredibly rare awakener in the hard game would have been misled by this reasoning into preferring the hypothesis of countless awakenings, which would in that case have been false. But being asleep—and therefore in no condition to engage in a misleading inference—would have been overwhelmingly more probable in the hard game. Thus that the inference is not misleading must be, from the rare awakener's perspective, overwhelmingly more probable than that it is. (But an uninvolved observer, say, on a street outside the hotel, who was given a winner's name as being that of either one of countless awakeners or that of a sole awakener, could not use that information about that awakening to infer one thing or the other. That awakening if only one had been awakened would entail for this observer no improbable coincidence.)

Let's elaborate a bit on what I've just said parenthetically. Imagine two styles of observing the game from outside it. An external observer who could make a random observation of just one room would have to infer the immensely greater probability of the easy game if this random sample contained an awakener. The awakener in the game, from that awakener's perspective, is just such a random sample (relative to awakening) among the potential awakeners. But an external observer who was simply guaranteed to be shown a winner either way—the one awakener in the hard game or a random awakener among the countless awakeners in the easy game—will not be able to make any inference. An awakener won't be evidence for that observer because there would be no improbable coincidence for that observer in seeing an awakener in the case of the hard game. This is a perspectival inference, open only to an awakener or an external observer with a random sample.

You right now can observe that the world, whichever game it is playing, has awakened you to consciousness. The usual confined view of what you are—as I shall next make clear—is a hard game hypothesis if ever there was one. And universalism is the only easy game in town. The usual view must be rejected. Universalism must be accepted.

Just consider the history of begettings that would have been required for you to exist on the usual view of the matter. Let's say conservatively that during your conception there were 200 million sperm cells competing with each other to reach the egg first. And on the usual view if any sperm cell but the one that did

happen to make it had got through to the egg instead you would never have been around (and never have had experience that was ‘mine’). So, you had only a one in 200 million chance of being produced from that conception. But it gets far worse than that, because in order for that conception to have occurred, your parents had to have been conceived, and in each of their conceptions the chance of it turning out right for your later existence was, with our conservative estimate of the number of sperm cells, again one in 200 million. So, the chance of your emerging from those three conceptions was one in 200 million to the third power, which is one in 8 septillion—pretty slim. And, of course, all ancestral begettings before these had to be just the right ones for your future existence, the number multiplied in each preceding generation, and all of it going back to the time of the dinosaurs and far earlier than that. Otherwise it would have been eternally blank for you. You would have had no experience whatever. Only others would have been in the world instead.

That is the hard game that makes your evidence, that you exist, an absurdly improbable experience from your perspective. Universalism, by the most dramatic of contrasts, counts the sperm cell lotteries as wholly irrelevant. Your existence was not decided by the immensely demanding requirements for the identity of a human being; any such being would be you simply because its experience would necessarily have in it the immediacy that all experience has in it.

Here is a fable, ‘The Tyrant of the Sands’, that may help us to feel the conclusiveness of such reasoning:

On the edge of the Sahara is a city ruled over by a cruel tyrant who plays a strange game with the life of anyone he makes his prisoner. First the tyrant has a grain of sand dyed a colour sand would not normally be. Next a caravan is sent on a two-week trek into the Sahara, where the grain of sand is released into a high wind. Another caravan is prepared when the first returns. In particular, a sticky substance is applied to just the tip of a hair at the very end of a camel’s tail. The tail is loosely covered. Then this second caravan travels two weeks into the Sahara, till finally the tail is uncovered so that a grain of sand blowing in the wind may be caught on the tip of the hair. Only if this happens to be the same grain of sand that was released by the earlier caravan will the life of the prisoner be spared.

Now, one time the second caravan returned with claims that the right grain of sand had been caught. The tyrant simply had everyone involved executed because this couldn't have been anything but a conspiracy. And how could he think anything else?

If there were countless Saharas, each with its tyrant of the sands, then some winnings of his game would be bound to occur; but, if you were a winner, that you happened to be one of the incredibly infrequent winners would have been precisely as improbable from your perspective as your winning if no more than that single game were ever played. So if you must choose between only two hypotheses, the hard game hypothesis and an easy game hypothesis in which it never matters to winning the game which grain of sand is caught on the camel's tail—in which all players are winners anyway—you must choose the latter hypothesis as enormously more probable to be true.

Yet fairly winning this tyrant's game would be a cinch compared to winning the game that resulted in your existence on the usual view of personhood. If you consider only twelve generations of non-overlapping ancestors on the lines of the usual view, this is how bad would be the odds for your existence: Imagine all the atoms in the observable universe. Let us have a universe for each of those atoms and think of all the atoms in all those universes and then turn each of those atoms into a universe and take all the atoms in all those universes and continue with such expansions again and again—a thousand times; and then you would have just one chance to emerge from those twelve generations in a number of chances roughly like the number of all the atoms in all the universes resulting from this procedure. So, you must simply forget any such account of your existence. Winning the game of the tyrant of the sands, which depended on a chance capture of an item as gross as a grain of sand, with no discernment of particular atoms in its enormous population of them and with the game confined to only the Sahara desert, was indeed a cinch in comparison.

