



Every view is a view from somewhere: pragmatist laws and possibility (*Toda perspectiva es una perspectiva desde algún sitio: leyes pragmatistas y posibilidad*)

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ABSTRACT: Humean accounts of laws are often contrasted with governing accounts, and recent developments have added pragmatic versions of Humeanism. This article offers Mitchell's pragmatist, perspectival account of laws as a third option. The differences between these accounts come down to the role of modality. Mitchell's bottom-up account allows for subtle gradations of modal content to be conveyed by laws. The perspectival character of laws is not an accident or something to be eventually eliminated – it is part of how this modal content is conveyed. I conclude with a discussion of the metaphysical commitments in Humeanism as requiring a perspectiveless view of the manifold from outside, and how Mitchell's situated account is better able to account for the substantive notion of possibility involved in scientific laws.

KEYWORDS: pragmatism, Humeanism, laws, perspectivism, modality.

RESUMEN: *Las explicaciones humeanas de las leyes suelen contrastarse con los modelos de cobertura legal, y recientemente se han añadido versiones pragmáticas del humeanismo. Este artículo presenta la teoría pragmatista y perspectivista de las leyes de Mitchell como una tercera opción. Las diferencias entre estas propuestas tienen que ver con el papel de la modalidad. El enfoque de Mitchell, de abajo a arriba, permite dar cuenta de gradaciones sutiles en el contenido modal transmitido por las leyes. El carácter perspectivista de las leyes no es un accidente o algo que en última instancia deba ser eliminado – es parte de cómo transmite este contenido modal. Concluyo con una discusión de los compromisos metafísicos asumidos por el humeanismo al requerir una visión de la multiplicidad sin perspectiva, desde el exterior, y de cómo el enfoque situado de Mitchell es capaz de ofrecer una mejor explicación de la noción sustantiva de posibilidad involucrada en las leyes científicas.*

PALABRAS CLAVE: *pragmatismo, humeanismo, leyes, perspectivismo, modalidad.*

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1. Introduction

This paper offers a meta-metaphysical discussion that situates Mitchell's (2000) pragmatist account of laws, updated with an explicitly perspectival approach, with respect to a parallel discussion among Humeans about pragmatist Humean accounts of laws. I will note several points on which Mitchell's and Humean views generally agree, especially on laws as descriptions rather than as somehow built into the structure of the world itself, to govern that world. In both approaches, laws are the most efficient and true (on an appropriate understanding of 'true') way to describe our actual world. In Mitchell's approach, and the specifically pragmatist flavours of Humeanism, our situated perspectives on the world, from this corner of space and time, play a large role in which descriptions count as laws. And, similarly in type though to very different extents, both pragmatist Humeanism and Mitchell's pragmatist perspectival account take seriously the contingencies of our current state of scientific knowledge and practices as part of what counts as 'best' in the best system of laws.

The perspectival approach to pragmatist laws does not change Mitchell's approach so much as clarify certain features of it. Drawing on Massimi (2022), there are different senses of perspective that both need to be involved. In painting, for example, one doesn't simply take a perspective on some independently existing object. The viewer is situated with respect to the representation, the painting, taking a perspective on, for example, a room. At the same time, the viewer has that situated perspective because the representation itself is painted with perspective, such as a vanishing point, and it is this perspective in the representation that situates the viewer. Perspectives are not merely the result of different viewers producing representations of a single target from different perspectives, which eventually can be combined and eliminated. The perspective in the representation remains.

The central difference between pragmatism perspectival laws and Humean laws, of any variety, is in their treatment of modality. Humean accounts of laws describe the actual distribution of properties and events (or other suitable *relata*) over spacetime. Laws construed thusly can vary according to necessity, in some ways, but do not themselves convey necessity. They are what *is* true of this actual world, but could have been different. Indeed, they could have been arbitrarily different. It is relevant that the Humeans speak of a mosaic: there are no restrictions on how the pieces of a mosaic can be arranged or rearranged. Anything is possible. In contrast, Mitchell's approach recognizes what I will argue is a key feature of how laws are used in practice, in the sciences: they convey modality in a way that goes beyond what Humean accounts can supply. In particular, laws are generalizations circumscribed along parameters such as specificity, generality, useability, and more, where something is designated a law because it does more than simply describe how things actually are. It also describes how things *could* be, and sometimes how they *must* be or *could not* be. Mitchell's pragmatist perspectivalist view captures how possibility and necessity, in subtle gradations, are conveyed using laws, in a way that Humean accounts cannot in principle do. Humean views must offload modality onto other worlds, or onto substitutes for other worlds such as with ersatzism.

