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The Ideology of Pragmatic Humeanism

TYLER HILDEBRAND
Dalhousie University

According to the Humean Best Systems Account, laws are generalizations in the best systematization of non-modal matters of fact. Recently, it has become popular to interpret the notion of a best system pragmatically. The *best* system is sensitive to our interests—that is, to our goals, abilities, and limitations. This account promises a metaphysically minimalistic analysis of laws, but I argue that it is not as minimalistic as it might appear. Some of the concepts it employs are modally robust, leading to a dilemma.

1. Introduction

Let's begin with a description of Humeanism in its most general form.

> *Humeanism:* Fundamentally, the world is just a grand mosaic of non-modal matters of fact.

At rock bottom, Humeanism posits events in spacetime, and that's all. Its *ontology*—the set of entities it posits—is economical. So too is its *ideology*—its set of primitive concepts and/or predicates. Notably, none of them are modally-laden. Humeanism makes no reference to laws, powers, dispositions, subjunctive facts, and the like. These are attractive features of this general metaphysical worldview.

How, then, should Humeans think about laws of nature?[1] Most prefer an analysis along the following lines:

> *Humean Best Systems Account (BSA):* Laws of nature are contingent generalizations in the best systematization of the Humean mosaic.

1. For recent introductions to Humeanism and Non-Humeanism about laws, see Hildebrand (2023), Hildebrand (2020), and Bhogal, 2020a.

Contact: Tyler Hildebrand <hildebrand@dal.ca>

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The notion of a *systematization* is relatively straightforward: it's just a set of sentences (usually taken to be true sentences) about the mosaic. The *best* systematization is the one that best balances various theoretical virtues. For example, some systematizations are more informative (stronger) than others, and some systematizations are simpler than others.[2]

The BSA has many attractive features. It elegantly captures the distinction between law and accident, and in many respects it aligns with our intuitions, ordinary concepts, and scientific practices concerning laws.[3] Moreover, it does so without invoking new metaphysically robust entities or primitive modal concepts, so it seems to preserve Humeanism's attractive economy of ontology and ideology. In sum, the BSA is economical, easy to understand, and it does much of what we want a theory of laws to do.

Unfortunately, when we dig a bit deeper, it's unclear whether the BSA possesses all of these advantages. The question "What makes a best system *best*?" is notoriously difficult to answer. Without an answer the Humean BSA is incomplete: it doesn't actually show how to analyze laws in terms of the Humean mosaic.

One difficulty is that our choice of theoretical virtues such as simplicity and strength is not as straightforward as it might initially appear. For example, Woodward (2014) identifies different conceptions of simplicity and raises some doubts about its role in scientific theory choice, and others propose new virtues.[4] A complete version of the BSA must specify which virtues feature in the analysis. Otherwise, it won't determine the laws.

Another difficulty concerns the weighting of theoretical virtues. A system that is best under one weighting may not be the best under another, but traditional formulations of the BSA provide little guidance here. Thus, they fail to determine the laws even if they tell us which virtues to employ.[5]

Yet another difficulty is that some virtues—especially simplicity—are language relative. Notably, if we allow gruesome, gerrymandered predicates we can describe arbitrarily complex mosaics with a maximally simple sentence![6] That's unacceptable. This led Lewis (1983) to propose the following rule:

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2. According to the canonical version of the BSA (Mill 1987; Ramsey 1978; Lewis 1973), simplicity and strength are the only major virtues.

3. This is not to say that the alignment is perfect. See Carroll (1994) and Tooley (1977) for influential counterexamples. In addition, there are arguments to the effect that Humeanism strips laws of certain desirable properties, such as the power to govern nature, explain regularities, and support counterfactuals (Armstrong 1983; Tooley 1977; Bird 2007; Maudlin 2007). In response, some Humeans are happy to accept revisions of our ordinary concepts (Beebee 2000; Loewer 1996; Bhogal, 2020b).

4. E.g., Braddon-Mitchell (2001), Dorst (2019), Hicks (2018), and Wilhelm (2022).

5. See Cohen and Callender (2009) and Woodward (2014) for complaints along these lines.

6. See Lewis's (1983) discussion of the infamous predicate *F*, which holds of all and only the (worldbound) individuals in the actual world, making the utterly simple sentence 'Everything is *F*' entail all truths.

> *Naturalness Constraint:* Systematizations must be expressed in languages involving only perfectly natural predicates.

What is a *perfectly natural predicate*? Lewis's idea, which will be familiar to those who have studied the problem of universals, is that some classifications carve nature at the joints better than others. The good classifications capture genuine similarities among objects, whereas the bad ones do not. For example: the set of all possible objects with negative unit charge is perfectly natural; the set of green objects is somewhat natural; the set of grue objects (objects that are green and first observed before the present or blue and first observed after the present) is much less natural; and a set whose only members are David Lewis's beard, this essay, and the number 7 is extremely non-natural. The Naturalness Constraint solves the problem at hand because it does not allow us to gerrymander predicates in our theorizing. However, it raises a new problem of its own. The Naturalness Constraint isn't metaphysically benign. By invoking the concept of naturalness, it posits objective metaphysical structure, and it requires our theorizing to be constrained by that structure.[7] As a result, the Naturalness Constraint complicates the Humean BSA. To some, this seems to violate the minimalistic spirit of Humeanism.[8]

In light of these three problems, it is unclear whether the Humean BSA really possesses the attractive features described above. However, there is a new version of the BSA that claims to provide a unified solution.

