

Imagination, Modal Knowledge, and Modal Understanding

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Introduction/Abstract

Recent work on the imagination has stressed the epistemic significance of imaginative experiences, notably in justifying modal beliefs. An immediate problem with this is that modal beliefs appear to admit of justification through the mere exercise of rational capacities. For instance, mastery of the concepts of square, circle, and possibility should suffice to form the justified belief that a square circle is not possible, and mastery of the concepts of pig, flying, and possibility should suffice to form a justified belief that a flying pig *is* possible. It is thus unnecessary to try to imagine a square circle or a flying pig to justify these beliefs. In this paper, I consider three ways to defend the epistemic role of imagination in modal epistemology against this challenge. One claims that modal beliefs simply admit of justification by *two separate sources*: rational capacities and imaginative experience. Another holds that while beliefs about *logical* or *conceptual* modality can be justified entirely by rational capacities, beliefs about *metaphysical* modality require imaginative experiences. The third, which I defend, is the idea that imagination is relevant in the first instance not to modal *knowledge* but to modal *understanding*: even where imaginative experience is unnecessary for the justification of modal beliefs, it is indispensable for directly *grasping* certain modal propositions.

1. Imagination and Modal Epistemology: The Problem of Epistemic Preemption

Empiricism in epistemology is the view that knowledge is based on experience, or perhaps more precisely. As the terminological kinship might suggest, empiricism is particularly plausible for the empirical domain: empirical beliefs (e.g., that there is a tree outside my window) are justified, at least in part, by perceptual experiences (e.g., as of a tree outside my window).

In other domains, empiricism seems more daring. In the *moral* domain, for instance, there is a long tradition of moral rationalism according to which moral beliefs are justified a

priori. Mastery of the concepts of genocide and wrongness should suffice, on the face of it, to form a justified belief that genocide is wrong; experience with genocide would only confirm what is thus a priori justifiable. At the same time, even in this area there exist an empiricist tradition. Following Hume, many moral philosophers have held that moral knowledge is ultimately based on *sentiment*. Here it is *emotional* experience, or *affective* experience, rather than perceptual experience that is claimed to ground moral knowledge. Although the term “sentimentalism” is sometimes meant just as a descriptive psychological thesis about the contingent processes by which moral beliefs are *formed*, at other times it is proffered as a normative epistemological thesis about what *justifies* moral beliefs. The idea is that some emotional experiences offer the kind of non-inferential justification for evaluative (including moral) beliefs that perceptual experiences do for empirical beliefs (Döring 2007). Thus, experiencing intense indignation (or whatever the right emotional reaction is) in response to reading about the German genocide of the Herrero and Namaqua people of modern-day Namibia generates non-inferential justification for the belief that the German genocide of the Herrero and Namaqua people was wrong. The rationalist treatment of this case is of course very different: for a subject competent with the concepts of genocide and wrongness, exercise of rational capacities suffices to establish that genocide is wrong; when the subject then becomes aware of the German genocide of the Herrero and Namaqua, they are in a position to justifiably acquire the belief that the German genocide of the Herrero and Namaqua was wrong.

Rationalism is perhaps most antecedently plausible for mathematical and logical knowledge, where it appears that the exercise of rational capacities is all it takes to form justified beliefs. Mastery of the concepts of 2, 4, addition, and equality seems sufficient to acquire a justified belief that $2+2 = 4$. One may or may not have an “intuitional experience” as of 2 plus 2 equaling 4, but it is not necessary to have such an experience to acquire the justified belief that $2+2 = 4$. There are of course empiricist holdouts here too (e.g., Kitcher 1984). But rationalism about mathematical knowledge is by and large the default position among philosophers. The same is true of logical beliefs, such as the belief that everything is self-identical. On the face of it, all you need to justifiably form this belief is to possess the concept of identity and exercise certain rational capacities in drawing out what the concept involves – notably, that identity is reflexive.

Modal beliefs seem to belong in one group with such logical beliefs and other a priori beliefs admitting of justification purely by the exercise of rational capacities. My beliefs that a flying pig is possible and that a square circle is *impossible* can be justified, it seems, by the sheer exercise of rational capacities. Just as reflection on what is involved in something qualifying as genocide and what is involved in something qualifying as wrong should suffice to acquire the justified belief that genocide is wrong, reflection on what is involved in something qualifying as square, what is involved in something qualifying as a circle, and what is involved in something qualifying as possible should suffice to acquire the justified

belief that a square circle is *not* possible. And such rational capacities seem sufficient also for forming a justified belief that a flying pig *is* possible: the conceptually competent subject, having reflected on what is involved in something qualifying as a pig and in something qualifying as flying, and failing to find the kind of incompatibility found when reflecting on what it takes to be square and what it takes to be a circle, forms the belief that a flying pig is possible. Such a subject would be in a position to *justifiably* acquire modal beliefs without ever bothering to exercise their *imaginative* capacities – it is not *mandatory* that they try to imagine a flying pig or a square circle for them to justifiably form the beliefs that the former is possible and the latter is not.