Mitchell's approach keeps a substantial understanding of necessity and possibility where some other arrangements are possible, and some are not, and where laws are used by scientists to outline those boundaries. Humean approaches take such necessity associated with laws to require that laws are somehow in the world, governing its time evolution, rather than descriptions of that world. Mitchell's pragmatic perspectival account of laws

is able to show how laws are used in practice as ways of conveying important modal information about necessity and possibility, but without having to subscribe to a governing account. And it is able to explain why a pragmatist perspectival approach so well suits scientific practice, more so than Humean accounts that move in a pragmatist direction. Making Humean accounts more pragmatist moves them closer to practice, but in a way where they will still never be fully able to account for how laws are used to convey modal information, so long as they remain Humean about possibility and necessity.

A further important difference is the starting point. Mitchell's and the Humean approaches can be characterized as bottom-up and top-down, respectively. Humeans start with the array of all the properties and events (or other suitable substitutes) distributed all across spacetime as viewed from outside, so that the entirety is in view, as it were. The laws are the set of descriptions that best maximize efficiency of description with accuracy, for that distribution over the entirety of the world. This is top-down: a law is a law because it came out well as a descriptions across *all* of spacetime. This means there could be regions that are sub-optimally described with that law, even though overall more is accurately described with it than with any other law. The pragmatist Humean then modifies this by decreasing the scope somewhat: instead of the entirety of space time, we can limit our 'view' of what laws describe to what contemporary science has access to, for instance. But it is important to note that this starts from the 'top', with the full sweep of space time, and then narrows down. Mitchell's approach starts in the opposite direction. Insofar as we can make any generalizations from one case to another, even if it is weak and limited in scope, it gets us more, as a description, to say what does and can hold using a law to convey the modal information. As scientists learn more, laws can be expanded in scope, changed in degree of abstraction, etc. But a law can be small and humble, constrained to certain kinds of systems in a small region of space-time; laws need not be on the hook for anything universal, even in principle. Bottom-up approaches to laws start with regularities that can be described with circumscribed scope and stability. Sometimes those laws, or, descriptions, can be expanded to new circumstances or using more abstract vocabulary so as to connect a wider range of regularities; they can become near-universal, in principle. Yet there is nothing that makes such descriptions *more* lawful than the more narrowly circumscribed ones; they can all be laws, with different scopes, differing stability, differing levels of usefulness in specific practices, and so forth.

I conclude with a discussion of what is really at stake, meta-metaphysically, in the difference between these two pragmatist approaches to laws, Mitchell's and the Humeans. The central differences involve possibility. The Humeans take anything at all to be possible, and for very little to be involved in that sense of possibility. In saying that something was possible but not actual, there is very little said – only the metaphysically impossible is ruled out (and maybe not even that; see, inter alia, Wilson, 2018). In contrast, Mitchell's approach involves more significance in saying that something is possible but not actual: the law(s) that are used to evaluate or make such a claim in the sciences rules out wide swathes of arrangements of properties and events as not genuinely possible. It is more significant to say that something could have happened but didn't, when there are just more things that could not even possibly have happened. I fill this in with an example drawn from protein folding: Mitchell, but not Humeans, have an explanation of why certain kinds of protein foldings are impossible. Any claim that there is a world where such a folding is possible would be incoherent on the pragmatist perspectivism approach.

Put together, these similarities and differences highlight a key difference that sits behind the two approaches. Mitchell's perspectival pragmatism is always situated in the actual world. The view taken in the sciences cannot be perspectiveless, and there is no series of perspectives that somehow lead towards or become a perspectiveless view on the world. The Humean approaches involve or, more strongly, crucially rely on presuming that we can take a perspectiveless view from outside the world of the totality of it at once. This view *sub species aeternitatis* is a kind of end-point that even pragmatist Humean views presuppose; they acknowledge that we may not achieve it, but nevertheless it is in principle possible, just practically impossible. Mitchell's view denies this: it is not something we should, or could, even aim at. Our perspectively situated laws are not failed attempts at achieving the view *sub species aeternitatus*. They aim at something else altogether. Her pragmatism is not one of aiming at some ideal but accepting that we will fail to achieve; it involves aiming at a different epistemic goal than the Humean ideal (see Andersen and Mitchell, 2023).

The perspectivism and the pragmatism also both show how the Humean approaches are in principle unable to account for why we get any real use out of laws in present science. The Humean starts from a view of the actual world imaged from the perspective *sub species aeternitatus*. The pragmatist denies the existence of any such perspective such that one could take it. Insofar as there are claims that require such perspective in order to be formulated, they are problematic or incoherent. Laws as the best system to describe the distribution in the actual world with greatest efficiency and accuracy must invoke such a perspective. This remains true even if the Humeanism is then tempered with pragmatism.

The upshot of the meta-metaphysical differences, then, is that Mitchell's approach and the pragmatist Humean approach start in very different places with respect to laws, and modify that starting point to get closer and closer to one another. In many ways, pragmatic Humeanism is approximating closer and closer to Mitchell's view. Yet there is an unbridgeable difference between them, because even if they end up agreeing about what the actual laws are, the idea of a perspectiveless view of the world, and the arbitrary rearrangeability of anything in that world, is presupposed in order to reach that position for the Humeans, while it is rejected in Mitchell's approach.

