Lewis's Empiricism*

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1 Introduction

Great philosophers have often defended an epistemology that does not fit their own philosophical practice. Lewis is no exception. His epistemology, along with his philosophy of mind and language, leaves no room for substantive enquiry into non-contingent matters. Yet for much of his career, Lewis seemed to be engaged in just that kind of enquiry, as in his extensive work on metaphysics. What did he think he was doing? And whatever he thought, how can we make sense of metaphysical enquiry if we find ourselves attracted, as I do, to Lewis's epistemology?

I will begin by reviewing Lewis's epistemology. In many ways, it is an empiricist epistemology, of a kind that made other philosophers skeptical or hostile towards metaphysics. Lewis, however, was neither neither skeptical nor hostile towards metaphysics. I will explore some attempts at resolving this tension, but I will not find a simple answer.

2 Lewis's epistemology

Within epistemology, Lewis is best known for his contextualist analysis of knowledge ([Lewis 1979b], [Lewis 1996]). But contextualism is only a small, and somewhat tangential, part of his epistemological viewpoint. The bigger picture is often mentioned as an aside, while discussing other topics or addressing specific puzzles – see especially [Lewis 1986a: 27-40], [Lewis 1979a], [Lewis 1994b: 308-324], [Lewis 1983b: 49-55], [Lewis 1983a], and [Lewis 1974]. Many elements of this bigger picture were not Lewis's invention, but adopted from others, including Carnap, Hintikka, Stalnaker, and Jeffrey (see e.g. [Carnap 1962], [Hintikka 1962], [Stalnaker 1984], [Jeffrey 1992]). I will give a brief summary.

We start with the modal conception of knowledge and belief. When we're ignorant of something, we don't know whether the world is one way rather than another. Some ways the world might be are compatible with our information, others are not. This suggests that we may capture an agent's knowledge by specifying a class of possible worlds: all the worlds that are compatible with their information. Similarly for belief. An agent's

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belief state represents the world as being a certain way; we can represent its content by the class of worlds which are that way.

What does it take for an agent to stand in the belief relation to a class of possible worlds? No mysterious grasp of possibilia is required. It is also not required that the agent accepts a sentence in a public or private language which in turn expresses the relevant class of worlds. For Lewis, the possible-worlds concept of belief is rather defined by its functional role: an agent is belief-related to a certain class of worlds iff they are in a state that plays the right functional role.

This role has several components. One connects belief states to desire states and behaviour. Roughly: agents are disposed to act in a way that would bring them closer to satisfying their desires if the world were as they believe it to be. Another part of the belief role connects belief states to perceptual experience. Roughly: belief states tend to change through experience by incorporating new information about the perceived environment. In addition to these input and output conditions, Lewis posits a range of general eligibility constraints on what an agent may believe and desire.

These ideas can be spelled out in different ways. Lewis preferred a broadly Bayesian approach, in which the binary notion of belief is replaced by a graded notion of credence – a probability measure over possible worlds. The output connection between belief, desire, and behaviour is then spelled out by decision theory: a joint state of belief and desire normally disposes an agent to choose acts which maximize expected utility relative to their credence and utility functions. The input connection between belief and perceptual experience becomes a form of Bayesian updating. In its simplest version, we assume that each perceptual experience is associated with a class of worlds; when an agent has the experience, all her credence is shifted to that class in such a way that the credence ratios within the class are preserved. To ensure that the resulting belief state reasonably reflects the agent's evidence, further eligibility constraints are needed. Among other things, Lewis suggests that (in the absence of unusual evidence) little credence should be given to scenarios in which perceptual experiences are highly unreliable, or in which the observed part of the universe is radically different from the unobserved.

Lewis regards these constraints, as well as the input and output rules, as both normative and constitutive. They are normative insofar as they describe a rational ideal of which real people often fall short. But they are also constitutive because they (or something much like them) implicitly define the concepts of belief and desire: an agent's physical state is correctly interpreted as such-and-such a state of belief and desire just in case the interpretation makes the agent come out closest to the rational ideal. In practice, no interpretation will have perfect fit, and there may be several interpretations that fit equally well. The agent's belief state will then be indeterminate between the candidates with best fit. (Indeterminacy also arises because the ideal itself is not fully determinate.)

Lewis assumes that the central psychological concepts in terms of which we interpret

one another are belief and desire. The concept of knowledge plays a different, and less important role. It serves a "messy short-cut" [Lewis 1996: 440] to convey information about an agent's evidence. An agent's evidence, Lewis says, comprises their experiences and (quasi-)memories. Strictly speaking, any world in which we have our current experiences and (quasi-)memories is compatible with our evidence. This includes worlds where we are, for example, brains in a vat. As a result, it difficult to quickly and accurately convey information about someone's evidence. The concept of knowledge helps by allowing us to "ignore" some parts of logical space. We may truly say that an agent knows a proposition as long as that proposition is true at all non-ignored worlds compatible with the agent's evidence.

