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ARTICLE

Pragmatist Realism about Causation

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Abstract

Some philosophers argue that pragmatist accounts of causation require accepting perspectivalism—the view that causation depends on an agent's perspective. This paper critically evaluates this inference by examining Price's arguments for perspectivalism and against Woodward's view. I demonstrate that Price's positive argument rests on an unacceptable premise, and drawing on Woodward's work, I propose a pragmatist realist view of causation that survives Price's criticisms. This pragmatist realism identifies causes through human concerns and practices, but treats the causal relation as objective and independent of agential perspectives. The paper concludes by showing Ismael's perspectivalist view is consistent with pragmatist realism.

1. Introduction

Recently many philosophers have become interested in the viability of a pragmatist approach to the philosophy of science.[1] This paper develops and defends a version of what can be called "pragmatist realism" within the metaphysics of science. There have always been (at least) two strands of pragmatism at work in its history.[2] One strand of pragmatism has always been more traditionally metaphysically and scientifically realist and has always been more amenable to the representational aspects of language. Call this strand, for lack of a better term: "pragmatist realism." I think, in many ways, it can be associated with C.S. Peirce, mid-century analytic pragmatists (Quine, Sellars, and Putnam), contemporary 'function-firsters' (like Hannon) and some contemporary metaphysicians of science like Holly Andersen and Jim Woodward. The other strand of pragmatism has always been much more prone to expressivisms, projectivisms, and quasi-realisms in their metaphysical and semantic accounts. Many have used "neopragmatism" to refer to this second strand. Elements of this strand can be found in early British pragmatism (Ramsey, MacDonald,

[1] For some recent examples, see Chang (2022) and the (2023) volume edited by Andersen and Mitchell.
[2] This historical claim is not intended to be exhaustive and both strands can certainly be blended together in the thought of any one philosopher.

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and Ryle), Wittgenstein, and in the self-described 'quasi-' or 'simple-' realists: Simon Blackburn, Allan Gibbard, Huw Price, Amie Thomasson, etc.

Both strands of pragmatism are having a bit of a revival in metaphysics and philosophy of science.[3] But the two strands can sometimes talk past each other and ignore the other. In this paper, I want to bring both of these pragmatist strands into a more comprehensive dialogue with one another. To do so, I develop and defend a version of pragmatist realism about causation while arguing against one of the most prominent neopragmatist views of causation.[4]

Some philosophers have contended that adopting a pragmatist approach to causation leads to a perspectivalist view of causation (Price 2007 and 2017, and Ismael 2016). Jenann Ismael and Price disagree about what exactly "perspectivalism" amounts to. But according to the stronger Pricean form of perspectivalism which will be my primary focus, if one wants to be a pragmatist about causation, one must also accept that agential perspectives enter into the truth-conditions for causal claims. Let's call the view that a causal pragmatist must also accept this form of perspectivalism about causation, the "Perspectivalist Contention" or "PC." If the PC is right, then a more objectivist and more standardly realist causal pragmatism is off the table.

I argue here that there is no reason to accept the PC. Because the debate over the PC has come out most clearly in the exchange between James Woodward and Huw Price, their positions and arguments will be my focus.[5] I will show that an augmented and clarified variation of Woodward's view of causation is a pragmatist realism that can withstand Price's neopragmatist critiques. A pragmatist methodology does not undermine an objective account of things.

It's important to establish at the onset that Price and Woodward share a common pragmatist starting point because there would be no good reason to examine whether Price is correct in advocating for "if causal pragmatism, then perspectivalism" if he and Woodward failed to share the antecedent. As the above shows, "pragmatism" is a contentious term with many meanings employed throughout the literature. Here, by "pragmatism," I mean the idea that we should begin our accounts of some philosophically troubling concept with what that concept does, functionally speaking, in the cognitive and practical lives of creatures like us. As Price says, the pragmatist is fundamentally interested in "the roles and functions of the matters in question in human life" (Macarthur and Price 2007, 93). In sketching his agreement with Price on a pragmatist approach to philosophy of science, Woodward claims that pragmatists "focus on what practitioners are doing when they engage in various forms of scientific practice, on what the point or function (or goal) of the practice is or the role or roles it is playing" (2023, 29).

Woodward and Price do share a common pragmatist starting point. They both think that the interests, practices, and capabilities of humans are essential and

[3] Compare Gert's *Neopragmatism* (2023) to Andersen & Mitchell's *The Pragmatist Challenge* (2023).

[4] For other pragmatist views of causation, see: Healey (2021), Mitchell (2023), Price (manuscript), Woodward (2021), Roberts (2023) and parts of Bernstein (2017).

[5] Ismael (2016, 246) too takes this exchange to be the locus of the debate.

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fundamental in developing a proper account of causation.[6] They likewise develop functional stories about the work causal concepts do for creatures like us.

It is very important to Woodward (2014 and 2021) to have a pragmatic-functional understanding of what causal concepts do for us. Without it, argues Woodward, we have no clear way to evaluate theories of causation. A functional approach, for Woodward, has as "its point of departure the idea that causal cognition or thinking in causal terms is at least sometimes useful or functional in the sense of successfully serving various goals and purposes that we human beings (and perhaps other creatures) have" (2021, 28). The functional approach then isolates what these goals are. This has normative implications: the functional approach "can provide ... justification for distinguishing among different sorts of ... causal concepts" (2021, 29). Lastly, we adopt the view of causation that best captures the concept of causation that fulfills the goals that we (human beings) have. Here's his pragmatism at work:

> [W]hat, if any, function might be served by the additional structure that appears to go beyond regularity (or correlational) information–what work might it do . . . ? One of the strengths of the interventionist account of causation is that it attempts to provide an answer to this question: the additional structure should be thought of as encoding information about what would happen if various interventions were to occur. Such information is important to us because, for example, of its role in predicting the outcomes of manipulations and in planning. Because this information has to do with whether certain counterfactuals are true (counterfactuals having to do with the outcomes of interventions), it is underdetermined by purely regularity or correlational information, but it is nonetheless information we care about obtaining and representing [2021, 69].