The only view that does not make your existence incredible, and that is not therefore (from your perspective) an incredible view, is that any conscious being would necessarily have been you anyway, that the logic of personhood has conspired to dye any grain of sand your winning colour. And how can you think anything else?

‘But couldn’t I just have been lucky?’

Well, it is not an impossible contradiction that the usual view be true and that your coming into existence was therefore the most incredible luck imaginable.

But you must, insofar as you are rational, regard it as overwhelmingly improbable that you were that lucky. It is on this improbability that I am insisting in this argument.

A variation on that question: ‘Someone would have existed on the usual view; couldn’t that just have been me?’

Again, yes—that wouldn’t have been impossible.

But—also again—you must regard it as overwhelmingly improbable that that lucky someone was you.

‘Even if there is no coincidence for me in my existing, given the truth of universalism, isn’t it still going to be somehow equally improbable that a particular body or a particular mind has emerged from a long line of begettings?’

No. Once you adopt universalism there is no longer anything coincidental for you in any such mere details of specific bodies or minds. If your awakening depended on a pre-specified pattern of heads and tails having been realised in one thousand tosses of a fair coin, then that pattern’s realisation would have been a great, lucky coincidence for you. But if you would be awakened no matter which pattern came up, there is no coincidence for you in the pattern that did come up. Something’s being improbable from your perspective would require such a coincidence.

There is a temptation for some to think that there is always an improbable result when a fair coin is tossed one thousand times, because each possible pattern has only a one in two to the thousandth power chance of occurring. But what this really means is that each possible pattern of heads and tails designated independently of simply being the one that occurred has only that slight chance

of occurring in one randomly observed sequence of a thousand tossings. If we are merely reading off an actual result there is no coincidence and no improbability.

Universalism and the usual view can agree on the conditions of body and mind that obtain in the world. They disagree only on where to draw the line between the essential and the incidental conditions for your existence. The usual view makes certain complex conditions of bodily or psychological identity essential requirements for your existence, while admitting that others, like the colours of your clothing, are incidental. Universalism puts all the conditions—other than that lone requirement of possessing a capacity for experience had with immediacy—on the incidental side of the line, along with the colours of what you are wearing. And if such demanding conditions as bodily identity are not required for you to exist, their realisation represents no coincidence or improbability for you at all—no more than do those colours of your clothing.

The inference to universalism is, like all probability inferences, perspectival. And in this case you could not be using what the usual view would regard as the existence of others as the basis of your inference. For from the single perspective you are supposed to occupy within that usual view, the production of others would not have been improbable, since, once you existed (which is the hard part), you would be in the position of simply seeing any winners there might be in the begettings of others. This would be a guaranteed observation for you of them but a random and therefore incredibly improbable observation of your own existence for you, but not for them. Universalism, however, puts you into the guaranteed observation position regarding all conscious organisms bar none. (There is no hard part.) For universalism, of course, makes it irrelevant to whether you and this experience exist what sperm cells hit what eggs. All experiencers would be you merely on account of the immediacy, the internality, the first-person character of their experience. So, you are always an awakener, and seeing yourself as an awakener, no matter what.

(What I just said about the existence of others within the usual view not involving improbability for you—and vice versa—is not strictly true. If you are an identical twin almost all your improbability of coming into existence would be shared by your twin. And to the extent you share ancestry with others—and at some very distant point in the past you share ancestry with everyone—you

share also that much of your improbability and therefore that much of your basis for the inference to universalism.)

Even if the usual view, with its absurdly improbable requirements for one's existence, were true, it must have been wholly irrational for any conscious being existing to believe it. It would be like the one lucky winner in the hotel's hard awakening game rightly inferring the enormously greater probability that the easy game is being played. It would be, from an awakener's perspective, immensely improbable to be awake to be misled if the hard game is being played. And all conscious beings thinking straight about this must judge to be immensely improbable that they existed to be misled if the usual view of what they were was right instead of universalism.

When joined with a multiverse hypothesis, universalism allows you to explain why the physical laws of your universe are anthropic (amenable to life). You would find yourself in any universe producing conscious beings and in none that did not, so of course the basic natural laws of your universe are ones with a tuning fine enough to allow for chemistry, life and consciousness.

The truth of universalism means that it is wrong to think of an individual death as annihilation—since you are there in all conscious things. It also means that your self-interest reaches equally to all conscious things—since all their pains and pleasures, being immediate and first-person, are equally yours and worthy of self-interest rather than sympathy or indifference.

Knowledge of the truth of universalism could really change the world. It could powerfully moderate narrow selfishness and narrow group biases. You would know it's all you.

