

PHILOSOPHY 4360/5360 – METAPHYSICS

Laws of Nature – Handout 1

Topic X. Laws of Nature: Realist Versus Reductionist Views

1. Laws of Nature: The Main Alternative Views

1.1 The Thesis of Humean Supervenience

To set out the main alternatives with regard to the nature of laws, we need the idea of Humean supervenience. Here is David Lewis's characterization:

Humean supervenience is named in honor of the great denier of necessary connections. It is the doctrine that all there is to the world is a vast mosaic of local matters of particular fact, just one little thing and then another We have geometry: a system of external relations of spatiotemporal distances between points And at those points we have local qualities: perfectly natural intrinsic properties which need nothing bigger than a point at which to be instantiated. For short: we have an arrangement of qualities. And that is all. There is no difference without difference in the arrangement of qualities. All else supervenes on that. (176)

Barry Loewer, commenting on Lewis's characterization, puts things as follows:

Call a property 'Humean' if its instantiation requires no more than a spatiotemporal point and its instantiation at that point has no *metaphysical* implications concerning the instantiations of fundamental properties elsewhere and elsewhen.

HS says that every contingent property instantiation at our world holds *in virtue* of the instantiation of Humean properties. If M is a contingent property, then an instantiation of M holds *in virtue* of instantiations of P_1, P_2, \dots, P_n only if in every metaphysically possible world at which the P instantiations hold the M instantiation also holds. (177)

Comment: Do the subjects of basic properties have to be points, or point-sized objects, to capture the idea that there are no necessary connections between distinct things? I cannot see why that must be so, and so I would favor a more general characterization of Humean supervenience.

1.2 Three Main Alternatives

Alternative 1. Humean Reductionism

Laws of nature supervene upon Humean states of affairs.

Alternative 2. Non-Humean Reductionism

Laws of nature supervene upon other states of affairs, some of which are non-Humean, because they introduce necessary connections between distinct states of affairs. In particular, dispositions and propensities are ontologically basic, and laws supervene upon the distribution of such properties.

Why do ontologically basic dispositions introduce non-Humean states of affairs? The example of water-solubility.

Alternative 3. Non-Reductionism

Laws of nature are irreducible states of affairs that do not logically supervene on any other types of states of affairs.

One main version of this approach is the view that laws of nature are states of affairs involving second-order relations among first-order properties, where the latter are understood as universals (The Dretske-Tooley-Armstrong view)

2. The “Best System”, Humean Reductionist View of Laws

The Humean reductionist view of laws that is now taken most seriously is the “best system” view. This account was first advanced by John Stuart Mill, later rediscovered by Frank Ramsey, and then championed and popularized by David Lewis, who took it over from Ramsey. Here is how Lewis states the view in his article “Humean Supervenience Debugged”:

Take all deductive systems whose theorems are true. Some are simpler, better systematized than others. Some are stronger, more informative than others. These virtues compete: An uninformative system can be very simple, an unsystematized compendium of miscellaneous information can be very informative. The best system is one that strikes as good a balance as truth will allow between simplicity and strength. How good a balance that is will depend on how kind nature is. A regularity is a law iff it is a theorem of the best system. (181)

Comment: This account covers only non-probabilistic laws. Lewis goes on to offer a more complicated, “best system” account that will cover non-probabilistic laws and chances together, where chances are related to probabilistic laws.

3. Barry Loewer’s Defense of the View that Lewis-Laws Are Laws

Barry Loewer refers to propositions that, according to the best-system approach, express laws, as Lewis-laws – or L-laws, for short. Loewer’s main goals in his essay “Humean Supervenience” are to defend the following two theses:

Thesis 1: “. . . although Lewis-laws don’t fulfill *all* our philosophical expectations, they do play the roles that science needs laws to play.” (176-7)

Thesis 2: “The metaphysics and epistemology of Humean laws, and more specifically, Lewis-laws, are in much better shape than the metaphysics and epistemology of the main anti-Humean alternatives.” (177)

In defending these theses, Loewer does not view himself as defending the general thesis of Humean supervenience. In the first place, Loewer is inclined to think that properties have no intrinsic natures, and that they can be individuated only in virtue of their nomic relations to one another. In the second place, a defense of Humean supervenience would need to show that chances, and counterfactual facts, and causation all satisfy Humean supervenience. Loewer thinks that this is so for chances, is noncommittal with respect to counterfactual facts, and thinks that Humean supervenience may well fail for causation.

