Synthese
DOI 10.1007/s11229-015-0757-6

How do causes depend on us? The many faces of perspectivalism

Jenann Ismael[1]

Received: 29 September 2014 / Accepted: 19 April 2015

Abstract Huw Price has argued that on an interventionist account of cause the distinction is perspectival, and the claim prompted some interesting responses from interventionists and in particular an exchange with Woodward that raises questions about what it means to say that one or another structure is perspectival. I'll introduce his reasons for claiming that the distinction between cause and effect on an interventionist account is perspectival. Then I'll introduce a distinction between different ways in which a class of concepts can be said to depend on facts about their users Three importantly different forms of dependence will emerge from the discussion: (1) Pragmatic dependence on us: truth conditions for x-beliefs can be given by a function f0 of more fundamental physical structures making no explicit reference to human agents. But there are any other number of functions (f2…fn) ontologically on a par with x and what explains the distinguish role f plays in our practical and epistemic lives are facts about us. (2) Implicit relativization: truth conditions for x-beliefs are relative to agent or context. The context supplies the value of a hidden parameter ('hidden' in the sense that it is not explicitly represented in the surface syntax) that determines the truth of x-beliefs. (3) Indexicals: like implicit relativization except that the surface syntax contains a term whose semantic value is context-dependent I suggest that Price's insights are best understood in the first way. This will draw a crucial disanalogy with his central examples of perspectival concepts, but it will refine the thesis in a way that is more faithful to what his arguments show. The refined thesis will also support generalization to other concepts, and clarify the foundations of the quite distinctive research program that Price has been developing for a number of years.

✉ Jenann Ismael
jtismael@u.arizona.edu

[1] University of Arizona, Tucson, AZ, USA

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

Keywords Causation · Perspective · Pragmatics · Semantics · Huw Price · James Woodward · Interventionism · Temporal direction

1 Introduction

In a set of recent papers, Huw Price raises the question of whether the distinction between cause and effect is a matter of perspective. In his words

> Is the distinction between cause and effect like the distinction between us and them—a perspectival projection onto a nonperspectival reality? Or is it better understood as nonperspectival from the start[1]

The issue has intrinsic interest. Causation is a concept that is central to our thinking about the natural world. Many of the notions of central metaphysical import are tied to causation. The asymmetry between cause and effect is arguably the most basic and important form of temporal asymmetry in nature.[2] If it turns out that the distinction is perspectival, that is a result of some importance.

Price argues that on an interventionist account of cause the distinction is perspectival, and the claim prompted some interesting responses from interventionists and in particular an exchange with Woodward that raises questions about what it means to say that one or another structure is perspectival. I'll introduce his reasons for claiming that the distinction between cause and effect on an interventionist account is perspectival. Then I'll introduce a distinction between different ways in which a class of concepts can be said to depend on facts about their users and suggest that Price's insights are best understood in only one of these ways. This will draw a crucial disanalogy with his central examples of perspectival concepts, but it will refine the thesis in a way that is more faithful to what his arguments show. The refined thesis will also support generalization to other concepts, and clarify the foundations of the quite distinctive research program that Price has been developing for a number of years.

2 Interventionism

Price's discussion takes its departure from the interventionist account of causal structure and although there is still some dispute about the interventionist account, I will assume it here, as a point of agreement between the disputants and background for the discussion of perspective. If you don't like the interventionist account, it shouldn't affect the main body of the discussion.[3] Philosophically, interventionism is a devel-

[1] Price (2007, p. 4).

[2] This is not to say that the causal asymmetry is just a temporal asymmetry, only that it is an asymmetric notion that normally aligns with the temporal arrow. The connection between the two arrows is one of the matters to be settled by an account of causation.

[3] See Pearl (2000), Woodward (2005), and Sloman (2009), for an accessible survey of recent developments. Where there are differences, I rely on Woodward. causation is not an unambiguous term, and there are two largely separate traditions in philosophy dealing with causation. The first is associated with analytic metaphysics. The primary data are intuitions about hypothetical cases, and the goal seems to be to systematize

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

opment of manipulability theories of causation, which are built around the idea that C is a cause of E, just in case manipulating C in the right way is a way of affecting E.[4] Although manipulability theories capture the intuitive content of causal claims, the notion of manipulation has seemed to interventionsists objectionably anthropocentric. It seems to make reference to human capacities and human agency, where causal structure should be part of the mind-independent fabric of reality. Interventionists trade the notion of manipulation for that of 'intervention' and provide an explicit characterization of the class of interventions that make no essential reference to human agency. The result is an advance on manipulability theories that preserves the intuitive content of that view, but removes any constitutive connection to human action.

According to interventionists, causal information is information about the results of hypothetical interventions. An intervention is a 'surgical' change in the value of a variable, one that severs it from old functional relationships while keeping other causal relationships intact, allowing it to vary effectively free from the influence of antecedent variables. So knowing the causal effects of A is knowing what *would* happen if A were allowed to vary free of its own past causes. So, for the interventionists, causal notions have an important but non-constitutive connection to human agency. Manipulation by human agents is a paradigmatic example of an intervention, but flipping coins and randomizing trials are ways of approximating surgical interventions as well. And this feature of the interventionist account is important to its proponents. As Woodward writes:

"Even when manipulations are carried out by human beings, it is the causal features of those manipulations and not the fact that they are carried out by human beings or are free or are attended by a special experience of agency that matters for recognizing and characterizing causal relationships. Thus…[interventionism] avoids the … problem besetting manipulability theories—that of anthropocentrism and commitment to a privileged status for human action. *There is nothing in the interventionist version of a manipulability theory that commits us to the view that all causal claims are in some way dependent for their truth on the existence of human beings or involve a "projection" on to the world of our experience of agency*."[5]

There is one sense in which the common sense idea of cause does plausibly involve such a projection; the quasi-phenomenological idea of compulsion that we experience as a kind of tension in the muscles when we act on the environment is read into the relations between natural events, so we imagine one billiard ball pushing another, or the earth pulling us towards it. But this idea of causation as compulsion, doesn't play a role in the interventionist notion.

Footnote 3 continued
judgments about when it is right to say that A caused B. The second focuses on causal modeling in engineering and the special sciences. Intuitions play almost no role in this literature. The emphasis there is on providing a framework for representing causal relations in science, i.e. a formal apparatus for rendering the deep causal structure of situations, refines intuitions and gives us positive criteria for making assessments in hard cases, provides normative solutions to causal inference and judgment problems. The interventionist account of causal structure grew up in the latter tradition.

[4] See Woodward (2013).

[5] Ibid., emphasis mine.

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

This progress from a notion that is initially characterized by an external connection to human action to one that can be characterized explicitly without such reference is an important part of how a concept matures. So, for example, I used to think of aspirin as pills that cure headaches, and now have a more mature concept of aspirin that can be characterized by chemical composition independently of its relationship to headaches, and I can tell a little of the informative story science gives us about why it cures headaches. Children start by thinking of parents as people that play a certain role in their lives. Parents are grown ups that take care of them, put them to bed, and provide food. Later, they come to possess an explicit biological characterization of parenthood and an understanding of the social and ecological contingencies that explain why beings that satisfy the biological characterization play the relevant role. These sorts of explications are something other than simple analyses. They give an explicit (non-anthropomorphic) account of the extensions of concepts initially defined implicitly by their relations to human practices.[6]

Interventionism aims to provide a formal framework for representing causal relationships that meshes with the ways that we have of discovering causal structure and the uses causal beliefs play. It doesn't purport to give a non-circular, reductive analysis of causation, because the notion of intervention can't be characterized in non-causal terms. But it does insist on objectivity. Although interventions can't be characterized in non-*causal* terms, they can be characterized in non-*human* terms. The fact that there is no ineliminable reference to human agents or agency in the truth conditions for causal claims means, in their view, that causal structure is part of the fabric of nature and not a projection onto that fabric by the human mind.