> *Pragmatic Humeanism:* Laws of nature are generalizations in the best systematization of the mosaic, where the best systematization for a group is the one that is best suited to advance the interests of the group—for example, by producing useful predictions and explanations given the goals, abilities, and limitations of the group.[9]

All three difficulties are allegedly avoided by allowing the best system to be sensitive to the interests of the agents actually employing the accounts of laws: *Why these virtues? Why this weighting? Why these predicates? Because they serve our interests!* In addition, Pragmatic Humeanism appears to accomplish this

7. There are different interpretations of the Naturalness Constraint. For example, Lewis (1983) suggests that one could adopt an ontology of universals, of tropes, or of primitive naturalness. Hildebrand (2019) identifies a further dimension along which we can distinguish different versions of Naturalness Constraints. The important point for our purposes is that all interpretations involve some heavyweight metaphysics.

8. See Loewer (2007), Cohen and Callender (2009), and Eddon and Meacham (2015), as well as most of the Pragmatic Humeans cited below.

9. There are different varieties of Pragmatic Humeanism. The general statement here—also featured in Hildebrand (2023: 16)—is inspired by accounts put forward by Halpin (2003), Hall (2015), Hicks (2018), Dorst (2019), Jaag and Loew (2018), and Loewer (2021).

without anything like the Naturalness Constraint, so it preserves the ontological and ideological economy of Humeanism in its general form.[10] That, at least, is the hope.[11]

Unfortunately, I fear that this hope is misplaced. Pragmatic Humeanism introduces some new concepts into its analysis of laws. We must apply the same level of scrutiny to these concepts that Lewis's critics apply to the Naturalness Constraint. When we do, we run into a serious problem. Any version of Pragmatic Humeanism requires some pragmatic criteria: namely, a specification of our goals and what it would take to satisfy them. On the surface, some of these criteria appear to be modally robust. Indeed, I'll argue that they have to support robust subjunctives to do their work—that is, to be pragmatic in the first place (§2). This gives rise to a dilemma (§3). If the modally robust criteria are taken as primitive, the account is incompatible with Humeanism. If the criteria are analyzable in terms of laws—as is typical of Humean approaches to the semantics of subjunctive conditionals—then the account involves a problematic circularity.

A disclaimer: My definition of "Pragmatic Humeanism" unifies diverse theories of lawhood under a single definition, and thus omits many interesting details of specific Pragmatic Humean theories. Over the next two sections, I'll provide an objection to Pragmatic Humeanism in its general form as I've defined it. In §4, I'll take a closer look at the details of some more sophisticated varieties of Pragmatic Humeanism—varieties that describe the virtues of systems, their balance, etc. in much greater detail than I have. Despite their sophistication, I'll argue that they are unable to dispense with the metaphysically robust conceptual machinery that leads to problems for Pragmatic Humeanism in its general form.

2. The Modally Robust Machinery of Pragmatic Humeanism

In this section, I'll argue that the ideology of Pragmatic Humeanism involves some modally robust concepts: notably, of goals, abilities/limitations, and interests. For our purposes it won't be necessary to provide careful philosophical analyses. Rough characterizations will do just fine, provided that they illuminate the modal character of at least one of the relevant concepts. Ultimately, that's

10. For example, Jaag and Loew (2018: fn 18) say that their "account requires no such objective joints" as those involved in Lewis's Naturalness Constraint.

11. For recent objections that Pragmatic Humeanism does not secure all of these advantages, see Friend (2022), Gómez Sánchez (2023), and Demarest, MS. I share many of their concerns, but the argument I develop in this paper differs from theirs, as mine is primarily focused on the modal character of some of the concepts involved in Pragmatic Humeanism. A different objection to Pragmatic Humeanism is that it makes the laws subjective. See Armstrong (1983: Chapters 1 & 5), Lewis (1994), Hall (2015), Jaag and Loew (2018), Gómez Sánchez (2023), and Hicks, MS for discussion.

all that my argument requires. Relatedly, I won't argue here that these modal concepts are *primitive*. I'll address that issue in the next section.

To begin, let's consider the concept of a goal.

> *Goals:* A goal is something that you want.[12]

What matters for our purposes is that goals aren't automatically satisfied. You can't always get what you want. At the moment you set a goal, as far as you know it remains an unactualized possibility. Here is a simple case to illustrate:

> **Blackberry Pie:** I want a slice of Mom's blackberry pie over the holidays, but I might not get one. Did Dad pick and freeze blackberries this summer? Is Sister, who also loves blackberry pie, visiting before I do? Perhaps I should make a phone call…

Cases like this suggest that, as a practical matter, setting goals requires us to consider various unactualized possibilities: Dad's picking or not picking the berries, Sister's visiting, etc. Of the concepts I discuss in this section, I think this is the least modally robust. But it's worth pointing out that the concept of a goal is often associated with other modally robust concepts.

