

**Kuznets, Roman**

**Self-referentiality of justified knowledge.** (English) [Zbl 1143.03010](#)

Hirsch, Edward A. (ed.) et al., Computer science – theory and applications. Third international computer science symposium in Russia, CSR 2008 Moscow, Russia, June 7–12, 2008. Proceedings. Berlin: Springer (ISBN 978-3-540-79708-1/pbk). Lecture Notes in Computer Science 5010, 228-239 (2008).

Summary: The principal result of Justification Logic is the Realization Theorem, which states that behind major epistemic modal logics there are corresponding systems of evidence/justification terms sufficient for reading all provable knowledge assertions as statements about justifications. A knowledge/belief modality is self-referential if there are modal sentences that cannot be realized without using self-referential evidence of type “ $t$  is a proof of  $A(t)$ .” Building on an earlier result that S4 and its justification counterpart LP describe knowledge that is self-referential, we show that the same is true for K4, D4, and T with their justification counterparts whereas for K and D self-referentiality can be avoided. Therefore, no single modal axiom from the standard axiomatizations of these logics is responsible for self-referentiality.

For the entire collection see [\[Zbl 1136.68005\]](#).

**MSC:**

- [03B45](#) Modal logic (including the logic of norms)
- [03B42](#) Logics of knowledge and belief (including belief change)
- [03F45](#) Provability logics and related algebras (e.g., diagonalizable algebras)

Cited in <b>1</b> Review Cited in <b>8</b> Documents
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