

REASONS AND CAUSES

The issue

The classic distinction, or at least the one we are familiar with from empiricism is that causes are in the world and reasons are some sort of mental or conceptual thing. I want to explore a little whether causes can be brought more under the sphere of reason – it seems unnatural to me to think of causes being outside of reason.

Could we assume that the world is intelligible – that is to say that it is understandable by the mind, at least in principle. Could we then close the gap between causes and reasons? Perhaps in this case the difference between the empiricists and the rationalists would not seem so great.

We think of our mental picture representing the world in some way and hope that it is possible that we can get it to be an accurate representation. In which case might not causes line up and be subsumed into reasons? Or if you are an externalist, then you may believe that your thoughts are not about representations of the world but about the world itself – you don't think about pictures of billiard balls but about the billiard balls themselves

If we make the assumption that the world is intelligible, can we close the gap? This does not mean that reasons and causes are the same thing – 'Reasons' is a broad category and covers more than causes – there are logical relations and ethical reasons for example. It is a claim that causes could all be reasons.

This is the issue where empiricism and rationalism come apart. . Hume is perhaps the greatest exponent of this separation – and causation starts to look very irrational and inexplicable. Kant famously brought back causation by making it and the other Aristotelian categories a priori synthetic logical pre-conditions for all experience. He thought that the laws of physics were a priori synthetic. We may doubt whether he is right about this. Is there another approach?

What does it mean to say that the world is intelligible?

What does it mean if we assume the world is in principle intelligible?

We are not talking about things being in fact intelligible to me, but that they could possibly be intelligible. The rules of chess are intelligible. Marianne's lectures are highly intelligible. Chinese is unintelligible - this is only true if we add 'to me'

Well, I will take 'intelligible' to be more or less equivalent to 'understandable'. I suggest two principles:

1. Firstly we can go back to our previous discussion about representations of the world in the mind and qualify it. We don't just mean that we have a picture of the world in the mind like the map of a country. We want more than just knowing all the facts about the world. For the world to be understandable I want to say that we must be capable of knowing how it ticks. Some general principles which lie behind what we encounter in the world.

2. To be intelligible, I think we need more than just the ability to predict things. Take David Deutsch's example of the Martian Machine. In his book the 'Fabric of the Universe' he imagines that we come across a machine left on earth by the martians. We discover that it can be used to predict what will work and what will not. We feed in various facts, say about the design of a new bridge or an aeroplane and the machine accurately predicts whether the bridge will fall down or the aeroplane fly. And this machine seems to work with anything at all. Do we, be possessing this machine, know all the truths of science? 'No,' believes David Deutsch. Science according to him requires understanding and simply being able to predict what will happen is different from understanding what is going on. We need an insight into why the predictions come out as they do. I agree with Deutsch that understanding is more than prediction – we need a little bit more than just the fact that if one thing happens then another does.

Aristotle says at the beginning of the Physics: "In all disciplines in which there is systematic knowledge it arises from a grasp of causes and principles: we think we have knowledge of a thing when we have found its primary causes and principles."

We know the thing when we know the general principles behind it – and in Aristotle's view this includes the causes of the things.

So, for my definition of understanding or intelligibility, I am looking for:

1. more than just a knowledge of facts, but rather some general principles – a shorthand for the apparent complexity of the world.
2. and not just the ability to predict, but some sort of explanation from a rule.

A few observations on this:

- a. It is perhaps a partial definition as it makes sense to talk of understanding in the sense of experiencing one thing – eg you cannot understand what blue is unless you have experienced it, but I think my definition is a natural line to follow if you are talking about intelligibility.
- b. In one sense this approach is demanding as it requires explanatory principles behind the world....

c. ... but in another sense it is easy. Understanding is weaker than knowledge – but that is good enough for reasons. We can understand what is going on in a piece of machinery by understanding Newton’s laws – even if these laws are not the most fundamental thing that can explain it. To my mind Newton’s laws make the world intelligible, even if they might not be the ultimate and best explanation. We can reason about the world using Newton’s laws.

Understanding or intelligibility is actually a very permissive concept. We can understand all sorts of things: people’s motives, probabilistic theories of physics – provided there is more to them than mere prediction -, wrong theories and so on. We can say that we understand Humean causation perhaps!

Is there a difference when we say that we understand the world – as opposed to understanding theories? I don’t think so. I think we can talk about understanding the workings of a clock just as much as we can say that we understand a theory in a book.

Newton’s laws make the universe intelligible in very large measure – they unify the movement of the heavens with the movement of things on earth and give an explanatory principle. I don’t think I need the ultimate explanation to be able to say that something can be understood – I just need something that gives an explanatory insight and I can start to reason about it.