Let's now consider the concepts of ability and limitation.

> *Ability/Limitation:* An *ability* is a kind of power or disposition that admits of degrees; of any power an agent or group possesses, we can ask "How powerful?" A *limitation* simply describes the bound of a power for a particular individual or group.

The concept of a power or disposition is straightforwardly modal. Specifically, ability/limitation ascriptions support *subjunctive conditionals*. There is a large literature on abilities, powers, dispositions, and the like, but I'll settle for an illustration with a single example.[13]

> **Chess:** My ability to play chess is limited. I know the rules, and I can play competently with certain openings and middle- and end-game strategies. Unfortunately, it would be a stretch to say that I play *well*. (Just ask my nine-year-old.)

12. On certain objective theories of wellbeing, a goal might be construed as something that you ought to want because it is objectively good for you. I won't explore such views further, but it would be interesting to learn that Pragmatic Humeanism required *that*!

13. See Maier (2021) and Choi and Fara (2021) for introductions to abilities and dispositions, respectively.

This case provides information not only about what has happened or will happen, but about what would happen under a range of possible circumstances. It supports subjunctive conditionals such as the following: 'If I were to play an absolute beginner, I would win.' 'If I were to play a master, I would lose.' If someone claimed that the ability ascription in **Chess** lacks modal force and doesn't support such subjunctives, I simply wouldn't understand what they meant by 'ability.' Eliminating the modal character of ability/limitation ascriptions turns them into completely different sorts of claims.

Finally, let's consider the concept of something's being in someone's interest.

> *Interests:* It is in your interest to ϕ rather than $\psi =_{df}$ if you were to ϕ that would advance your goals more so than if you were to ψ.

Since the concept of a goal brings to mind possibilities, and since the concept of an ability/limitation is essentially modal, it should come as no surprise that the notion of something's being in our interests is modally-laden, too. A realistic illustration:

> **Benefactor:** You are a skilled philosophy teacher who would like more money. A wealthy, aspiring intellectual—someone with good intentions, noble goals, and a good work ethic—has offered to pay you $\$1,000,000$ per year for occasional private philosophy tutoring. Accepting this job would not interfere with your other responsibilities; it would be enjoyable; and it would require minimal time and effort.

Obviously, it would be in your interest to take the job. Accepting would advance your goals more so than declining. To arrive at this judgment, we have to determine the relative values of possible courses of action—namely, accepting or declining the job. We cannot do so without modal concepts. Notice that it's not sufficient for us to possess the relevant modal concepts—i.e., to grasp what is asserted by the relevant subjunctive conditionals. According to the analysis found in *Interests*, the subjunctives require truth-values.[14]

To wrap up this section, let's return to Pragmatic Humeanism. The core idea behind its analysis of laws is that the laws (for us) are those generalizations that *would* be most useful (to us). Which generalizations are those? Well, it depends on our goals, which involves the notion of unactualized possibilities. It depends on our abilities/limitations, which directly support subjunctive conditionals. And of

14. See Gómez Sánchez (2023: 2.2) for a more careful description of why accounts of practical rationality require subjunctive conditionals. I'll note also that this sort of modal robustness is standardly assumed in the field of causal decision theory (Weirich 2020).

course it depends on that which is in our interests, which requires subjunctives as well: notably, the best system is the one that *would* serve our interests best *were* we to adopt it. The analysis is driven by modal notions; it relies on subjunctive conditionals.

Notice that Pragmatic Humeanism is not an analysis of what we consider to be a law at a time; it does not merely aspire to say that a statement is *considered* a law when it meets our goals. The notion of lawhood retains a degree of idealization. This is essential for making sense of scientific progress. We want to allow that our best scientific theories can be improved—that we can make sense of the claim that our best theories are true, or more modestly that they are closer to/further from the truth than some of their competitors, where these include competing theories that scientists have actually considered as well as theories undreamt of. At the very least, we want to allow that the things we consider to be laws at a time might not be the laws, because the best system *we've found* may not be the best *period*. This would not be possible if we took the modal "bite" out of goals, abilities/limitations, and interests.

At this point, some readers might respond as follows:

> **Response:** So what? Regardless of whether goals, abilities, and interests are modal concepts, we clearly understand them and are able to assign relevant truth values well enough for practical purposes, including the practical purpose of selecting a best system!

But recall our earlier discussion of Lewis's Naturalness Constraint. On the surface, the distinction between natural and non-natural properties seems commonsensical—so much so that many may not feel compelled to closely examine it. After all, it just seems *obvious* that we ought to theorize using predicates like 'green' rather than 'grue.' However, many Humeans do insist that we do take a closer look. Why? Well, commonsense concepts may have metaphysical commitments that violate the spirit of Humeanism. The modalities involved in Pragmatic Humeanism's analysis of laws deserve this same kind of scrutiny. Pragmatic Humeans owe us an account of them. In the next section, I'll argue that the prospects for such an account are bleak.

