Two Bits of *Noûs* From 1979[†]

Jenann Ismael & Huw Price

July 19, 2006

[†] This talk was advertised under the title "The Difference Between Buses and Trams".

Brooklyn, November 6, 2005:

What's the deal?

> "All philosophers, of every school, imagine that causation is one of the fundamental axioms or postulates of science, yet, oddly enough, in advanced sciences such as gravitational astronomy, the word 'cause' never occurs ... The law of causality, I believe, like much that passes muster among philosophers, is a relic of a bygone age, surviving, like the monarchy, only because it is erroneously supposed to do no harm."†

†B. Russell, "On the Notion of Cause", *Proc. Arist. Soc.* 13(1913) 1–26.

Russell's point:

*It's all bricks, no cement!**

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* Hat-tip to:

Causal Laws and Effective Strategies

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INTRODUCTION

There are at least two kinds of laws of nature: laws of association and causal laws.[1] Laws of association are the faimilar laws with which philosophers usually deal. These laws tell how often two qualities or quantities are co-associated. They may be either deterministic—the association is universal—or probabilistic. The equations of physics are a good example: *whenever* the force on a classical particle of mass m is f the acceleration is f/m. Laws of association may be time indexed, as in the probabilistic laws of Mendelian genetics, but apart from the asymmetries imposed by time indexing, these laws are causally neutral. They tell how often two qualities co-occur; but they provide no account of what makes things happen.

Causal laws, by contrast, have the word "cause"—or some causal surrogate, right in them. Smoking causes lung cancer; perspiration attracts wood ticks; or,—for an example from physics, force causes change in motion: to quote Einstein and Infeld ([5]: 9), "The action of an external force changes the velocity. . . such a force either increases or decreases the velocity according to whether it acts in the direction of motion or in the opposite direction."

Bertrand Russell [9] argued that laws of association are all the laws there are, and that causal principles cannot be derived from the causally symmetric laws of association. I shall here argue in support of Russell's second claim, but against the first. Causal principles cannot be reduced to laws of association; but they cannot be done away with.

The argument in support of causal laws relies on some facts about strategies. They are illustrated in a letter which I recently received from TIAA-CREF, a company which provides insurance for college teachers. The letter begins:

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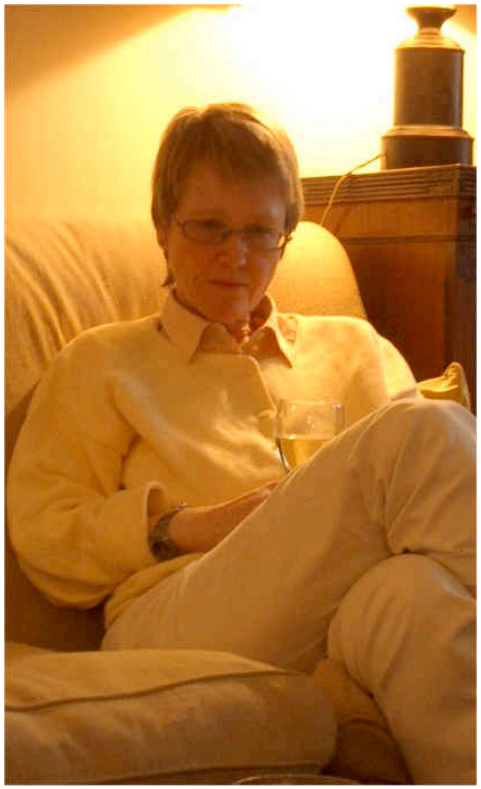

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Why are causal laws essential?

Cartwright's example—the letter from TIAA Life Insurance:

> It simply wouldn't be true to say,
> "Nancy L. D. Cartwright. . . if you own a TIAA life insurance policy you'll live longer."
> But it is a fact, nonetheless, that persons insured by TIAA do enjoy longer lifetimes, on the average, than persons insured by commercial insurance companies that serve the general public.

I will take as a starting point for the argument facts like those reported by the TIAA letter: *it wouldn't be true that* buying a TIAA policy would be an effective strategy for lengthening one's life. ...

...

The reason for beginning with some uncontroversial examples of effective and ineffective strategies is this: I claim causal laws cannot be done away with, for they are needed to ground the distinction between effective strategies and ineffective ones. If indeed, it *isn't true that* buying a TIAA policy is an effective way to lengthen one's life, but stopping smoking is, the difference between the two depends on the causal laws of our universe, and on nothing weaker.