Which worlds are properly ignored depends on conversational context. If a skeptical possibility is made salient, it can't be properly ignored. This, Lewis suggests, explains why skeptical arguments appear so persuasive. However, I doubt that Lewis would have regarded this suggestion as central to his epistemology. Serious epistemology does not involve the messy shortcut of knowledge. Its main question is what credence one should give to which possibilities in light of which evidence – where no possibilities are ignored.

Bayesian models nicely account for the holism of evidential support. Whether a given experience raises or lowers an agent's credence in a given hypothesis usually depends on the agent's background assumptions. Lewis even argues that we should treat belief states as holistic units, without assuming that they consist of separate beliefs in distinct propositions. Traditional questions about the structure of justification, about a web-like or building-like justification relation connecting an agent's beliefs, may therefore seem out of place. Nonetheless, one can find a clear affinity between Lewis's account and a kind of empiricist foundationalism.

Perceptual experiences (and quasi-memory) have a foundational status. In fact, they may be known infallibly and with absolute certainty. This is an immediate consequence of the account described in [Lewis 1996], on which everyone knows what experiences they have, no matter which possibilities are ignored. In the standard Bayesian model, our evidence similarly has maximal credence: rational agents never doubt their perceptual input. Jeffrey [1965: ch.11] famously argued against this assumption, which he called "hardcore empiricism". Lewis agreed that it may be unrealistic, but he thought it plausible for ideal agents (see [Lewis 1986b: 62f.]).

Our perceptual foundation supports the rest of our belief state through Lewis's substantive (non-formal) rationality principles. In the standard Bayesian model, these are encoded in an agent's "ultimate priors" – their credence function before taking into account any evidence. As mentioned above, Lewis assumes that such a credence function should assign comparatively low weight to scenarios in which we are Boltzmann brains or deceived by evil demons, and high weight to worlds in which our senses are reliable, in which other people's testimony is generally trustworthy, and in which physical processes

conform to simple and systematic regularities.

Unlike some classical empiricists, Lewis does not only allow us to extrapolate from present experiences to hypotheses about further experiences. He does not hold that every meaningful question can be translated into a question about experience. He has no reservations about positing unobservable entities. He takes scientific theories at face value, and trusts the scientific method. (In particular, he is confident that the methods of physics can uncover the "perfectly natural properties" that set apart genuine from spurious regularities.) True hardcore empiricists may well frown upon these aspects of his epistemology. What, they might argue, could justify the assumption that science gives us access to unobservable parts of reality? Similar complaints could be made about Lewis's other rationality principles. What justifies the assumption that our senses are reliable, or that the unobserved world resembles the observed?

Since these assumptions are encoded in an agent's ultimate priors, it is clear that they are not meant to be justified by any relevant evidence. Lewis also admits that they aren't supported by non-circular arguments. Skeptical scenarios in which our senses are unreliable or in which the methods of science lead us astray cannot be shown to be incoherent or unlikely, without already presupposing that they are. In that sense, these prior assumptions might also be regarded as foundational. If true, they constitute an inconclusive and defeasible kind of priori knowledge.

We also have conclusive a priori knowledge. But there is only one example, setting aside technical problems in measure theory: the class of all worlds. This is known and believed by everyone, irrespective and independent of their evidence, and no matter what is ignored; it always has credence 1.

Like many forms of classical empiricism, Lewis's epistemology does not allow for substantive knowledge of non-contingent facts. If a proposition is true at all worlds, then we automatically know it. Not because we have tremendous rational insight, but because there really isn't anything interesting to know here. All genuine knowledge is contingent knowledge. Accordingly, gaining knowledge is always a matter of receiving new information from the senses. There is no provision for reasoning to change our knowledge or rational credence.

That's where Lewis's epistemology appears to clash with his philosophical practice.

3 The problem of metaphysical omniscience

When Lewis does philosophy, he often appears to be interested in non-contingent questions. He studies how to analyse causation, whether there are universals or tropes, whether other possible worlds are as real and concrete as the actual world, and so on. Lewis treated these questions as substantive, and seemed to think that philosophy can find the answer.

He also explained how they should be approached (see e.g. [Lewis 1983c: x-xi], [Lewis 1986a: 133-135], [Lewis 1973: 88f.], as well as [Nolan 2015]). We should, he says, look for an account of the relevant topic that is simple, systematic, and conservative, meaning that it should not deviate too far from previous opinion. Philosophical arguments may change the credibility of a hypothesis, but even at the end of enquiry, there will rarely be an uncontroversial, decisive winner. Opposing views can always be upheld. "Once the menu of well-worked out theories is before us, philosophy is a matter of opinion." [Lewis 1983c: xi].

