Why We Ought to Be Realists
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When I first read Russell's *The Problems of Philosophy*, I was struck by one of his simplest examples. If you observe the cat disappear behind the sofa, and soon reappear at the other end, what was its ontological status in the meantime? It takes a determined philosopher to raise the serious possibility that its mode of being goes hazy when it briefly disappears. This doubt is typical of radical empiricist philosophy, which makes ontology subservient to epistemology, and concludes that the existence-claims of the cat collapse when it is not lucky enough to be perceived. There is, of course, a more radical scepticism about the cat's existence available, which says you can have no confidence in the cat even when it *is* being perceived, because you can't rely on perception either. This is rationalist scepticism, since it prefers arguments to experience, but since that mode of doubt can reject reason, sense experience, intuition and linguistic meaning in one sweeping act of rejection, it looks like the road to philosophical hell (culminating in the wonderful proof of Gorgias of Leontini that nothing whatever exists).

I will therefore ignore massive global anti-realism, which usually takes the form of extreme Idealism, and focus instead on the empiricist form of anti-realism, which usually goes under the name of 'Phenomenalism'. A typical slogan for this view is Mill's definition of a physical object as 'the permanent possibility of sensation'. This tries to evade the problem of the hidden cat's existence by saying that the cat offers potential visual sensations if you peer over the sofa. A tougher empirical anti-realist might simply refuse to express any existence claims when the cat is obscured. Bas Van Fraassen shifts the ontological weight onto whole theories about reality, which have to meet his test of 'empirical adequacy', but have nothing to say about individual cats.

I took Russell's example as fairly conclusive proof that robust realism was the way to go, and I welcomed Tim Williamson's label for himself, which is 'Rottweiler Realist', but I struggled to give grounds for the persuasiveness of Russell's cat. The anti-realists could quite reasonably describe my conviction as philosophically naïve. The point at which I gained confidence about the concealed cat was when I asked myself for an 'explanation' of its reappearance. It seems obvious that the realist has an instant and satisfying feline ontology here, whereas the call for an 'explanation' of the discontinuities in our perceptions seems to make the anti-realist uncomfortable. Van Fraassen, for example, is hostile to inference to the best explanation, accusing it of being so distorted by hidden values and theory-laden observations that it is worthless, when compared with descriptions of the theoretical patterns in what actually has been observed. I disagree. I take inference to the best explanation (sometimes known as 'abduction') to be the single most important feature of animal and human intellectual equipment, without which our survival would be impossible.

The first dogma of empiricism is that all knowledge is grounded in experience. Traditionally this refers to the 'five senses', though psychologists now say we have over twenty senses, which must all count as 'empirical'. Empiricists like Hume then allow 'relations of ideas', or patterns and inferences which emerge from remembered sensations, which provide a second level of knowledge, qualifying as 'empirical' because they are grounded in the original sensations. The controversial feature of inference to the best explanation, however, is precisely that it permits the hypothesising of what has not been sensed in any way. It breaches the dogmas of empiricism because it *extends* experience into realms where the empirical foundations have melted away. If you think knowledge has to be justified by empirical foundations, then you will have great reservations about best explanations.

My first defence of best explanation was that it seems indispensable for any creature which hopes to survive more than five minutes in this world, but my main line of argument

focuses on the nature of imagination in our cognitive machinery. A famous example of Hume's observes that you can experience gold, and experience mountains, and this empowers you to make up a fairy tale about the 'golden mountain', without making any ontological claims thereby. This is the standard picture of imagination in empiricist philosophy, which implies that imagination is the wilful combination of sense impressions, having no veridical status whatever. The only respectable combinations of sense impressions are those which the mind unthinkingly connects, such as causal links, or resemblances, which are usually presumed to reflect aspects of the real world, along with the fact that we seem to be naturally dovetailed to fit into that world. Our own active efforts to combine sensations just result in entertaining fairy tales.

This attitude to imagination strikes me as crude eighteenth century psychology that is still with us, and I take it to be philosophically disastrous. In modern times the doubts about imagination have been reinforced when we look at our assessment of what is possible or necessary. No one believes there is a golden mountain, but ill-informed people might believe that it is possible to light a bonfire on the surface of the Moon. You just remember bonfires, remember pictures of people on the Moon, and put the two together. But can you imagine wood combining with oxygen, in the complete absence of oxygen? Mere imagination is, it seems, hopeless without proper information to guide it. Hence we have a modern slogan that 'the conceivable is not a guide to the possible', and we laugh at people who think absurdities (such as humans riding on dinosaurs) are possible, just because they can picture them. Thus there is a widespread view that imagination is merely a toy of the mind – a basis for a sophisticated entertainment industry, but not for science.