Interventionism is argued for in virtue of its meshing with the goals of our causal thinking (ibid., 69). Humean regularity theories are rejected because they do not fit with our goals. This is what makes Woodward's approach to causation a *pragmatist* one (2021, sec. 1.1). He is not pragmatist because he invokes human agency in his conditions on causation. He is a pragmatist because his methodology begins with the function of causal concepts and the goals of causal reasoning in creatures like us.

Likewise, Price thinks that the interests, practices, and capabilities of humans are essential and fundamental in developing a proper account of causation. Price's global pragmatism maintains that we should look at what every single discourse *does* with reference to human goals and interests. This norm applies to our causal discourse. However, Price thinks that the human agential and deliberative perspective is fundamental to what causation **is** in a way that Woodward does not. Despite the fact that both philosophers emphasize the importance of human interests and capabilities in developing and arguing for their preferred views on causation, they disagree about the implications of this orientation. Exploring and arbitrating this disagreement is the purpose of this paper.

[6] It's worth mentioning that Ismael also shares this pragmatist starting point with Price and Woodward to some degree. Cf. her (2023), secs. 7-8. I return to the discussion of Ismael's perspectivalism in section 6.

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In the next section, I will briefly describe the essential elements of Woodward's view. I turn to sketching Price's agential perspectivalism in section 3. Price's argument for the PC comes in two parts: a *positive* argument that any interventionist (including Woodward) should be a perspectivalist and a *negative* argument that Woodward's objectivist strain of causal pragmatism leads him to skepticism. I will outline and evaluate these two parts of the Pricean argument in section 4. I will argue that there is no good reason to accept the central premise of his positive argument and also that Woodward can respond to Price's skeptical worries. Section 5 elaborates on the sort of pragmatist realism about causation I ultimately want to defend. Section 6 is devoted to Jenann Ismael's discussion of perspectivalism. I argue that Ismael's take on perspectivalism turns out to be consistent with objectivist views of causation. Section 7 concludes.

2. Woodward's Interventionism

Here is a first-pass characterization of Woodward's interventionism: C causes E if and only if there exists a possible intervention on C that would change the value of E. Woodward is concerned here with type-level (instead of token) causation.[7] The relata, the 'C's and 'E's, are variables, where a variable is a property that takes at least two values. For example, mass is a variable "which may take any nonnegative real value measured in ... grams" (2021, 77).

Here Woodward defines interventions via manipulations:

> [An] intervention on C is an experimental (or experiment-like) manipulation of the value of C that is unconfounded from the point of view of reliably determining whether C causes E. [2021, 78]

In other words: an "intervention on C with respect to E produces a change in the value of C such that any change in the value of E (should it occur at all) occurs only via a route that goes through C and not in some other way" (ibid.).

An intervention is understood as an idealized experimental manipulation that changes C while meeting certain conditions: it must not directly affect E through any route other than through C, and it must sever C from its usual causes (2003, 98).

There are a few things to note about Woodward's account. First, notice the counterfactual way in which interventionism is stated. It is a modal matter that if C were to be manipulated, there would be a relevant change in E. The causal relationship holds in virtue of this counterfactual pattern of dependence between interventions on C and changes in E. Second, this is a non-reductive account of causation as an intervention on C involves a causal change in C of a specific sort. But Woodward maintains that his account is still informative, in part because it aligns with the goals we have in causal investigation. Third, Woodward's conditions for causation are specified entirely in causal/structural terms. There is no commitment in the interventionist account of causes, to any thesis whatsoever about the temporal orientation of causation. This point will be important in section 4.

[7] There are other non-Woodwardian interventionisms. For example, see Pearl (2000) and Eberhardt & Scheines (2007).

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These are the basics of Woodward's interventionist proposal. I'll have more to say about his metaphysics (or lack thereof) in section 5.

3. Price's Perspectivalism

Price has described his perspectivalism in various ways over the decades. Price sometimes likens *causation* to a secondary quality (especially color *a la* John Locke) (Price and Menzies 1993). In later work, he maintains that < *cause* > is a perspectival concept, in the same way < *foreignness* > is (2007 and 2017).[8] I will return to his employment of these analogies below. But what's essential to Price's view is this core point: whether or not C causes E is not settled by agent-independent worldly facts. It is settled by the physical facts *plus* something about agents. Agency is the source of the perspectivity. For this reason, I will call Price's view "agential perspectivalism." As Price puts it, "B is an effect of A iff doing A is a means of bringing about B, from an agent's perspective" (2007, 263).

This clause about an "agent's perspective" requires unpacking. As one could anticipate, given Price's initial focus on *our* direct experience of 'bringing about', Price ties the notion of *intervention* or *manipulation* directly to *deliberation* and a resulting action:

> In any deliberative process, presumably, there must be a range of things that the deliberator in question takes to be matters for deliberation: in other words, the alternatives among which she takes herself to be deliberating. For formal convenience, let's regard these alternatives as a class of propositions, denoted by OPTIONS. These are the propositions the agent takes herself to have the option of 'deciding to make true' . . . And let the FIXTURES denote everything else–all matters of fact that are not held to be a matter of choice in the deliberation in question. [2007, 275]

The contrast between OPTIONS and FIXTURES leads to a specific notion of intervention that should be carefully distinguished from Woodward's notion: "In terms of this template, acting, or intervening, is a matter of fixing something not already fixed—of moving something from OPTIONS to FIXTURES" (ibid., 276). This is what an intervention is for Price; it is essentially tied to deliberation and what it means to be an agent.

It's also important to note that the relevant relata, the A's and B's here, are propositions such as *that a light switch is turned on*. Doing A is then acting so as to make A true. That the switch is turned on causes the light to be on because the action of turning the switch on is a means to make the light be on.

4. The PC and Some Non-Perspectivalist Responses

4.1. The Perspectivity Argument

Price's positive argument for the PC begins with his deliberative account of intervention outlined above. In Price's words, the "importance of this characterization of the abstract structure of an agent is that it brings into view the real sources of

[8] I will use the convention of marking concepts with angle brackets.

