► RUSSELL MILLER, *Skolem functions and definable subsets of the absolute Galois group of* $\mathbb{Q}$.
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Fix a computable presentation $\overline{\mathbb{Q}}$ of the algebraic closure of the field $\mathbb{Q}$ of rational numbers. With such a presentation, the automorphisms of $\overline{\mathbb{Q}}$ are naturally given as paths through a strongly computable finite-branching tree. The operations of composition and inversion on these automorphisms (i.e., on these paths) are both type-2 computable. Thus we have an effective way of considering $\mathrm{Aut}(\overline{\mathbb{Q}})$, the absolute Galois group of $\mathbb{Q}$.

In this context, one can discuss the computability of Skolem functions for $\mathrm{Aut}(\overline{\mathbb{Q}})$. We show that for *positive formulas* (not using the negation connective) with parameters, Skolem functions are close to computable: one can compute an approximation to the jump of a witness to an existential formula. (That is, these Skolem functions are *low*, in the sense of Brattka, de Brecht, and Pauly.) The same holds for Skolem functions for any Π_2 formula, positive or not, and for certain larger classes of formulas as well. We also present related results describing the subsets of $(\mathrm{Aut}(\overline{\mathbb{Q}}))^n$ definable by such formulas.