Midwest Area Workshop in Metaphysics Elanor Taylor

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***Explanatory Distance***

Cases:

1. Opium reliably sends people to sleep because it has a dormitive virtue.
2. The patient has symptoms a, b and c because they have syndrome X (the syndrome where you have symptoms a, b and c).

1. What is explanatory distance?

Some explanations fail because there is insufficient distance between the explanans (which does the explaining) and the explanandum (the thing explained).

Dilemma about the dormitive virtue case

Option 1: There is a *power*/*disposition* that metaphysically explains the pattern in opium’s behavior.

Option 2: There is no such power, and, “dormitive virtue” just means, “reliably induces sleep in humans”.

Summary of DSM on Intermittent Explosive Disorder:

Recurrent behavioral outbursts representing a failure to control aggressive impulses as manifested by either of the following: Verbal aggression occurring twice weekly, on average for a period of three months, or three behavioral outbursts involving destruction of property and/or physical assault within a 12-month period. The aggressiveness is completely out of proportion, the outbursts are not premeditated, and the individual is distressed, impaired or faces some serious consequences as a result of the outbursts. The individual must be older than 6, and the outbursts not better explained by another mental disorder.[[1]](#footnote-1)

2. Failed account 1

MODAL For sufficient explanatory distance there must be at least one metaphysically possible world in which the explanandum is true while the explanans is false, or in which the explanans is true while the explanandum is false.

Problem case 1: *Suppose that a bunch of sticks are thrown into the air with a lot of spin, so that they twirl and tumble as they fall. We freeze the scene as the sticks are in free fall and find that appreciably more of them are near the horizontal than the vertical orientation. Why is this? The reason is that there are more ways for a stick to be near the horizontal than the vertical. To see this, consider a single stick with a fixed midpoint position. There are many ways this stick could be horizontal (spin it around the horizontal plane), but only two ways it could be vertical (up or down). This asymmetry remains for positions near horizontal and vertical, as you can see if you think about the full shell traced out by the stick as it takes all possible orientations. [[2]](#footnote-2)*

Problem case 2: *The fact that twenty-three cannot be divided evenly by three explains why it is that Mother fails every time she tries to distribute exactly twenty-three strawberries evenly among her three children without cutting any (strawberries!).[[3]](#footnote-3)*

Explanation is a hyperintensional context (substitution of necessarily equivalent sentences does not always preserve truth-value), and MODAL cannot accommodate this.

3. Failed account 2

HYPERINTENSIONAL For sufficient explanatory distance the explanans and explanandum must be at least hyperintensionally distinct, such that substituting either for the other in a hyperintensional context does not guarantee preservation of truth-value.

The dormitive virtue case lacks sufficient explanatory distance but meets HYPERINTENSIONAL, because it might be true that “John believes that opium reliably sends people to sleep” while false that “John believes that opium has a dormitive virtue”, and belief is a hyperintensional context.

4. Alternative proposal: Understand distance in terms of dependence

DEPENDENCE For sufficient explanatory distance the explanandum must be shown to asymmetrically depend upon the explanans, where the precise nature of that dependence will vary across different cases of explanation and different explanatory contexts.

Features of dependence: Irreflexive, diverse, explanation-backing

Varieties of dependence: causal, grounding, mathematical, conceptual, logical…

5. Implications

For explanatory pluralism: diverse yet unified approach.

For grounding: problem cases may meet criteria for appropriate distance while still being contextually inappropriate.

6. Objections

* What About the Problem cases?
* Identity Explanations.
1. American Psychiatric Association (2013) *Diagnostic and Statistical Manual of Mental Disorders* (5th ed.) pg 466ff. 312.34 (F63.81) [↑](#footnote-ref-1)
2. Lipton, P. (2001) “What Good is an Explanation?” reprinted in Cornwell, J. (ed) (2004) *Explanations: Styles of Explanation in Science*. Oxford University Press. pg 9. [↑](#footnote-ref-2)
3. Lange, M. (2013) “What Makes a Scientific Explanation Distinctively Mathematical?” *British Journal for the Philosophy of Science* pg 488. Inspired by Braine, in Braine, D. (1972) Braine, D. (1972) “Varieties of Necessity”, *Supplementary Proceedings of the Aristotelian Society,* 46, pp. 139–70. [↑](#footnote-ref-3)