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the contingency of our causal perspective" (2017, 86). His claims about (i) what it is to be a deliberator and (ii) what an intervention is, are both essential in what I will call the perspectivity argument. Price never lays down this argument explicitly; what I'm offering now is a reconstruction:

1. For A to be a cause of B, there must be a possible intervention on A that brings about B.[9]
2. The possibility of an intervention on A that brings about B depends on the possibility of an agent who is able to turn A from OPTION to FIXTURE (as a means to bring about B). [This is the key premise for Price's argument. For Price, interventions just are the results of some possible agent's deliberations. For Woodward, interventions exist independently of agents.]
3. What counts as OPTIONS and FIXTURES depends on the perspective of the agent involved.
4. Therefore, the possibility of an intervention on A that brings about B depends on the perspective of the agent involved
5. Therefore, A's being a cause of B depends on the perspective of agents.

Price provides an in-depth illustration of the considerations behind his perspectivity argument. This illustration is a very pressing intuition pump and helps to pull out the core tensions between the perspectivalist and the non-perspectivalist. This illustration returns us to the analogy between < *causation* > and < *foreignness* > and involves a thought-experiment concerning time-reversed creatures.

Foreigners are real. We ought not be eliminativists about the concept of < *foreignness* >. But what counts as a foreigner is certainly perspectival. Costa Ricans ascribe the predicate "is foreign" correctly to Panamanians, just as the Panamanians ascribe equally correctly the same predicate to Costa Ricans. Price thinks < *causation* > is perspectival in the very same way. There are possible creatures who correctly apply < *causation* > in ways different from us, so that what causes are needs to be relativized to a perspective.

To consider these special sorts of creatures, Price (2007) asks us to imagine that we live in a Gold universe.[10] On this model, the universe begins with a Big Bang, entropy increases with the thermodynamic arrow of time pointing in the direction of expansion. Then, at some 'mid-point' in the history of the universe, the universe reaches a low-density state. At this point, the universe re-contracts, with entropy decreasing and the thermodynamic arrow of time pointing in the opposite-of-the-original direction. Then the universe ends with a Big Crunch. On such a model, we, currently, are in the period where the arrow of time points from Big Bang to mid-state. But Price asks us to imagine creatures who live on the other side of this entropic 'hill' where the arrow of time points in an opposite direction (from Crunch to mid-state). For these creatures, their "time-sense is the mirror-image of ours" (2007, 273).

[9] I think we can put this premise in language more amenable to the Woodwardian. For Price, A is a proposition such as that a light switch is turned on. For Woodward, this proposition must involve a variable having some value. Each can endorse this premise with these clarifications.

[10] Originally expounded in Gold (1962) and outlined in Price (1996), Price (2007), and Price (2017). The Gold model does not have to be correct, only possible.

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The personal time of these creatures may run opposite of ours, since they live on the other side of the 'hill' in the Gold universe, but they are still deliberators. This means that they have OPTIONS and FIXTURES and move things from the former set to the latter through their deliberations. So, these creatures have a causal concept according to Price. Their causal concept still counts as a concept of < *causation* > despite its extensional difference, because the concept is defined functionally. All it is for some A to cause B is for there to be a possible intervention on A which brings about B. An intervention, for Price, is just the moving of something from an OPTION to a FIXTURE, and the difference between OPTIONS and FIXTURES is a matter of the deliberative perspective (which includes the temporal perspective) of the creature involved (premise 3). Because of their time-opposite nature, what counts as OPTIONS and FIXTURES on their side of the entropic hill will be very different than what it is for us. So, they will *correctly* apply that causal concept in ways we would not.

Because of this deliberative account of intervention and the possibility of time-opposite creatures, Price concludes that < *causation* > is a perspectival concept in the same way < *foreigness* > is. According to Price, we can be correct in saying A causes B while our time-opposite 'cousins' are correct to say B causes A, concerning the very same types of A and B. Since we and our time-reversed cousins are both correct in our applications of < *causation* >, what causes *are* is a perspectival matter as well. If Price is right, then Woodward's mind-independent account of cause cannot be right. Instead, causation must be necessarily perspectival, and we find ourselves with a strong reason to prefer agential perspectivalism.

4.2. Response to the Perspectivity Argument

I think we should challenge premise 2 of Price's perspectivity argument.[11] Premise 2 defines interventions in terms of agents moving a proposition from an OPTION to a FIXTURE. At first glance, Premise 2 appears to be false. Consider causation in the early universe before any agents existed, or causation occurring inside the sun, or the nebular hypothesis about the formation of our solar system. In all these cases, we seem to correctly attribute causal relations despite the fact that no agent could possibly intervene. These examples provide a *prima facie* case against Premise 2. If Price wants his perspectivity argument to succeed, he must give us positive reasons to accept Premise 2.

What reasons might Price offer? I want to examine three possible routes Price could take to defend Premise 2, all of which can be found in his work on causation. The first route derives from Price's early work. Price and Menzies emphasize the fact that

> from an early age, we all have direct experience of acting as agents. That is, we have direct experience not merely of the Humean succesion of events in the

[11] One could challenge Price in other ways than by challenging premise 2. For example, one could employ (i) Matt Farr's work (2020) to show that causal relations are invariant under time reversal or (ii) Porter Williams' (2022) to show that causation under time-reversal is impossible. But either response would be unsuccessful here because employing such work would just be to object to Price's Gold-universe *illustration*. Price's argument could survive even if the time-reversed thought-experiment was successfully challenged. The pragmatist realist must find fault with either premise 2 or 3 in the perspectivity argument.

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> external world, but of a very special class of such successions: ... we all have direct personal experience of ... 'bringing about' ... [T]hese cases provide direct non-linguistic acquaintance with the concept of bringing about an event. [Price and Menzies (1993), 194-195]

Our most intimate familiarity with interventions come from the interventions that we, ourselves, set up. This is the sort of experience that Price takes as foundational in his view of causation. The idea here is that since our ultimate epistemic and experiential access to interventions comes from our experience of ourselves qua deliberators, what an intervention is must reference our deliberative capacities as well.

It does of course seem true that our first-personal access point to interventions is in experience of our own agency. Our most intimate familiarity with interventions come from the interventions that we, ourselves, engage in. I am willing to grant to Price that this is the ur-experience we have with interventions. And I have no objection against "admitting action on a par with perception as a means of access to the world" (1993, 191-192). But why should we conclude that interventions are to always remain constitutively defined with reference to deliberators? The mere fact that our initial experiences (and our primeval epistemic acquaintance) with interventions is qua deliberator is not sufficient. This is where I think the non-perspectivalist should push back.