In general, it is unclear what role imaginative experience could play in modal epistemology that would not be preempted by our rational capacities. Call this the *problem of epistemic preemption*. It is a problem for the idea that imagination has an important role to play in modal epistemology, an idea which has garnered increasing attention in recent philosophical discussions of the imagination (see many articles in Kind and Kung 2016 and Badura and Kind 2021). The problem affects imaginative experience in the modal domains just as it does affective experience in the moral domain, intuitional experience in the mathematical domain, and perhaps other types of experience in other traditionally a priori domains.

If the problem of epistemic preemption cannot be resolved, then imagination would have to rest content with being relevant to modal inquiry only in the *context of discovery*, not the *context of justification*. In this scenario, imagination would be relevant to the process by which modal conjectures are *formed*, but not what actually *justifies* them. What this means is that imagination would not be doing any *epistemic* work, but only *causal* work, in modal cognition. To see how unsatisfactory that is, consider the famous case of Friedrich Kekulé, famed for discovering the molecular structure of benzene (Kekulé 1865). As Kekulé tells it, he made the discovery by daydreaming a snake biting its own tail. But of course, the evidence he presented for of his model made no mention of snakes, concentrating instead of isomers, derivatives, and the like. If imagination's role in modal inquiry were but a fancy version of daydreams' role in Kekulé's chemical inquiry, it would not be a properly *epistemic* role.

In what follows, I will consider three approaches to the problem of epistemic preemption. The first appeals to pluralism about sources of epistemic justification for modal beliefs, the second to pluralism about kinds of modal beliefs up for justification, and the third to pluralism about the epistemic values imagination could play a role in promoting. I will argue that the third option is the most promising for a defender of the epistemic role of imagination. According to the view I will defend, imagination is crucial for modal *understanding* even if it is not for modal *knowledge*. I start, however, with a few remarks on imagination and rational capacities.

2. Imagination and Rational Capacities

Imagination reports come in two broad groups: objectual and propositional. For instance:

(R1) S imagines a brown dog

(R2) S imagines that a dog is brown

It is possible to hold that although imagination *reports* fall into two groups, the imagination *states* therein reported are of one and the same kind. But phenomenologically speaking, it does seem that there are two kinds of state corresponding to these reports. The objectual report picks out a mental state which (i) essentially exhibits the specific sensory profile it does (e.g., with brown and dog-shaped qualities) and (ii) does *not* necessarily employ concepts in representing what it does (it is possible for a child to imagine a brown dog who does not yet possess the concept of a dog). The propositional report, in contrast, picks out a mental state which (i) necessarily employs concepts and (ii) does not essentially, but at most accidentally, exhibit any sensory profile. We may call the kind of imaginative state reported in R1 “sensory imagination” and the kind reported in R2 “propositional imagination.”

In the philosophy of emotion, it is customary to characterize emotion types in terms of their “formal object” (Kenny 1963): the formal object of fear is the dangerous, the formal object of grief is loss, the formal object of indignation is the unjust (or the unfair, or whatever the right theory would say here), and so on. But in truth, mental state types other than emotion also have characteristic formal objects. A longstanding view holds that belief represents its content *sub specie veri* (“under the guise of the true”) while desire represents it *sub specie boni* (“under the guise of the good”). One might legitimately put this by saying that the formal object of belief is the true while the formal object of desire is the good (or perhaps the good-for-me).¹ Within this framework, we can also ask what the formal object of *imagination* is. And an alluring idea in the present context is that the formal object of imagination is precisely *the possible*: imagination represents its content “under the guise of the possible” (cf. Yablo 1993). If this is right, then just as in fearing a snake we experience the snake as dangerous, in imagining a snake we experience the snake as possible; and just as in believing that grass is green we commit ourselves to the *actual truth* of the proposition <grass is green>, in imagining that grass is purple we commit ourselves to the *possible truth* of the proposition <grass is purple>.² An advantage of construing the possible as the formal object of imagination is that it creates a clear presumption in favor of the relevance of imagination to modal knowledge.

It is interesting to note here the structural difference between (a) the belief that *possibly*, grass is purple and (b) the propositional imagination that grass is purple. Both

states constitute “mental commitment” to the possibility of grass being purple. But the commitment is effected in different ways. The belief constitutes commitment to the truth of the proposition <possibly, grass is purple>, representing this (modal) proposition under the guise of the true; whereas the imagining constitutes commitment to the possible truth of the proposition <grass is purple> – representing that (non-modal) proposition under the guise of the possibly true. The difference here is one between propositional content and psychological attitude: commitment to truth and commitment to possible truth are two different stances, or attitudes, that a person can take toward a proposition. So what we have here are two different mental states, with different attitudes and different contents.

When I speak of “exercise of imaginative capacities,” I have in mind an effortful attempt to enter a state of sensory or propositional imagination. The attempt may fail, but the failure, too, would be the result of exercising one’s imaginative capacities. When I try to imagine a parrot the size of the Eiffel Tower, I succeed with flying colors. On the kind of modal empiricism floated in §1, this successful exercise constitutes at least *prima facie* justification for believing that a parrot the size of the Eiffel Tower is possible. When I try to imagine a square circle, in contrast, I fail categorically; but for the modal empiricist, this exercise, issuing in failure as it does, also provides *prima facie* justification for a modal belief – this time the belief that a square circle is *not* possible.