Lewis's empiricist epistemology would seem to predict a very different attitude. Any unambiguous, well-defined, and non-contingent hypothesis expresses either the empty set or the set of all worlds. Why should the choice between such hypotheses turn on the balancing of theoretical virtues (simplicity, systematicity, conservatism)? How could it be a matter of opinion?

More strikingly perhaps, Lewis often professes ignorance of non-contingent matters. In [Lewis 1986a], he says that he doesn't know whether there are duplicate worlds, how large a possible spacetime can be, or whether positive and negative charge are co-instantiated at some world. Lewis does not appear to be troubled by this kind of ignorance: "why should I think that I ought to be able to make up my mind on every question about possible worlds, when it seems clear that I may have no way whatever of finding out the answers to other questions about noncontingent matters – for instance, about the infinite cardinals?" ([Lewis 1973: 89]).

In chapter 4 of *Plurality* ([Lewis 1986a: 109–115]), Lewis talks about our knowledge of modality and maths. He insists that any acceptable epistemology must account for our knowledge of maths, and must do so without "giving mathematics some devious semantics". Perceptual experience, he suggests, is needed to locate ourselves within the space of possibilities, but not to discover what there is from an objective perspective. Mathematical and metaphysical enquiry is concerned with this other question. He does not explain how we are supposed to square these ideas with the modal account of knowledge defended in chapter 2 of the same book.

What's odd about this tension – between Lewis's empiricism and his rationalism, if you want – is that it does not arise in obscure and distant parts of his philosophy. Lewis wrote a lot on mind and language, and he wrote a lot on metaphysics. Much of what he wrote on mind and language appears to clash with what he did in metaphysics. It's hardly a problem he could have overlooked.

In what follows, I will float some ideas about what Lewis might have thought about this tension. I will also try to figure out what *I* should think about it. As I said, I find the empiricist epistemology attractive. Ignorance is lack of information. When we lack information, we always lack information about the contingent world around us. There is no other kind of information to lack. The idea that there is a further, non-contingent

part of reality (Plato's heaven? the metaphysical structure of reality?) to which we gain access by reasoning strikes me as mysterious and unnecessary. But then what should we say about apparently non-contingent domains of enquiry?

Let's explore a few options.

We could, of course, hold on to the empiricist epistemology and conclude that any apparent enquiry into non-contingent matters, such as Lewisian metaphysics, is nothing but sophistry and illusion. That is as simple as it is unappealing. Let's set it aside. I will also set aside the opposite strategy, to declare the empiricist epistemology radically mistaken or incomplete – although I suspect this might have been Lewis's own preferred resolution.

I'm interested in less radical, and less obvious solutions. For example, I have assumed that the kind of metaphysical enquiry that Lewis was engaged in is an attempt to answer non-contingent questions. It is worth double-checking this assumption.

Indeed, one might argue that the apparent tension simply arises from an equivocation. We can agree that metaphysical questions about universals or possible worlds are *metaphysically* non-contingent. But couldn't they still be *epistemically* contingent? If we don't assume that the "possible worlds" over which credence, belief, and knowledge are defined are metaphysically possible, one might think that we can easily allow for substantive knowledge and ignorance about metaphysics without significantly changing the picture I have described in the previous section.

On closer inspection, things are not that simple. There is by now an extensive literature on extending possible-worlds accounts of intentionality with "impossible worlds" – see, for example, [Nolan 2013], [Jago 2014], [Bjerring and Schwarz 2016], [Elliott 2019]. It is not hard to define a suitable concept of worlds. What is less clear is whether the resulting account yields a useful model of metaphysical (or mathematical) ignorance and enquiry, and to what extent this model would be continuous with the model from the previous section. Among other things, we would arguably need a new account of what it is to stand in the belief relation to a class of worlds. And we would need a new account of how a credence measure over the extended class of worlds may rationally change in response to philosophical considerations.

Lewis always resisted introducing a distinction between (deep) epistemic and metaphysical possibility. He had only one space of worlds. Metaphysics, for the most part, does not vary within that space. There aren't Lewisian worlds with Armstrongian universals, others with primitive laws, and still others with neither. There aren't Lewisian worlds where modal realism is true and others at which it is false. (It is not even clear what that would mean.) Lewis argued that his one space of worlds is a "philosopher's paradise" because many important philosophical concepts can be analysed with its help, including the concepts of knowledge, belief, and credence. He was a firm believer in what Chalmers [2006] called the "golden triangle" linking meaning, reason, and modality.