Against this background, Price claims that the attempt to exorcise the human elements in causal claims fails. He focuses on the distinction between cause and effect, which he claims is not an asymmetry in nature, but one imposed by an asymmetry in what he calls the 'causal viewpoint' of an agent. And he characterizes the causal viewpoint of an agent as "a distinctive mix of knowledge, ignorance and practical ability that a creature must apparently exemplify, if it is to be capable of employing causal concepts."[7]

Here he is taking a leaf from Ramsey's book.[8] Ramsey held that causal thinking has its home in the deliberative context, and we think of effects as lying temporally downstream of their causes because when we assess the affects of hypothetical actions (or, as he sometimes says, volitions), beliefs about the past remain unaffected, but beliefs about the future are affected. This is supposed to show that the direction of dependence is imposed by the viewer rather than intrinsic to the situation under consideration. And this, in turn, is supposed to show that it is a perspectival effect.

6 Kutach (2013) is a book length account of the development.

7 Price (2007, p. 5).

8 Ramsey (1978); also Price (1992).

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

3 Perspectival concepts

Claims that one or another concept (e.g., taste, aesthetic value, ethical belief) is perspectival are a staple of the philosophical literature, and a number of so-called global perspectivalist views have gained currency recently,[9] but there's no received general understanding of what it is for a concept to be perspectival. The term is used loosely in both ordinary language and philosophical contexts with wide and evidently varied meaning. We might try to cull Price's meaning from his examples: local and foreigner, us and them, nearby and far away. In these cases, there is a suppressed parameter that takes different values in different contexts, so that the extension of the concept varies across contexts.[10] Because truth conditions for claims about what is nearby and far away (i.e.. what falls into the extensions of the words 'nearby' and 'far away' or the concepts [nearby] and [far away]) make reference to the situation (suitably characterized) of the speaker (or thinker), what's nearby for one agent is not nearby for another. The same goes for 'us and them' or 'local and foreigner'. Differences in situation or in speaker reverse the references of these terms.

Likewise, Price argues that the direction in which causal influence runs *depends on who is viewing it*. When we view a pair of correlated events, we think that if there is a causal relationship, the earlier is cause and the later is effect. But he argues that agents in a different epistemic situation—agents who remember the future but not the past, and who hold beliefs about the future fixed when assessing the effects of hypothetical actions—would see the distinction differently. For such beings, the temporal order of cause and effect is reversed. He writes:

> When we imagine intervening, we carve up the relevant aspects of reality, on broadly temporal lines, into a fixed or 'given' past and an open or mutable future. This … reflects contingent features of our own circumstances, in such a way that other thinkers, differently 'situated' in the relevant respects, would carve matters up in a different way.

There's some back-story to this claim. Price argues that our interest in causal structure derives from the role it plays in our lives. It has to do with the fact that human actions have the status of interventions from the agent's point of view and strategizing, planning, and decision are temporally asymmetric activities that can only be understood by seeing them in the context of the cluster of epistemic asymmetries that define human cognitive life. And he's building here on work that has gradually revealed the physical basis of these asymmetries. The fact that we have information about the past in the form of memory and records, but only inferred information about the future derives from the entropic gradient and that is something that is, from the point of view of physics, a contingent product of the way matter happens to be distributed in our universe, or at least the little corner of our universe that we inhabit.[11]

[9] See, for example Giere (2006).

[10] The notion of a context is drawn widely, so that different users, different locations, different times, all count as differences in context. Which contexts make a difference to extension will vary from case to case.

[11] Albert (2000) provides one clear formulation of the asymmetry and its physical basis.

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

4 Arguments for perspectivalism

Price offers an abstract characterization of the architecture of deliberation that carves out a role for causal beliefs as the basis for strategic action. The details don't matter for our purposes. We can summarize the role that causal beliefs play in practical reasoning as the *Causal Role*. The central argument for perspectivalism is a thought experiment. He invites us to consider beings that live in regions of the universe where the entropic gradient is reversed with respect to ours, and for whom the Causal Role is filled by a relation that is the temporal reverse of our causal concepts. What we call 'cause' they call 'effect', so that they see causal influence as running in the opposite direction, from future to past.

> The most powerful argument in favor off the perspectival view… [Argues] for the possibility of creatures with an alternative perspective on the same objective reality… In their hands, then, the same conceptual framework acquires a different extension.

When Price says 'possibility' here, he means physical possibility, but he adds to the claim the live *epistemic* possibility that there may actually be creatures in a distant part of the galaxy or far in our own future in which the entropic gradient is reversed with respect to ours and whose causal judgments run in the opposite temporal direction.[12] He writes

> It remains a live empirical possibility that the universe contains regions in which the thermodynamic gradient is reversed. In such regions, it seems likely that intelligent creatures would have a time-sense reversed relative to ours. … Suppose we grant that if there were such creatures, of whatever origins, then two things would follow: (i) they would think that the causal arrow is oriented in the direction that we would call future-to-past; and (ii) their perspective would be as valid as ours. Then we have all it takes to establish that causal direction is perspectival for us—whether they exist or not![13]

5 Ambiguity

To assess Price's claim, we need to answer two questions: whether he 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. For simplicity, we'll imagine that their causal notions are a simple temporal reflection of ours so that when

[12] These cases are described in a context in which our own temporal concepts well-defined so that we can say in our terms that their causal judgments are reversed.

[13] Ibid., p. 19.

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

we say 'A causes B', looking at the same events, they say 'B causes A'.[14] But the fact that there might be creatures in whom the Causal Role is played by something time-reversed, relative to the relations that play that role in us, does not settle whether the time-reversed relations are *causes*. They can use words in whatever way they like; the question is whether *we* would call them causes. The reason it doesn't settle the question is that it leaves open the possibility that what we mean by cause and effect is fixed rigidly by their role in our deliberative practices. And in our deliberative practices, causes always precede their effects. One way of putting the question is to ask whether 'cause' just means 'whatever plays the Causal Role' or whether it refers rigidly to whatever plays the role of causal relations *for us*. If causal relations are defined implicitly in this latter way, then it would not follow that there is contextual variation in the extension of the concepts (or terms) 'cause' and 'effect' akin to the contextual variation in the concepts 'us' and 'them, or 'local' and 'foreigner', or 'nearby' and 'far away'. The beings in Price's imagined scenario would simply be using words differently.

The difference is brought out in Putnam's familiar twin-earth argument about the concept water. Putnam famously asked us to consider a conceivable world in which a chemical compound that he dubbed XYZ looked, felt, and tasted like water and played the role that water plays in our lives for human-like beings. The almost universal response to Putnam's case was not that the concept of water has a hidden contextual variability, like 'nearby', so that it has different extensions in different relevantly different situations. It was that what plays the water *role* for such beings is not water. It doesn't matter that *they* call it 'water'. It doesn't fall under the extension of *our* concept of water. Whether or not you agree with this reaction, the question does bring out a distinction that is relevant here. The possibility of creatures in whom the Causal Role is played by relations that are temporally reversed with respect to ours doesn't establish that the concept of cause exhibits the contextual variability of the paradigmatically perspectival concepts that Price offers as analogies. It leaves open both of these positions:

Explicit definition causes for creature x are whatever plays the Causal Role for x.
Implicit definition causes are whatever plays the Causal Role for us.