Let's say that our initial experience of the world is one in which we experience space as Euclidean. Our ur-access to the space-phenomena is through the Euclidean lens. It does not follow that we are beholden to maintaining that space is to always remain constitutively defined with reference to our Euclidean experience. Just because we initially experience something in some way, it doesn't imply that the notion must always remain rooted in that initial variety of experience. This analogy should strengthen the nonperspectivalist's case.[12] The epistemic route for defending Premise 2 will not succeed.

A second route Price might take to defend Premise 2 derives from his more recent work on the function and genealogy of causal discourse. Price's later work frames his project as one of "philosophical anthropology" (Price 2017, 75, see also Price 2007, 2017, Price and Weslake 2009)—investigating the function causal concepts serve in our lives and how we came to use causal language. As Fernandes (2023) helpfully describes Price's view: "We come to speak in causal terms because causal concepts are useful in identifying what we take to be effective strategies. Saying 'A causes B',

[12] My point here regarding space and causation is similar to a point made by Pincock (2012) regarding mathematics. Many neo-Fregeans accept Frege's Constraint: "a satisfactory foundation for a mathematical theory must somehow build its applications, actual and potential, into its core" (Wright (2007), 262). Pincock argues that "we should never just trust our initial introduction to a mathematical theory when we propose an account of its subject matter. The reason for this is that the concepts we use to get started thinking about a mathematical domain play only a very minimal role in tracking the features of that domain. To think otherwise is to overburden our mathematical concepts and thus block a reconstruction of the history of our increased knowledge of this or that part of mathematics" (2012, 283). Price takes our initial type of experience with interventions as an irrevocable foundation for an account of them, and Wright does the same with mathematical theories. But I am arguing against this privileging-the-initial-variety-of-experience strategy.

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according to Price, is a way of expressing one's subjective conditional probabilities concerning B, given one freely decides on A" (2023, 44-45). On this picture, the relation between causation and effective strategies tells us about the function, genealogy, and use conditions of the concept of causation. According to this functional-genealogical investigation, "the rules governing our use of the concept of causation are based on our perspective as agents and our associated experiences of manipulating events" (Siriwardena 2019, 939). This functional-genealogical understanding of causal discourse might be thought to support Premise 2.

However, I do not think this functional-genealogical investigation succeeds in delivering Premise 2. Price's functional genealogy explains why we originally acquired causal concepts—namely, because they were useful for identifying effective strategies in agential contexts. But facts about how and why a concept was initially introduced do not settle what that concept now is or must be. Concepts that persist and prove useful over extended periods can accrue additional features and extend beyond their original functional role. There is a considerable gap between a narrow functional-genealogical account of why we have causal concepts and Premise 2's claim about what causation is.

Our actual use of causal concepts shows that we apply them both in agential contexts and in non-agential contexts. We speak of causation inside the sun, causation in the early universe, causation in distant galaxies—cases where no effective strategies for agents are at issue. If anything, this genealogical evidence undermines rather than supports Premise 2. The claim that saying "A causes B" is always a way of expressing one's subjective conditional probabilities concerning B, given one freely decides on A, is simply false when we consider these non-agential cases. Consider again causation inside the sun. What subjective conditional probabilities about freely deciding are being expressed there? Moreover, Woodward, who conducts his own functional investigation of causal concepts, reaches very different conclusions about what this functional approach reveals. Woodward's functional investigation does not lead him to conclude that interventions must be defined through deliberation.

Just because our causal talk may have originated in agential contexts—because that was our initial introduction to causation—does not mean it must remain forever tied to those contexts. The rules governing our current use of causal language extend far beyond agential manipulation, as our *prima facie* examples demonstrate. The functional-genealogical route, as it stands, thus fails to establish Premise 2.

A third route Price might take appeals to fundamental physics. Following Russell's (1912) influential discussion, Price (1996 and 2007) argues that because there is none of the required asymmetricality at the level of fundamental physics required for placing causation as a part of fundamental physical reality, it must be something projected onto reality from our agential-temporal perspective. For Price, because causation is absent at the level of fundamental physics, it must be projected from us onto reality like a Lockean secondary quality. On this view, nothing in the world itself could settle what causation is or the direction in which it operates; therefore we must make reference to actual or possible agents.

But why should we agree with the idea that if something cannot be found at the level of fundamental physics, it must be projected onto the world by us? One might think (and Woodward (2007) does) that even if there is no causation at the level of

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fundamental physics, that doesn't preclude the existence of objective causal relations at higher levels. But perhaps this inference is too quick.

Consider thermodynamics, where concepts like entropy, following Myrvold (2020) and Wallace (2014), depend on the operations available to act on the system. Is this perspectival or objective?[13]

This question points to a crucial ambiguity. Myrvold identifies exactly this problem:

> When speaking of manipulable variables [in his view of thermodynamics] ... one almost inevitably begins to talk of choices of manipulations. This carries with it a suggestion that human agency is central to the concept, which in turn raises the suspicion that subjectivity is being brought in. This is not the case ... This is an error, in my view. It stems, I think, from overextension of the familiar subjective/objective dichotomy ... The concepts of [thermodynamics] are relative to a specification of manipulable variables and a set of alternative manipulations of those variables, and as such are not there in the physical states of things. It does not follow that they are subjective. [2020, 6-7]

There are really three categories here, not two: features intrinsic to physical systems, features that depend on which variables we treat as manipulable, but objective once specified, and features that are genuinely perspectival or subjective (varying with agent perspectives, like < *foreignness* >). Thermodynamic entropy falls into the second category on Myrvold's account. Price's perspectivalism places causation into the third. Woodward and the pragmatist realist claims causation falls into the second.

Perhaps entropy depends on the means available to act on the thermodynamic system, but this dependence has a specific structure. What depends on us is which macroscopic description we use and which variables we treat as manipulable. What doesn't depend on us, once those specifications are made, are the entropy values, direction of thermodynamic processes, and reversibility facts. Crucially, observers sharing the same macroscopic description will agree on thermodynamic facts. They won't correctly assign contrary predicates the way Costa Ricans and Panamanians correctly call each other "foreign." This is exactly the structure Woodward attributes to causation. What depends on us is which concept we're tracking (fixed by pragmatic concerns about manipulation) and which variables we identify. What doesn't depend on us, once the concept is fixed and variables identified, is whether C causes E.