The hotel inference challenge is this:

Can you find any way of avoiding the necessity of that inference to the greater probability of the easy game in the hotel of countless rooms? I have never in my decades of discussing universalism come across anyone who thinks that avoiding that inference is possible. I have in this discussion brought up various problems people could have with understanding the principles underlying such an inference; but when the facts of this hotel case itself are put across clearly,

nobody seems to doubt that the player can infer the overwhelmingly greater probability of the easy game being played.

So, then, if the hotel inference is unavoidable, can you find any relevant difference between the hotel inference and the inference to universalism that would make the latter inference avoidable? Regarding the inference to universalism people often do suddenly discover the problems they have regarding the principles of such inferences, most of which I have discussed. Showing how these same principles carry no difficulties in the hotel case can often be helpful.

A couple of people have highlighted the difference that the sleepers already existed in their hotel rooms before the game is played. I have never myself seen the relevance of that difference to making the inference to the easy game regarding personal identity; but one can, of course, simply modify the hotel case so that it is one in which the players would be altogether produced in the rooms instead of merely awakened. How could this not make the easy game of producing players in all the rooms more probable than the hard game of producing only a random one player?

There's a way of bringing the hotel inference closer to the analogy of inferring that a coin landing heads a thousand times consecutively is not a fair coin, another inference that everyone accepts. When I first published the hotel inference it had that wrinkle in it.

A fair coin landing heads a thousand times consecutively is indeed improbable. Yet it would be just as improbable if a thousand random fair coin flips had happened to match a single random list of heads and tails that had been written out before the flips. In my original hotel case, each of the countless sleepers had a different such list assigned to him or her. Then a fair coin was to be flipped a thousand times.

In the hard game the sleeper was to be awakened only if those coin flips had matched his or her personally assigned list (much like all the series of begettings having to go just right for you to come to consciousness in the usual view of personal identity). In the easy game everyone would be awakened no matter how the coin flips turned out.

Imagine you were awakened in one of the hotel rooms and it was explained to you that your awakening had resulted from one of those two games.

If I awakened and had that explained I would virtually know I was awakened in an easy game because it would have been ridiculously improbable for me that I had been awakened if that event required the fair coin producing by chance the strict pattern assigned to me.

Since there are countless sleepers in this story, there will be countless awakeners in a hard game too. Just much much much rarer. But each will be obliged to reason perspectively, as I did, that the game was immensely more probable for him or her to have been the easy one. I technically could have been awakened in a hard game. It wouldn't have been an impossible contradiction. But it would necessarily have been immensely improbable for me that I would be awake in a hard game to be misled by this proper probability reasoning if such an improbable matching had been the requirement for that to happen.

Let me end with a brief consideration of whether universalism is the only easy game in town when it comes to what you are.

There is, for example, a sort of view that departs from the usual one by going in the opposite direction from universalism. The usual view imposes insulating boundaries on who I am that confine me within the life of a single human being. The rival view we shall now consider confines me to a much smaller momentary existence that does not extend beyond the present moment of a human being. And it thus makes my far more pinpointed existence even more improbable than that I have on the usual view.

In a Buddhist view any psychological process would be forging on through a succession of non-continuous experiencers. At any point in this process there would be an experiencer with its momentary pains and pleasures, but it could have no non-illusory self-interest in any further accumulation of experience as this would not belong to it—since not that subject but only other momentary subjects would exist in any further experience. The experience would belong to no continuing subject. Neither self-interest nor other-interest (interest, that is, for the self-interests of others) would be appropriate.

As I've mentioned, the improbability for itself of existing of any of the momentary subjects would make such a hypothesis statistically untenable just as it did the usual view of the person. For in every moment of the ongoing mental process an inference would be supported that from this momentary perspective the existence of this momentary subject would be overwhelmingly improbable by contrast with the existence of the universal subject in universalism.

I think you have no way of avoiding universalism.

When I see the truth of universalism, should I change in my daily life how I speak about all these conscious beings that I am? Well, that would depend on how valuable in the circumstances it would be to do so.

Think of watching a play in which the same one actor takes all the parts. It could often make sense to use the differing character names in describing what was happening on the stage. Yet it could become important on occasion as well to use the actor's single name to highlight that one person is playing all.

Big features of the ordinary view disappear in universalism.

Alienated self-interest ('If you cut your finger, it doesn't hurt me') has mistaken who I am; and fearing death as annihilation ('Not to be here, not to be anywhere') is failing to realise how easily I exist and how very much there is of me.

Inflicting pain as retribution for wrongs is a horrible mistake, since the person who was wronged and the person who is punished are one and the same.

You possess all conscious life. Whenever in all time and wherever in all the universe (or beyond) any conscious being stands, sits, crawls, jumps, lies, rolls, flies or swims, its experience of doing so is yours and is yours now. You *are* that being. You are fish and fowl. Deer and hunter. You are saints and sinners. You are Germans, Jews and Palestinians.

This is an important result. What else can come close to it in importance? And perhaps the spread of this knowledge among the intelligent beings that are you can help you to stop yourself from hurting yourself because you mistake yourself for another.