3. The Dilemma for Pragmatic Humeanism

We have two options. We can accept these modalities as primitive or we can provide a reductive analysis of them in terms of the Humean mosaic.

The first horn: If we take subjunctives or any other modal features of the world as primitive, we violate the spirit of Humeanism. This might be the right path

to take, but it requires us to abandon Humeanism.[15] The first horn is as simple as that.

The second horn: If we attempt to provide a reductive analysis, we encounter a different problem. Traditionally, Humean analyses of subjunctive conditionals have appealed to laws of nature.[16] Here's a simple case to illustrate:

> **Phone:** My first smartphone never broke, though it had no case and no screen protector. (I lived dangerously before having children.) But it would have broken if I had dropped it on concrete from a great height.

Why do we believe that my phone would have broken? We imagine a world as much like ours as possible up to a certain point in time, at which we suppose that my phone is dropped. We appeal to the laws of nature, which we take to be the same as (or very similar to) the laws in our world, to deduce that my phone breaks. This case suggests something like the following analysis of subjunctive conditionals:

> *Sample Analysis of Subjunctives:* a subjunctive conditional *if A were the case then B would be the case* is true in the actual world if and only if: in the world(s) most similar to the actual world in which *A* occurs, *B* occurs, too.[17]

The details of the similarity measure don't matter except for this: *sameness of laws* is one of the crucial features that determines similarity among worlds. The important takeaway for our purposes is that *the laws play an indispensable role in determining the truth-values of subjunctive conditionals*.

This is problematic. Pragmatic Humeanism requires laws to support subjunctives and thereby determine that which is in our interests; but according to Pragmatic Humeanism, that which is in our interests is required to determine the laws. This is circular.[18]

To be clear, this is not an epistemological problem. The question that concerns us is not merely how we, as epistemic agents, come to understand the relevant subjunctives. It is not merely a question about the origin of concepts. Pragmatic

15. Kimpton-Nye (2021) pairs a pragmatist account of the best system with Non-Humeanism. Such an account might be attractive to those who like a Pragmatic Humean account of which system is best but aren't bothered by primitive modalities.

16. Could Pragmatic Humeans seek an alternative analysis of subjunctives that has nothing to do with laws or other sorts of primitive natural modality? Perhaps, but I have no idea how such an analysis would work.

17. This is a simplification of the Stalnaker/Lewis semantics for counterfactuals (Stalnaker 1968; Lewis 1973).

18. We could substitute a different modally-robust concept in place of laws—abilities, powers, causal relations, or whatever—but analogous circularities would arise.

Humeanism requires more than that: the subjunctives require truth-values! The question, then, concerns the origin of these truth-values. They can't be taken as primitive—i.e., as brute subjunctive facts—for that would be incompatible with Humeanism. But invoking laws or other modal notions in the analysis of subjunctives leads to a metaphysical circularity. The Humean mosaic on its own is supposed to determine *both* the laws and subjunctives; but as far as we can tell, Pragmatic Humeanism requires one to determine the other, which means that its account of what is fundamental needs to be more robust than our initial description of the Humean mosaic. This is a problem of metaphysics, not epistemology.

In sum, I have presented a dilemma for Pragmatic Humeanism. On the surface, Pragmatic Humeanism involves a modally robust ideology. The modalities in question cannot be taken as primitive, since that would violate Humeanism. But the prospects for reducing them to the Humean mosaic are bleak, since typical Humean analyses of the relevant modalities are downstream of the Humean concept of law—or if not, they involve a naturalness constraint or some other metaphysically robust primitive. I do not claim that it is impossible to avoid this dilemma. However, I do think it suggests a challenge to Pragmatic Humeans to clarify the ideology of their view—to make it clear that it can be stated without the use of modally robust concepts.

4. More Sophisticated Versions of Pragmatic Humeanism

At this point, I'd like to take a closer look at the details of some more sophisticated versions of Pragmatic Humeanism. This is required to respond to an important objection.

> **Objection:** *Your* statement of Pragmatic Humeanism includes modally robust elements. However, that isn't the official, final position endorsed by any of the "Pragmatic Humeans" you've cited. While they *do* appeal to pragmatism to motivate new answers to the question "What makes the best system best?," pragmatic considerations do *not* feature in their official answers to that question. As a result, the modally robust elements of Pragmatic Humeanism turn out to be dispensable. They have heuristic value, but they aren't part of the theory of laws.

There is a sense in which one who carried out this strategy would be doing exactly what I am claiming Pragmatic Humeans should do. If the strategy outlined in this objection can be executed successfully, my challenge in the section above can be met. However, I do not think we are currently in the position to say that my challenge has been met.