Woodward's position (2007) supports this middle-ground view. Even if there is no causation at the level of fundamental physics, that doesn't preclude the existence of objective causal relations at higher levels. As Woodward says: "My general stance is pragmatic: the legitimacy of causal notions in the upper level sciences is not undermined by the disappearance (or non-applicability) of some aspects of these notions in fundamental physics. Instead, causal notions are legitimate in any context in which we can explain why they are useful, what work they are doing, and how their application is controlled by evidence" (2007, 67). Because we can achieve evidence-supported understandings of the use and application of causal concepts in the special

[13] I'm grateful to an anonymous referee for pressing me on this point.

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sciences, causation, understood objectively, is perfectly acceptable even if causal notions have no legitimate role in fundamental physics.

Finally, it is worth noting that Price's broader global pragmatism (non-representationalism about all discourses) might provide yet another route to defending Premise 2. However, this route is importantly different from the causation-specific considerations examined above. While Price's global pragmatism might provide independent grounds for perspectivalism about causation, invoking it changes the dialectical situation considerably. Many pragmatists about causation, including Woodward, do not accept the broader commitments of Price's global expressivism. Appealing to global pragmatism to establish Premise 2 thus requires first establishing that much larger and highly controversial philosophical program. More importantly, if one must invoke such sweeping global assumptions to get from causal pragmatism to perspectivalism, this suggests the connection is not as tight as the perspectivity argument claims. Since my concern is specifically with the Pragmatist Contention and not with the viability of global pragmatism generally, I focus on whether there are causation-specific reasons to move from pragmatism to perspectivalism.[14]

Neither the epistemic route, nor the functional-genealogical route, nor the route appealing to the absence of causation in fundamental physics successfully establishes Premise 2 of Price's perspectivity argument. The non-perspectivalist causal pragmatist should remain unconvinced of Price's argument for the perspectivity of causation because there is no plausible causation-specific reason for believing that interventions must be understood via deliberation.

4.3. Price's Negative Skeptical Challenge

Price's negative skeptical challenge can be framed as a response to an objection Woodward raises for Price and Menzies. Woodward (2003a, 123) thinks that Price's view "face[s] the obvious problem about the extension of causal concepts to circumstances in which manipulation by human beings is not possible." The objection claims agential perspectivalism cannot make sense of causal relations between events outside the control of any agent—remote cases like causation on the surface of the sun or in distant galaxies. Price and Menzies (1993, 197) respond by appealing to resemblance: when we can manipulate events in local cases, this is "true in virtue of certain basic intrinsic features of the situation involved," and when remote situations resemble these intrinsic features, we can infer causal relations hold there too. However, Woodward (2003a, 125) objects that "there is no reason to believe . . . that this notion of resemblance can be characterized in noncausal terms," since, "small-scale models and simulations of naturally occurring phenomena that superficially resemble or mimic those phenomena may nonetheless fail to capture their causally relevant features because, for example, the models fail to "scale up"— because causal processes that are not represented in the model become quite important at the length scales that characterize the naturally occurring phenomena" (ibid.).

[14] Arguments for global pragmatism can be found in Price (2009), Price (2011), and MacArthur and Price (2007). Arguments against it can be found in Simpson (2023) and Haug (2018).

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Price (2017) responds that Woodward's interventionism faces the same extension problem. Woodward's account claims that "if C causes E, then if we (*or nature*) were able to manipulate C in the right way, there would be some associated change in E" (2021; emphasis added). To say that nature manipulates some events is to extend causation to natural events that humans do not ever intervene on. Price argues that he can simply adopt whatever extension principles Woodward uses (so long as they are not overly objectivist), and that they stand or fall together on this matter.

However, Price claims that if Woodward does not appeal to perspectival extension principles, then Woodward will be saddled with undue skepticism. If extension to remote cases is supposed to be a matter entirely devoid of reference to our causal perspective (with its perspectivity rooted in our deliberative agency), then how can we know which way the causal arrow is oriented in other parts of the universe? As Price puts it, "Unless the extension [principle] does avail itself of constraints grounded in our (actual) agents' perspective, it cannot resolve certain inevitable ambiguities, that stem from the contingencies of that perspective. (It cannot provide any justification for taking causation to have the same temporal orientation in the distant galaxy, for example.)" (2017, 91). The worry is that on Woodward's mind-independent picture, there is supposed to be a fact of the matter about which direction the causal arrow points in other regions of the universe, but Woodward has no principled way to determine what that direction is.

Price can say the reason we know which way the causal arrow is oriented in any part of the universe is because he is concerned with our causal perspective. Our causal perspective is one on which causation always runs past-to-future, because our deliberative situation involves OPTIONS and FIXTURES structured by our perspective. Since our causal claims are rooted in our deliberative agency, there is no question about temporal orientation: it inherits the temporal structure of our agency. By definition, we're tracking our own perspective. However, Price argues that Woodward's objectivist picture keeps this option from him. Woodward's view gives us no way of knowing which way the causal arrow is oriented in other parts of the universe because Woodward cannot ground causation in our particular perspective. According to Price, being vulnerable to this skeptical worry is a significant cost for non-perspectival approaches and a reason to prefer perspectivalism instead.[15]

4.4. Response to the Skeptical Challenge

A non-perspectival causal pragmatist can respond to Price's skeptical worry by clarifying how causal direction is grounded in empirically discoverable physical asymmetries. The key is distinguishing what the interventionist framework tells us about causation simpliciter from what determines causal direction in particular contexts.

Let's return to Woodward's characterization: "An intervention on C with respect to E produces a change in the value of C such that any change in the value of E (should it occur at all) occurs only via a route that goes through C and not in some other way" (2021, 78). That's all an intervention is supposed to be for the Woodwardian interventionist: a changing of one variable by changing another in an unconfounded

[15] I'd like to thank an anonymous reviewer for helping me clarify Price's skeptical worry.