2. Pragmatist laws and partial perspectives

This section lays out Mitchell's pragmatist view of laws, especially as found in her (2000) paper, and the background discussion in which this work was situated, as well as additions and refinements to this view she has made in the intervening time. It is helpful to see the discussion to which she was responding at that time, and how it has changed in the meantime, in order to situate the original view and show how the new developments, especially perspectivism (e.g., Massimi, 2022), update the account.

At the beginning of the 20th century, Russell famously claimed that causality is a relic (1912),¹ and offered functional laws as a substitute. This framed much of the 20th cen-

¹ It is worth noting that Russell's criticisms were of a very different understanding of causality than the contemporary one. Russell's target was something like an updated version of the Principle of Sufficient Reason, not anything resembling causality as found in, *inter alia*, Pearl (2000).

ture discussion of laws with the idea that laws are how the parts of an already-filled full spacetime manifold relate, deterministically connecting instants of time as necessary consequences of initial conditions plus deterministic laws. Humean account of laws presuppose some variation of this background view, with a fully determinate manifold of events, viewed as complete and from outside, in order to talk about patterns of regularities in the events such that one can then speak about laws as some kind of condensed description of those events. Humeanism then adds to this that the manifold is mosaic-like, in that there is no necessity to how the distribution over the manifold had to go. Russell cemented the idea that laws are viewed by standing outside of spacetime, gazing with our philosophical eye on a manifold of spacetime full of determinate events in order to ascertain what its laws are. Furthermore, his work cemented the idea that causality is suspicious as a way of accounting for the regularities in the distribution that we find. Even when causality (or causation; I will use these terms interchangeably) made a re-appearance in Hempel and Oppenheim's (1948) influential account of explanation, it was as a substitute label for deterministic laws, and in contrast to statistical laws. This shows how different the understanding was, since contemporary work on causation integrally involves statistical and probabilistic relations.

At the end of the 20th century, after *gruesome* attempts to make the deductive-nomological account work, there was a general acceptance that the syntactic view of laws would not work. This opened the playing field in several ways. It highlighted the role that generalizing from one range of circumstances to further, new, circumstances, and unifying apparently disparate phenomena, was part of what an account of laws should include. It highlighted the role that modality was playing, for which the necessity of deduction was not an adequate substitute. This period also included formidable criticisms of laws as universal, top-down generalizations that are true everywhere. Cartwright's (1981) criticisms of laws showed that even in physics, the supposed exemplar field for laws, laws were not true universal generalizations. There was also growing work on replacement of laws with a new understanding of causation. These three interconnected topics of laws, causation, and explanation, were up in the air at the start of the 21st century. At the heart of these three issues were modality: how to convey subtle gradations of necessity and possibility that varied across sciences, across contexts, and in degree, in order to provide adequate descriptions of the regularities science studies that neither overstates nor understates how regular they are. The modal content of knowledge products, including laws, models, experimental practices, and integrative explanations, required more tools for adequate description than were on offer.

Several key developments occurred right at the dawn of the 21st century that can be situated as responses to this dissatisfaction with laws. One was the publication of Pearl's (2000) and Spirtes, Glymour, and Scheines' (2000) books with a radically new approach to causation, opening up a new way to talk about explanation without having to rely on laws. Another was the publication of Machamer *et al.*'s (2000) work on mechanisms, which accepted the general idea that laws were of a certain character, and that biology lacked them, then offering a new account of mechanisms instead of laws as the primary mode of explanation in biology. And finally, Mitchell (2000) developed a new view of laws, rejecting the deductive-nomological approach implying biology lacked laws, and redefining what it meant to be a law such that it fit all the sciences, including biology and physics, better. I turn now to the specifics of Mitchell's view.

Mitchell, working in philosophy of biology, wanted to recognize the role that generalizations describing regularities played in the sciences, including biology, such that the existing accounts of laws were inadequate to this task. Clearly scientists used some kinds of generalizations in ways that philosophers of science should note and be capable of adequately accounting for; biologists were not engaged in an endeavor that was so fundamentally removed from physics that some entirely new form of explanation and reasoning was called for. Her view offers a way of compromising between governing views of laws, where laws involve a distinctive kind of necessity built into the world, and Humean accounts that reduce or eliminate necessity so that laws are instead efficient descriptions of patterns of regularities in a mosaic that is taken to be arbitrarily rearrangeable. Laws could be descriptions of regularities without having to be universal and exceptionless, and also without having to subscribe to possible worlds, or a substitute, as a way of talking about why some particular law counts as a law.