As I write this, the three most developed statements of Pragmatic Humeanism are found in Hicks (2018), Dorst (2019), and Jaag and Loew (2018). All three appeal to pragmatic considerations to answer the question "What makes the best system best?" Of the three papers, Hicks's makes the most careful effort to dispense with pragmatic elements in the final statement of his theory. Specifically, he claims that "realism [about laws] requires us to surgically remove the agent in our final characterization" (Hicks 2018: 1001), and he suggests that his appeal to pragmatism "can motivate a set of criteria for lawhood that makes no reference to agents, epistemic notions, or modally robust properties" (Hicks 2018: 1001–1002). For this reason, I'll focus on his account, though I will mention key features of the other two accounts along the way.

Here is Hicks' more refined account of laws.

> *Hicks's BSA:* "The laws of nature are those true generalizations that best combine breadth, strength, simplicity, and modularity" (Hicks 2018: 1001).

Here are very rough descriptions of these virtues. The *breadth* of a system concerns the range of quasi-isolated subsystems to which it applies (Hicks 2018: 997–998). Breadth is a virtue because it provides more opportunities for confirmation. To illustrate, a universal theory of gravitation is much broader than a theory that provides only a specific law of gravity for Earth. *(Local) strength* concerns the degree of information provided by a system about a given quasi-isolated subsystem. A (locally) strong system is one that allows precise predictions. It achieves this precision by countenancing fewer (counterparts of) quasi-isolated subsystems. As a result, breadth and local strength trade off. There is a similar tradeoff between modularity and simplicity, as Hicks understands them. Very roughly, modularity is a property of those systems that allow for different laws to be independently confirmable. To illustrate, consider how the solar system allows us to test theories of gravity without worrying about electromagnetic forces, or how we can often ignore gravitational forces when working at small scales at which other forces become more relevant (Hicks 2018: 1000). The simplicity of a system is a function of its free parameters: simpler systems have fewer. Whence the tradeoff? A system with few laws will also have few free parameters, so it won't be very modular (Hicks 2018: 1001).

This collection of virtues is motivated by the fact that systems that balance them enable limited agents to make useful predictions. Our *motivation* for including these virtues in our account of the best system relies on pragmatic considerations. However, Hicks claims that *the virtues themselves* can be understood without appealing to pragmatic considerations. Although they are motivated pragmatically, the virtues are not essentially pragmatic.

As noted above, I think this is exactly the right strategy to pursue. However, I have two criticisms. To clarify, these are *not* criticisms of Hicks' account qua analysis of which virtues feature in the best system. Everything he says about that might be correct. Rather, my criticisms concern the claim that the pragmatic and modal elements of Pragmatic Humeanism have been purged from his final best systems analysis. I do not think the refined account in Hicks (2018) successfully dispenses with them.[19]

My first criticism concerns the problem of weighting theoretical virtues of the best system. Readers may have noticed that Hicks's BSA does not provide precise guidance on this matter (nor do the accounts of Dorst and Jaag & Loew). Hicks is aware of this, and he offers a suggestion for how the account might be refined to solve this problem:

> Because the virtues are motivated pragmatically, by their connection to the epistemic role of laws, we can appeal to the role of laws to determine which balance is best. When are we willing to give up strength? When sacrificing breadth would leave the laws too narrowly applicable to be discovered or tested. When does simplicity favour one putative lawbook over another? When independently motivated constraints on induction would draw us to the first lawbook rather than the second (this gives us little motivation to sacrifice strength for simplicity, but explains why we favour a simpler lawbook over a more complex, but equally strong, lawbook). How modular must the laws be? Modular enough for us to discover the fundamental constants, and to bootstrap our way into discovering the whole book. (Hicks 2018: 1004)

My worry is straightforward. Although this is a very natural way to assign weights to theoretical virtues, this proposal appears to reintroduce pragmatic and modal criteria. Under which conditions, and for which agents, are laws "too narrowly applicable to be discovered or tested"? Can we dispense with the notion of *applicability* introduced here? And how should we understand "modular enough"?

I do not know the answers to these questions, but when we do try to answer them we encounter a new problem: Any precise assignment of weights may yield the wrong verdict about laws in worlds that differ from ours or for agents that differ from us. To illustrate, consider the following precisification of Hicks's BSA:

19. For what it's worth, my concerns with the accounts of Dorst (2019) and Jaag and Loew (2018) are similar. They differ from Hicks's account primarily in the theoretical virtues they propose to articulate the notion of a best system. I won't object to their accounts qua analyses of the notion of a best system. As with Hicks's account, my worry is that their final theories still include pragmatic and modal elements.

> *Precisified*$_W$: The laws of nature *for humans* are those true generalizations in the broadest system that maximizes (local) strength while having an equal balance of simplicity and modularity.

This account avoids reference to abilities, limitations, goals, and other pragmatic or modal notions. It tells us exactly how to weight Hicks's four theoretical virtues. (There remains the difficulty of clarifying the notion of an "equal balance," but set that aside.) Unfortunately, I do not think it upholds the spirit of Pragmatic Humeanism. If nature is extremely kind, the laws according to this account may be discoverable by agents like us. If not, they won't be. If nature is even a little messy, the broadest system that maximizes (local) strength might be far too complicated for humans to grasp. But Pragmatic Humeans would still like to say that there could be laws (for humans) in such worlds.