At the very least, then, appealing to impossible worlds in this context would involve a substantial departure from Lewis's views. I will not directly explore the other issues it would raise. Much of what I'll cover in sections 5 and 6 below could be recast in terms of impossible worlds.

4 Reinterpretation

Introducing metaphysically impossible worlds is one way of making metaphysical enquiry look like empirical enquiry. Another way is to suggest that although (most Lewis-style) metaphysics is non-contingent, when we are trying to answer metaphysical questions we are really trying to answer contingent questions. Let me explain.

Modal accounts of knowledge and belief imply that these attitudes are closed under logical consequence. If P is true at all "epistemically accessible" worlds, and P entails Q, then Q is also true at all epistemically accessible worlds. As a special case, logically necessary propositions are automatically known, since they are entailed by everything and true at all worlds. This "problem of logical omniscience" is often regarded as a serious flaw. Real knowledge and real belief, it is assumed, are not closed under logical consequence. Real people don't know all logical truths, and they don't know the consequences of everything they know.

If that were correct, we would have good reason to revise Lewis's empiricist epistemology, no matter what we think about metaphysics.

But is it correct? Lewis, along with Stalnaker ([Stalnaker 1984], [Stalnaker 1991], [Stalnaker 1999]) was not convinced. While he sometimes speaks of logical omniscience as an idealisation (e.g. [Lewis 1983b: 275]), he also argued that real knowledge ([Lewis 1996: 441f.]) and belief ([Lewis 1986a: 32-36]) may well be closed under logical consequence (or at least, closed under consequence within each resolution of an indeterminate/fragmentalised belief state).

To be sure, one can easily think of cases in which we are inclined to say that someone fails to know a complicated logical truth, or in which they fail to know a consequence of something they know. But even granting that these judgements are true, they only bear on possible-worlds models if we assume some connection between ordinary attitude reports and attitudes understood in terms of possible worlds. Here Lewis and Stalnaker have called for caution.

It is tempting to assume that, on possible-worlds accounts, a statement of the form 'S knows that P' is true iff the embedded sentence $\ulcorner P \urcorner$ (or some proposition it expresses), is true at all worlds epistemically accessible for S. Assuming that, for example, 'there are infinitely many primes' is true at all worlds, it would follow that 'S knows that there are infinitely many primes' is true for any subject S. But clearly many people do not know that there are infinitely many primes.

Lewis (like Stalnaker) rejects the proposed connection between attitude reports and attitudes characterised in terms of possible worlds. The real connection, Lewis says, is "complicated and multifarious" [Lewis 1986a: 34] (see also [Lewis 1979a], [Lewis 1981], [Lewis 1994b]).

For example, Lewis suggests that what is reported by 'Oscar knows that water is wet' is, roughly, that Oscar stands in a certain relation to water in which he (or rather his epistemic counterparts) stands to something wet at all his epistemically accessible worlds. (This move has become popular in formal semantics, following [Percus and Sauerland 2003]). Along the same lines, one might suggest that 'Oscar doesn't know that 3847 is prime' reports that there is a way in which the number 3847 is known to Oscar – perhaps as the number denoted by the numeral '3847' – in which a non-prime number is known to Oscar at some of his epistemically accessible worlds (compare [Cresswell and von Stechow 1982], approvingly cited in [Lewis 1986a: 35, fn.26]).

Relatedly, Lewis suggests that ordinary attitude reports sometimes have quotational or meta-linguistic interpretations. When someone "doesn't know that a fortnight is two weeks", arguably the real object of their ignorance is linguistic: they don't know that the word 'fortnight' means *two weeks*.

Once we break the simple link between attitudes and ordinary attitude reports, it is no longer obvious that our attitudes are not closed under logical consequence, or that we are ignorant of non-contingent matters. Apparent ignorance of a necessary truth – that 3847 is prime, or that a fortnight is two weeks – may really be ignorance of contingent linguistic facts.

This is what I had in mind when I said that we might try to understand metaphysical enquiry as enquiry into contingent questions, even though the relevant metaphysical hypotheses are non-contingent. The real object of metaphysical enquiry would not be these non-contingent hypotheses, but contingent surrogate propositions, perhaps about words or concepts.

This interpretation looks more attractive for some parts of Lewis's metaphysics than for others. It looks more attractive for the parts in which he offers an analysis – of causation, laws of nature, chance, dispositions, knowledge, belief, conventions, values, and so on.

Lewis usually puts his analyses in the material mode: "C causes E iff so-and-so". On the present proposal, the true object of his proposal is a contingent hypothesis about our words or linguistic dispositions. Perhaps it is the hypothesis that that we are disposed to apply the word 'cause' to a pair C, E iff so-and-so (or something more complicated along similar lines).