I would claim, in opposition to this, that imagination is our most important mental faculty. I take minds to have evolved originally to support organisms that move around, and quickly feel the need to navigate, to reach good places and avoid bad ones. To do this, the mind must picture the various places that are within range, and assess whether they will be good or bad when you get there. Evolution weeds out the organisms that choose wrongly, and supports those which decide well. This takes imagination, long before language or reason show up. Movement takes time, so the imagination must simultaneously extend into time as well as into space. As the timespans increase, a picture is needed of what the new place will be like soon, or what it might be like if we are unlucky. I assume that spatiotemporal maps are the next stage, and pre-linguistic minds are then in business. It seems to me that if you introspect your own processes of reasoning, planning, movement and speech, that you will find imagination at the crossroads of all of them. It is a plausible view of personal identity that each of us is primarily a little pocket of imagination, groping its way through reality.

I am reinforced in the conviction that imagination is central to thought by Tim Williamson's recent writings on modality. He takes the snide remarks about conceivability failing to reveal the true possibilities (either because we have too little information about bonfires, or too much imagination about dinosaurs) to be seriously wrong. Conditional statements of the form 'if the sun is out then it's hot' are a great puzzle for logicians, who usually just translate them as 'either it's not hot, or the sun is out' (which eliminates the 'if'), but it is not really clear what makes a conditional true. A better view of the example is that it only concerns what it's like when the sun is out, and says nothing about when it isn't, and can thus only be assessed by imagining a sunny world. With so-called counterfactuals this is even more true, because they picture worlds which do not exist (perhaps in the form 'if it were sunny…'). Thus Williamson claims that imaginative conceivability is not just acceptable, but is the only means we have of assessing hypothetical situations, even in the strictest sciences. It is not accidental that Einstein is more famous for his imagination than for his mathematical abilities. We can deal with the problem of errors in our imaginings by getting our empirical facts right (about bonfires or dinosaurs) before we

explore what imagination can tell us.

Thus imagination, right at the heart of our thinking, does precisely what the dogmas of empiricism forbid, which is to extend our cognitive powers beyond the range of what we have actually experienced. Induction has a similar capacity to reach beyond experience, but I think of induction as just one mode (the 'more of the same' mode) of our imaginative extensions of thought. Of course, if we rely for this extension beyond experience on no more than whatever imaginative pictures float into our minds, we will probably get no higher up the cognitive tree than an unusually adventurous slug. This is why we need to do what slugs cannot do, which is to use our imagination and memories to assemble explanations. The crucial thing which explanation adds to mere attempts at imagination is feedback. My picture (which I call 'Explanatory Empiricism') rests on experience, then uses imagination to reach beyond experience, to assemble predictions (if you are navigating) or explanations (if you aim to understand). If understanding is your aim, then coherence is the guiding principle, in which various explanations are fitted together to achieve a single satisfying picture which can guide our actions and lives. Because we live according to our understanding, which rests on our explanations, we get continual feedback into our supposedly coherent nexus of explanations. If your explanation is wrong, sooner or later the facts will controvert what you have imagined. Thus we meet all the normal criteria for a critical science, while not being tied to a dogmatic and restricting empiricism.

Having (I hope) converted you all to Explanatory Empiricism, let us reconsider the cat hidden behind the sofa. We observe the cat disappear behind the sofa, noting its trajectory and velocity. We know that cats may sleep behind sofas, so we take nothing for granted, but we imagine how long it will take to emerge at the other end, if the cat just follows its route. Assuming the cat does emerge at close to the predicted moment, our imagination can fill in the latter end of the hidden trajectory, where the cat's exit velocity is roughly the same as its entry velocity. We are unsure what happened in the middle of the sofa, where the cat may have cavorted briefly, but we now venture an explanation (at the point where observation runs out). Since only cartoon cats cavort while out of sight, we bring that information to bear, and produce the best explanation, which is that the cat walked straight past the sofa. Of course, we don't know what the cat did, and we concede the very faint possibility that the Martians killed our cat and replaced it with their indistinguishable robot, but coherence suggests there are no Martians, and we can stick with our simple account. Because my whole life is lived according to the understanding which derives from best explanations, I see no alternative to such realism. I take my view to be highly coherent, and no anti-realist view comes close to matching it.