EDT *v* CDT

Cartwright's argument parallels a popular conclusion about decision theory:

- Evidential decision theory (EDT) yields the wrong prescriptions, when there are spurious correlations.
- Rational decision needs to track *causal* correlations—we need a *causal* decision theory (CDT).

Essential causation?

The general claim: Agent's need to represent their environment in *causal* terms – there is a distinction crucial to rational decision that otherwise "goes missing".

However, in the same volume of *Noûs* as Cartwright's (1979) paper – from an author at the same institution – we also find this . . .

The Problem of the Essential Indexical

JOHN PERRY

STANFORD UNIVERSITY

I once followed a trail of sugar on a supermarket floor, pushing my cart down the aisle on one side of a tall counter and back the aisle on the other, seeking the shopper with the torn sack to tell him he was making a mess. With each trip around the counter, the trail became thicker. But I seemed unable to catch up. Finally it dawned on me. I was the shopper I was trying to catch.

I believed at the outset that the shopper with a torn sack was making a mess. And I was right. But I didn't believe that I was making a mess. That seems to be something I came to believe. And when I came to believe that, I stopped following the trail around the counter, and rearranged the torn sack in my cart. My change in beliefs seems to explain my change in behavior. My aim in this paper is to make a key point about the characterization of this change, and of beliefs in general.

At first characterizing the change seems easy. My beliefs changed, didn't they, in that I came to have a new one, namely, *that I am making a mess*? But things are not so simple.

The reason they are not is the importance of the word "I" in my expression of what I came to believe. When we replace it with other designations of me, we no longer have an explanation of my behavior and so, it seems, no longer an attribution of the same belief. It seems to be an *essential* indexical. But without such a replacement, all we have to identify the belief is the sentence "I am making a mess". But that sentence by itself doesn't seem to identify the crucial belief, for if someone else had said it, they would have expressed a different belief, a false one.

I argue that the essential indexical poses a problem for various otherwise plausible accounts of belief. I first argue that it is a problem for the view that belief is a relation between subjects and propositions conceived as bearers of truth and

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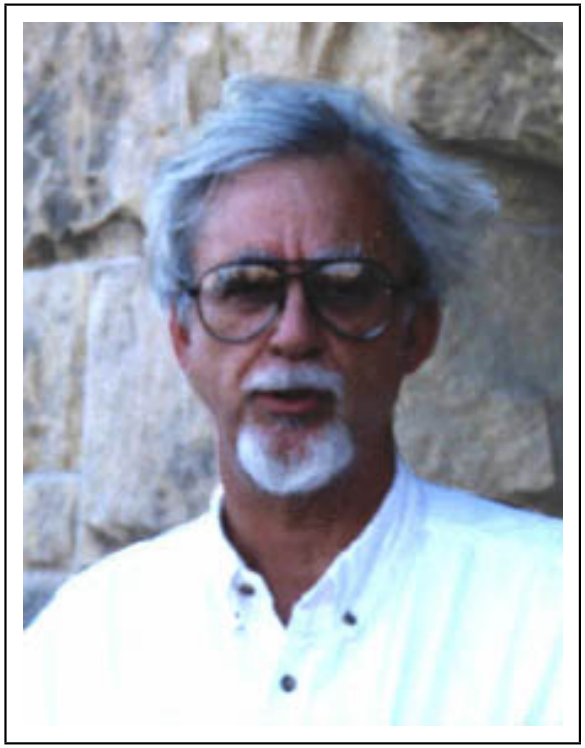


Perry's argument:

LOCATING BELIEFS

I want to introduce two more examples. In the first a professor, who desires to attend the department meeting on time, and believes correctly that it begins at noon, sits motionless in his office at that time. Suddenly he begins to move. What explains his action? A change in belief. He believed all along that the department meeting starts at noon; he came to believe, as he would have put it, that it starts *now*.

The essential indexical

PERRY'S CONCLUSION: Agent's need to represent their world in *indexical* terms – there are distinctions crucial to the explanation of behaviour that otherwise "go missing".

However . . .

- In this case there's little temptation to conclude that there's an *objective* feature of the world that an agent needs indexicals to represent.
- Instead, we explain the essential indexical in terms of the the nature of the agent's perspective.
- We explain why agents need to "represent" the world in indexical terms in terms of features of the agent and relational aspects of their situation in the world.

Roughly:

Action requires that agents position *themselves* on their own maps of the world—and this is the job of indexical thoughts, or "representations".