I think it is reasonable already to say that important aspects of the world are intelligible and that therefore lots of causes will do as reasons already.

Let us have a look at Hume – how does his argument run?

Hume is perhaps the greatest difficulty to this line of thought.

Hume, Treatise

“Here is a billiard ball lying on the table, and another ball moving towards it with rapidity. They strike, and the ball which was formerly at rest now acquires a motion. This is as perfect an instance of the relation of cause and effect as any which we know, either by sensation or reflection. Let us therefore examine it. ‘Tis evident that the two balls touched one another before the motion was communicated, and that there was no interval betwixt the shock and the motion. Contiguity in time and place is therefore a requisite circumstance to the operation of all causes. ‘Tis evident likewise that the motion which was the cause is prior to the motion which was the effect. Priority in time is therefore another requisite circumstance in every cause. But this is not all. Let us try another ball of the same kind in a like situation and we shall always find that the impulse of the one produces motion in the other. Here therefore is a third circumstance, viz that is a constant conjunction betwixt the cause and effect. Beyond these three

circumstances of contiguity priority and constant conjunction I can discover nothing in this cause. The first ball is in motion; touches the second; immediately the second is in motion and when I try the experiment with the same or like balls in the same or like circumstances I find that upon the motion and touch of the one ball motion always follows in the other, In whatever shape I turn this matter and however I examine it, I can find nothing farther.”

Hume also says ‘Necessity is something that exists in the mind, not in objects.’

‘Tis evident that all reasonings concerning matters of fact are founded on the relation of cause and effect and that we can never infer the existence of one object from another unless they be connected together either mediately or immediately. In order to understand these reasonings we must be perfectly acquainted with the idea of a cause.”

Interestingly he says the following at one point: “- so the relation of causation underpins all our reasoning about matters of fact.”

Because the contiguity and temporal priority allow coincidences, Hume says that ‘necessary connection is of much greater importance than any of the other two above-mentioned.’ Treatise Section 77

The crucial point is this: Hume appears to accept that we do have the idea of necessary connection but that we cannot have got it from observation or from logic – so it must be a psychological matter – in his epistemology there is nowhere else for it to have come from. We have got it from constant conjunction. By a basic psychological inferential process the constant occurrence of causes and effects leads us to conclude that when we next see a cause, an effect must follow. But the idea of necessary connection is tricky – as Hume says Treatise Section 88 ‘ From the mere repetition of any past impression, even to infinity, there will never arise any new original idea, such as that of necessary connexion.’

So this is what Hume has done – we have things in the world, but our reasoning is only about psychological connections in the mind – we don’t have evidence for laws out there – only psychological connections in the mind – so if we reason about causes we don’t make the leap from the mind to the world. All that we are left with to understand in Hume is psychological connections – we do not really understand the world. But at the same time he argues that the relation of causation underpins our reasoning about matters of fact.

There are several things we can say to Hume:

- 1 All human beings – and many animals – form the same psychological connections in their everyday life – there must a good chance that this is because there is something going on out there.

- 2 Constant conjunction throws in accidents as well as laws, but as our understanding grows, we are able to separate one from the other.
- 3 Would you expect to see an explanatory principle anyway? Don't you simply understand them – and understand the relationships between things that happen in the world?
- 4 Perhaps he is wrong in thinking that there is only one kind of necessity – ie logical necessity. Aristotle believed that there were different kinds:

In Parts of Animals Book I he says:.

“the necessary is not present in all natural things in the same way. Nearly everyone tries to reduce explanations to it, not having distinguished in how many ways the necessary is spoken of.

The absolutely necessary is present in what is eternal, but it is the hypothetically necessary that is present in everything that comes to be, as it is in the artefacts such as a house and anything else of that sort...

But the mode of demonstration – ie the mode of necessity – differs as between natural science and the theoretical sciences. (We have discussed the latter elsewhere.) For the latter begin from what is and the former from what will be.

There are similar things in the Physics where he talks of natural necessity being in the matter rather than in the account. If you are building a city wall, it is necessary to put the heaviest items at the bottom and the lightest at the top, but this is so because necessarily in nature heavy things will end up underneath light ones. These are necessary principles that are weaker than mathematical or logical necessity.

Perhaps what makes us uncomfortable from Hume is the belief in laws. They seem to be very mysterious entities, part of the fabric of the universe, invariably true in this world and yet like a poltergeist we see only their results – never the ghost itself that moves things around. We want to believe in laws, but the evidence seems only indirect.

On the subject of laws, Russell refers to Whitehead with approval “Dr Whitehead, in his *Science and the Modern World* traces the belief in natural laws to various sources, such as: Fate in Greek tragedy, the supremacy of Roman law and the rationality of God in mediaeval theology. In effect, however, he regards the belief as having only acquired a firm hold of the scientific mind at the renaissance.”