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way. Crucially, as Woodward emphasizes, this notion of an intervention "allows us to give an answer to the question of which features of the actual situation should be held fixed in evaluating counterfactuals that does not appeal to the temporal order of cause and effect" (2003, 128). As Ismael (2023, 3) notes: "[interventionism] is temporally symmetric … There is nothing in the interventionist framework … that forces us to think [in the standard temporal direction]. We could just as easily take a network of variables, choose a variable A, surgically cut ties with temporally upstream variables, and ask whether interventions on A will affect (the probability of) values of variables in the temporal past." This is a non-perspectival account of interventions, intended to range over remote non-humanly manipulable cases, yet with no direction-of-time commitments. So long as there are changes of one variable that happen via changes in another variable (and not in other ways), there are interventions. This is an objective account, but it does not presuppose any particular temporal orientation of causation.

What then determines which direction interventionist causal pathways run in any given context?[16] The answer appeals to local physical asymmetries. This is what Farr (2020, 195) calls a deflationist account of causal direction: "the causal arrow only emerges in the presence of the right physical asymmetries—irreversible processes, time-asymmetric screening-off conditions, and so on." In our part of the world, with its thermodynamic gradient from low-entropy past to higher-entropy future, interventionist causal pathways propagate forward in time. But this asymmetry emerges from interaction between the temporally neutral interventionist framework and our locale's thermodynamic boundary conditions: it is not built into the interventionist account itself. As Ismael explains: "We find that there is an objective asymmetry rooted in the thermodynamic gradient that underwrites the causal asymmetry: along a thermodynamic gradient, interventionist causal pathways … will propagate influence into the future, but not into the past" (2023, 3).

We can now see how this relates to Price's skeptical worry. Price is concerned that Woodward's view gives us no way of knowing which way the causal arrow is oriented in other parts of the universe. That is true. Woodward's account of intervention (and thus causation) is temporally neutral. But there's nothing in principle unknowable about the orientation of the causal order in other parts of the universe. We could know about those distant causal orientations if we possessed the right sort of empirical evidence. Whatever the physical "infrastructure" (thermodynamic asymmetries, irreversible processes, etc.) turned out to be, then if we knew that information, we would then be in a position to know what the causal order is like there.[17]

In a time-reversed locale within a Gold universe, on the other side of the entropic 'hill' where the thermodynamic arrow points oppositely, the interventionist framework allows that causation could run opposite to how it does here. If the thermodynamic gradient and other physical asymmetries are reversed there, then the structural relationships supporting interventions would also be reversed. Variables would still stand in the relation of changing one another via interventions,

[16] Thank you to an anonymous referee for pressing me on this question.

[17] This use of the term "infrastructure" refers to Weinberger, Williams, and Woodward (2023) on the "worldly infrastructure" of causation.

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but the temporal direction would be opposite to ours. Nothing in the Woodwardian account disallows this.

I take this to be a benefit of Woodward's view: his picture is intellectually humble in that it does not presuppose a uniform causal direction across the universe. We must first empirically discover the relevant physical features in order to determine causal direction. Causal direction is a contingency, not a matter of scientific law (or some other necessity). When it comes to remote features of our universe (or other possible universes), Woodward's position is that we should say "we do not know" what the causal order is like but we have the recipe to find it if supplied with the relevant physical facts. This is how the skeptical worry can be addressed: we're not committed to claims we cannot know, because the framework remains neutral about what physical asymmetries obtain in remote regions. What we can know about causal structure in distant parts of the universe depends on what we can know about physical structure there: an empirical question for physics, not a matter to be settled a priori or grounded in our agential perspective. We avoid skepticism by recognizing that causal structure is epistemically accessible through empirical investigation of physical asymmetries.

5. A Pragmatist Realism about Causation

I would now like to build on Woodward's view in order to discuss what I take to be the best view of causation: pragmatist realism. Before doing so, it's important to clarify what exactly is at stake in the debate between Price's perspectivalism and the pragmatist realism I'm defending. What does it mean for causation to be "perspectival"? And how does this contrast with the kind of objectivity I'm claiming causation possesses?[18]

The key distinction concerns where agential perspectives enter the picture. There are two places it might enter: in how we fix or identify the concept we're investigating (call this "concept fixation"), and in the truth conditions for claims involving that concept. For pragmatist realism, an agent's perspective enters at the stage of concept fixation. We identify the concept of causation as the concept worth investigating through our pragmatic concerns about manipulation and control. But once we've fixed which concept we're tracking, the truth conditions for causal claims are perspective-independent. Whether C causes E depends on objective physical structures (intervention-supporting relationships), not on anyone's perspective. For Price's perspectivalism, by contrast, agential perspectives enter into the truth conditions themselves.

Price and Menzies (1993) claim that causation is a secondary quality in a similar way as color is. Comparing causation to color helps to clarify these commitments and the kind of pragmatist realism about causation being developed here. Consider two views of color. On a dispositionalist view, for something to be red is for it to have a disposition to cause certain experiences in normal observers under normal conditions. Here, perspective (facts about observers and their experiences) enters into the truth conditions for color attributions. On a physicalist view of color, by

[18] I appreciate a thoughtful referee for asking for clarification here. The discussion here is interconnected with my discussion of the perspectivity of thermodynamics in section 4.2.

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contrast, for something to be red is for it to have certain surface reflectance properties. Here, perspective enters only at concept fixation, we identify which physical property counts as "redness" by reference to what causes our color experiences, but the truth conditions themselves concern mind-independent physical features.

For Price, we begin, in standard pragmatist fashion, with our primary experiences of causation: agential experiences. From there, Price goes on to say that causation just is the kind of thing we experience in those moments of agency. Causation then essentially involves agency. In this sense, Price's view mirrors dispositionalist and projectivist views of color, where what color is must be essentially tied to color-perceivers. The pragmatist realism being developed here is, to continue with the analogy, much more like a physicalist view of color. I don't mean to imply that we should think that causation is only a relation of physics. We should not deny that there is causation in biology or psychology, for example. But just as the physicalist about color believes that "colors are objective (mind-independent), properties of material bodies and light sources, whose natures are 'hidden' from us, and require empirical investigation to discover" (Maund 2018, sec. 2.1), the pragmatist realist maintains that causation is an objective relation which depends on the features of the objects and processes in the relevant situation.