[NB for future reference: we have no trouble mapping ourselves *in imagination* into places and times and even selves that we never occupy, and perhaps couldn't possibly occupy.]

Our question:

- Why not do the same in Cartwright's case?
- In other words, why not try to argue that the need for causal "representations" is a product of some element of *an agent's situation*, rather than of an objective element of the world?
- This shift in focus would be an example of what (loosely following Kant) we can call *the Copernican strategy.*

The Copernican strategy:

Try to account for puzzling features of the "manifest image" by showing how they are a product of a *distinctive perspective* on the kind of world described in the "scientific image".

> "When a ship is floating calmly along, the sailors see its motion mirrored in everything outside, while . . . they suppose that they are stationary . . . . In the same way, the motion of the earth can unquestionably produce the impression that the entire universe is rotating."

Copernican explanations

Advantages:

- Metaphysical economy.
- Epistemological simplicity.

Examples:

- *The moral case:* expressivism doesn't need "queer" moral properties, or mysterious moral intuitions to reveal them.
- *Chance:* subjectivists have a much easier job accounting for the Principal Principle.

It isn't always easy being Copernicus

Contrast these cases:

- The case of "here" and "now" and other indexicals.
- The case of "the flow of time" and "the moving present".

The genealogy of the latter is still quite obscure ... but most of us are Copernicans—we think it is there to be found.

Even here, of course, there are still some die-hard Ptolemaics ...

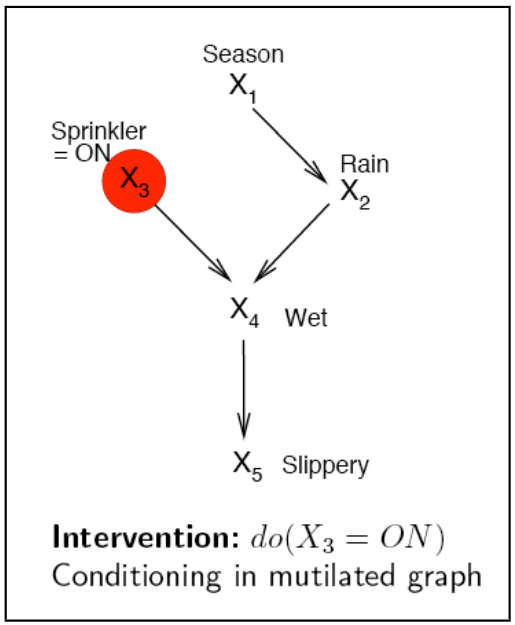
Next question:

What does the Copernican strategy look like, in the case of causation?

Copernican causation?

The aim:

- Use an ontology containing nothing but "laws of association".
- Attribute the residue "to our perspective" – i.e., try to show that the need to add "causal laws" to the map is a product of our relation to the bare Humean world.



Interventionism

Recent work by Pearl, Woodward and others suggests

1. That **interventions** are at the core of an understanding of causality
2. That the "Ptolemaic" view of interventions is problematic.

Wisdom of Pearl:

> "If you wish to include the entire universe in the model, causality disappears because interventions disappear – the manipulator and the manipulated loose [sic] their distinction. However, scientists rarely consider the entirety of the universe as an object of investigation. In most cases the scientist carves a piece from the universe and proclaims that piece *in* – namely, the *focus* of investigation. The rest of the universe is then considered *out* or *background* and is summarized by what we call *boundary conditions.* This choice of *ins* and *outs* creates asymmetry in the way we look at things and it is this asymmetry that permits us to talk about "outside intervention" and hence about causality and cause–effect directionality." [Judea Pearl, *Causality,* 349–350]

The Copernican question:

QUESTION: From what perspective is it appropriate to represent one's environment in terms of *interventions?*

THE ANSWER WE'RE LOOKING FOR: From the perspective of an *agent* . . . but note that there's a two-way methodology here – knowing that the goal is to explain why we represent things in terms of interventions can throw light on the internal structure of agents. (*Cf.* again the Copernican analogy.)

Some things we want to explain:

1. The "contingency" or "unpredictability" of interventions.
2. The dependencies that survive despite this "contingency".

"In a sense my present action is an ultimate and the only ultimate Contingencycontingency."

– F. P. Ramsey (1929).

"[A] rational agent, *while in the midst of her deliberations*, is in a position to legitimately ignore any evidence she might possess about what she is likely to do."

– James Joyce (2004).