Which of these does Price intend? His definition, curiously, preserves the ambiguity. He writes:

> B is an effect of A iff doing A is a means of bringing about B, from an agent's perspective—roughly, if controlling A is a means of controlling B.[15]

[14] The reason that it is not quite so straightforward is that the direction of cause and effect depends on how the intervention counterfactuals are assessed, and it requires a little more work to say how the truth conditions for counterfactuals would come out for such creatures. The standard strategy is to argue that the direction of cause derives from the direction of counterfactual dependence, explain the direction of counterfactual dependence by tracing it to the thermodynamic gradient. For our purposes what matters is that if we reverse the thermodynamic gradient, we reverse the facts that govern counterfactual judgments, and thereby reverse the direction in which causal influence is seen as running.

[15] Ibid., p. 11.

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

There are two ways of reading this. The first interprets the reference to 'an agent' as a variable and adds an argument place in the antecedent to turn it into a well-formed formula. It says that

(a) B is an effect of A *for an agent* ***a*** iff doing A is a means of bringing about B, from **a**'s perspective.

The second reads 'an agent' as a singular term that refers to an arbitrary human agent (or perhaps the equivalence class of such agents).

(b) B is an effect of A (full stop) *iff* doing A is a means of bringing about B, *from the perspective of human agents*.

If we look to the wider context, there are mixed signals. On the one hand, the examples he gives by way of analogy are clear cases of the first. Many of his critics have read him that way, and it is the most natural interpretation of much of what he says. We use 'us and them' and 'near and far' in a way that exhibits contextual variation. On the other hand, the arguments he gives don't actually establish this. The possibility of creatures in whom the causal viewpoint is reversed is not enough to establish that our own concepts exhibit the contextual variation in extension of 'us and them' or 'nearby and far away' and so it is not enough to establish (a) over (b). One can be persuaded that the direction in which we see causal dependence as running depends on facts about us (metaphysical contingencies from a cosmic point of view) without agreeing to the claim that the semantic value of claims about cause and effect vary with those facts. It is a further claim to say that our causal concepts have the extra, implicit argument place and variability of truth conditions with 'context of use' analogous to paradigm cases of perspectival concepts.

There is an illuminating comparison with the concept of chance, with Lewis' Principal Principle (or one of its revisionary successors) capturing the role that chance plays guiding belief. We can imagine creatures for whom an extensionally different notion plays the role in the Principal Principle that chance plays for us. And there is a parallel question about whether we would say that something other than chance guides belief for them because of the ways in which they differ from us, or whether we would say that their chances are different from ours. This is the question, effectively, of whether the concept of chance has a suppressed parameter whose value is supplied by context, so that chance (for creatures c) is whatever plays the chance role (for creatures c), or chance is rigidly defined as what plays the chance role for *us.*

6 Arguments against the semantic thesis

The positions are disambiguated by how we apply our own vocabulary to describe causal relations *in the universe of creatures whose practical and epistemic perspectives differ from ours in relevant ways*. If there is indeed a suppressed parameter in our causal concepts on analogy with 'us and them' and 'near and far', we would have to apply our *own* vocabulary to those cases in a way that recognizes contextual variability. Do we say that causes, in these examples, run in the opposite direction to causes in our region of the universe or do we say that the people in those settings use causal terms in a weird way? Would the discovery of regions of the universe in which Pricean beings use causal concepts in a time-reversed manner be announced in the paper as the

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

discovery of regions of the universe whose native inhabitants are such that for them effects precede their causes? Or would it just be announced as the discovery of beings that use 'cause and effect' in a time reversed manner, and come with a cautionary note to be careful when you talk to the folks that live in that region of the universe, they attach different concepts to the same word.

So which way do people react to the disambiguating cases?[16] I've tried the example in a rough poll in classes and informal conversation with friends who are not philosophers. The results are in every case divided. Most people not already committed to a metaphysical view about causation did not have strong pre-theoretic intuitions, and the reaction among those that did was not uniform. What are we to make of this variability? If reaction to these cases is supposed to discriminate whether the concept of cause is defined explicitly or implicitly by its role in our deliberative practices, the variability of intuitions is problematic. It means we can't speak unproblematically about 'our causal concepts'. Whose concepts are we interested in here? Mine? Yours? Perhaps we can avoid the problem of variability by forgetting about causal concepts and talking about the meaning of the word 'cause'. The communicative function of language stabilizes meanings across the community, so there is a semantic thesis about the meaning of an ordinary language term that is better defined. But it would be very hard to make a case for perspectivalism as a descriptive claim about the ordinary language meaning of 'cause'. Most people don't have explicit knowledge of the facts that ground the direction of causation. They think of the direction of causal influence as basic and objective. They have to be educated with a quite articulated cluster of concepts that are no part of common sense to get them to understand the reversal of perspective.

I think that this is probably on the wrong track altogether. The reason that there aren't uniform pre-theoretic intuitions about how our causal concepts apply in the entropy reversed setting among perfectly competent speakers and users of the concept of cause is that any such intuitions are ungrounded in linguistic practice. There aren't the kinds of public norms in place that would enforce community-wide agreement about how the concept should apply in those cases. There is no public use for a perspectival concept of cause, no cognitive or conversational work for a suppressed parameter with contextually determined values to do. Unless linguistic occasions arise that force public judgments of the kinds of counterfactual cases that involve reversal of causal orientation, there is no public, communicative role for such a parameter to play. That is a reason for denying that the terms 'cause' and 'effect' have the shifting reference of terms like 'us' and 'them' or 'near' and 'far'. And that, in its turn, is reason for denying that the corresponding concepts have a suppressed parameter that represents the user (or the context of use). The issues here are a little complicated. But there is a good reason for holding that the content of thoughts that employ a concept make explicit reference to the user or context of use as an explicitly articulated constituent only when the way in which the concept is employed requires that its users have explicit

[16] And curiously, early in the paper, Price proposes an intuition pump to prime the imagination, in the form of a situation in which there is no intrinsic asymmetry and we still import temporally asymmetric causal intuitions. His own description of this case suggests that we bring a fixed viewpoint even to a setting in which there isn't the contextual asymmetry that is supposed to determine the direction of causation.

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

knowledge of the dependence and an articulated understanding of how reference shifts with context. The concepts [near] and [far] have the location of the user as an explicitly articulated constituent because using the concepts properly requires knowing how their reference depends on, and shifts with, the location of the user. The concepts [local] and [foreign] have the country of the user as an explicitly articulated constituent because using the concepts properly requires knowing how their reference depends on, and shifts with, the country of the user. Everyone who knows how to use the concepts 'local' and 'foreign' understands what you mean when you say that when we go to china we are foreigners but in the US, we are locals.