Could we side-step Hume by arguing for a weaker form of necessity – that exists in the world and try to avoid expressing explanations of causation not as laws, but as something else?

A tall order no doubt! But let us speculate a bit!

- 1 My first point is that I think Hume is wrong to think that necessity exists only in the mind. I am convinced by modern accounts, especially Kripke's, that necessity can be metaphysical. Put very simply when something is designated rigidly, the designator picks out the same thing in all possible worlds. If there are two rigid designators picking out the same thing, then that identity is going to hold across all possible worlds. So if it turns out to be the case that water is H₂O, then that identity statement is a strong one which will hold in any possible world in which water exists.

This contradicts Hume's contention that necessity is something that exists in the mind and not in objects. But it is a very strong sense of necessity still – it applies not just to this world, but across all possible worlds. We tend to think that the law of causation is something that happens to be this way in this world, but which could be different in another one.

- 2 Kripke's approach regards the name of an object as referring not to the outward description, but to some hidden micro-structure which makes the thing the thing that it is. Hume regards the an object as the collection of its appearances and then goes on to say that we cannot deduce from this the way it will behave without experience – in other words the properties become arbitrary things stuck on to the original object. But why could we not take the view that we get to know an object better as we get to understand its properties. To take Hume's example – we get to know a billiard ball better when we get to understand that balls roll and behave in such and such a way when another hits them. We could say that it is a property of all objects that they attract others in accordance with the inverse square law and that in knowing this we understand a little more about the characteristics of anything that has mass.

So we could as it were turn Hume onto his head and say that we get to know objects better as we get to understand their properties – and that our concept of an object is not a patch of perceptions full stop on to which properties and behaviours are then stuck. A child may first perceive a cat as a shape, colour, texture and so on, but doesn't it have a better grip of what a cat is when it learns that cats catch mice, scratch if they are teased, sleep all day and treat human beings with contempt? Our concepts of things are thicker and broader than mere appearances and involve an understanding of their properties or characteristic behaviour. This I think is particularly true in physics where we understand what an electron is much better when we know what properties it has and what it does.

Interestingly there is a point in the Treatise where Hume appears to say something similar. Right near the beginning, when he is attacking the notion of substance as something of which we have no impression he says: "Thus our idea of gold may at first be a yellow colour, weight, malleableness, fusibility; but upon the discovery of its dissolubility in aqua regia, we join that to the other qualities and suppose it to belong to the substance as much as if its idea had from the beginning made a part of the compound one.'

Could we include in the concept of an object its scientific attributes in the form of dispositionals – so that we gradually get to know objects better and at the same time learn what they do in particular situations? By expressing scientific laws as properties of objects we may overcome some of the intuitive problems of Hume, albeit that we move away from his strict empiricism by having objects as something that we know through the understanding and not just be acquaintance.

Let me try to sum up the main points of my argument.

I argue that causes can, mostly at any rate, be regarded as reasons because:

Building up the argument:

- Reasons is very broad category and once something is intelligible, then we can reason about it.
- I take intelligibility to require
 - Some sort of underlying principle, not simply a knowledge of all the facts
 - Understanding and not just prediction – ie principles that are richer than simply saying 'and this will happen next'
- Although this may seem to be a tough standard to apply to the world, intelligibility or understanding is quite permissive – I don't have to have the ultimate explanation of the world, just some good ones.
- I think there are some pretty good explanations of major aspects of the world in this sense. Newton's laws would count for example.
- I think it makes sense to talk of things being intelligible or understandable and not just theories. Eg you can understand the workings of a clock or a light-switch.
- I think these are good grounds for saying that important aspects of the world are intelligible and that large categories of causes can count as reasons.

The Problem of Hume:

- The main opposition to this point of view is Hume.

- Hume says that “- so the relation of causation underpins all our reasoning about matters of fact.”
- Hume also believes that we do have an idea of necessary connection – the key ingredient of causation.
- **But** he thinks this has a psychological cause and does not come from any idea in the world
- This makes causes into brute facts about the world and leaves reasoning about causes just a matter of psychology.
- I think the fundamental problem with this is the narrowness of empiricism.
- We can speculate that there are other forms of necessity than just logical necessity – and Kripke I think puts necessity into the world.
- We still need a weaker form of necessity, however, and laws seem strange, because we never see laws, only their effects.
- *Speculating* – could we overcome this by taking a broader view of objects (or events if you are a physicist) whereby we gradually increase our understanding of them as we come to know their properties. Objects become something that we increasingly understand, rather than something with which we are acquainted. Part of our understanding of them as objects is precisely how they behave in given circumstances. That way there is no problem about reasoning about their causal behaviour.

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