Comments

1. Loewer thinks that the idea that properties have intrinsic natures is “absurd” (200), but this would be so only if the existence of qualia was also absurd.

2. The Stalnaker/Lewis analysis of counterfactuals in terms of similarity relations across possible worlds, though still widely embraced, is open to a decisive refutation. The main alternative, however, brings causation into the analysis of counterfactuals. Accordingly, if Humean supervenience fails for causation – as it does – then it fails for counterfactual facts as well.

3.1 Loewer's Approach: Important Claims about Necessary Truths Concerning Laws

How does Loewer attempt to defend the view that Lewis-laws (or L-laws) are laws? His method is to set out a "list of the most important features that laws are supposed to have" – that is, a list of propositions formulating what are widely held to be necessary truths about laws – and then to argue that, while L-laws do not make all of those propositions true, they do a better job in this regard than any alternative account of the nature of laws.

Here is Loewer's list, which is based on Bas van Fraassen's discussion in his book *Laws and Symmetries*:

- (1) "If it's a law that *Fs* are followed by *Gs*, then it is true that *Fs* are followed by *Gs*."
- (2) "Being a law is a mind-independent property."
- (3) "The laws are important features of our world worth knowing."
- (4) "It is a goal of scientific theorizing to discover laws, and we have reason to believe that some of the propositions that the fundamental sciences classify as laws are laws."
- (5) "There is a distinction between lawful generalizations and accidental generalizations."
- (6) "There are vacuous laws."
- (7) "Laws are contingent but ground necessities."
- (8) "Laws support counterfactuals."
- (9) "Laws explain."
- (10) "Laws are confirmed by their instances."
- (11) "The success of induction depends on the existence of laws."
- (12) "The laws guide (direct, constrain, or probabilistically guide) the evolution of events."
- (13) "If it is a law that *p*, and *q* is any proposition expressing boundary or initial conditions relevant to the law that are co-possible with *p*, then it is possible [both] that it is a law that *p* and [that] *q* [is also the case]." (187)

(Loewer's formulation of the last feature is seriously ambiguous, so I have made the insertions indicated to remove the ambiguity. A later example will make it clear what this final feature is, and why it is important.)

3.2 Loewer's Claims

To what extent do Lewis-laws satisfy conditions (1) through (13). Loewer's answer to this question – Loewer uses small Roman numerals where I have used Arabic numerals - is as follows:

(a) "L-laws clearly satisfy conditions (i), (iii) through (vi), (x) and (xi)."

(b) "They also satisfy (vii), (viii), and (ix), if the relevant nomic notions are construed as L-nomic notions."

(c) "It is arguable that L-laws satisfy condition (ii)."

(d) "The only conditions clearly violated by L-laws are conditions (xii) and (xiii)." (194)

3.3 My Contentions

1. L-laws satisfy condition (1), and they may satisfy condition (7).
2. L-laws satisfy condition (5), but they do not satisfy a strengthened version of (5), in that they do not appear to classify generalizations correctly into nomic generalizations and accidental ones.
3. Similarly, L-laws do satisfy condition (6), but they do not satisfy the related modal thesis (6*), or the strengthened, but, I think, very probable non-modal thesis (6**):
 - (6*) It is possible for there to be **basic** laws that have no instances.
 - (6**) The actual world contains **basic** laws that have no instances.
4. L-laws do not support counterfactuals in the crucial sense, and so do not satisfy condition (8).
5. L-laws do not explain why cosmic regularities obtain, and so do not satisfy condition (9).
6. L-laws are not confirmed in the crucial way by their instances, and so do not satisfy thesis (10).
7. L-laws provide no basis for a justification of induction, and so do not satisfy condition (11). Loewer is mistaken in embracing inductive skepticism.
8. L-laws, as Loewer agrees, do not satisfy conditions (12) and (13).
9. L-laws do not satisfy condition (3), since they would satisfy condition (3) only if L-laws supported counterfactuals, which they do not do.
10. L-laws do not satisfy condition (4) unless L-laws correctly classify regularities as nomological and accidental, and there is reason for thinking that they do not.
11. L-laws do not fully satisfy condition (2), and it is arguable that the partial satisfaction is not enough.