There is no such call to recognize the agent or her causal viewpoint as an explicitly articulated constituent of thoughts employing the concept of cause. The characterizing feature of the kind of dependence on our causal viewpoint that Price wants to highlight is that it is typically *unknown* by its users. Perfectly competent possessors of causal notions do not know or believe that the direction in which causal influence runs depends on their own viewpoint. They wouldn't know how to interpret a newspaper headline "Creatures discovered for whom effects precede causes". And it's important here to understand that it is not necessarily that they rule out the idea of causes preceding their effects as *a priori* impossible. It is that no provisions are made in their concept of cause that would provide concrete content to what is being described. We could explain to them what was meant in the way that Price does when he introduces the examples in his paper by talking about entropic gradients and truth conditions for counterfactuals, and the role of causal information in strategic planning, and so on. The conclusion of the explanation is an implicit invitation to start using causal concepts in a way that recognizes shifting reference. Whether or not the invitation is accepted, the explanation does not show that our causal concepts are perspectival in the sense that they have the user as an explicitly articulated constituent. It introduces articulation into the concept that was not there at the outset for most users of causal concepts.

Many people I spoke to were inclined to agree that if we developed a need to communicate with creatures whose temporal perspective was reversed with respect to ours, we would begin to use our causal concepts with temporal orientation as a suppressed parameter. That shows only that our concepts have an open-ended potential to develop to accommodate new uses. We may even admit that how we describe such developments in retrospect will depend on where they end up in a way that fudges the distinction between description and legislation. In this sense, we're always deciding what to have meant in the past by choices we make now. As it is, however, we have no use for causal concepts that are perspectival. We don't have concepts that are designed to work across contexts of the kind that Price invites us to consider, or a language that is designed to allow us to communicate with beings in Gold universes.

I conclude, then, that it is not right to think the distinction between cause and effect as like the distinction between 'us' and them or 'near' and 'far'. Neither the terms 'cause' and 'effect', nor the corresponding concepts recognize dependence on the causal viewpoint of the agent. Causal notions as we use them have a built-in direction that is determined by how things are around here and questions about how they apply in settings in which the entropy gradient is reversed just do no arise.

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

7 Objectivity

This isn't a mere quibble. Being clear about the nature of the dependence bears on the objectivity of causal claims. We saw that one of the primary complaints that interventionists have about manipulationism is that the view is anthropomorphic. It is important to the interventionist account that causal claims have objective truth conditions. Causal claims should be about the world, not about us. We should be able to give truth conditions for causal judgments in terms that make no essential reference to the psychological profile of human agents. Reference to humans can and should occur in the pragmatics, just not in the semantic content. If reference to our own epistemic position is part of the truth conditions, causal judgments are as much judgments about our epistemic position as they are about the world. If, on the other hand, the distinction between cause and effect is rigidly fixed in part by facts about our epistemic position, they are not about us, but are wholly about the world. One needn't deny that this notion of 'about-ness' is a little soft, to feel the pull of Woodward's complaints about this sort of view. Putting reference to ourselves into the truth conditions makes causal claims partly about us, so that when we are investigating causal structure, we are investigating (in part) facts about us. If what we mean by 'truth conditions' here is something that is supposed to express the cognitive content of causal judgments, then I agree with Woodward that anything that places reference to humans in the cognitive content gets the content wrong. It is much more plausible to extend the analogy with water and see ourselves as investigating structures in the world that are rigidly defined by relation to us. Water is that stuff, whatever it is, that plays the water role for us, albeit that there may be other beings for whom a different stuff plays the water role. The cause-effect relation is that relation, whatever it is, that plays the Causal Role for us, albeit that there may be other beings for whom a different relation plays the Causal Role.

It is useful to see the disagreement between Price and Woodward in a continuing exchange that started with "Causal Perspectivalism" and includes Woodward's Stanford encyclopedia article and his contribution to the causal republicanism volume, as well as a recent reply by Price[17] as one about just this point, which we can put as a question of whether causal notions are explicitly or only implicitly defined by their role in epistemic and practical reasoning. Interventionists treat it as in implicit definition. Price treats it as an explicit definition, invoking intuitions about hypothetical cases in which some extensionally different set of relations plays the role that causal relations play in practical reasoning for us. I'm on the side of the interventionists here. I think Price is right about the genealogy; it is because of contingencies about our own cognitive architecture that causal thinking gets off the ground and has the temporal orientation it does. He's right that the explanation for why we have these concepts and what provides the explanation for the role they play in our cognitive and epistemic lives has to do with facts that are peculiar to the human cognitive architecture and to contingencies about our environment. But Woodward is right about the truth conditions. Concepts mature by a process that involves replacing a loosely defined concept, identified extensionally in part by our ways of finding out about it, with an

[17] Woodward (2008, 2009, 2014), Menzies and Price (1993) and Price (2007, 2013, 2014).

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

explicit characterization that makes no reference to human agency. When we do this, we sometimes find that the concepts that we use are special cases of more fundamental structures that can be viewpoints, but that doesn't make our viewpoint part of the content of those concepts.

There are different ways in which concepts can 'depend on contingencies of the human condition'. The first is that the concepts we use are tailored to interface with the human cognitive apparatus and to be deployed in the kinds of practical and epistemic problems we face. This is the sort of dependence on us that causal concepts exhibit. It is not surprising that our concepts have a built-in temporal bias that is not shared by creatures that differ from us in ways that are, for us, psychologically fundamental. It is, after all, *our* vocabulary, crafted to be used by creatures like us. That is compatible with the claim that the semantic value of the terms we use to describe those situations do not exhibit the kind of extensional variation in context characteristic of perspectival concepts like 'us' and 'them'. Perspectival concepts have a quite specific conversational (and cognitive) function. We have a use for terms with this kind of extensional variation where we talk to people whose perspective differs from ours in the relevant ways.[18] And it is entirely compatible with the idea that causal concepts have objective truth conditions, that they are 'part of the fabric of reality' and that their subjective utility itself can be explained in objective terms. The objective explanation of their subjective utility makes explicit the features of ourselves that shape the concepts we use. It is compatible with the idea that when we're investigating causal relations in science, we're investigating features of the objective world, features of the mind-independent fabric of reality that we want to use to guide decision that make no reference—implicit or otherwise—to ourselves.

8 Dependence-on-us as a metaphysical thesis

So if there isn't the *semantic* variability with context that we see with examples like [near and far] or [us and them], is there a better way of describing the kind of *dependence-on-us* that Price is concerned to highlight? Consider the relation 'x is simultaneous with y'. This has a well-defined extension in a relativistic world only relative to a frame of reference. When we say that events that are simultaneous in one frame are not simultaneous in another, we don't mean this as a claim about the pre-theoretic concept of simultaneity or the meaning of the ordinary language term, but as a metaphysical discovery. And the right way to describe the discovery is as the discovery that the fundamental structures do not allow for an invariant, non-relative concept of simultaneity.

The difference between frame-dependent and perspectival structures, if we take the semantic variability of 'near and far' as characteristic of perspectival structures is that the latter exhibit variability of extension across actual contexts of use that any fully competent possessor of the concept or user of the term recognizes. And we saw that that gives us a reason for saying that the concept has reference to user or features of

[18] Price cites Perry's classic discussion of Z-landers in Perry (1986). Reprinted in Perry 1993/2000 for the cognitive and communicative function that perspectival concepts play.