Consider Woodward's functional pragmatism again. Woodward does fix the concept $< cause >$ via our practices and goals. But that's as far as the human perspective enters his picture: it helps to fix the concept. The physicalist can allow that $< redness >$ is fixed for investigation by our phenomenological experiences as of red things, and also claim that we need to discover the empirical features that make those sorts of experiences happen. When we discover that redness is a feature of bodies related to electromagnetic wavelengths of a certain kind, we can now go on believing that this is what redness is. Even if an object does not appear red on the other side of the universe it can still be red, on the physicalist conception, because the surface features and wavelength properties are what matter. The realist strand of pragmatism about causation that I'm defending here can be seen as doing something similar. In time-reversed locales, as long as the right counterfactual dependencies are there, we can say causation is there. We can apply $< cause >$ in domains where our original variety of causal experience is not at issue anymore.

We can adopt this causal analogue of the physicalist approach to color and still, without error or incoherence, begin our view with a functional-pragmatic fixing of the concept to be empirically investigated. If there is something to this analogy with debates in the metaphysics of color, then beginning with a functional-pragmatic approach to a concept does not inexorably lead to perspectivalism. This is a pragmatism without perspectivalism, and an example of pragmatist realism.

Before moving on, it is important to stress some differences between the pragmatist realism I'm outlining here and the details of Woodward's own nonperspectival causal pragmatism. As the foregoing should make clear, much of what Woodward says about causation is more-than-friendly to pragmatist realism. It is, after all, via a discussion of how the Woodwardian should respond to Price's attacks that the availability of a pragmatist realism about causation becomes clear. But my project differs from Woodward's in several important respects. First, Woodward often stresses the non-metaphysical character of his project. As Woodward puts it, the goals

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of his interventionist account of causation are "interpretive/descriptive/semantic/methodological (methodological for short) rather than metaphysical" (2017, 198). He asserts that his biconditional, "X causes Y if and only if there is some intervention I that changes the value of X such that if I were to occur, the value of Y would change" (2017, 196-197) is not a metaphysical claim about the nature of the causal relation. Instead, this biconditional claim (and his other elucidations of his interventionist view) are clarifications intended to capture "the way that causal claims are used or understood in a number of areas of science" (2017, 197). His account of cause is intended to be a fruitful clarification of what practicing scientists "mean or are committed to (or are trying to establish) when they make causal claims" (ibid.). Compared to this self-avowed non-metaphysical project, my project is explicitly metaphysical. I take the pragmatist realism defended here to be making substantive metaphysical claims about what causation is, not just about how we should understand causal concepts methodologically.

Second, while Woodward's interventionism is formally temporally neutral, he does not develop the metaphysical implications of this temporal neutrality or connect it to broader debates. As he emphasizes, his notion of intervention "allows us to give an answer to the question of which features of the actual situation should be held fixed in evaluating counterfactuals that does not appeal to the temporal order of cause and effect" (2003, 128). But Woodward presents this as a feature of his methodological framework without exploring what it tells us about the relationship between causal structure and temporal structure at a metaphysical level. Pragmatist realism makes these connections explicit. As developed in §4.4, causal direction emerges from the interaction between the temporally neutral interventionist framework and local physical asymmetries (thermodynamic gradients, screening-off conditions, irreversible processes). In our part of the world, interventionist causal pathways propagate forward in time because of our thermodynamic gradient. But this asymmetry emerges from interaction between the temporally neutral interventionist framework and our locale's thermodynamic boundary conditions. It is not built into the framework itself. This has important metaphysical consequences: it means causal structure is objective and discoverable through empirical investigation of physical asymmetries, not grounded in agential perspectives (contra Price) or settled a priori (contra traditional temporal-priority accounts). Woodward has the resources for this story, but he doesn't develop its metaphysical implications.

Finally, pragmatist realism and Woodward's interventionism differ in both scope and in compatibility with scientific realism. Pragmatist realism is a general metaphysical program potentially applicable across metaphysics of science, while Woodward's interventionism is specifically only a theory of causation. My pragmatist realism is potentially extendable to other topics. The core insight, that we can fix concepts for investigation through human practices while treating the relations corresponding to those concepts as objective features of reality, can be extended to other metaphysical domains: laws of nature, natural kinds, and more. Woodward's interventionism, by design of course, has no such ambitions. Additionally, I'm skeptical about the compatibility of pragmatist realism with Woodward's wider views in scientific metaphysics. In his (2003b), Woodward argues for "instrumental realism": a view which is realistic concerning causes, but silent when it comes to ontological commitment to the *entities* of scientific theories. Pragmatist realism does not limit its

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realism to just causes, and is thus perfectly compatible with more standard scientific realisms in a way that Woodward's views are not.

I think my pragmatist realism, scaffolded on Woodwardian interventionism, clarified via the responses to Price's challenges, and fruitfully compared with the physicalist conception of color, is the best response to Price we can make. Price's arguments for the PC compel us to augment Woodwardian interventionism with the additional metaphysical clarifications made throughout the present paper. Woodward himself has not made these clarifications, but I think these clarifications are necessary for responding to the challenge from Price's perspectivalism. Until the clarifications of section 4 and the present section are made, this Price-Woodward dialectic, a dialectic very central in debates concerning what the pragmatist should make of causation, will be at a dead-end. Thus something like my pragmatist realism is needed to push the debate forward. But when these metaphysical addendums are provided, we can recognize an objectivist, non-perspectivalist causal pragmatism that is Woodwardian in its fundamentals and yet escapes the challenge from Pricean perspectivalism. This position is a pragmatist realism.

6. Ismael

Jenann Ismael (2016, 2023) has also argued for a sort of perspectivalism about causation through a discussion of Price and Woodward. In her 2023 paper, Ismael argues that a "thoughtful perspectivalism" results from an interventionist starting point. And in her 2016 paper, she argues against Price's "semantic perspectivalism" in favor of a "frame dependent" take on causal perspectivalism.

