

The Scott rank of computable structures and the isomorphism relation

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Abstract: I will give a survey of results around building computable structures with Scott rank ω_1^{CK} . Several conjectures have been proposed about how difficult it is to construct such structures. Here I will prove one statement which testifies to this difficulty. Suppose there is a hyperarithmetic reduction f from the equivalence relation $\omega_1^x = \omega_1^y$ to the isomorphism relation of countable structures, then for every x , $f(x)$ has Scott rank $\omega_1^x + 1$. This answers a question of Chan, Harrison-Trainor and Marks.