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

context as an explicitly articulated constituent in the semantic or cognitive content of such claims. It means that the truth conditions for such claims make explicit reference to the users or semantically relevant features of the contexts of use. Frame-dependence, on the other hand, is neutral about how the extension of the concept is fixed, or whether reference to the user is part of the semantic content. It says that there is no well-defined interpretation for claims involving the concept in question except relative to a frame of reference. But it leaves it as an open question whether everyday uses are to be reconstructed as implicitly relativized to a shared frame of reference or to be seen as having a suppressed argument place that takes different values in different contexts. In cases like the present one, in which there is no communicative need for the suppressed argument place, I incline strongly against its recognition. People that use the term do not, *because they need not*, explicitly represent the features of ourselves or our shared environment on which the direction of causation (as we see it) depends. But claims about semantic content are really peripheral.

The virtues of a frame-dependent interpretation of the kind of dependence-on-us that causal facts exhibit are:

(i) It gets the epistemology right. Knowing how causal concepts depend on us is not a condition of the possibility of having and using causal concepts. It is not something that one needs in order to be a competent user of causal concepts or terms. It is, rather, the product of a kind of analysis that is characteristic of scientific inquiry.
(ii) It places the emphasis in the discussion where it should be, viz., on metaphysics rather than semantics, on questions about what reality is like rather than what words mean. It refocuses the discussion on a metaphysical claim and avoids getting pulled into disputes about semantic or cognitive content, and
(iii) It deflects some of the legitimate resistance of people like Woodward whose concern is to secure the objectivity of truth conditions of causal claims

Giving a frame-dependent account of a concept, however, means holding that there is some physically more fundamental structure from which the structure in question can be recovered by a specification of frame. So, for example, in the spatial example, we can recover spatial relations like 'is nearby', 'is far away', 'is 5 miles due north of', 'is 3 feet to the left from'… invariant spatial relations by specifying a point of origin. In the case of simultaneity, the frames of reference are given by states of motion. And so arguing for a frame-dependent account of the distinction between cause and effect leaves us with the burdens of giving an explicit characterization of the invariant structure and saying how to define a frame of reference. These two things will give us a clean separation between structure that is in the world—or is 'there anyway', as Bernard Williams used to say—and structure that the viewer brings to the table. What we mean by structure that is 'there anyway' is structure that is intrinsic to the field of view.

Is there some non-perspectival characterization of the fundamental structures from which the distinction between cause and effect can be recovered by specification of a temporal orientation? This is where the story gets confusing in the causal case. It is difficult to find in the literature a clear and shared understanding of the more fundamental structure from which causal structure is derived by an imposition of

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

temporal orientation. The fundamental, time symmetric global dynamical laws of physics are the obvious candidates. The problem is that it is well-known that we cannot recover causal models from physics by simply making a choice of temporal perspective in the way we can recover a model of the view from here by simply specifying a spatial perspective. There is a literature built around trying to see what else is needed. The essays in Price's causal republican volume give a very good indication of how much is still up in the air.[19]

If one looks to Pearl's work, however, I think one will find what is needed. The details of his account of the logic of causal modeling are helpful and illuminating along a number of fronts. Its importance here is that it gives us exactly what we need for a frame-dependent account of the asymmetry between cause and effect. On his account the world has a modal substructure that furnishes a basis for judgments about what would happen in hypothetical situations defined by a choice of exogenous and endogenous variables (and perhaps some auxiliary structure). The direction in which influence is seen as running turns out to be—as he says—an artifact of the choice of exogenous and endogenous variables:

> This choice of [endogenous and exogenous variables] creates asymmetry in the way we look at things, and it is this asymmetry that permits us to talk about "outside intervention", hence, causality and cause-effect directionality.

We tend to choose exogenous variables earlier than endogenous variables, because questions about how later states vary with differences in early ones have a special importance for purposes of guiding action, but, formally, there is no problem in choosing exogenous variables later than endogenous ones. We can raise questions about the effects of variation in future states on the past as surely as we can about the effects of past states on the future. Such questions are logically well behaved, but don't have the same practical importance for the likes of us. "The lesson," he says

> Is that it is the way we carve up the universe that determines the directionality we associate with cause and effect. Such carving is tacitly assumed in every scientific investigation. In artificial intelligence it was called circumscription, by J. McCarthy. In economics, circumscription amounts to deciding which variables are deemed endogenous and which ones exogenous, IN the model or EXTERNAL to the model.[20]

So on Pearl's view, there is no intrinsic direction to the relations of mutual dependence we see in the world. Any notion of a direction of influence is imposed by the choice of what is allowed to vary and what is held fixed. There are reasons that choices in which influence is seen as running past to future have special importance, but they have to do with our relations to the events being represented, rather than the events themselves.

[19] *Causation, Physics, and the Constitution of Reality (Russell's Republic Revisited)*, Edited by Huw Price and Richard Corry.

[20] Pearl (2000, p. 350).

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

In saying that the direction is introduced by the choice of endogenous and exogenous variables that has only practical significance, Pearl is offering is not a psychological hypothesis or a claim about the ordinary language meaning of causal terms. I think he'd be quite willing to recognize that the everyday notion of cause has a built-in direction. He is better understood as offering a scientific refinement and generalization of the everyday notion that makes explicit the contextual and pragmatic factors that govern the fixed features of everyday causal judgments. This development from everyday causal notions to more articulated concepts that separate the invariant from the frame-dependent content, allowing us to reconstruct the latter as implicitly relativized to features of our viewpoint, is characteristic of scientific refinements of everyday notions. It provides a more fundamental story that reveals the facts about the world on the one hand, and about ourselves on the other, that ground the concepts we have and explain their role in our cognitive lives.

In practical terms, the precision and understanding introduced by the refinement of everyday notions is important. The fact that the frame-dependent features of causal judgments can be made explicit and systematized is directly relevant to guiding interventions in the natural world and assessing causal responsibility in the human one. The more articulated concept helps us identify loci of control and appreciate how the choices we make representing things affects the conclusions we draw.

9 Reference to human agency appears in the pragmatics not the semantics

So I deny that the distinction between cause and effect exhibits the variation of extension without context characteristic of Price's examples: [us and them] or [near and far]. We agree with him, however, that our notions are shaped by contingent facts about us in ways that emerge when we adopt a more fundamental perspective and give a pragmatic account of how structures that play a formative role in our commerce with the world depend on our circumstances. And it is surprising to learn that the *direction* in which we see and conceive causal influence as running is one of those features that is not fundamental. The direction in which causal relations run is *psychologically* fundamental because it is determined by fixed features of cognitive architecture, but if Pearl is right, it is not *physically fundamental*. And it is the gap between what is psychologically and what is physically fundamental that opens up the space for an informative side-on view of various necessities and contingencies that jointly determine our view of the world. Psychologically fundamental structures don't typically distinguish between what is intrinsic to the field of view and what is contributed by the viewer, when her viewpoint is, in the relevant respects, (i) constant in her our own experience and (ii) shared by those she communicates with.

What is fundamental on Pearl's account are relations of covariation that furnish the basis for claims of influence relative to a specification of exogenous and endogenous variables. The temporal direction is imposed by choices of exogenous and endogenous variables that have a practical significance for human agents but don't reflect a direction of influence among events themselves. The availability of this more fundamental, temporally unoriented structure is what allows us to imagine and describe creatures

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

who view the same events but see the direction of influence running in the opposite direction. The fact that the direction of influence is not invariant under transformations between viewpoints is not something one needs to know in order to use causal terms or deploy causal information in practical reasoning. Unlike the knowledge that is needed to deploy perspectival concepts, it is not knowledge that needs to be possessed or represented by users. It is not part of the everyday concept of cause.