Now, when I speak of “exercise of *rational* capacities,” what I have in mind is exercise of psychological capacities associated with *reason*. Perhaps the paradigmatic capacity of reason is *reasoning*. But another rational capacity, which has particularly interested philosophers, is the capacity to reflect on and analyze concepts one possesses and make explicit certain aspects of these concepts’ implicit content or structure. For instance, someone who possesses the concept of a vixen can work out, purely through reflection on that concept, that vixens are females, that vixens are not prime numbers, etc. And someone who possesses the concept of a square can work out, purely through the use of rational capacities, that a square can be divided into four right triangles, that a square is an equilateral figure, and, also, that a square cannot be round.

In the case of exercise of imaginative capacities, a natural model we considered is that *successful* exercise of these capacities generates *prima facie* justification for a *positive* modal belief (a belief that something is *possible*), while a *failed* exercise generates *prima facie* justification for a *negative* modal belief (a belief that something is *not possible*). In the case of rational capacities, a natural model reverses this order: successful exercise of the relevant capacities, identifying as it does an incompatibility between what it takes to be F and what it takes to be a K, generates *prima facie* justification for the *negative* modal beliefs that a K that is F is *not possible*; while a failed exercise, wherein no incompatibility is unearthed, generates *prima facie* justification for the *positive* modal belief that a K that is F *is possible*.

Much more can be said about our rational and imaginative capacities, of course.³ The above remarks are only intended to give these notions sufficient texture to discuss the problem of epistemic preemption with something relatively concrete in mind. The problem, recall, is that since a priori exercise of rational capacities is sufficient for justifying modal beliefs, it's unclear what role would be left for the imagination in modal epistemology.

3. Two Kinds of Modal Justification?

In the face of the problem of epistemic preemption, one might attempt to secure a role for imagination in modal epistemology by insisting that, just because modal beliefs can be justified by the exercise of rational capacities, it does not mean that they cannot *also* be justified by the exercise of *imaginative* capacities. Perhaps imagining a flying pig gives some justification – if only *prima facie*, defeasible justification – for believing that flying pigs are possible, even if it is not *necessary* to imagine a flying pig to justifiably believe this. (And perhaps, more speculatively, trying *but failing* to imagine a square circle provides some justification for believing that a square circle is impossible – again, even if it is also possible to form this justified belief without exercising one's imaginative capacities.) After all, many beliefs can be justified in more than one way – even empirical beliefs. I can acquire a justified belief that there's a tree outside my window on the basis of my perceptual experience of the tree, certainly; but I can *also* acquire it, justifiably, on the basis of reliable testimony, on the basis of a firm recollection, and so on. By the same token, it may be that modal beliefs can be justified both on the basis of rational capacities *and* on the basis of imaginative experience.

The idea here is to wield a certain justificational pluralism to secure an epistemic role for imagination. But I think this will not work. The problem is that imagination on its own does not seem to provide the *right kind* of justification – a deep enough justification – for modal beliefs. To see what I mean by this, consider an analogy with mathematical and moral beliefs. Imagine a person who forms the belief that $2+2 = 4$ as follows. She has a picnic basket with two flaps on top. Every time she goes on a picnic, she lifts the left flap and puts 2 apples in the basket, then lifts the right flap and puts in 2 more. When she lays out the contents of the basket at the picnic, she always finds that there are 4 apples in the basket. This happens so many times that she infers, by enumerative induction, that 2 plus 2 equals 4. She proceeds to hold this belief pending future encounter with disconfirming instances.

We can't help feeling, I think, that there is something epistemically defective about this basis for believing that $2+2 = 4$. Perhaps repeated observation of two pairs yielding a quadruple does lend support to the notion that $2+2 = 4$, but we can't shake the feeling that

the belief that $2+2 = 4$ doesn't *need* this kind of support, and that someone who only reached the conclusion that $2+2 = 4$ in this way is *missing something*.

Similarly, imagine someone who comes to believe that genocide is wrong on the basis of witnessing a number of genocides and noticing that each has been wrong. This person then performs an inductive inference to the belief that genocide is wrong. Here too, we can't help feeling that the notion that genocide is wrong doesn't need this kind of support and that someone who only reached the conclusion that genocide is wrong in this way is missing something crucial about the very nature of genocide.

One aspect of what these epistemic agents are missing is justification for believing the *necessity* of "genocide is wrong" and " $2+2 = 4$." A posteriori empirical justification of the sort they have is the kind that justifies belief in *contingent* propositions; but belief in necessary propositions calls for something that goes beyond the justification of belief in contingent propositions and speaks to the fact that the truth of the believed propositions does not depend on contingent matters of fact.

I want to be a bit more explicit here. We can speak of justification for believing the proposition <necessarily, p > versus the proposition < p >. But we can also speak of justification for believing in the *necessary truth* of < p > versus in the *mere truth* of < p >. Being necessarily true and being contingently true are two possible properties of the proposition < p > – two species, or "determinates," of *being true*. Corresponding to these two properties of propositions are epistemic properties of belief: using somewhat scholastic terminology, we might say that a belief that p can be *apodictically justified* and or it can be *merely justified*. Apodictic justification for believing < p > is to mere justification for believing < p > what the necessary truth of < p > is to the mere truth < p >. That is, being apodictically justified and being non-apodictically justified are two different (epistemic) properties, two species of *being justified*. What I want to claim is that while a priori exercise of rational capacities does produce *apodictic* justification for the beliefs that $2+2 = 4$ and that genocide is wrong, experience is incapable in principle of generating *apodictic* justification. Accordingly, the person whose justification for believing that $2+2 = 4$ and that genocide is wrong is based on exercise of rational capacities is also justified in believing that *necessarily*, $2+2 = 4$ and that *necessarily*, genocide is wrong; whereas the person whose justification for the beliefs that $2+2 = 4$ and that genocide is wrong is based on (emotional or intuitional) experience cannot.

