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Bogen and Woodward' s data-phenomena distinction, forms of theory-ladenness, and the reliability of data

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Abstract

Some twenty years ago, Bogen and Woodward challenged one of the fundamental assumptions of the received view, namely the theory-observation dichotomy and argued for the introduction of the further category of scientific phenomena. The latter, Bogen and Woodward stressed, are usually unobservable and inferred from what is indeed observable, namely scientific data. Crucially, Bogen and Woodward claim that theories, which we seek to test, predict and explain phenomena, not data. But then, of course, the thesis of theory-ladenness cannot apply. The idea that theory-ladenness does not occur in scientific practice is one of the claims I contest in this paper. More importantly, Bogen and Woodward held that the reliability of the data, which constitutes the first step towards an inference from the data to the phenomena, can be secured without the theory one seeks to test. Again, this appears not to be descriptive of actual scientific practice. In order to show this, I re-visit two case studies that have figured heavily in Bogen and Woodward' s publications and others: the discovery of weak neutral currents and the discovery of the zebra pattern of magnetic anomalies (Kaiser 1995). I show that, in the latter case, data can be ignored if they appear to be irrelevant from a particular theoretical perspective (TLI) and, in the former case, the tested theory can be critical for the assessment of the reliability of data (TLA). I argue that both TLI and TLA are much stronger senses of theory-ladenness than the classical thesis and that neither TLI nor TLA can be accommodated within Bogen and Woodward' s account.

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