Logic Colloquium

Universität Konstanz

In Defence of Explanatory Symmetry: The Case of the Flagpole and the Shadow

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Abstract:

Mathematical explanations of physical phenomena typically explain such phenomenon by showing them to follow from mathematics together with physical background conditions. Marc Lange (2016) calls such explanations, 'explanationsby constraint'. I have argued elsewhere (Leng 2012) that we should think of these explanations as a form of structural explanations. As both Lange and Leng understand these explanations they look very close in form to Hempel's 'covering law' explanations. As such, mathematical explanations look vulnerable to the problem of explanatory symmetries: if the height of the flagpole mathematically explains the length of its shadow, it looks like the length of the shadow equally well explains the height of the flagpole. Lange has tried to show that his account of mathematical explanation has the means to block these explanatory reversals. This paper argues by contrast that defenders of mathematical explanation should stop worrying about preserving explanatory asymmetries, and accept that the shadow's length does indeed mathematically explain the flagpole's height.