Instead of starting from a set of necessary and sufficient conditions for a law, she approaches the question in terms of what role laws play in science; there must be something to laws, given how they are used, and it is this use that we as philosophers of science are especially interested in characterizing. This functional approach already rejects a certain kind of claim to authority that physics was given such that it was the 'real' science, compared to biology, because biological claims involved more historical contingency. If laws are part of our explanatory tools, then surely biology has something serving that role as well as physics. Even if one grants physics that status as more universal (which, after Cartwright, was already contentious), then that does not mean that any degree of contingency renders a scientific field a study of accidents. Instead of relinquishing laws to physics and looking for some other way that explanations in biology might go, Mitchell reclaims laws for biology, with a better understanding of law.

Her emphasis was on the usage of laws and lawlike generalizations in scientific practice. What were the purposes served by the kinds of descriptions that were called laws by scientists applying them, or used in ways that were lawlike? One central role they play involves what we now label modality. Laws describe what happens, but not in a bare or superficial way; laws describe what must happen, or could happen, or could not happen, such that the laws can serve a variety of useful roles in predicting what will happen, including under circumstances not yet observed, in explaining why certain things happen or don't ever happen, and how to intervene to change between possibilities.

For Mitchell, laws are bottom-up generalizations. Generalizations that go beyond what was literally already observed, count as descriptions of regularities that can serve as laws. What makes a law in other approaches, such as Humean or D-N, is that there is a universal claim, true everywhere at all times, and from this kind of universal law, we are supposedly able to deduce more particular laws for specific kinds of phenomena with a more limited scope. This is also, to anticipate a future section, the approach taken by Humean accounts of laws: a law is part of a best system for describing regularities in the totality of spacetime, from which we might derive more specific, spatiotemporally constrained versions, which inherit their lawhood from the universal version. Mitchell rejects that top-down approach where laws get their lawhood derivatively from universality. Laws instead can become laws by being more general than other comparative descriptions; something might be highly constrained in range of applicability or scope of generalization, but if it is non-zero in generalizing, then it could be a law. These can vary by becoming more generalized, and often scientists want to increase the range that a generalization covers. Yet it still works by being

more general compared to bit by bit descriptions; there is no need to invoke, even in-principle, some universal law of which it is a more particular version.

It should be clear that one of the defining roles for laws involves their ability to capture the modal features of descriptions. She points out that in any science, including both biology and physics, there are claims that fall along a “continuum of contingency”. Some of them are completely contingent, and some appear not to be contingent, such as conservation laws. Most claims in the sciences fall somewhere along this scale of contingency: neither fully necessary nor fully accidental. Consequently, part of what laws do is pick out comparatively less contingent claims. An account of laws, then needs to have a dimension along which contingency can vary and using which contingency can be compared: “...to reserve the title of ‘law’ for just one extreme end is to do disservice to science by collapsing all the interesting variations within science into just one category, non-laws.” (Mitchell, 2000, p. 254). She refers to this parameter as degrees of strength.

Degrees of strength is not the only way in which the account involves modal features such as possibility, necessity, and impossibility, but it is probably the central way. This feature stands in perhaps sharpest contrast to the Humean accounts to be discussed later. Degrees of strength don't make laws more or less lawful: we should resist the idea that, other parameters being equal, a law with a higher degree of strength is more law-y than one with a lower degree of strength. They can both be laws, without having to aim at full strength in order to count as fully lawlike. This means that modality serves a very subtle role in laws here. Part of their role is to capture gradations of necessity, such as conditions under which certain things must happen, or could not happen, and to describe the range of possibilities we should expect under specific circumstances, even though only one such possibility is observed. This is more than is ordinarily attributed to laws, where they may invoke necessity and impossibility only. The difference is that in the top-down case, laws say what must, or could not, happen overall. Bottom-up laws can say what must or could not happen under these circumstances, but not those, and what is possible in these cases but not in those cases. This is a contrast to D-N approaches to laws and also a strong point of contrast with Humean accounts. Possibility here is a substantive notion: is not merely that anything is possible, and only one situation is actualized in the actual world. Possibility is a feature of the regularities themselves, and to say that it is possible for some regularity to have been different in one way, but not another, is part of what the content of laws involve. It is also not something that Humean laws are capable (more on this soon).

Pragmatism often involves rejection of dichotomies as likely to be misleadingly oversimplified, and in this case, the rejection of the necessary versus accidental dichotomy is not a rejection of modality, but a rejection of the binary distinction as adequate to the task of representing modality. Rejecting the simplified dichotomy supplements the ‘yes or no’ with a finer-grained method of providing subtle gradations of multiple modality-bearing features of laws. Laws are part of our expressive and representational toolkit for describing regularities as well as describing the conditions under which those regularities should be expected to hold, and under which they should be expected to fail. Laws are whatever plays the role of laws; and laws are *for* conveying this distinctively modal content in the sciences, as part of predicting, explaining, and intervening.