This problem generalizes. It isn't just a feature of the specific weighting I proposed in the precisified account. The problem is that our (i.e., humans') best way of weighting the criteria might change from world to world, depending on the kindness of nature and our specific limitations. A simple solution would be to broaden the account by reintroducing reference to human interests—that is, to reintroduce pragmatic criteria into the account itself. That would allow the criteria that determine which system is best to vary across worlds. Alas, that would make these pragmatic modally-robust criteria indispensable.

Notice that this problem does not arise because of the specific theoretical virtues proposed in Hicks's account. It arises because it posits virtues that pull in different directions. This feature is shared by other Pragmatic Humean accounts, so I do not expect any version to fare better with respect to the problem of weighting theoretical virtues in the best system.

My second worry concerns the problem of language choice. I'm sympathetic to the claim that we don't have to appeal to naturalness to identify some problems with Lewis's gerrymandered predicate *F* (the one that allows us to trivially satisfy all theoretical virtues). But that's an extreme case, and the problem of language choice is a broad one. As Hicks discusses (2018: 1004), some of his virtues—notably, modularity and simplicity—are language dependent insofar as they make reference to variables of the theory.

As a result, the problem of language choice has yet to be solved. One possible response would be to appeal to the Naturalness Constraint or something like it. For example, we could add a clause at the end of Hicks's BSA indicating that the best system must be stated in a language whose basic predicates refer to properties that are natural to a certain degree, like so:

> *Precisified*$_N$: The laws of nature *for humans* are those true generalizations in the broadest system that maximizes (local) strength while having an

> equal balance of simplicity and modularity when stated in a language whose basic predicates refer to perfectly natural properties.[20]

However, as discussed in §1, the introduction of natural properties undermines part of the appeal of Pragmatic Humeanism in the first place by introducing further metaphysical structure into the theory.[21]

Another possible response is to reintroduce pragmatic considerations. Indeed, Hicks suggests that the theoretical virtues featured in his account "are more user directed, so plausibly are more sensitive to the predicates we find useful than those which are metaphysically bedrock" (2018: 1004). Perhaps we can look to the virtues themselves for guidance about which predicates to choose. The challenge, of course, is build this insight about user-directed virtues into a solution to the problem of language choice—in somewhat the same manner as we tried to build an answer to the problem of weighting virtues into a refined account. For example, since these virtues are user-directed toward humans (in our case), perhaps we can replace explicit appeal to the "best system" in the official account of laws with an appeal to human language. Here is a sample proposal for how we might build an answer to the problem of language choice into a precisified account:

> *Precisified*$_H$: The laws of nature *for humans* are those true generalizations in the broadest system that maximizes (local) strength while having an equal balance of simplicity and modularity when stated in the human language.

But how are we to understand "the human language"? If we mean the sort of language that humans *might use* or *would be inclined to use*, we reintroduce pragmatic and modal notions into the account. In that case, we won't have succeeded in showing that they are dispensable. We might as well interpret the pragmatic features at face value, as my general statement of Pragmatic Humeanism does. If we mean a language *actually proposed by a human*, we make the account too narrow. Remember, the BSA is supposed to allow for a degree of idealization. It should allow that our best science might fail to discover the true laws.

As we saw in our attempt to solve the problem of weighting, the problem of language choice gives rise to a new dilemma: either (i) we appeal to pragmatic

20. I'm using Precisified$_W$ as the basis for this account simply because it dispenses with the term 'best', but the focal point should be the way in which Precisified$_N$ includes a naturalness constraint.

21. Speaking for myself, I think that everyone—Humeans included—is committed to some sort of naturalness constraint. Without such a constraint, I don't understand how the Humean mosaic can be interpreted as having an objective structure. But that's a topic for another time.

criteria at face value, in which case they turn out to be indispensable, or (ii) we appeal to a narrowly specified criterion, in which case the account of laws delivers the wrong verdict about what the laws are (for humans).

As with my first worry, I do not think this dilemma arises because of the details of Hicks's account. The problem of language choice is difficult to solve in principle, and it is hard to see how there could be an option that does not either appeal to a naturalness constraint or fall back on pragmatic criteria. For what it's worth, I suspect that Dorst and Jaag & Loew would prefer the latter option. They all emphasize that they can solve various problems of language without appealing to naturalness. Moreover, they explicitly invoke pragmatic criteria in their explanations. For example, Dorst says that the best system is *predictively useful*, which (among other things) implies that the properties feature in laws must be "*ascertainable* at a time when they can still be used to make predictions" (Dorst 2019: 895). The notion of ascertainability is modal, and is explicitly indexed to human limitations. Similarly, Jaag and Loew (2018) appeal to a criterion of *cognitive usefulness*, which is similarly oriented toward predictive utility given human limitations, and they appeal to this criterion to guide our choice of language in ruling out Lewis's predicate F (Jaag and Loew 2018: fn 18).