To be clear, the idea is not that this contingent hypothesis is semantically expressed by the original statement, 'C causes E iff so-and-so'. Rather, the idea is that asserting that statement somehow expresses a belief in the contingent proposition (perhaps through a

Stalnakerian process of "metalinguistic diagonalisation").

The proposed reinterpretation arguably makes sense of our practice of discovering and responding to counterexamples. Imagine at some point we believed that knowledge is justified true belief; then we came across Gettier cases, where we found ourselves disposed to judge that certain cases of justified true belief are not cases of knowledge. If the object of our original belief was a non-contingent hypothesis about the nature of knowledge, it is not entirely clear why contingent information about our dispositions (to assent to certain strings of symbols) should be relevant. Arguably, we made a surprising discovery not about the non-contingent nature of knowledge, but about our linguistic dispositions, and thereby about other people's dispositions, and thereby about the meaning of the word 'knowledge'.

The reinterpretation strategy also make superficial sense of Lewis's claims about philosophical methodology.

For one, it is understandable why conservatism plays a role. If an analysis deviates widely from our prior opinions, it is unlikely to capture our dispositions for applying the relevant terms. As Lewis says in [Lewis 1997] on the analysis of colour terms: "It won't do to say that colours do not exist; or that we are unable to detect them; or that they never are properties of material things". If you say any of these things, it is doubtful whether you are offering a correct account of our linguistic dispositions.

It is also easy to understand why metaphysical enquiry should follow similar standards as empirical enquiry. On the present interpretation, metaphysical enquiry *is* empirical enquiry. It's a special type of empirical enquiry that can be largely carried out from an armchair.

We can also explain why there are no knockdown arguments, and why contrary views can always be upheld. This the well-known underdetermination of theory by observation. Faced with an apparent counterexample, you can always claim that our intuitions in this case are mistaken: that our concept of knowledge really does apply to Gettier cases, but that we get confused when we think about these cases. (We know that we are not perfect in applying our concepts. Think of judgements about whether a number is prime, or whether some statistical evidence supports some conclusion.)

There is even some direct evidence that Lewis endorsed the reinterpretation strategy for his metaphysical analyses. In a 1999 letter to Mary Kate McGowan (published in [Beebee and Fisher 2020: 218f.]), he explains that conceptual analysis is an investigation into our classificatory dispositions. His goal, he says, is to uncover his dispositions, by developing "fallible hypotheses about an independent (mental) reality that I can't examine directly".

Nonetheless, I don't think the reinterpretation strategy fully succeeds at reconciling Lewis's empiricist epistemology with his rationalist metaphysics.

In particular, the strategy still struggles to account for the process of a priori enquiry.

Perhaps some metaphysical progress can be understood as the discovery of surprising linguistic dispositions. But much of it seems to be a matter of reasoning, not observation. And the reinterpretation strategy still leaves no room for extending one's knowledge through reasoning.

To illustrate the problem, consider a simple arithmetical task – say, to check whether 29 is prime. To do this, you might check whether 29 is divisible by 2, then whether it's divisible by 3, then whether it's divisible by 5, and then note that $7^2 > 29$, so there's no point trying other primes. All these steps are easy. For example, you see that 29 is not divisible by 2 by noticing that the last digit, '9', is not even. What happens at these steps? Are you really gaining contingent information at each of them?

One might argue that whenever we figure out a mathematical truth S, we thereby also figure out that we are disposed to assent to S (when given sufficient time to think etc.). So we can discover contingent facts about the world through pure reasoning. But why didn't we already know these facts? Couldn't you all along rule out worlds in which the last digit of '29' is not '9' (if there are such worlds)? Couldn't you rule out worlds in which you are not disposed to say that a number that ends in '9' isn't divisible by 2? You may not have consciously thought of these matters before starting the computation, but it is hard to believe that you lacked the relevant information. (It is also hard to believe that you had the information, but somehow distributed over different fragments of your belief system. Among other things, since computations can get arbitrarily long, there would have to be an unbounded number of fragments.)

Also, let's have a closer look at theoretical virtues. If the true subject matter are our dispositions to use a word or concept, we should look for simple and systematic theories *of our dispositions*. This is not tantamount to looking for simple and systematic *analyses*. For example, a systematic hypothesis about why we are disposed to make certain judgements might appeal to universal cognitive mechanisms, such as our tendency to use spatial concepts when reasoning about non-spatial issues. Yet considerations like these are alien to Lewis's metaphysics.