A second parameter along which Mitchell's laws can vary she calls stability: the conditions for a law to apply can be, for some laws, quite stable against perturbation, which means that the law holds more widely and across a wider range of variability in the condi-

tions in which it holds. Sometimes a law holds less stably, so that it is somewhat applicable in a narrower range of circumstances, but does not generalize outside of that narrower range. She says of Mendel's Law and Galileo's Law of free fall:

The difference, then, between the two is not that one functions as a law and the other does not, or that one is necessary and the other is contingent. Rather the difference is in the stability of the conditions upon which the relations are contingent. Consequently there is a difference in the information required to *use* the different claims. (2000, p. 256; emphasis in original)

This adds another pragmatist aspect to the account by emphasizing how the conditions of applicability include information about what is required to apply it. Scientists need to include in laws the conditions under which the law should apply. It is not that the laws are false, *per se*, outside of their range; they just don't apply, such that they could be evaluated for veridicality. Introductory thermodynamics provides easy examples of this: what gets called laws in most cases apply to energetically isolated systems, undergoing adiabatic changes. It is not that the laws of thermodynamics are false for systems undergoing non-adiabatic changes. They just don't apply: some of them don't make sense except as claims about adiabatic processes. A claim about the features an adiabatic process can have are neither true nor false of a non-adiabatic process.

She points out that laws of inheritance, often offered as candidate biological laws, have conditions under which they apply, and outside of which they just don't get traction. This is a rejection of the false dichotomy of universality or top-down views of lawhood. She points out that "virtually no scientific law is so unrestricted", including in physics (p. 257). But this means that the statement of the law itself must include information about the conditions under which to expect that law to hold, and potentially other information such as factors that will prevent it from holding. "As the conditions become less stable, more information is required for application" (p. 257). There is a pragmatist rejection of the idea that top-down universality is required for truth.

There is an ineliminable connection between the ontology of law claims, and the epistemological information required to apply those laws. Laws contain the information humans need in order to know how to *use* those laws.

Scientific knowledge consists of claims about the causal structure of the world and at the same time are represented in some form, be it linguistic, mathematical, or visual. The complexity that is reflected in the diversity and plurality of claims in the sciences reflects both ontological differences among the causal structures in the domains studied and in other features of the representational medium. (p. 259)

She notes that for some causal structures, laws might be a good way to represent them. For others, there may be better representations than laws. Her account of laws is not supposed to do what contemporary pragmatist Humean accounts do, for example and replace all representational formats.² Instead, laws are a required part of the toolkit for representing com-

² Causation is sometimes taken to supplant laws, such that laws are no longer required as part of the expressive toolkit for scientists. There isn't space to fully explore this here, but it means that her account of laws supplements but does not compete with causation.

plex causal structure, with complex modal content in the claim. “The lesson is that one presentation really cannot capture the structural features of all the kinds of causal structures found in nature” (p. 257). Scientists use laws to codify gradations of strength and stability that thereby guide others in using those laws, by involving in the formulation of the law itself the information required to know when the law holds and when it fails.

There are further parameters that Mitchell (2000) discusses that I leave aside for now. My goal here is to highlight these pragmatist features, the similarities with and differences compared with Humean approaches, and highlight the central role that modality and a substantive notion of possibility is playing. I turn now to some refinements in recent years, as Mitchell (forthcoming) incorporates further ideas, such as perspectivism, into her account of laws.

One way of understanding perspective is that of multiple perspectives taken on a single target of modelling. This sense of perspective involves different modelling methods that may return different perspectives that can be combined for a fuller view of the target system. This is closest to Mitchell’s views about how different methods for identifying protein structure may not simply yield a single unified view at the end (for example, Mitchell 2017 and 2020). There are other senses of perspective from painting, though, where one is situated and taking a perspective on a scene. A representation (scientific, artistic, or otherwise) can be perspectival, according to Massimi, “because it is drawn *from a particular vantage point*: the interior or the landscape is represented *as drawn from a particular angle...*” (2022, p. 13, italics in original). Yet the same representation is also perspectival in a different sense “because it is drawn *toward one or more vanishing points*” (p. 13). She brings these two senses together: “These two ways of thinking about what makes a representation perspectival are two sides of the same coin, it is because the representation has one or more vanishing points that it appears to be drawn from a particular point of view” (p. 13).

This fits neatly with the bottom-up approach to laws in Mitchell’s account. Generalizations will be descriptions of regularities that start somewhere, describe regularities from a perspective, and, thus, towards a vanishing point that is part of the representation itself (in this case, a law rather than a painting). The perspective is not something that is intended to vanish or become assimilated into a larger total and perspectiveless representation once more perspectives are brought in. The perspective in a representation like a painting is not a compromise that the artist has made because they were unable to achieve some ideal, unsituated perspectiveless view of their target. Similarly, for Mitchell, pragmatism is not about aiming at some unachievable ideal and then reconciling oneself to compromising because of the ideal unattainability. The ideal of a perspectiveless painting is not what (in Massimi’s example) painters like van Eyck were aiming at but failing to reach. They simply weren’t aiming at it, and treating them as doing so misunderstands their project. Analogously, pragmatist perspectival laws don’t aim at and fail to be true universally, and don’t aim at describing the totality of spacetime and fail by only describing a part. They simply aim at something else. On this perspectival pragmatist account of laws, scientists are not aiming at, and failing, some perspectiveless representation of the totality of the world. Instead, they aim at, and succeed often in, representations that capture the gradations of modality and regularity, the scope to which these extend and the circumstances under which they fail, as perspectives on the world, from their own situated perspectives as knowers and actors.