So, it is wrong to think that the cognitive and semantic content of causal judgments have an argument place referring to the causal viewpoint of the agent (or perhaps to physical and psychological factors that shape her causal viewpoint), so that which of a pair of events counts as cause and which as effect, depends on who is describing it. The 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 (or if you like, by representational choices that we make in how to represent the world that reflect facts about our relations to the events we are representing, rather than facts about the events themselves). This leaves the sort of dependence that Price is identifying intact, but unburdened by claims of context dependence that rests on equivocal intuitions about counterfactual cases.

10 Invariant content and the metaphor of lenses

A frame of reference is a formal object, but it has significance if it can be interpreted as the embodiment of the structure that the agent brings to the table. The most familiar example of a frame of reference is provided by the spatial case, where a reference frame is a set of axes that correspond to a possible location and orientation of an observer. For philosophical purposes, however, we don't need to place any very strong restrictions on what can count as a frame. A reference frame can be whatever needs to be specified to recover information about the target concept from [its? a? the?] fundamental structure. The only requirement is that the frame itself should be describable in objective terms, where 'objective' is understood in this context as meaning in terms that employ only the invariant vocabulary. Pearl gives a formal characterization in terms of a choice of exogenous and endogenous variables and shows how the same situation, represented with different choices, reverses the direction of influence.[21] When Price speaks of the 'causal viewpoint' of an agent, he has in mind the psychological context created by a specific mix of human limitations and capabilities that gives significance to them by associating exogenous variable with actions, and explains why we choose endogenous variables that are temporally downstream of them.[22] On his view, we hold the past fixed and allow the future to vary when we asses the effects of hypothetical actions because volition gives us very little information about the past, but a good amount of information about the future.[23] Ramsey had a similar idea and I have

[21] Ibid., pp. 349–350. See in particular, his discussion of slides 36–38.

[22] Price (2014).

[23] It is worth noting that an agent's viewpoint in this sense—in a sense that reflects her doxastic and practical relations to events being represented—is not itself fixed over time. It is something that changes

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

defended a related view. The idea that causal influence runs from past to future is an artifact of the epistemic and practical lenses through which we view the world. These determine what we regard as open and what we regard as fixed. We can think of the psychological context as a frame of reference because it introduces epistemic and practical distinctions that reflect facts about the viewer's relationship to events in the field rather than among the events themselves, and that structure how viewers see the events that fall within their shared field of vision.

Here is a convenient, and familiar metaphor. Think of frames as lenses through which the world is viewed and what I'm going to call the *invariant representational content* as what remains when we filter out the effects of lenses.[24] Invariant representational content is offered here as an interpretation of structure that is 'there anyway' to be viewed from different perspectives, projected out as the objective content of the view from those perspectives. Distinguishing the frame-dependent structure from the invariant content is an easy matter when we can view the same situation through multiple frames. In that case, we just have to look at the same situation through different lenses and see what stays fixed under exchange of lenses. But in cases in which we don't have access to frames that differ from ours in the relevant way, we can't separate artifacts of our shared perspective from what is really intrinsic to the object viewed by simply *looking*. The process that works for forming an invariant vision of space and time, filtering out the effects of taste, culture, personal history and education, doesn't work in such cases, because we only have access collectively to a single point of view. No amount of looking at the world or comparing notes amongst ourselves will give us a non-*human*-centered vision of the world. This is where science plays an indispensible role. Physics can tell us what the really fundamental structures look like, and the cognitive and human sciences can tell us how the lenses through which we view those structures shape and color and transform them. When the conclusion that some bit of structure is frame-dependent is a purely theoretical matter in this sense, it is one that is almost guaranteed to go against common sense. This is because common sense will tend to treat structure that is common to our shared point of view as belonging to the objects being viewed. If we are all looking through rose-colored glasses, common sense will tend to suppose the world is red.[25]

Footnote 23 continued
along her world-line as she acquires more information and events that were at one time in her power to alter get banked in history. And the changes in her viewpoint get projected onto events which are themselves seen as 'acquiring a fixity' with the passage of time. I have argued elsewhere that this change in the fixity of events is itself a frame-dependent matter.

[24] Invariance is always relative to a class of transformations. What remains when we filter out the effects of lenses depends on what we include in the class of lenses. As a general rule, the object of perception and the class of possible views of the same object are co-defined. We get a better idea of the object we are looking at the same time that we form ideas of the different viewpoints from which it can be seen.

[25] One might wonder whether this observation threatens the use of linguistic intuitions in arguments against the semantic thesis. After all, if science can correct common sense about whether simultaneity is frame-dependent, why can't it correct common sense about whether 'cause' and 'effect' have a hidden argument place? The difference between the two cases, as I understand it, is that common sense can treat some structure as intrinsic when it is really perspectival, because there is a fact of the matter about whether the structure is intrinsic to the object being represented, or is rather that has nothing to do with what speakers believe about it. Semantic facts, by contrast, don't have that kind of independence of what speakers think.

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

There are a couple of important qualifications about what this kind of account accomplishes. To give the invariant representational content of a class of beliefs is not to give their *cognitive* content. Cognitive contents are supposed to capture the cognitive significance a belief has for an agent.[26] This notion of invariant representational content is offered as an interpretation of what features of the mind-independent fabric of the world a class of beliefs *corresponds* to. It is supposed to identify truth-makers in the mind-independent fabric of reality. There is a good and long tradition in metaphysics of searching for invariant representational contents. Identifying invariant representational content is giving objective truth conditions, where objectivity is understood a little more explicitly in terms of invariance. Invariant content can serve as the common object of representation, and a basis for communication across perspectives. As we will see below, I reject some features of that tradition.[27] But the isolation of the invariant content of beliefs is part and parcel of the process of distillation of a clear and distinct idea of what the world is like in itself, independently of how it is shaped by human lenses.[28] For present purposes, it is important to understand that a frame-dependent account works only if it is explicitly *not* offered as a cognitive-content-preserving reduction. The separation of invariant from frame-dependent content is something that happens gradually, as a concept matures and only (as a matter of practical necessity) when there is a communicative need to isolate the invariant content and as a basis for common discourse.

A frame-dependent account of the direction of causation leaves causal notions with an invariant representational content that explicitly relativizes the distinction between cause and effect to a choice of endogenous and exogenous variables, and then explains why choices that place the exogenous variables before the endogenous ones fill what I called the Causal Role. By leaving reference to humans or human agency out of the truth conditions, such an account makes beliefs about causes beliefs *about* the world

Footnote 25 continued
If it is correct to say that some *term* is semantically contextual, that fact must be reflected in the use of competent speakers. If there is no agreement among recognizably competent speakers about whether the reference shifts in contexts in which the thermodynamic gradient is reversed, then it is not correct to say that the term is semantically contextual. There is a presumption in this way of arguing (one implicit in the fairly standard practice of using linguistic intuitions to establish semantic facts) that semantic facts are only as determinate as linguistic norms recognized by competent speakers. Many thanks to an anonymous reviewer for raising this objection and prompting me acknowledge the presumption.

[26] By cognitive contents, I mean 'Fregean senses' individuated by the Frege test: I"A" and "B" have the same cognitive content only if "A=B" is not a cognitively significant truth.