An especially puzzling virtue, from the perspective of the reinterpretation strategy, is ontological parsimony. Lewis thinks an analysis that posits fewer types of things is, all else equal, better (see e.g. [Lewis and Lewis 1970]). But why should ontological parsimony be relevant if the object of enquiry are our linguistic dispositions? Note that the ontological parsimony of an analysis does not make the surrogate proposition about our dispositions any more parsimonious.

Recall also that Lewis regarded some hypotheses in maths and metaphysics as not just unknown, but unknowable. That's odd if the relevant hypotheses are really hypotheses about our linguistic dispositions. It is tempting to think that there's a recursive enumeration of all our linguistic dispositions, since they are generated by an effectively finite computational engine.

Relatedly, and most simply, there is more to metaphysics (and maths) than conceptual analysis. Take modal realism. According to Lewis, there are at least beth-2 electrons all of which are spatiotemporally isolated from one another. That doesn't look like an analysis of anything. What is the contingent surrogate proposition supposed to be?

5 Explicit knowledge

It's not hard to understand the project Lewis is engaged in when he defends metaphysical doctrines like modal realism. We start with the miscellany of statements that we are inclined to accept. Many of these appear to quantify over tables, persons, events, possible worlds, numbers, sets, etc. As a metaphysician (and Quine student), Lewis wants to know what we should make of these statements. Can apparent quantification over possible worlds be paraphrased away, perhaps in a fictionalist manner? Lewis says no: only with serious costs. But it is useful talk, so we also don't want to give it up. So we should accept that there really are possible worlds. We must then ask what kinds of things they are. Are they *sui generis* entities that cannot be described in any other way? That's "magical ersatzism", and Lewis argues that it, too, has serious costs. Lewis suggests that our quantification over worlds is best understood as quantification over maximal spatiotemporally related mereological fusions. We should enrich our total theory by adding these commitments.

In general, much of Lewis's metaphysics tries to systematise certain aspects of our total theory. He wants to see which terms can be defined by others, and how the things we talk about in one fragment of our theory relate to the things we talk about in other fragments. The goal is to find a simple, elegant, perspicuous successor to our starting point.

What's being systematised in this project are not Lewisian propositions – classes of worlds. The starting point are sentences. The task is similar to the familiar mathematical project of axiomatising a given (mathematical or physical) theory, of finding a minimal set of primitive terms and axioms from which the entire theory can be generated by means of definitions and logical inference – except that we also allow for small revisions if that helps the axiomatisation.

It's plausible that this project involves language. But I don't find it plausible that the project can be redescribed as one of finding out contingent facts *about* language. As I mentioned earlier, whatever the relevant contingent facts might be, it is hard to see why we didn't already know them from the start.

When Lewis talks about non-contingent knowledge, he often suggests that this is a matter of "accepting" statements or theories (e.g. [Lewis 1986a: 113ff.]). This is in sharp contrast to his normal epistemology and philosophy of mind, where he insists

that knowledge and belief should not be understood in terms of a putative relation (of "acceptance" or otherwise) to sentences.

Lewis therefore appears to work with two concepts of knowledge and belief, one sentential and one non-sentential. How are these concepts related?

In [Lewis 1986a: 27ff.], Lewis alludes to a distinction between "explicit" and "implicit" knowledge and belief. He does not explain the distinction, but merely points out that his modal account is not restricted to explicit attitudes. This distinction is popular in epistemic logic (see e.g. [Fagin and Halpern 1987]), but most of the relevant work was written after Lewis's comments, so he was probably not referring to any particular account in that literature. Let me try to spell out what he might have had in mind.

Physical agents must store information in a physical format. The format in which information is stored makes a difference to its use. Some representational formats make it easy to apply a piece of knowledge to a given task, others require lengthy computations. If a lengthy computation is needed, and you don't have much time, you can't perform the task, even though you have the information. You have the information, but in the wrong form.

When asked if 29 (or 2529) is prime, I have all the information needed to answer the question. I don't need to observe my dispositions or inspect Plato's heaven to answer the question. But I need to do some computations to convert the stored information into a 'yes' or 'no' answer.

Possible-world models of knowledge represent what information an agent has, abstracting away from the format in which the information is stored. For ideal agents, this makes no difference. But for non-ideal agents, it does. If a non-ideal agent has the information P stored in the wrong way, they may sometimes not be disposed to act in a way that would bring them closer to satisfying their desires if P were true.

We might say that an agent "explicitly knows that P" if they have stored the information P in the indicated format, as the sentence $\ulcorner P \urcorner$. But that would commit us to the contentious assumption that the agent stores information in the form of English sentences. It might be better to say that an agent "explicitly knows that P" if they know P in a way that goes along with a relatively effortless disposition to affirm a sentence that is synonymous to $\ulcorner P \urcorner$ and that the agent understands.