The same seems to apply to modal beliefs. On the one hand, (1) modal beliefs seem like moral and mathematical beliefs in being necessarily true if true at all. On the other hand, (2) imaginative experience does not seem fit to generate the *apodictic* justification called for by beliefs in such propositions. Therefore, (3) imaginative experience does not seem fit to generate the kind of justification modal beliefs call for. This is my main argument

against justificational pluralism as a solution to the problem of epistemic preemption – we may call it the *argument from apodictic justification*. Let’s go through its premises more slowly.

Regarding the first premise, it is not some contingent matter, to do with the idiosyncrasies of the actual world, that makes square circles impossible. It is not as if, had some contingent matters shaken out differently, square circles would be possible. No, it is a *necessary truth* that square circles are impossible. Likewise for the belief that flying pigs are possible. Since it’s not *nomological* modality that we’re dealing with here (flying pigs are nomologically *impossible*, after all), it is not some contingent matter of fact that makes flying pigs possible. No change to the contingent make-up of the *actual* world would exclude there being another world, “accessible” from ours, in which pigs fly.

It is to capture the intuition that what is impossible is necessarily impossible and what is possible is necessarily possible that philosophers working in modal logic have developed **S4** and **S5**, in which the accessibility relation is cast as transitive and the basic modal logic **M** is augmented with the axioms “ $\Box p \rightarrow \Box \Box p$ ” (for **S4**) and “ $\Diamond p \rightarrow \Box \Diamond p$ ” (for **S5**). Such modal logics are needed because, intuitively, they model the real structure of the modal domain more accurately than ones that do not include these principles. (Compare: although three different complete and consistent geometries can be devised, only the Riemannian describes accurately the real structure of space. All three are equally good qua pieces of *pure* mathematics, but one is superior qua *applied* mathematics. **S5** is like Riemannian geometry in this respect.)

If this is right, then when we believe that flying pigs are possible, or that square circles are *impossible*, it is good if our justification for this is sensitive to the fact that propositions such as <square circles are impossible> are *necessarily* true. That is, it is good if we have *apodictic* justification for such beliefs. For as long as our justification for believing that square circles are impossible is non-apodictic, we do not have justification for believing that *necessarily*, square circles are impossible. But imaginative experience does not seem fit to deliver such apodictic justification in the modal domain any more than emotional experience can deliver it in the moral domain, say. Even if imagining a flying pig justifies me in believing that flying pigs are possible, there is nothing in my having this imaginative experience to suggest that this is necessarily so.

In exercising our rational capacities and coming to see that what it takes to be a square is incompatible with what it takes to be a circle, in contrast, we come to see that square circles are impossible, and do so in a way that does not depend on contingent matters but on the contrary is due to the very essence of what it is to be a square or a circle. Thus exercise of rational capacities brings into play the irrelevance of contingent matters in

a way that simply undergoing an experience – be it perceptual, affective, or imaginative – does not.

If all this is right, then even if we can have “imaginative justification” for some modal belief, there is still call for a different and deeper kind of justification, the kind provided by the exercise of rational capacities; but of course, once we have this “rational justification,” the imaginative justification is no longer needed. Here we see quite dramatically how imaginative justification for modal beliefs is epistemically preempted by rational justification.

I conclude that justificational pluralism is a poor strategy for securing an important role for the imagination in modal epistemology. If imaginative experience is as significant to our modal knowledge as perceptual and affective experience is to our mathematical and moral knowledge, then it is not all that significant after all: not only is it epistemically dispensable, it fails to provide the kind of apodictic justification modal beliefs call for.

4. Two Kinds of Modal Belief?

Instead of justificational pluralism, one might try for a “modal-belief pluralism” according to which *some* modal beliefs may admit of justification purely by rational capacities but others require imagination. In particular, since Kripke (1972) we are accustomed to distinguish between *a priori* modal truths, notably logical truths and conceptual or “analytic” truths, and *a posteriori* modal truths, such as “water is H₂O” and the like necessary identities pertaining to a “metaphysical” modality. Might imaginative experience be needed for the justification of metaphysical-modal beliefs even though rational capacities suffice for the justification of logical- and conceptual-modal beliefs?

The idea here is that while rational capacities, in particular of reflecting on and analyzing our concepts, are clearly pertinent for beliefs about what is *conceptually* possible or impossible, when a more robust type of possibility and impossibility is involved, one that cannot be reached via reflection on concepts, a different epistemic tool is needed. Suppose Sam fully masters the concepts of water and H₂O. Sam can reflect on and analyze her concepts all she wants; she would still have no justification for believing that water that’s not H₂O is impossible. For this impossibility simply does not fall out of what it takes to be water and what it takes to be H₂O – that is one way this impossibility (being metaphysical) is different from the impossibility of square circles (which is conceptual). Something else must thus be brought to the table if justification is to be obtained for the belief that water that’s not H₂O is impossible.