3. Pragmatic Humean accounts of laws: missing modality

This section discusses Humeanism about laws, and recent moves towards a pragmatic version of Humeanism. I will discuss several issues around pragmatic Humeanism, with the end goal of making the case that although pragmatic Humeanism moves best systems accounts closer to something like Mitchell's, there is still a fundamental divide between them, and that divide involves modality: whether (for Mitchell) or not (for Humeans) there is a substantive notion of possibility and necessity in this actual world, which laws capture.

A common way to divide contemporary accounts of laws is into Humean versus governing (see, *inter alia*, Hildebrand, 2020). Governing accounts (e.g., Lange, 2009) involve a commitment to the idea that laws, or law-makers, are built into the structure of the world itself, and that they govern or direct the time-evolution of the world. A governing view of laws offers the possibility for strong explanations, because for anything that happens, the laws can explain why it happened that way, and not otherwise: it *had* to happen thusly, because of the laws. Governing accounts of laws embed modality in the world and treat laws as something akin to the bones over which the fabric of the world is stretched.

In contrast, Humean accounts of laws, also called best systems accounts, developed out of Lewis' rejection of modality as *in* the actual world. Humean accounts reject the idea that laws are 'built in' to the world. Instead, a fundamental defining feature of Humean approaches is that the distribution of properties and events (or suitable substitutes) over the totality of spacetime could have been arbitrarily rearranged. This is the mosaic: there is nothing about the events or properties such that they couldn't have been any other way whatsoever. There are no impossible arrangements, in other words, nor ones that are more or less likely. This comes with a way of off-loading modality onto possible worlds, or onto substitutes for possible worlds such as ersatzism (e.g., Wang, 2015), that have descended directly from David Lewis. To say that a different arrangement over spacetime is possible is just to say that there is some possible world (or, again, a substitute) in which there is such an arrangement. And, on this way of treating modality, there are possible worlds for *every* possible arrangement over the totality of spacetime. I do want to note, for exegetical thoroughness, that many of the views labeled Humean are more appropriately labeled Neo-Humean³; they take some inspiration from Hume, or involve an added interpretive commitment over and above what does appear in Hume's works, but the views often don't actually appear as such anywhere in Hume's work. Hume does not develop the Humean mosaic, for example, and his remarks about the "ultimate springs and principles" that are shut off from human inquiry seem to point to Hume's thinking that these exist, and constrain what is possible, and are epistemically inaccessible rather than non-existent.

In addition to rejecting any substantial modality in the actual world, Humeanism is characterized by being top-down about laws. The laws are a package of generalizations that best maximize both efficiency of description of the distribution over spacetime, and accuracy of that description. Thus, in order for a candidate law that applies to some smaller subset of spacetime to be a law, it must be part of that overall package that best maximizes efficiency and accuracy. The performance of a description of a regularity in a narrow, cir-

³ A more accurate label, in my view, is that these are Hume headcanon (or perhaps more generously, Hume fanfic).

cumscripted domain, can not ever be good enough, on its own, to make it a law. Laws are made by being part of that package.

Already, there are two major differences and at least one similarity here compared to Mitchell's account. Starting with the similarity, both Mitchell's and Humean approaches reject the governing model of laws, and both endorse the idea that laws are descriptions of regularities, in some way. One major difference involves the fact that Humeanism requires a rejection of any necessity in how the regularities are distributed over the world - there are no distributions that would be impossible, and no other distributions, compared to the actual, that are more or less probable than other possible distributions. The other major difference is the top-down feature of what makes a generalization a law. Humean laws are laws because of the totality of spacetime: if some far different part of the universe is altered, then something that was a law before, and which still describes a large part of the universe with great accuracy, will no longer be a law. On Mitchell's bottom-up approach, if a generalization works really well, in these circumscribed conditions, then nothing elsewhere in the universe will somehow change that performance here and render it not law-like. It will still be usable as a law in just the same way.