Jim Joyce's version:

> '[M]any decision theorists (both evidential and causal) have suggested that free agents can legitimately ignore evidence about their own acts. Judea Pearl (a causalist) has written that while "evidential decision theory preaches that one should never ignore genuine statistical evidence ... [but] actions – by their very definition – render such evidence irrelevant to the decision at hand, for actions change the probabilities that acts normally obey." (2000, p. 109)'

Joyce (continued):

> "Pearl took this point to be so important that he rendered it in verse:
>
> *Whatever evidence an act might provide*
> *On facts that precede the act,*
> *Should never be used to help one decide*
> *On whether to choose that same act."*

COMMENT: This verse seems to make a different point. Effectively, it is the prescription that Cartwright and the Causalists think we need, to avoid Evidentialist mistakes. It isn't Ramsey's principle, which is better put thus:

> *The evidence my choice to* ***you*** *would provide*
> *On earlier matters of fact,*
> *Is irrelevant to* ***me*** *as I try to decide*
> *On whether to perform an act.*

Joyce (continued):

> 'Huw Price (an evidentialist) has expressed similar sentiments: "From the agent's point of view contemplated actions are always considered to be sui generis, uncaused by external factors ... This amounts to the view that free actions are treated as probabilistically independent of everything except their effects." (1993, p. 261) A view somewhat similar to Price's can be found in Hitchcock (1996).'

Joyce (continued):

> "These claims are basically right: a rational agent, *while in the midst of her deliberations*, is in a position to legitimately ignore any evidence she might possess about what she is likely to do. She can readjust her probabilities for her currently available acts at will, including her probabilities for acts conditional on states of the world."

Comments:

- Better to say "has no evidence" than "can legitimately ignore any evidence" – if you can ignore it, it ain't evidence (by the Principle of Total Evidence!)
- The last claim must be wrong ...

Why?

Joyce claims that an agent "can readjust her probabilities for her currently available acts at will, *including her probabilities for acts conditional on states of the world.*"

But imagine I'm deciding whether to take the plunge (into a river, say): I can't readjust the probability that I do so *conditional on getting wet in a fraction of a second's time*, because that's precisely the inverse of the "causal" conditional probability on which my choice depends. (If I couldn't hold that fixed, I'd be leaping in the dark, so to speak.)

Getting it right (I)

- A better attempt at what Joyce wants: "An agent can readjust her probabilities for her currently available acts at will, including her probabilities for acts conditional on *known* states of the world."
- This still isn't quite right, because it is not only *known* states that need to be included – we need the unknown ones, too, *in so far as they are not* ***effects***.
- But let's come back to that – first, let's fix the first bit.

Getting it right (II)

- Joyce: "An agent can **readjust her probabilities** for her currently available acts at will."
- This is sort of right, but Joyce doesn't nail the crucial point: the *only* way we settle or adjust probabilities of our own acts is *by* acting!

[Joyce again: "The beliefs of Newcomb deciders are not constrained by the evidence at their disposal; in the context of deliberation, free agents can believe what they want about their current acts because such beliefs provide their own justification."]

What we need: An explanation of why an agent's own choices are "epistemically unconstrained", *from her point of view.*

- HYPOTHESIS: it is a result of the fact that – at the moment of choice – there is no gap between the "representing" and the "doing" of the act: "This is what I do" is both a *doing* and a *judgement about my doing.*
- Because the judgement *is* the act, it is necessarily self-confirming, and hence alethically unconstrained – epistemically "degenerate".
- CLAIM: this epistemic degeneracy is the source and essence of Ramsey's "ultimate contingency".

In other words:

Our claim is that Ramsey's contingency is a consequence of the fact that agents can't put their *own* actions on their evolving "maps" of their environment, except *by* making a choice.

Next issue:

How do agents come to see their actions as "linked" to consequences?

Here, too (we think), the key is in Ramsey. There are two main ingredients:

- The recognition that lawlike generalisations are effectively map-making *rules* – rules that govern our construction of maps of our *actual* environment.
- The realisation that causal laws are simply a special case – an essentially *indexical* case!

Laws of association as map-making rules

- To accept as a law that *Xs* are associated with *Ys* is to accept that whenever you put an *X* on your map, you should put a *Y* there, too.†

†Note obvious generalisation for probabilistic case.

Causal laws as special case

- We need a special rule for the case in which the antecedent X is one of our own actions, because – as we've just noted – not all laws of association are reliable, *from our own epistemic standpoint,* in this case.
- Discovering those generalisations that are reliable in this case – building the "meta-map" that encodes this information – is discovering the causal laws.