I don't think that's going to work either. For one thing, the status of "metaphysical" modality and its dependence on or independence from the a priori modalities are controversial. On one approach, which we may call the "Australian view" even though it is anticipated already in Alan Sidelle's (1989) early work, a posteriori necessary truths are artifacts of the coming-together of an a priori necessary truth and an a posteriori contingent truth. In the case of "water is H₂O," for example, the a priori necessary truth is something like "water is the actual occupant of the water role" and the a posteriori contingent truth is "the actual occupant of the water role is H₂O" (Jackson 1998).⁴ Note that imaginative experience seems to play no role in the justification of either component. On the one hand, exercise of rational capacities should suffice to establish that *necessarily*, water is the actual occupant of the water role. At the same time, the imagination is also and very obviously irrelevant to the justification of the contingent a posteriori belief that the actual occupant of the water role is H₂O – empirical inquiry is what justifies *that*.

But even if we construe metaphysical modality as an independent, sui generis kind of modality, it's unclear how this would allow imagination to play a special epistemic role. On the sui generis view, the most natural epistemology of metaphysical modality is something like this: empirical inquiry produces justification for the (contingent) belief that water always and everywhere consists in H₂O; we then perform some sort of abductive inference to the (modal) belief that *necessarily*, water is H₂O: the notion that water is essentially and therefore necessarily H₂O is taken to constitute the best explanation of the empirical fact that water is always and everywhere H₂O (see Biggs 2011, Biggs and Wilson 2019).

I conclude that modal-belief pluralism, too, is a poor strategy for securing a role for the imagination in modal epistemology.

5. Modal Knowledge and Modal Understanding

We have been discussing the problem of epistemic preemption, a problem imaginative experience shares with affective experience in moral epistemology and intuitional experience in mathematical epistemology. In all these areas, it appears possible to form justified beliefs, and ultimately to acquire knowledge, without ever undergoing any relevant *experience*, be it imaginative, affective, or intuitional. My idea in this section, however, is that we may be looking in the wrong place when we try to secure an epistemic role for imagination in the acquisition of modal *knowledge*; it is rather in the acquisition of modal *understanding* – a distinct epistemic good – that imaginative experience plays a crucial role. In this section, I argue that even though we can acquire modal *knowledge* without experience, there is a kind of modal understanding the acquisition of which is impossible without imaginative experience. In the next section, I argue that the epistemic value of this

kind of understanding is independent of, and irreducible to, the epistemic value of knowledge.

I take my cue here from the literature on *moral* understanding. Alison Hills (2009) considers the case of Mary and Eleanor: Mary believes that eating factory-farmed meat is wrong on the basis of close familiarity with factory-farming practices, animal psychology, and so on; whereas Eleanor believes that eating factory-farmed meat is wrong because Mary told her so (and she knows Mary is an expert on such matters). Both Mary and Eleanor have a justified moral belief here, claims Hills, but there is a clear epistemic asymmetry between them. According to Hills, the asymmetry concerns moral *understanding*: Mary *understands why* eating factory-farmed meat is wrong, whereas Eleanor does not.

Now, Hills herself construes the kind of moral understanding that Mary has but Eleanor doesn't in terms of a cluster of cognitive capacities: the ability to draw inferences, follow and give explanations, and so on. However, an alternative view, defended for instance by Logan Wigglesworth (ms), is that the crucial element in moral understanding is not cognitive capacities but a certain type of experience, what Wigglesworth calls "affective grasping." It is because Mary affectively grasps the wrongness of eating factory-farmed meat, whereas Eleanor does not, that Mary not only knows but also understands that eating factory-farmed meat is wrong, whereas Eleanor knows without understanding.

Wigglesworth's notion of affective grasping builds on David Bourget's (2017) work on *cognitive* grasping. Bourget considers the case of being taught at school that the sun is 1.3 million times larger than Earth. On the basis of the teacher's testimony, we come to believe this, and our belief is both true and justified (because our teacher is a reliable source of information on such matters, let's say, and we know this). For all that, we have no genuine understanding of what it really means for the sun to be 1.3 million times larger than Earth. The magnitudes involved are just too large for us to really grasp and so to speak "dominate in thought." But when the teacher then shows us a basketball next to an apple seed, and tells us that *that* is the size difference between the sun and the earth, we seem to enter a new epistemic relation to the proposition <the sun is 1.3 million times larger than Earth>. It is not a knowledge-constitutive relation, since we already knew that the sun is 1.3 million times bigger than Earth. Even though we already *knew* this, our overall epistemic position seems to have improved. Improved how? We have not acquired any further *evidence* for the proposition that the sun is 1.3 million times larger than Earth, of course. Nor have we increased our justification for believing this in any other way. Rather, we have gained a measure of insight into *what it means* for the sun to be 1.3 million times larger than Earth. As Bourget puts it, we *grasp* the fact in a way we did not before. In consequence, we now *understand* what previously we only knew.

The epistemological literature on understanding distinguishes many different notions of understanding. The notion that is relevant here may be elucidated as follows: in the relevant sense, S understand that p iff (i) S knows that p and (ii) S grasps p . Call this kind of understanding *understanding_{k+g}*. It consists *in part* in knowledge, but in part in a state of grasping. It is this kind of understanding that seeing the basketball-and-apple-seed display may help us acquire: we understand that the sun is 1.3 million times larger than Earth when, and because, we (i) *know* that this is so and (ii) *grasp* what it amounts to.

