Introduction and the DN account

Harjit Bhogal
Varieties of Explanation, Spring 2026

Basic Concepts

Two senses of `explanation'

1. Explanation as a **communicative act** – e.g. a speech act or something similar.
   - Explanations are answers to why questions
   - What counts as a good explanation might be relative to the informational states and interests of the people involved, etc.
2. Explanation as worldly facts – a set of facts that are out there to be discovered. Call this the **ontological** sense.
   - This is the sense of explanation that we would use to formulate more general metaphysical theses, like physicalism or the PSR.[1]

Can we have an anti-realist theory of explanation given this distinction?

[1] The distinction here doesn't map on cleanly to the distinction drawn between *ontic* and *epistemic* conceptions of explanation.

There are close connections between the two senses. A good communicative act of explanation tells us about explanations in the ontological sense. We are focusing on the ontological sense and taking that as basic.

Could you take the communicative sense as basic and the ontic as derivative?

The general pragmatics of communication will not be a major focus. But 'a philosopher of explanation will …occasionally discuss communicative conventions, just as an astronomer might study atmospheric distortion so as to more clearly see the stars.' (Strevens, 2008, 3)

Relata

The things that explain and are explained – the explanans and the explanandum – are *facts*. Though there is some disagreement about this in the literature. Maybe events are the things being explained. Perhaps sometimes theories or regularities.

We can easily understand what it means for events and regularities, and so on, to be explained while officially taking the relata of explanation to be facts.

Understanding

Explanations have an epistemic benefit – they yield **understanding**. (Perhaps they are the only things that do.) We gain understanding by grasping (in some sense) explanations.

What types of things can we understand? Do we understand more things that we can explain?

Basic Questions

Our grip on the notion of explanation comes both from scientific and other explanatory practice and from our feelings of understanding. Accounts of explanation, then, face **scientific**, **metaphysical**, and **epistemic** constraints. A good

account of explanation must (i) make sense of (scientific) explanatory practice, (ii) be metaphysically plausible and (iii) make sense of the epistemic benefits that explanations have.

1. What relation in the world makes it the case that some facts are explanatorily relevant to others? Causation? Nomic necessitation? Something else?
2. What is the ground of the asymmetry of explanation?
3. In virtue of what do explanations yield understanding?
4. Why is understanding valuable? More generally, the Meno question for understanding/explanation.
5. How do we identify the right level/grain of explanation?
6. When are some explanations better than others?
7. Is there only one type of explanation, or are there many? If there are many, how do they relate?
8. How does explanation guide theory choice?

The D-N account

> A mercury thermometer is rapidly immersed in hot water; there occurs a temporary drop of the mercury column, which is then followed by a swift rise. How is this phenomenon to be explained? The increase in temperature affects at first only the glass tube of the thermometer; it expands and thus provides a larger space for the mercury inside, whose surface therefore drops. As soon as by heat conduction the rise in temperature reaches the mercury, however, the latter expands, and as its coefficient of expansion is considerably larger than that of glass, a rise of the mercury level results. (Hempel and Oppenheim, 1948, 135)

This explanation appeals to laws and to background conditions. If filled out appropriately, the laws and the antecedent conditions will *entail* the phenomenon in question.

A set of sentences (or propositions) A explains B iff:
(i) B logically follows from A.
(ii) A contains laws that are essential to the derivation of B.[2]
(iii) The propositions in A are true.[3]

> Let us note here that the same formal analysis …applies to scientific prediction as well as to explanation. The difference between the two is pragmatic in character. (138)

Basically, if we work from the phenomenon to the antecedent conditions and the laws, that is an explanation. If we work the other way, it is a prediction.

[2] Note, these don't have to be fundamental laws.
[3] They also say that the explanans must be testable or observable. This seems weird.
How does this account answer the questions of section 2?

Does this mean that the distinction between knowing that something is true vs understanding why is pragmatic

Objections and Worries

1. The account is not asymmetric. So there are counterexamples, like the flagpole shadow case.
   - Just adding a temporal component to the account doesn't help – consider the barometer case.

2. How do explanations of this form give us understanding? Consider Salmon's tides case. (This is an **epistemic** concern.)
3. There seem to be lots of explanations where the explanans does not entail the explanandum. Can we really fill all of them out to the appropriate form? (This is a concern about **scientific** practice.)
4. Are there even laws of higher-level sciences? (This is a concern about **metaphysical** plausibility.)
5. Irrelevancies: Hexed Salt, Birth control

References

Hempel, C. G. and Oppenheim, P. 1948. Studies in the Logic of Explanation. *Philosophy of science*, 15(2):135–175.

Strevens, M. 2008. *Depth: An Account of Scientific Explanation*. Harvard University Press.