Causation as an essential indexical (I)

- Ramsey's contingency is an indexical contingency (as his own formulation recognises!)
- The special character of *causal* associations reflects the special character of an agent's epistemic relation to her own actions. When we describe the world in causal terms, we are doing something closely analogous to describing it in indexical terms – and in both cases, the need to do so stems from the need to put our own "location" on the objective map.

Causation as an essential indexical (II)

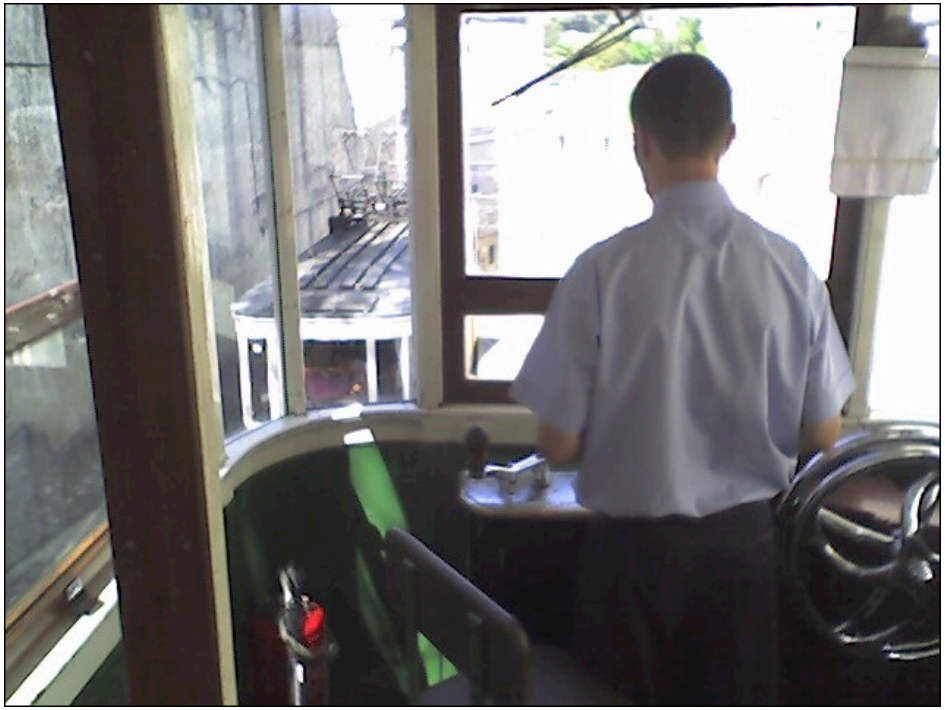
- The indexicality is harder to see in case of causation than for familiar indexicals ("here", "now", "I"), but this is because in most respects most of us share the same viewpoint – we all put our causal red dots on the map in the same place, as it were.
- But it is highlighted by the temporal orientation of causation, because in this case we can make sense of creatures who see things differently.

Appendix—the epistemology of causal correlation

The task: To explain how we discover these "indexical laws" – and why we don't have to count the spurious correlations.

The strategy:

- Describe an epistemic methodology.
- Postulate that anything that survives as a correlation in the light of this methodology counts as "causal", and that nothing else does.
- Show why the spurious cases don't survive, unless we have some sort of funny causation (e.g., backward causation), in which case they are not problematic.



Lisbon, 2005—a bus or a tram?

QUESTION: What happens if we move the handle, or turn the wheel?

ANSWER: Try it and see!

- "Try it and see" is a method for generating causal hypotheses. We seem to be programmed to construct our meta-maps on the basis of this kind evidence – very little of it, apparently, in some cases.
- Such evidence is defeasible, of course. (Perhaps the tram is guided by hidden cables, which just happen to match our wiggles. If so, then we'll wrongly believe that it is a bus.)
- But we can be wrong about what time it is *now*, too! The fact that our maps (or our meta-maps) can be *wrong* doesn't show that they're not *indexical.*

Notes

- Experimentation is not just *observation* – more on this later (after the next talk).
- Often we can't experiment, but we can extend our maps by exploiting the symmetries of the laws of association. (We can't turn a tram into a bus by moving it from Lisbon to Sydney, or by making it bigger!)
- As in the original indexical case, we can use our imagination.

Spurious correlations?

A challenge to Ptolemaics: Produce a case in which the method of "try it and see" reveals a correlation, in which it is clearly irrational to "one-box" – i.e., to be guided by those correlations, for decision purposes.

[Movie finale not available in this version – sorry!]