What does the grasping component of *understanding_{k+g}* consist in? Bourget contrasts functionalist and phenomenalist approaches to grasping, and argues for the latter. That is, he argues that grasping consists in a kind of phenomenal experience rather than in a cluster of cognitive abilities or capacities. But it's unclear that we have to make a choice here. There certainly does seem to be a distinctive experience in grasping the proposition <the sun is approximately 1,300,000 times bigger than the earth>. This grasping experience is *not* the visual experience of the basketball and apple seed side by side, but a second experience *brought on* by this visual experience, a second experience characterized centrally by an *aha!* feeling. Still, it would be odd if this experience did not bring online certain abilities or capacities absent before its occurrence – if it were, so to speak, cognitively epiphenomenal. More plausibly, the person who *grasps* that the sun is 1.3 million times bigger than the earth can do various things that the person who doesn't can't. At a minimum, they can visualize more accurately the size relationships between the sun and the earth. And with the firmer grasp of the size differences involved, certain inferences presumably become possible that otherwise wouldn't.⁵

How should we *characterize* the grasping-experience? I propose that we understand it as a state of *seeming-acquaintance*, that is, an experience with a *phenomenology* of acquaintance. On the standard understanding of acquaintance, for a subject S to be acquainted with an item x is for S to enjoy an awareness of x that is both *metaphysically* and *epistemically* immediate (Gertler 2001, 2012). It is metaphysically immediate in that S's awareness of x is not mediated by any *causal process*, insofar as the relationship between x and S's awareness of x is constitutive rather than causal. And it is epistemically immediate in that S's awareness of x is not mediated by any *inference* from some other mental state. Now, whether there really is a mental state answering to this description is an interesting and important question, but not one we need to go into here. For my interest is not in acquaintance itself but in what I called "seeming-acquaintance," a state characterized by a phenomenology of acquaintance. More precisely, we might say this: S has seeming-acquaintance of x just if S enjoys an awareness of x that *seems* to be neither metaphysically nor epistemically mediated, that is, that *seems* not to be mediated by a causal process or by an inference.

Note well: to say that S's awareness seems to be neither metaphysically nor epistemically mediated is not to imply that S is in a position to conceptualize S's awareness as metaphysically or epistemically unmediated. Whether S could do that depends on many factors, notably on S possessing the *concepts* of metaphysical and epistemic immediacy and on S *attending* to their concurrent awareness and *considering* whether it is so mediated or not. What we can say with confidence is only that *if* S possesses the concepts of metaphysical and epistemic immediacy, and *attends* to their state of seeming-acquaintance, and *considers* whether it is metaphysically or epistemically mediated, *then S could* form the belief that it seems not to be. Importantly, however, the truth of this conditional is not what *makes* S's state a state of seeming-acquaintance; it is rather a *symptom* of its being a state of seeming-acquaintance. What *makes* the state seeming-acquaintance is a certain *phenomenology*, a phenomenology that *we as theoreticians* can characterize as the phenomenology of seeming-not-to-be-mediated.

As in other cases, the most direct way to appreciate the relevant phenomenology is through "phenomenal contrasts," in which mental states *with* the phenomenology are "introspectively juxtaposed," if you will, with mental states *without* that phenomenology. Here is a relevant phenomenal contrast. Suppose that Eleanor finally visits a modern factory farm, touring the various cramped cages, hearing heart-rending squeals all about, and so on, and soon experiences a kind of moral startle with various affective dimensions (sorrow, anger, etc.). Then and there Eleanor comes to *get* what Mary was talking about. More specifically, whereas before the visit she had a justified true belief that factory farming is wrong, now she seems to be directly aware of the wrongness of factory farming itself, that is, aware of this wrongness in a way that seems mediated neither causally nor inferentially. In other words, she now enjoys seeming-acquaintance with the wrongness of factory farming.

On the view I propose, this seeming-acquaintance with the wrongness of factory farming *constitutes* the experience of grasping that wrongness. In virtue of grasping the wrongness of factory farming, and knowing that factory farming is wrong, Eleanor now *understands_{k+g}* that factory farming is wrong.

I belabor this point because I want to propose a similar role for imaginative experience in modal epistemology. I want to suggest that even if we don't need imagination to come to know that *x* is possible, in imagining *x* we experience a *seeming-acquaintance with the possibility of x*, and thereby come to *grasp* this possibility. By reflecting on what it takes to qualify as a pig, what it takes to count as flying, and what it takes to be possible, we can work out that a flying pig is possible. But this does not quite amount to *understanding_{k+g}* that a flying pig is possible. Only when we conjure a mental image of a pig flying across the sky, we experience a *direct grasp* of this possibility – the possibility of a flying pig – and come to understand what we previously only knew.

My proposal is that *this* is what imagination gives us, epistemically speaking, that exercise of rational capacities does not. Reason without imagination is blind: it gives us knowledge *that* such-and-such is possible, but we need imagination to “see” the relevant possibility. This “seeing” is necessary to acquire a certain type of understanding. In other words, there is a kind of understanding of possibility that cannot be had without imaginative experience.