The first difference is that there is no necessity or possibility in the arrangement of regularities in *this* world for Humeanism, and the second difference is that Humean laws are laws by dint of the totality of the world, not because of their performance in the part that contemporary science has epistemic access to. Both come down to issues of modality. Humean accounts eliminate the modal content: anything could have happened, any other patterns of regularities could have been observed, and the ones we do observe have no further necessity associated with them. This doesn't solve the problem of how to accurately portray modal content using laws, so much as reject that there is any problem to solve. Humean best systems accounts of laws add a further assumption here, in order to eliminate the modal content, namely, that patterns of regularities in the spread of properties across spacetime in a given world are what laws describe, but nothing made it be this way rather than another way. The Humean mosaic is mosaic-like precisely because any of the analogues of tiles in the mosaic could be placed arbitrarily, any next to any other tile. To have genuine modal content in this picture would be to say that some tiles couldn't go next to each other - maybe the analogues are more like magnetic tiles instead of regular ones. It would also be to say that some arrangements of properties over spacetime are not possible.

Compare how this plays out with respect to contemporary science. Let's say some representation such as a model involves the claim that certain configurations of the system are possible, and other configurations are impossible. A good example might be models of protein folding: there can be more than one possible folding of the protein, but there are lots of ways in which the protein just cannot fold, and this information, along with the actual way it is folded in some context such as in the cell performing some task, is part of what the model itself contains as representational content. The Humean approach makes modality in-principle, and total: when a scientist makes a claim about possible protein foldings, and impossible ones, there is no good way to say this, in a Humean account. There could be some world in which the 'impossible' protein folding is actual. Mitchell's account is thus apt for what contemporary scientific practices yield as knowledge: laws about protein folding can be extremely useful, and involve strong modal claims, even though the range of applicability is extremely narrow. The Humean, on the other hand,

cannot call these laws, and cannot account for why some foldings are possible and others are not, when the other possible foldings and the impossible foldings are equally non-actualized in this world.

This failure for general Humeanism to be capable of doing justice to the practices of the sciences drives Humean views of laws away from connection to science in a way that some found problematic. This has led to a new wave of what are labeled pragmatist, or pragmatic, Humean views of laws (e.g., Bhogal, 2020; Friend, 2022; Hicks *et al.*, 2023). Pragmatist Humean accounts of laws want to add to the criteria of efficiency and accuracy further criteria that can help adjudicate between competing sets of laws for a given world. Part of the motivation seems to be that our current candidate laws in physics may not survive as laws overall in a Humean system, yet they are extremely useful and give us a great deal of predictive and manipulative handle on the world. With a pragmatic view of laws, we are allowed to foreground what works for humans, and what would be comprehensible to humans specifically. This means that a Humean about laws can still invoke our best current physical theories for candidate laws, even though these may yet change. This is where the pragmatism comes in: it is intended to highlight that humans are playing some role in which descriptions are laws.

One challenge faced by Humean accounts of laws is that such laws cannot explain anything about the world, and pragmatism offers Humeanism a path through this problem. The explanatory circularity challenge to Humeanism, often issued from the governing view (e.g., Lange 2013), is that Humean laws can't explain anything about regularities, because they are themselves derived from those very regularities. Laws no longer convey modal information about what must have or could not have been; they just describe precisely. As such, their ability to play any explanatory role has been gutted. They no longer say that anything must be, or could not be, or could have been otherwise; they simply describe the bare facts, which is unilluminating. Humeans sometimes respond by distinguishing further types of explanation, so that laws don't circularly self-explain (e.g., Loewer, 2012).

I will not address this whole debate about circularity, but want to point out the Humean's solution to modality then raises a further, new, issue, about explanation. Eliminating modality solved one problem but created a new one. The bump under the rug was just moved around between modality and explanation.⁴ Further discussions of this issue (Dorst, 2019; Bhogal, 2020; Emery, 2019; Hicks, 2021), invoke explanation as the solution to this problem. But this turns the role of laws on their head: laws have, until this new version of Humeanism, been something that could figure in explanation and provide us an understanding of why explanations explain – conveyed in modal information especially. By eliminating the modal content of laws, they no longer do the work for explanation, and accounts of explanation must now sort out the issue with laws. The bump in the rug was moved enough to come back around in a circle.

The pragmatic Humean can note the usefulness of particular laws for human purposes as a reason why one law, but not another, explains rather than merely describing

⁴ Interesting, Lange also points out how this echoes the recognition by Hempel and Oppenheim of how facts about singular events are involved in the explanation of that single event, when conjoined with a law of the right sort. In a longer paper, there is a great deal more to be explored about repeating philosophical problems and solutions over this historical arc. Many contemporary debates around laws, explanation, and causation are repeating past ones with slight adjustments.

what happens. This improves on the situation with respect to explanation, and does so by moving the overall Humean view closer to Mitchell's position. Both Mitchell's pragmatist and the Humean's pragmatic accounts center scientists, though in slightly different ways. Mitchell's functional approach, asking what role it is that laws serve, still returns slightly different answers than the pragmatic question of, what is it that current humans find useful. Nevertheless, the pragmatic Humean view mitigates the top-down universality that made Humeanism such an exact opposite of Mitchell's bottom-up approach. The pragmatic Humean view can mitigate the extent to which far-flung imagined changes to space-time alter what counts, here and now, as a useful law.