Given such persuasive coherence, why would any sensible person espouse anti-realism? If any theory introduces a gap between ourselves and the world, such as the representative theory of perception (which threatens to place things like 'sense-data' in the gap), then this makes it possible to doubt what is out there, or suspect that we are dreaming the whole thing. Descartes' solution to this problem was to give God a role, as guarantor of reality, but that seems unconvincing. My response is as above, that the proposal that we are dreaming it all is an incoherent explanation of the phenomena (even though it is a faint possibility). The realist story explains the consistency of our experience by the consistency of the external world. A sustained lifelong dream, full of astoundingly consistent facts and events, produced in ignorance by our own minds (or a surprising evil demon) would be a mystery which defied all speculation. The consistency of the external world, on the other hand, can be explored by physicists, and a fairly full explanation given. The predictable changes that occur in the world when we are not attending to it are fully explained by such a realist theory. We cannot be sure, but if you prefer the dream explanation over the reality explanation, then I would want to challenge the criteria that you apparently bring to the business of explanation.

Professional physicists seem largely to be instrumentalists, who follow measurements and mathematics to assemble coherent theories, but say no more about the lowest levels of matter that cannot be reached. To ask what an electron is made of is not, I gather, a stupid question, but there is not much to be said about it. Amateur students of physics, on the other hand, construct world views based on uncertainties and non-local entanglements, and it is not surprising if reality then seems a rather tenuous concept. Eddington famously suggested that tables don't exist, because their atoms supposedly contain far more space than detectable matter, but that now strikes us a very odd interpretation of physics. If we interpret reality based on the micro-world, the interpretation (to be persuasive) must also account for the macro-phenomena. To start saying that reality is no more than a set of probabilities seems to me a hasty leap into the metaphysics of physics, when the jury will actually be out for years to come. It certainly strikes me as misguided to claim that there is no reality, simply on the grounds that matter is fundamentally weird.

The most influential anti-realist argument of modern times is Putnam's model-theoretic argument, of which I will attempt a sketch. It develops Quine's famous example of 'gavagai', where in a first contact with speakers of a local language, one of the locals points at a passing rabbit and says 'gavagai'. Quine says that if you immediately translate this as 'rabbit' you are being naïve, because the locals may have a quite different conceptual scheme, where 'gavagai' actually means something like 'undetached part of a rabbit'. You may respond that further conversation with the locals will accurately reveal what 'gavagai' meant, but Quine says if the differences are systematic then it is a clear possibility that you will never fully understand them. Putnam formalised this argument, and proved it in model theory. He illustrates his proof with two sentences: 'the cat is on the mat' and 'the cherry is on the tree'. If both are true, the world contains a cat on a mat and a cherry on a tree. If you change the meaning of 'cat' so that it refers to cherries, the sentence 'the cat is on the mat' becomes false (since there is no cherry on the mat), but if you change 'cat' to refer to cherries *and* 'mat' to refer to 'tree', the sentence becomes true again (made true by the cherry true). Putnam's proof shows (in a conclusive formal manner) that in this way any model has a huge number of interpretations which can all be made true by some single situation in the world. The picture implied by Putnam's argument might be called 'weak' anti-realism. The argument needs a real world out there, which stays still while the interpretations are rotated, but its claim is that no model can ever offer a 'real' description of the world.

We have not yet defined 'realism', and this might be a good moment to attempt it. Realism normally implies a sharp distinction between mind and world. Ignoring the Copenhagen Interpretation of quantum mechanics, realists pledge allegiance to the idea that most of the physical universe was quite unaffected by the emergence of minds, and will remain unruffled if the minds disappear again. The world is full of things that will never be observed, and there is a multitude of truths which we can never know. In a slogan, 'there is a mind-independent reality'. There is, however, an even stronger version of realism available than the mere commitment to mind-independence, which says that for an ideal and omniscient intellect there is available a single true theory which describes this external reality. This perfect theory is the ultimate dream of science (although, obviously, humans have a limited ability to achieve it).

Putnam's argument seems to be a persuasive refutation of this 'strong' realism. The vagaries of language, the limitations of any mind's ability to conceptualise the world, and the inescapable influences of cultural factors, must mean that there is no ideal theory. A 'weak' realist like myself will remain committed to the view that some theories are a lot better than others, however, because theories must answer to the one reality which is out there, awaiting our various attempts to explain and understand it.

In summary, then, we ought to be realists because we actually live by our imaginative

endeavours to explain the world, and these explanations have to extend beyond experience, so we are a priori committed to an external reality. The onus of proof falls on anyone who wishes to challenge the principles by which we normally live. For a philosophically satisfying account of this realism we need a theory of perception which does not cut us off from reality, an understanding of our own minds that makes the dream argument incoherent, a view of physics which does not flatly contradict our normal experience of life, and a view of language which allows us to speak genuine truths (and assemble them into good theories), rather than trapping us in a private verbal world where it is hard to distinguish a scientific theory from *Finnegan's Wake*.

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