Ismael defends her causal perspectivalism by considering Price's Gold-universe thought experiment:

> we need to answer two questions: whether he [Price] is right about the possibility of creatures for whom the direction of probabilistic dependence runs in the opposite direction, and whether this shows that the distinction between cause and effect is perspectival. Not everyone would agree, but I am going to grant the physical possibility of creatures in whom the Causal Role is played by relations that are the temporal reverse of relations that play that role in us, and focus on whether and in what sense this means that the direction of cause is perspectival. [Ismael 2016, 250]

The "Causal Role" is the "role that causal beliefs play in practical reasoning" (ibid.). For us, the Causal Role is realized by relations which match our causal concept. The Causal Role is fulfilled by a concept with a different extension in the case of our time-reversed cousins. Ismael presents the Gold universe thought-experiment, grants that it is possible, and concludes thereby that $< cause >$ is perspectival in some sense. However, it is crucial to examine what notion of "perspectival" Ismael has in mind, for her perspectivalism differs significantly from Price's.

Ismael thinks Price makes a problematic choice when he compares $< cause >$ to indexicals like 'here' or concepts like $< foreigness >$. This is because it can easily mislead one into thinking $< cause >$ is perspectival in a semantic way. For Ismael, $< cause >$ is perspectival, but not because of anything in the semantics of

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"cause." Her reasons are instructive: "there is no public use for a [semantically] perspectival concept of cause, no cognitive or conversational work for a suppressed parameter with contextually determined values to do" (2016, 253). Because there is no public communicative use for treating < *cause* > indexically, it is not a perspectival concept in the same way < *foreignness* > is.

What kind of perspectivalism does Ismael endorse then? Her view is a "frame-dependent" perspectivalism: "truth conditions for x-beliefs can be given by a function f_0 of more fundamental physical structures making no explicit reference to human agents. But there are any other number of functions ($f_2 \ldots f_n$) ontologically on a par with x and what explains the distinguished role f_0 plays in our practical and epistemic lives are facts about us" (2016, 245). This is very similar to pragmatist realism. < *Cause* > is a concept fixed for investigation by our agential experiences. But once we have identified, via facts about ourselves and what we care about, causation among the various possible relations, it remains an objective, non-projected, relation out in the world to be externally investigated. If this is what frame-dependent perspectivalism amounts to, then it is perfectly compatible with the pragmatist realism about causation developed here.

However, there are other moments in her discussion which make it sound much closer to Price's position. Ismael claims "[t]he right way to understand the sense in which causal judgments depend on us is that the direction in which we see causal influence as running is not part of the fundamental, invariant, mind-independent fabric of reality, but is rather imposed in part by our viewpoint on that reality" (2016, 260). For Ismael, < *cause* > is a necessary and successful concept for navigating the world. But since the causal relation (or at least its direction) is not applicable at the fundamental level, it must be an "intermediate structure." She claims that the concept < *cause* > (along with other concepts which are perspectival in her sense) picks out these intermediate structures. The idea seems to be that because the causal relation cannot be found at the level of fundamental physics, it must be partly a product of our perspective.

Putting some pieces together, Ismael seems committed to the idea that if (i) some concept, < *X* >, is not applicable at the fundamental level, and (ii) there are possible creatures who have an X-concept with a different extension answering to the X-role in their cognitive architecture, then (iii) < *X* > is a perspectival concept (i.e., an intermediate structure).

If this is what it means for a concept to be perspectival, then pragmatist realists about causation can accept that < *cause* > is perspectival in Ismael's frame-dependent sense without abandoning their stronger mind-independent realism about causation. Consider water. < *Water* > is a concept which finds no applicability in fundamental physics. Moreover, there are possible creatures (Twin Earthers) who have a water-concept with a different extension (XYZ) answering to the Water Role in their cognitive architecture. On Ismael's picture, these two facts are jointly sufficient for < *water* > being a frame-dependent perspectival concept.

But this kind of frame dependence is not the kind of perspectivalism that the pragmatist realist should find objectionable. No one would claim that < *water* > is being understood in a problematically anthropocentric or projectivist way if all we mean is that (i) water is non-fundamental and (ii) other possible beings may have their own concepts with different extensions answering to the Water Role.

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If < *water* > is a frame-dependent perspectival concept just in virtue of its non-fundamentality and the possibility of Twin Earth, then frame-dependent "perspectivalism" is not necessarily objectionably subjectivist.

The pragmatist realist can thus accept that < *cause* > is "perspectival" in Ismael's attenuated sense without abandoning objectivism about the causal relation itself. Ismael's work demonstrates that beginning from interventionist and pragmatist premises need not lead to the robust, agential perspectivalism that Price defends where agents necessarily must enter into the truth conditions of causal claims. Our causal concepts are ours in the same way our water concepts are ours and not the Twin Earther's. Nothing here forces the pragmatist realist into claiming that causation itself must be fundamentally explained as an agential phenomenon.

7. Conclusion

I've explained Price's agential perspectivalist version of causal pragmatism and Woodward's non-perspectival causal pragmatism. I've argued that certain non-perspectival views, like an augmented version of Woodward's, can survive Price's arguments and challenges. There is no reason to maintain that interventions must be defined with reference to agency. Thus, there is no good reason to accept Price's perspectivity argument.

Furthermore, an augmented Woodwardian interventionism does not lead to the sort of problematic skepticism Price thinks it does. If the world involves the right kind of counterfactual dependences then the pragmatist realism about causation introduced here maintains that causation is present. Causation need not behave on the other side of the entropic hill just as it does here. This is because there are no commitments embedded with the augmented Woodwardian view which claim causation must behave everywhere exactly as it does here. Price's positive and negative arguments should not sway any non-perspectivalist causal pragmatist to go perspectivalist.

The objectivist, realist strain of causal pragmatism developed here within the Woodwardian framework has it that we should be pragmatist with regards to fixing the concept of interest. We let human concerns, thought, talk, and deliberative experiences fix the concept, then find the worldly relation fit for empirical investigation as the *causal* one. This is the pragmatist realist position on causation that can be fruitfully compared to the physicalist conception of color.

Because (i) Price's arguments miss their intended targets, (ii) Ismael's perspectivalism is unoffensive to the pragmatist realist, and (iii) there exists a viable sort of non-perspectival, objectivist causal pragmatism (i.e., a pragmatist realism about causation), we should conclude that the PC is mistaken. We should not agree with those that maintain causal pragmatism leads to causal perspectivalism. We can achieve a pragmatist realism about causation.

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