[27] In particular, I don't think there need always be a substantively characterizable invariant content, or that realism about a class of beliefs demands that there is.

[28] Any good account of cognition will see that these come apart, and we simply need a better vocabulary. First, the user of a concept need not have a clear and distinct understanding of its invariant representational content. Communicative purposes require her to know what is invariant under transformations between her viewpoint and those of her interlocutors, but she need not know how the world looks to actual or non-actual creatures she has no occasion to communicate with. Second, beliefs that have the same invariant representational content cannot always play the same cognitive role. This is most obvious in the case of indexicals. The belief that the faculty meeting starts at noon has a different cognitive significance than the belief that the faculty meeting starts now, albeit that they may have the same invariant representational content.

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

rather than about us. It captures a kind of dependence on the human viewpoint, but it puts the reference to the human viewpoint in the pragmatics not the semantics. [29]

11 Generalizing to other forms of intermediate structure

One of the reasons that the issue is interesting is that the debate between interventionists and Price—with the interventionists trying to protect the objectivity of causal judgments and Price emphasizing the ways they depend on contingencies of human cognitive architecture—is replayed in the discussion of other philosophically disputed notions that play important roles in science, most notably, chance. There is a quite similar dialectic about whether chances are objective or subjective. So we have subjectivists on one side, insisting that the notion of chance has to be understood as describing facts about believers (probabilities as degrees of belief or betting policies), and objectivists on the other, holding that statements about chances have objective truth conditions, are not dependent on the existence of human agents, are proper subjects of scientific study, and *guide* rather than *describe* human belief. One can certainly allow that one doesn't understand how chances work (what are the facts about us and the world that allow them to do their job in our epistemic lives) unless one understands the specifically human practices of belief formation and the specifically human combination of limits and capacities in which beliefs are formed without holding that chances represent facts about human believers. We need an understanding of the epistemic and conceptual environment in which beliefs about chance arise. Just so, one can't understand the first thing about scissors or corkscrews unless one understands the practical setting in which they are used. But one can be a consumer or user of causal information without, in this sense, knowing what makes it work, what makes it suited to play the Causal Role. And one can be a consumer of information about chances without knowing what makes it suited to play the Chance Role. Just as one can be a consumer of water without knowing what makes it suited to play the Water Role, and a user of microwaves without knowing what allows them to do the work they do in our culinary lives.

Between the structures of the mind-independent landscape that appear in our models of a fundamental theory and the purely subjective projections of the human mind, there is the great grey area of intermediate structures designed to facilitate practical and empirical inference for agents like us. I call these Intermediate Structures because they are designed to mediate beliefs about, and interaction with, the manifold of mind-independent fact. Intermediate structures represent features of the world in a manner that is prepared to interface naturally with perception and action. They typically have an invariant representational content that can be expressed in the form of truth conditions that make no specific reference to human epistemic or practical agency,

[29] By saying that the reference to the human viewpoint is in the pragmatics rather than the semantics, I mean that the truth conditions for x-beliefs can be given by a function, f, of more fundamental physical structures making no explicit reference to human beings, but that the explanation of the role that f plays in our practical reasoning makes essential reference to the human viewpoint. See Semantics versus Pragmatics, Szabo (2005) and Ezcurdia and Stainton (2013), for some of the contested issues surrounding the semantics/pragmatic distinctions, which I don't mean to be prejudging in my use.

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

but the explanation of why *those* structures play the role they do in our epistemic and practical lives makes essential reference to contingencies about ourselves and our place in nature. Causal structure and chance are the best examples of intermediate structures, but dispositions, capacities, and perhaps laws might fall in this class.

A frame-dependent account separates what such beliefs tell us about the mind-independent fabric of reality, and the structure that we impose by representational choices that have a pragmatic significance because they are designed to interface naturally with our epistemic or practical relations to the world. Concepts designed to interface naturally with our epistemic and practical relations to the world reflect facts about those relations. But they do not *represent* those facts. And that is the important distinction here. Users of those concepts needn't have any articulate understanding of those facts. And this distinction between representing those relations and being designed to interface naturally with them is crucial to the distinction between perspectival notions and those that are implicitly relativized to a frame, and is crucial to the functional differences between those notions

The fact that even seemingly fundamental concepts are shaped by contingencies about our circumstances in the world is not surprising. Our concepts are, after all, *our* concepts. When we model the world we make all kinds of distinctions that are invidious from a cosmic perspective but that have practical or epistemic significance for us.[30] But it can be surprising how deep that parochialism runs. To discover that the direction of causation is frame-dependent in this sense is to discover that the idea that earlier events bring about later ones is a matter of point of view, an artifact of the epistemic lenses through which we view them, not intrinsic to the field of events but imposed by distinctions that we make because they have practical and epistemic importance to us. That is a quite astounding surprise to pre-theoretic assumptions about the world.

12 From frame-dependence to Republicanism

A frame-dependent account works quite well for a large class of structures that have epistemic and practical importance in science. It is useful because it helps us understand the difference between structure that we find in the world and structure that is imposed by choices we make in how to represent it, and it works best when there is an invariant content, structure that is 'there anyway', viewable from different perspectives, not mere artifacts of structure that the viewer brings to the table. But it isn't quite general enough. There are other cases of beliefs in which, when we filter out the human component, there is little in the way of invariant representational content. Many of the concepts that have an importance in everyday life only make sense within a set of specifically human practices. Think of the value of a dollar, the beauty of a rainbow, the meaning of a word, romantic love, cruelty, or revenge. These are notions that only make sense within a shared and specifically human form of life. If we try to filter out

[30] I'm speaking naively here as though this separation is given, but it is more accurate to think of the intentional object as being *defined* in part by this separation. The intentional object becomes more determinate as this separation becomes more articulated.

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

the effects of our form of life, there is little left over in the way of invariant content, i.e., little that could form a subject of discourse or common subject matter with different forms of life.

This is a spectrum rather than a partition. At one end of the spectrum, we have a great deal of invariant content and frames can be characterized minimally. When we filter out the effects of spatial perspective, we are left with a rich set of invariant relations that govern how things appear relative to different frames. At the other end, we have little invariant content, and frames are quite substantial. The causal case falls somewhere in between. If we follow Pearl, when we filter out the effects of choice of exogenous variables, we are still left with a rich modal substructure of the world that furnishes a basis for claims about what happen to endogenous variables under different choices of exogenous variables and holding fixed different elements of auxiliary structure. Compare this to the psychological lenses through which socially embedded observers that share a language and education and culture see the world.[31] In these cases there is little for the objective, truth conditional part of the story to *do*. A lot of work goes into understanding how the frame structures experience, and there is little invariant content to serve as a common subject matter with beings who don't share our language/education/culture. And in these cases, I agree with Price who has argued in other work over many years that it is better to just talk about the human practices in which these concepts arise, i.e., to give a richly detailed account of the role they play in our lives. Such an account may or may not, as the case may be, invoke correspondence to features of the mind-independent fabric of reality, which is to say, in my terms, it may or may not have any very interesting invariant representational content. This sort of account adverts to the facts about us, on the one hand, and the world on the other, that jointly support their use, but it need not take the form of a mapping into structure in the mind-independent fabric of reality that can be characterized in non-perspectival, non-human terms.