A person suffering from congenital aphantasia, a condition whereby one cannot form mental images (Zeman et al. 2015), can certainly form a justified belief in the possibility of a flying pig. But there is a sense in which such a person lacks any insight into the nature of this possibility. If, after brain surgery, the patient suddenly acquires the power of imagery, and then imagines a flying pig, they might exclaim “ah, so *that’s* what it means for a flying pig to be possible!” – somewhat as Jackson’s Mary, upon being let out of her black-and-white room, might exclaim “ah, so that’s what it means for a flower to be red!” It is an experience similar also to Eleanor’s experience upon visiting the factory farm and exclaiming “ah, so that’s what it means for factory farming to be wrong!” In all these cases, a person comes to grasp directly, and thereby to understand_{k+g}, something that previously they only knew.

For most of us, the capacity to grasp possibility via imagination is phenomenologically unimpressive and for the most part taken for granted. But for the patient who acquires this capacity late in life, the grasping of possibilities may be experientially quite dramatic, at least at the beginning. It would be phenomenologically impressive in a way Eleanor’s grasping of the wrongness of factory farming upon experiencing it for herself is.⁶

Richard Feynman famously said that nobody understands quantum mechanics. What did he mean by this? Many people understand how the theory works, why it is so plausible, and so on. I think what Feynman had in mind is that nobody is able to form a concrete image of the possible world portrayed by quantum mechanics (a possible world that happens to be actual). Feynman seems to think that the capacity to form an image of a possible situation enables a kind of understanding of the relevant possibility that analysis of concepts, unaccompanied by any exercise of imagination, cannot deliver.

To summarize: my proposal is that although exercise of rational capacities is sufficient for the justification of modal beliefs – and therefore, ultimately, for modal *knowledge* – imaginative experience is indispensable for modal *understanding*, in the sense that it enables direct grasp of possibilities, something rational capacities cannot deliver without the aid of imagination. It is in *this* respect that rational capacities do not threaten to epistemically preempt imaginative experience.

6. The Epistemic Value of Modal Understanding

We have been looking at potential ways to secure the epistemic significance of imagination in the face of the problem of epistemic preemption. The strategies we have considered in Sections 3-4 relied each on a specific pluralism: pluralism about modal justification in one case, pluralism about the modal beliefs up for justification in the other. The strategy I am recommending instead relies on a certain *pluralism about epistemic value*: there is modal knowledge, on the one hand, but there is also modal understanding, on the other – and both are intrinsically epistemically valuable.

To appreciate this kind of pluralism, consider what we might call *knowledge monism* about epistemic value. This would be the thesis that there is only one final epistemic good: knowledge. Knowledge, on this view, is the only thing that is epistemically good *for its own sake*. Anything else that might be epistemically good is such only *instrumentally*, that is, insofar as it is conducive to the achievement of knowledge. For instance, it is epistemically good to have true beliefs, on this view, because having a true belief is an important step on the way to having knowledge.

Knowledge monism about epistemic value is one kind of monism. Other kinds of monism about epistemic value would designate some other individual epistemic good as the source of all epistemic value. One widely discussed monism, *veritism*, holds that it's actually true belief that is the one final epistemic good. Epistemic justification is valuable, according to veritists, only instrumentally (Goldman 1999). There are also other versions of monism one could float.

Pluralism about epistemic value, in contrast, posits a plurality of mutually irreducible final epistemic goods. Ted Sider (2011: 61-5), for instance, argues that in addition to a belief's truth, there is also final epistemic value that attaches to a belief's employing joint-carving concepts (compare "No rabbit is green" and "No undetached rabbit part is grue"). According to Nick Treanor (2014), meanwhile, of two true beliefs one of which concerns a more *significant* matter, the more significant belief is intrinsically more valuable. And Chris Ranalli (2021) argues that while true belief is one final epistemic good, another is *cognitive contact with reality*: knowing that *p* on the basis of perception is somehow better than knowing it on the basis of testimony, epistemically speaking, even where testimony is as accurate and reliable as perception. Suppose you are just as reliable as my sense perception when it comes to spotting oak trees: forming beliefs about where there are oak trees on the basis of your testimony would lead to an equal preponderance of true beliefs as forming such beliefs on the basis of "the testimony of my eyes." Intuitively, there is something specially valuable, from an epistemic point of view, about "seeing for myself" the oak tree

outside my window, as opposed to believing it, “blindly” so to speak, purely on the strength of your say-so (see already Johnston 1996).

My recommendation to the proponent of the epistemic significance of imagination in modal epistemology is to argue that, whatever other final epistemic goods we recognize, we should also recognize understanding_{k+g} – or at least its grasp component – as a distinct final epistemic good, one whose epistemic value is irreducible to that of knowledge (cf. Zagzebski 2001). Since knowledge is a constituent of understanding_{k+g}, the epistemic value of understanding_{k+g} *depends* on that of knowledge; but the claim is that the epistemic value of understanding_{k+g} is not *exhausted* by that of knowledge. For the grasping constituent of understanding_{k+g} brings its own distinct (final epistemic) value.