Here's the upshot. Hicks' account does seem to avoid the brazen appeal to pragmatism featured in my statement of Pragmatic Humeanism, but I do not think he has succeeded in eliminating pragmatic criteria from his final theory. (He may also need to reintroduce some version of a naturalness constraint.) I have similar worries about other sophisticated varieties of Pragmatic Humeanism. Though I think all of these accounts do an excellent job of illuminating important features of the conceptual roles of laws and of distinguishing laws from accidents, it's not clear to me that they are ultimately compatible with Humeanism, or that they live up to Humeanism's aspirations towards ideological purity. To give a complete answer to the question "What makes the best system best?" it appears that we still have to appeal to our interests, which brings us back to the dilemma raised in §3.

5. Extensions

Before concluding, I would like to mention some potential extensions of my argument.[22] Given the close tie between questions of practical rationality and subjunctives, any Humean theory of laws that appeals to pragmatic considerations probably faces a version of this dilemma. I'll mention a few prominent accounts of laws, but I do not take this list to be exhaustive.

22. I am grateful to Eddy Chen and anonymous referees for suggestions here.

Mitchell (2000) suggests that we think of the distinction between laws and accidents in a deeply pragmatic way. Her account is inspired by the work the concept of laws does in actual scientific practice, but it does not require the framework of the BSA. My argument suggests that Mitchell's pragmatist proposal is at odds with Humeanism, insofar as its analysis of lawhood rests on prior claims about that which is in our pragmatic interests.[23] Similarly, Earman and Roberts, (2005a; b) propose an account of the Humean mosaic that relies on a notion of *detectability/observability*. Insofar as this notion is sensitive to the limitations and abilities of observers, it may have a modal character. Next, so-called "better best systems accounts" (Cohen and Callender 2009; Schrenk 2017) may be susceptible to a similar problem. These accounts allow flexibility in our choice of (i) which facts get systematized in the first place and (ii) which predicates to use for the purposes of systematization. To illustrate, this proposal allows economists to choose a domain of social facts and to systematize them using whichever predicates they like, without having to translate them into the perfectly natural predicates featured in fundamental physics—whatever those turn out to be. To the extent that such accounts are guided by pragmatic criteria in choices about (i) which facts to systematize and (ii) which predicates to use, they may be susceptible to the dilemma I have raised here. To mention a less explicitly pragmatist approach, Wilhelm (2022) defends a version of the BSA according to which the best system balances simplicity, strength, and *computational tractability*. On the face of it, these criteria don't appear to be essentially pragmatic. However, the virtue of tractability can be understood in different ways, and of course there are different ways of balancing the virtues of simplicity, strength, and tractability. If we invoke pragmatic considerations in our ultimate choice among interpretations of tractability or among candidate ranking systems of virtues, we face a similar dilemma.

6. Conclusion

I have presented a dilemma for Pragmatic Humeanism. On the surface, Pragmatic Humeanism involves a modally robust ideology. The modalities in question cannot be taken as primitive, since that would violate Humeanism; but the prospects for reducing them to the Humean mosaic are bleak, since typical Humean analyses of the relevant modalities are downstream of the Humean concept of law. As a result, Pragmatic Humeans must clarify the ideology of their view:

23. I don't mean to suggest that Mitchell is committed to Humeanism. Her account diverges from the Humean BSA in a number of interesting respects, one of which is that it may not commit to Humeanism's rejection of primitive natural modality. See Anderson (2023).

specifically, they should strive to make it clear that it can be stated without the use of modally robust basic concepts.

What if one does *not* wish to take up this challenge? As I suggest elsewhere (Hildebrand 2023: §9), there are interesting philosophical questions about laws—including questions about their roles in scientific practice and the appropriate methods for their discovery—that can be investigated independently of the metaphysics of laws. Pragmatic Humeans have already been asking these questions, and it is possible to do so without taking a stand on the Humean/Non-Humean debate. (This would be to adopt a position I call *Minimalism about Laws*.) That said, I hope that Pragmatic Humeans *will* take up the challenge to clarify the ideology of their position. Whether they succeed or fail we will learn something interesting about laws of nature.

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References

Anderson, H. (2023). Every view is a view from somewhere: Pragmatist laws and possibility. *Theoria: An International Journal for Theory, History and Foundations of Science*. https://doi.org/10.1387/theoria.24471

Armstrong, D. (1983). *What is a Law of Nature?* Cambridge University Press, Cambridge.

Beebee, H. (2000). The non-governing conception of laws of nature. *Philosophy and Phenomenological Research*, *61*(3), 571–594.

Bhogal, H. (2020a). Humeanism about laws of nature. *Philosophy Compass*, *15*(8), 1–10.

Bhogal, H. (2020b). Nomothetic explanation and humeanism about laws of nature. In Bennett, K. and Zimmerman, D., editors, *Oxford Studies in Metaphysics* (volume 12, 164–202). Oxford University Press.

Bird, A. (2007). *Nature's Metaphysics: Laws and Properties*. Oxford University Press, Oxford.

Braddon-Mitchell, D. (2001). Lossy laws. *Noûs*, *35*(2), 260–277.