For non-contingent truths, implicit knowledge is vacuous; explicit knowledge reduces to something like a disposition to affirm a suitable sentence (which one understands). This is not far from Lewis's suggestion, briefly flouted in [Lewis 1986a: 113], that someone knows that 2+2=4 iff they "fully understand and accept the statement". Explicit belief would be the same, except that the target sentence needn't be true.

With these concepts in play, we might hope to accommodate a priori enquiry without compromising the core ideas of the empiricist epistemology. On the picture that emerges, mere reasoning does not provide us with new information, but it might provide us with

new explicit knowledge.

The purpose of a priori metaphysics, then, would not be to figure out whether the world is one way or another, but to find a succinct, systematic (linguistic) description of reality, with a small ideology and a qualitatively sparse ontology. The task is to take the sentences we accept and convert them into such a description, without too many substantive revisions.

Why should we be interested in this project? There are pragmatic reasons. Simplicity helps clear thinking. It's hard to reason in an intensional language with 257 primitives; it's easy to make mistakes in such a language, and to miss connections between the various primitives. But is there more to it? Are simple and elegant metaphysical theories more likely to be true?

6 Best systems

Metaphysical realism, let's say, is the view that metaphysics deals with substantive and irreducible questions about fundamental reality. Whether there are mereological fusions, whether there is a fundamental relation of causation, whether other worlds are as real and concrete as the actual world – for the realist, the answers turn on the mind-independent metaphysical structure of reality. The aim of metaphysics is to discover these answers.

Throughout his work, Lewis appears do endorse this realist perspective. But I fear that it does it mesh with his empiricist epistemology, even after we have made room for hyperintensional "explicit" attitudes along the lines I suggested in the previous section.

The point of explicit knowledge, on this account, is to bring our knowledge of contingent facts into a useful representational format. Reasoning is, for the most part, manipulating our stored representation of contingent hypotheses. How could this process simultaneously gave us substantive knowledge of non-contingent metaphysical facts?

Besides, the account I outlined does nothing to resolve more general worries about our access to irreducibly metaphysical truths. One might have thought that in order to gain knowledge about a special aspect of reality we would need some kind of connection or sensitivity to that aspect of reality. But no such connection or sensitivity figures in the picture I have described.

Lewis argued that causal intuitions are misplaced when it comes to knowledge of non-contingent matters; here knowledge might require nothing more than accepting a statement that is true (see [Lewis 1986a: 113]). But that doesn't seem right. Suppose objective reality contains large cardinals and duplicate Lewisian worlds – two issues of which Lewis professed ignorance. Could I really come to *know* these facts simply by accepting the relevant statements, for no good reason?

One might also worry how our metaphysical conjectures even come to express the alleged metaphysical facts. On the realist view, 'there are universals' means that there

are universals, out there in objective reality; the sentence is true iff metaphysical reality has this particular feature. But how did our words get hooked up to that feature?

Compare a more ordinary piece of language – say, 'it is raining'. How do these words get to represent or misrepresent an aspect of objective reality? Very roughly, Lewis's answer is that the words are conventionally connected to certain attitudes, which in turn are connected to possible states of the world through the input and output conditions definitive of these attitudes. Cutting out the middle man, 'it is raining' expresses that it is raining because there is a convention to utter those words only if one is in a state that normally causes rain-adequate behaviour and that is typically acquired or retained when people are perceptually acquainted with rain. I can see that this story, when fleshed out properly, might extend to more abstract hypotheses like 'spacetime is non-Euclidean'. But it's not clear to me how it could extend to the hypothesis about universals. (And it's not clear to me that the prospects would be better on any credible non-Lewisian approach to meaning.) There may still be a convention to utter the sentence only if one has a corresponding explicit belief, but that "belief" is more or less just a disposition to affirm 'there are universals'. This gets us nowhere. We are not given any (non-semantic and non-intentional) facts that would connect the sentence with the presence or absence of universals out there in metaphysical reality. It would help if every metaphysical conjecture could be expressed in entirely non-metaphysical vocabulary, but is that plausible?

I do not claim that the extended empiricist account from the previous section is strictly incompatible with metaphysical realism. But the combination does not look attractive. In fact, the account suggests a rather different perspective on metaphysics: the project of metaphysics is to systematise certain aspects of our total theory, and that's all there is to it.

A comparison with physics may be useful. Physics, let's assume, tries to discover the fundamental laws of nature. But how should we understand these laws? Many have thought that they constitute an irreducible nomic aspect of reality (see e.g. [Maudlin 2007]). Lewis disagrees. He does not believe that reality has an irreducibly nomic aspect. Among other things, he argues that it would be mysterious how we could discover this aspect by observing occurrent events. According to Lewis, what physicists are trying to discover when they try to discover the laws is simply an elegant systematisation of occurrent events – of the Humean mosaic, or more generally, of the pattern of instantiation of fundamental properties and relations in the world in and around us.

