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The epistemic status of formalizable proof and formalizability as a meta-discursive rule.

Ubuz, Behiye (ed.) et al., CERME 8. Proceedings of the eighth congress of the European Society of Research in Mathematics Education, Antalya, Turkey, February 6–10, 2013. Ankara: Middle East Technical University (ISBN 978-975-429-315-9). 186-195 (2013).

Summary: The first two parts of this article report on a study that was part of my dissertation project at the interface of epistemology and sociology of mathematics. The study deals with the epistemic role of formalizability, which is traditionally held to be the main epistemic feature of mathematical proofs, in actual mathematical (research) practice. As a core result, it is argued that formalizability should be understood as a feature of discursive proving actions as the true bearers of epistemic value. As I discuss in the last part of the article, this insight opens the way for a shift to an educational perspective on proof in mathematical research practice. Sfard's approach to mathematical thinking as communication, with the concept of meta-discursive rules in particular, serves well as a conceptual framework to that end.

Classification: E50 E40 E20

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