Carroll, J. (1994). *Laws of Nature*. Cambridge University Press, Cambridge.

Choi, S. and Fara, M. (2021). Dispositions. In Zalta, E. N., editor, *The Stanford Encyclopedia of Philosophy*, page https://plato.stanford.edu/archives/spr2021/entries/dispositions/. Spring 2021 edition.

Cohen, J. and Callender, C. (2009). A better best system account of lawhood. *Philosophical Studies*, *145*, 1–34.

Demarest, H. (MS). How (not) to be a pragmatic humean.
Dorst, C. (2019). Toward a best predictive system account of laws of nature. *British Journal for the Philosophy of Science*, *70*, 877–900.
Earman, J. and Roberts, J. T. (2005a). Contact with the nomic: A challenge for deniers of humean supervenience about laws of nature part i: Humean supervenience. *Philosophy and Phenomenological Research*, *71*(1), 1–22.
Earman, J. and Roberts, J. T. (2005b). Contact with the nomic: A challenge for deniers of humean supervenience about laws of nature part ii: The epistemological argument for humean supervenience. *Philosophy and Phenomenological Research*, *71*(2), 253–286.
Eddon, M. and Meacham, C. (2015). No work for a theory of universals. In Loewer, B. and Schaffer, J., editors, *A Companion to David Lewis* (116–137). Wiley Blackwell, Malden, Mass.
Friend, T. (2022). The humean pragmatic turn and the case for revisionary best systems accounts. *European Journal for Philosophy of Science*, *12*(11), 1–26.
Gómez Sánchez, V. (2023). From nomic humeanism to normative relativism. *Philosophical Perspectives*, *36*(1), 118–139.
Hall, N. (2015). Humean reductionism about laws of nature. In Loewer, B. and Schaffer, J., editors, *A Companion to David Lewis* (262–277). Wiley Blackwell, Malden, Mass.
Halpin, J. F. (2003). Scientific law: A perspectivalist account. *Erkenntnis*, *58*(2), 137–168.
Hicks, M. T. (2018). Dynamic humeanism. *British Journal for the Philosophy of Science*, *69*(4), 983–1007.
Hicks, M. T. (MS). A practitioner's guide to pragmatic humeanism.
Hildebrand, T. (2019). Naturalness constraints on best systems accounts of laws. *Ratio*, *32*(3), 163–172.
Hildebrand, T. (2020). Non-humean theories of natural necessity. *Philosophy Compass*, *15*(5), 1–14.
Hildebrand, T. (2023). *Laws of Nature*. Cambridge University Press, Cambridge.
Jaag, S. and Loew, C. (2018). Making best systems *Best for Us*. *Synthese*, *197*(6), 2525–2550.
Kimpton-Nye, S. (2021). Reconsidering the dispositional essentialist canon. *Philosophical Studies*, *178*, 3421–3441.
Lewis, D. (1973). *Counterfactuals*. Harvard University Press, Cambridge, MA.
Lewis, D. (1983). New work for a theory of universals. *Australasian Journal of Philosophy*, *61*(4), 343–377.
Lewis, D. (1994). Humean supervenience debugged. *Mind*, *103*(412), 473–490.
Loewer, B. (1996). Humean supervenience. *Philosophical Topics*, *24*(1), 101–127.
Loewer, B. (2007). Laws and natural properties. *Philosophical Topics*, *35*(1 & 2), 313–328.
Loewer, B. (2021). The package deal account of laws and properties (PDA). *Synthese*, *199*(1–2), 1065–1089.
Maier, J. (2021). Abilities. In Zalta, E. N., editor, The Stanford Encyclopedia of Philosophy. https://plato.stanford.edu/archives/sum2021/entries/abilities/, summer 2021 edition.
Maudlin, T. (2007). *The Metaphysics Within Physics*. Oxford University Press, Oxford.
Mill, J. S. (1875/1987). *A System of Logic*. Longmans, London.
Mitchell, S. D. (2000). Dimensions of scientific law. *Philosophy of Science*, *67*(2), 242–265.
Ramsey, F. (1978). Universals of law and of fact. In Mellor, D., editor, *Foundations* (128–132). Routledge and Kegan Paul, London and Henley.
Schrenk, M. (2017). The emergence of better best system laws. *Journal for the General Philosophy of Science*, *48*, 469–483.

Stalnaker, R. (1968). A theory of conditionals. In Rescher, N., editor, *Studies in Logical Theory* (98–112). Basil Blackwell, Oxford.

Tooley, M. (1977). The nature of laws. *Canadian Journal of Philosophy*, *7*(4), 667–698.

Weirich, P. (2020). Causal decision theory. In Zalta, E. N., editor, The Stanford Encyclopedia of Philosophy. https://plato.stanford.edu/archives/win2020/entries/decision-causal/, winter 2020 edition.

Wilhelm, I. (2022). Tractability and laws. *Synthese*, *200*(4), 1–17.

Woodward, J. (2014). Simplicity in the best systems account of laws of nature. *British Journal for the Philosophy of Science*, *65*, 91–123.