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First-order interpolation derived from propositional interpolation. (English) Zbl 1460.03006

While interpolation properties in a propositional logic $L$ usually hinge upon the underlying algebras of $L$, the study of interpolation in first-order logics does not have a similar algebraic flavor. In the paper under review the authors give a method to reduce first-order to propositional interpolation. Suitable skolemizations and Herbrand expansions are constructed which, combined with a propositional interpolant, yield a first-order interpolant. The proof-theoretic constructions of this paper are applicable to lattice-based finite-valued logics and to the weak quantifier and subprenex fragments of infinitely-valued first-order Gödel logic. Interpolation turns out to be decidable for these logics.

Reviewer: Daniele Mundici (Firenze)

MSC:
03B50 Many-valued logic
03C40 Interpolation, preservation, definability

Keywords:
proof theory; interpolation; lattice-based many-valued logics; Gödel logics

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References:
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