However, no matter how much closer they may have gotten in the end result of what counts as a law, there is still a fundamental gap between Mitchell's pragmatic perspectivism and pragmatic Humeanism. This gap involves modality. Pragmatic Humeanism is still, at the end of the day, Humean. When scientists attribute modality to the regularities they describe with their perspectival models, Humeans of any stripe cannot account for what, exactly, they are saying. This modal content is erased in any flavour of Humeanism. Mitchell's account is designed to capture this, though. When a model represents a protein as foldable in two other ways than its current configuration, where any other configurations than those are physically impossible, her pragmatist perspectivism offers a variety of parameters by which to situate this claim in terms of stability, strength, conditions of applicability, useability, and more. Thus, even the pragmatic version of Humeanism is ultimately unable to account for the modal content of scientific claims; the problem is the Humeanism, not the pragmatism.

This also means that setting Humean best systems accounts against governing or necessitarian accounts of laws is a false dichotomy. We needn't either reject modality as merely patterns in an arbitrarily re-arrangeable mosaic, nor commit to a rigid necessitarianism that brings us back to the 20th century discussions D-N style approaches. There can be more innocuous understandings of modality, and a need to capture the various degrees of modal strength that laws convey and which figure in explanation. Mitchell's account offers a genuine third option between Humeanism and governing accounts.

4. Conclusion: every view is a view from somewhere

The difference between these two views of laws that both invoke pragmatism turned out to involve a basic metaphysical difference about the nature of modality. Philosophers of science sometimes squint at or skip over metaphysical issues like modality by emphasizing that their concerns are about practice and methodology. The preceding discussion shows, though, that methodology and practice are not, in fact, fully separable from metaphysical considerations. The basic difference in accommodating the genuine modal content of scientific law claims came down to metaphysical views about modality as involving possible worlds (or substitutes) versus a substantive notion of modality that is part of the actual world.

Part of the metaphysical difference in terms of actuality and possibility come down to not the pragmatist part of her account, but the newly perspectival part. Recall Massimi's point that paintings involve perspective because they situate the viewer as viewing from a particular perspective.; and they also involve perspective by involving vanishing

point(s) in the very content of the representation. It is not a failure of a good painting that it has a perspective, and involves vanishing point(s). Analogously, it is not a failure of contemporary science that it involves a perspective on the world it studies, a perspective that is itself located in that very world. And it is not an accident that the content of the representations thus produced, especially laws, involve an analogue of vanishing points. These are advantageous features of these representational formats. They are not, contra Humeanism or any other approach involving ideal theory, a shortcoming that could, in principle, be overcome, where the overcoming would involve an improvement. Science does not have to be treated as aiming at, and failing to achieve, some perspectiveless view of the world.

Humeanism, though, must start with this kind of view from nowhere. Both governing and Humean accounts of laws presuppose a kind of view from nowhere on the manifold of the world, at least since Russell and McTaggart. They share the requirement that we imagine ourselves outside of time and space, omniscient viewers from a perspectiveless stance, where we can somehow see everything, everywhere, at all times, from a timeless and unspatial view (for a good example, see Hildebrand, 2020). The coherence of viewing the manifold sub species aeternitatus is a background commitment of both sides of the dispute as it is currently formulated.

This allows for a final note about how pragmatism is not merely “what would humans do?”, but a full-fledged approach to doing metaphysics. Consider how a pragmatist would challenge this kind of framing (see also Andersen and Mitchell, 2023). The Humean and non-Humean governing views in the law discussion share the assumption that it is coherent to articulate their particular position and to formulate their differences by positing a spacetime manifold with various properties at various locations, which we view from outside as philosophers. This view sub species aeternitatus is common to both camps. Even when pragmatist Humean views are offered, the manifold is still used in this way. This is the pragmatic Humean’s version the Marauder’s Manifold, where one can both be located on the map, moving around, while also viewing the map from outside. If we are not allowed to make any presuppositions about the totality of space and time, and only ever view the manifold from within, can the Humean view even be articulated? A pragmatist answer to this would be no: if we cannot, from any point within the manifold, have access to what the laws overall would be, then those laws aren’t doing anything for us. They may not even be well-defined. They cannot figure in explanations; and yet we do have explanations with apparent laws in them. As such, the pragmatist ends up with a commitment to modality that exceeds that of the Humean, without having to endorse the strong necessity of governing accounts.

Instead of trying to take a God’s eye view of everything, then work our way to a set of universal laws, and then get even more particular to explain specific patterns in the world, Mitchell’s pragmatist perspectivism goes the opposite direction. Perspective-taking is integral to development of representations, including the descriptions that fulfill the role played by laws in scientific reasoning. This is not merely how they are depicted, but the very content that is depicted. As such, Mitchell’s perspectival pragmatist view of laws has a great deal to offer this contemporary discussion.

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