

Effective categoricity of Equivalence Structures

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Abstract

We investigate effective categoricity of computable equivalence structures \mathcal{A} . We show that \mathcal{A} is computably categorical if and only if \mathcal{A} has only finitely many finite equivalence classes, or \mathcal{A} has only finitely many infinite classes, bounded character, and at most one finite k such that there are infinitely many classes of size k . We also prove that all computably categorical structures are relatively computably categorical, that is, have computably enumerable Scott families of existential formulas. Since all computable equivalence structures are relatively Δ_3^0 categorical, we further investigate when they are Δ_2^0 categorical. We also obtain results on the index sets of computable equivalence structures.