Perhaps metaphysics can be seen as continuous with this enterprise. Physics attempts to systematise the contingent patterns in our world. It is not interested in non-contingent aspects of such a systematisation. If two theories make all the same claims about particles and fields etc., but one of them quantifies over sets and the other doesn't, or one of them quantifies over universals and the other doesn't, physicists won't care about the difference. But metaphysicians do. Metaphysics, one might suggest, is concerned with

the non-contingent elements of our total theory (as well as some contingent aspects on which physicists can't be trusted). It attempts to find the best formulation of these non-contingent elements. Crucially, just as the aim of physics is not to uncover a hidden nomic layer of reality beyond the Humean mosaic, the aim of metaphysics is not to uncover another hidden layer of metaphysical structure.

I have defined metaphysical realism so that it implies commitment to an extra layer. But this might be disputed. Lewis regarded himself a realist about physical laws, even though he didn't believe in a corresponding extra layer of reality. He does not claim that there are no laws. Rather, he claims that what it takes for something to be a law is that it figures in the best systematisation of the Humean mosaic. We might similarly say that something is a "metaphysical law" if it is a non-contingent part of the best systematisation. The task of metaphysics would be to find these laws.

Lewis noticed that his best-system account seems to give rise to a kind of anti-realism or relativism, and regarded this as the account's most serious drawback: "when we ask where the standards of simplicity and strength and balance come from, the answer may seem to be that they come from us" [Lewis 1994a: 232]. In response, he argues that our standards aren't arbitrary: there are objective facts about comparative simplicity and strength. But he concedes that "*if* disagreeing rival systems were running neck-and-neck" – a possibility he regarded as far-fetched – "th[e]n lawhood might be a psychological matter, and that would be very peculiar." [Lewis 1994a: 233]

In the case of metaphysics, the possibility of rival systems running neck-and-neck does not look far-fetched at all. Lewis himself suggests that there may be an approximate tie between positing universals and positing a primitive resemblance relation, in terms of whatever theoretical virtues govern metaphysical enquiry. Since these virtues are somewhat vague, you might prefer the theory with universals while I prefer primitive resemblance. On the best-systems account of metaphysics, neither of us would be objectively right or wrong. There would be no fact of the matter.

Lewis would no doubt have regarded this as a drawback. But it might be a price worth paying, if it frees us from the burden of adding mysterious epicycles to an otherwise attractive picture of mind, language, and knowledge.

There are other costs, however. In Lewis's best-systems account of physics, the statements that are part of the best system are not statements about a problematic nomic dimension of reality. They are assumed to make straightforward and unproblematic claims about the contingent distribution of fundamental properties and relations. ('All Fs are Gs', as the toy example goes.) There is no difficulty understanding what it would take for such a statement to be true. Metaphysical statements, by contrast, almost always seem to describe a problematic metaphysical dimension of reality. If we don't accept such a dimension, how are we to interpret 'there are universals' or 'any two things have a mereology fusion'? What would it take for these statements to be true?

Perhaps truth here amounts to no more than being part of the best system. This is similar to what Lewis says about chance. According to Lewis, what makes it true that an event has chance x is that the best system says that it has chance x. One might nonetheless find it odd to apply this to almost all of metaphysics – especially since metaphysical hypotheses often aren't expressed in terms of special concepts (analogous to chance) that one might take to be defined with recourse to a best system. Lewis's conjecture that there are at least beth-2 spatiotemporally isolated electrons looks like a straightforward conjecture about reality.

The best-systems picture here leads to a Carnapian sort of doublethink. Suppose our best theory says that there are universals, and non-contingently so. We should then talk as if we think that reality has that particular metaphysical structure, even though we should also recognize that, in some sense, reality has no extra metaphysical structure at all.

All in all, I doubt that Lewis would have liked this picture. I suspect he would have opted for a more radical response that doesn't stop with the moderate extension that I have offered to his official theories of mind and language. He would have preferred an account that makes room for substantive hyperintensional facts which are somehow expressed by metaphysical and mathematical statements and which can be the object of hyperintensional knowledge and belief. Oddly, he nowhere offers even a hint of what such an account might look like.

I am not optimistic about the prospects for such an account. I also question the motivation. Let's grant that our philosophical theories should be conservative. But what is it that should be conserved? Metaphysical realism is not part of common sense, nor is it assumed in science. It may be popular within metaphysics, but it is widely regarded with suspicion in other quarters of philosophy. Is it really a severe cost to compromise on the self-conception of some philosophers?

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