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Zolin, E. E.

Sequential logic of arithmetic decidability. (Russian. Russian summary)


03B45 (03F45)

If □A means “A is derivable in arithmetic”, then ▷A = □A ∨ □¬A means “A is formally decidable”. Based on previous axiomatizations of the non-contingency connective in the modal logics K, K4, S4 and the axiomatization of provability logic by Solovay, the author axiomatizes the provability logic of ▷. It has the following axioms:

- Tautologies; ▷p → ▷¬p; ▷(p ↔ q) → (▷p ↔ ▷q); ▷p → [▷(q → p) ∨ ▷(p → r)]; ▷p → ▷(q → ▷p); ▷(▷p → p) → ▷p.
- ▷A is approximated by a set {▷(B ∨ A): B belongs to a suitable set}. The accessibility relation x ↓ w between the worlds x = (Γ → Δ) and w = (Γ′ → Δ′) is defined in such a way that ▷A ∈ Γ′ iff (∀x ↓ w A ∈ Γ) or (∀x ↓ w A ∈ Δ).

Reviewed by G. E. Mints

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