

Humean Nomic Essentialism

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Nomic Essentialism

Here is an intuition: Nothing can be *mass* if it doesn't act like *mass*. That is, mass plays the mass-role necessarily.

A similarly attractive intuition runs in the other direction: If something *acts like* mass then it *is* mass.

Call views which satisfy both these intuitions nomic essentialism.

Nomic essentialism is pretty attractive, in particular, it rules out the possibility of unintuitive property-switching.

Humeanism

Here's another pretty intuitive and compelling view: Humeanism. It's the denial of necessary connections between distinct existences.

In fact, Humeanism is often motivated by the same kind of empiricist ideas that motivate nomic essentialism.

Humean Nomic Essentialism

So it would be nice to combine the views to have a Humean nomic essentialism. But it seems like we can't.

Consider a toy scientific law that says 'whenever a spatial point has property A at time t_n then it comes to have property B at the next time t_{n+1} , where

A and B are fundamental properties.

According to nomic essentialism, this law is metaphysically necessary and thus involves necessary connections between distinct existences.

You know what else seems like it implies necessary connections between distinct existences? Quantum Entanglement.

How can the Humean deal with this? Maybe by saying that the necessary connections are between non-fundamental objects. Can this work in both the entanglement case and the nomic essentialism case?

Two-State Humeanism

Two-State Humeanism (see our “What the Humean Should Say about Entanglement”) is a variant of a BSA that allows for a way that Humeans can admit of physical ontology which is grounded in the mosaic *as a whole*.

The regular BSA says that the laws are the axioms that best systematize the mosaic. The two-state Humean allows that *other* elements of the physical state can be generated via a very similar procedure. Here’s the idea:

Step 1: Introduce L-State Predicates into system. L-State Predicates are introduced *uninterpreted*.

Step 2: L-State Predicates appear in Laws with M-state Predicates (i.e. ones that denote perfectly natural properties and relations in the mosaic, the “M-State”). L-state Predicates gain an interpretation through these connections.

Step 3: The existence of L-state properties and relations is grounded in the existence and interpretation of the L-state predicates appearing in the system that best balances simplicity and informativeness.

A property is generated by the systemization procedure is thereby grounded in the whole mosaic, in the same way Humean laws are.

So now we can see how two-state Humeanism solves the problem of non-separability in quantum mechanics: For the two-state Humean, this common ground is the totality of the mosaic.

Two Kinds of Fundamentality: This solution to the problem depends on a distinction between things which are *physically* fundamental, in the sense that they are the base posits of our physical theories,

Entanglement properties, even if they're *physically* fundamental, are *meta-physically* non-fundamental. Because they have a common ground, they're not distinct existences.

Likewise, the earlier argument that we can't have a Humean nomic essentialism fails, at least when we are considering the A and B properties as L-state properties.

The Argument

But we can go further, and claim that two state Humeanism in fact does capture the nomic essentialist intuitions.

Identity-Role Link: Two properties instantiated at possible worlds, w_1 and w_2 respectively, are the same just in case they play the same nomic role in those worlds.

Here's how the argument will go:

Premise (1) Two L-state properties instantiated at possible worlds, w_1 and w_2 respectively, are the same just in case they are denoted by L-state predicates with the same interpretation.

Premise (2) Two L-state predicates, appearing in the best systems of possible worlds w_1 and w_2 respectively, have the same interpretation just in case they play the same role in their respective best systems.

Premise (3) For two L-state predicates to play the same role in their respective best systems *just is* for the nomic roles of the properties they denote to be the same.

Conclusion Two L-state properties instantiated at possible worlds, w_1 and w_2 respectively, are the same just in case they play the same nomic role in those worlds.

Limitations and Significance

The Humean nomic essentialism that you get from an argument like this has some limitations. It cannot remove quiddities for *all* properties. There must be at least one ordinary M-state/mosaic property or relation, which are quiddistic.

But it's much harder to make a problem out of quiddities when you only have one (e.g. no property-switching objections).

One might object that the argument, above, only establishes that Two-state Humeanism can support a Nomic *Necessitarianism*, but says nothing about a genuine Nomic *Essentialism*.