This is a more general way of expressing the perspectivalist insight that, as Price and Corry put it in the introduction to an edited volume of essays on causation, "to reconcile causation with physics, we need to put ourselves in the picture: we need to think about why creatures in our situation should represent their world in causal terms", a way of expressing the insight that doesn't leave us still looking for something in the world of physics for causal facts to correspond to.[32] Price and Corry call accounts that have this form 'Republican', and I think that is a better term for the project he has in mind in "Causal Perspectivalism". He describes the project as one that

> … Aims to understand causal notions by investigating the genealogy and preconditions of causal thinking; by asking what general architecture our ancestors must have come to instantiate, in order to view the world in causal terms.

And he executes it with a very subtle discussion of all of the ways in which contingencies of the human epistemic and practical perspective on the world give rise to

[31] And this is to say nothing of the rich personal histories that we all bring to the table and that colour both the quality and content of our experience.

[32] See Price and Corry (2004).

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

the context in which causal thinking plays its important role. His discussion is full of is valuable and illuminating insight, and I haven't disputed its details or importance. It was useful to put it in frame-dependent terms because there was a substantial invariant content. But one of the primary virtues of Republicanism is that it allows realism about a class of beliefs without requiring that we exhibit some feature of the world, described in objective terms, to which the concepts in question correspond. It allows realism without much in the way of invariant content. It requires us only to give a functional account that describes the role of those concepts in the practices in which they figure. It is illuminating to see many of the philosophical discussions of metaphysically problematic structures in these terms. In the hard, contested cases like moral truth, value, or beauty, the search for invariant representational content may come up empty, and the whole story may be discharged in understanding the specifically human form of life in which these notions arise. In those cases, a deflationary, non-reductive realism together with an account of use that makes explicit the facts about us that supports their use may be the whole story.

Republicanism is the generalization of frame-dependence that allows a 'form of life' to play the role of a reference frame and the component of the account that gives the invariant content drops out of the picture. Methodologically, what distinguishes Republicans from perspectivalists, or those looking for the sort of semantic dependence on viewpoint we see with notions like 'us and them', from frame-dependent accounts that make the invariant content explicit, is that they don't look for non-deflationary truth conditions. They look for a functional story that describes the job that the target concepts play in our lives, citing facts about us and the world in that account and the human practices in which they play that role.

The discussion here is meant to clarify the foundations of a research program that Price has been developing for many years. It makes some distinctions that he doesn't make, sharpens up the position, and introduces a more articulated vocabulary that can avoid talking at cross-purposes with critics like Woodward. The most substantive disagreement I have with Price is that I make a great deal more room than Price for attempts to give objective truth conditions for beliefs. I think that such accounts are valuable for a wide class of structures, which include some of his own examples—e.g., chance and causation—so long as those accounts are properly understood, and not offered as reductions of *cognitive* content, but as a way of revealing the invariant representational content. He seems to think that these attempts are misguided across the board. But we agree that the more general task of metaphysics is to be understood in Republican terms.

13 Conclusion

Now we've come full circle back to interpreting the perspectivalist claim with some distinctions in hand, a better understanding of the different ways in which concepts can depend on us, and an account of which is the right way in the causal case. A perspectivalist view isn't wrong about the dependence on contingencies of the human condition, but if elaborated on the analogy of 'us and them', it puts that dependence in the wrong place: into the semantic content rather than into the pragmatic account of

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

why we go in for causal thinking and the epistemic and practical functions it subserves in beings made the way we are made. Frame-dependence comes closer to capturing the sort of dependence-on-us that causal concepts exhibit. But we need something more general to cover the full range of ways in which concepts can depend on us. The utility of a frame-dependent account depends on the existence of invariant content that can be informatively described and from which the frame-dependent accounts can be recovered by description of frame. This is where Republicanism comes in. Republicanism is the acknowledgment that concepts that play an important role in epistemic and practical reasoning for us depend on the epistemic and practical setting in which they are employed, and that in some cases there is no more interesting story to tell about their role in that setting. It holds that the form that an account of any class of concepts should take is an objective account in naturalistic terms of the role that the concepts play in the coupled exchange between agent and environment that makes explicit the facts about the agent, on the one hand, and the environment, on the other, that support the fixation and use of beliefs employing those concepts. And it insists that this kind of account is to be given by what I call a self-directed hermeneutics that takes ourselves and our representational practices into its scope.

References

Albert, D. (2000). *Time and chance*. Cambridge: Harvard University Press.

Ezcurdia, M., & Stainton, R. J. (2013). *The semantics-pragmatics boundary in philosophy*. Peterborough: Broadview Press.

Giere, R. (2006). *Scientific perspectivism*. Chicago: University of Chicago Press.

Kutach, D. (2013). *Causation and its basis in fundamental physics*. Oxford: Oxford University Press.

Menzies, P., & Price, H. (1993). Causation as a secondary quality. *British Journal for the Philosophy of Science*, *42*, 157–176.

Pearl, J. (2000). *Causality: Models, reasoning, and inference*. Cambridge: Cambridge University Press.

Perry, J. (1986). Thought without representation. *Aristotelian Society Supplementary Volume*, *60*, 137–152.

Price, H. (1992). The direction of causation: Ramsey's ultimate contingency. In D. Hull, M. Forbes, & K. Okruhlik (Eds.), *Philosophy of Science Association 1992* (Vol. 2, pp. 253–267). East Lansing, MI: Philosophy of Science Association.

Price, H. (2007). Causal perspectivalism. In H. Price & R. Corry (Eds.), *Causation, physics, and the constitution of reality: Russell's republic revisited* (pp. 250–292). Oxford: Oxford University Press.

Price, H. (2014). Causation, intervention and agency—Woodward on Menzies and Price. In H. Beebee, C. Hitchcock, & H. Price (Eds.), *Making a difference*. New York: Oxford University Press.

Ramsey, F. P. (1978). General propositions and causality. In D. H. Mellor (Ed.), *Foundations: Essays in philosophy, logic, mathematics and economics* (pp. 133–151). London: Routledge & Kegan Paul.

Sloman, S. (2009). *Causal models*. New York: Oxford University Press.

Szabo, Z. (Ed.). (2005). *Semantics versus pragmatics*. Oxford: Oxford University Press.

Woodward, J. (2005). *Making things happen*. New York: Oxford University Press.

Woodward, J. (2013). Causation and manipulability. In E. N. Zalta (Eds.) The Stanford Encyclopedia of Philosophy (Winter 2013 Edition), URL: http://plato.stanford.edu/archives/win2013/entries/causation-mani/

Woodward, J. (2014). Agency and interventionist theories. In H. Beebee, C. Hitchcock, & H. Price (Eds.), *Making a difference* (pp. 234–263). New York: Oxford University Press.

Journal: 11229-SYNT Article No.: 0757 TYPESET DISK LE CP Disp.:2015/4/28 Pages: 23 Layout: Small-X

Journal: 11229
Article: 757

Author Query Form

Please ensure you fill out your response to the queries raised below and return this form along with your corrections

Dear Author

During the process of typesetting your article, the following queries have arisen. Please check your typeset proof carefully against the queries listed below and mark the necessary changes either directly on the proof/online grid or in the 'Author's response' area provided below

Query	Details required	Author's response
1.	Please resrict the keyword upto 3–6.	
2.	Please provide the reference details for the ibid in the footnotes 13 and 15.	
3.	References Woodward (2008, 2009), Price (2013), and Price and Corry (2004) are cited in the text but not provided in the list. Please provide in the list or delete this citations.	