Making the argument for this is not so simple. It is not enough, for instance, to point out that of two epistemic agents who know that *p*, the one who also grasps *p* is epistemically better off than the one who doesn't. For it may be that what makes the grasping agent better off is their capacity to draw inferences that would lead to further knowledge; or the capacity to acquire second-order knowledge about interrelations between the knowledge that *p* and other bits of first-order knowledge; or some other knowledge-based good. In other words, the added epistemic value contributed by grasping as such might be merely instrumental, a value grasping has in virtue of leading to more knowledge (say). To make the argument that grasping has *final* epistemic value, we must show that even in scenarios where, for whatever reason, no downstream epistemic benefits can be envisaged, the intuition remains that the agent who also grasps is epistemically better off than the one who merely knows. I think this is ultimately quite plausible, and that envisioning a congenital aphantasiac “waking up” to imagery could help us see that; but it would have to be shown.

What I have argued here is that this is the most promising avenue for defenders of the epistemic significance of imagination. Given that imagination faces the threat of being epistemically preempted by rational capacities when it comes to modal knowledge, and that appeal to pluralism about modal justification or modal beliefs doesn't help, something else is needed to secure the epistemic significance of imagination. What I have argued is that a pluralism about epistemic value that recognizes an irreducible epistemic value in modal understanding_{k+g}, or in its grasp component, coupled with the notion that imagination constitutes the grasp of possibilities necessary for modal understanding_{k+g}, is the safest way to secure the epistemic significance of imagination.

There is much exciting work to be done on the direct grasp of possibility and its connection to modal understanding and epistemic value. But prospects appear promising for an argument along the following lines in support of the epistemic significance of imagination:

- 1) Imaginative experience is necessary for direct grasp of possibilities;
- 2) Direct grasp of possibilities is a final epistemic good irreducible to modal knowledge; therefore,
- 3) There is a distinct and irreducible final epistemic good for which imaginative experience is necessary.

Call this the *argument from modal grasp*. It constitutes a strategy for securing a prominent role for the imagination in modal epistemology that cannot be preempted by exercise of rational capacities. At the same time, it is consistent with the fact that rational capacities appear to render the imagination dispensable when it comes to the acquisition of modal knowledge. I have argued that this is the *best* strategy for securing a central epistemic role for the imagination.⁷

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¹ Within this framework, and assuming that the formal objects of emotions are different values – with positive emotions having positive values for their formal objects and negative emotions negative values – a question arises immediately concerning the similarities and differences between the formal objects of desire and of the positive emotions (since the good, or the good-for-me, is also a value). For a fuller discussion of this, see Kriegel 2018: 198–207).

² Perhaps a more precise statement would be that the possible is the formal object of *sensory* imagination while the *possibly true* is the formal object of propositional imagination. But this nuance will play no role in the discussion to follow.

³ The notion of *conceiving* (as well as its cognate *conceivability*) lies intriguingly in-between the two. On the one hand, intuitively it seems that my conceiving of purple grass may be *constituted by* my imagining purple grass (or perhaps my imagining *that* grass is purple). On the other hand, the word “conceiving” makes us think of a mental activity concerned with the manipulation of *concepts* – which harkens back to some of rational capacities just discussed. For this reason, I will bracket conceiving in what follows, even though it has been a central notion in discussions of modal epistemology.

⁴ What does “the actual occupant of the water role” mean? It’s a shorthand for an extremely complex rigidified definite description. To a first approximation, the recipe for producing the relevant description is as follows (for details see Kriegel 2017). First, collect all the descriptors we commonsensically take to apply to water: is clear when clean, quenches thirst when you drink it, fills the lakes and oceans, sometimes falls from the sky, is commonly used to do laundry, is sold in bottles in supermarkets, etc. etc. Once you have collected *all* such descriptors, make every possible list of *most* of them. For example, if you have 1,000 descriptors, you might write down every list of at least 850 of them. From every such list, you can produce an extremely long *conjunctive* descriptor – with at least 850 conjuncts! When you do this for each possible list, you will get very many extremely long conjunctive descriptors. Now take all of these and make a disjunction of them. This new disjunctive descriptor would apply to anything that satisfies at least one of the conjunctive descriptors – anything, that is, that satisfies at least 850 out of the 1,000 descriptors we commonsensically take to apply water. Finally, preface this obscenely long disjunctive descriptor with “the *actual x* such that,” or the more patient “the *x*, such that *in the actual world*, . . .” This is what “the actual occupant of the water role” points toward. When we say that it is necessary a priori that water is the actual occupant of the water role, what we are saying is that it is a necessary truth, flowing from the very nature of the concept of water, that water is

whatever in the actual world satisfies most of the descriptors that we commonsensically take to apply to water.

⁵ Since cognitive capacities of this sort are mental *dispositions*, whereas experience is *occurrent*, a natural view is that the relevant experience is the *categorical basis* of the cognitive capacities, and therefore *grounds* them: it is because the subject undergoes the grasping experience that they have the relevant visualization and inferential capacities.

⁶ Note that the kind of imagination needed to play this epistemic role is the kind that is essentially experiential. In §2, I mentioned the distinction between sensory and propositional imagination: the former essentially exhibit a sensory profile and accidentally if at all involve the application of concepts, whereas the latter essentially implicates concept-application and accidentally if at all exhibits sensory qualities. Since concept-application does not require experiencing anything, propositional imagination is not the right kind of imagination to deliver grasp of possibilities. It is sensory imagination of a flying pig that ensures we grasp the possibility of a flying pig.

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