

Speaker: Matthew Harrison-Trainor
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Tuesday, September 15, 2015

2:00 pm

Room: 125 Hayes-Healy Hall

Title: Scott ranks of models of a theory

Abstract:

I will talk about a few different results about the Scott ranks of models of a theory. (By a theory, I mean a sentence of $\mathcal{L}_{\omega_1\omega}$.) These results are all related in that they all follow from the same general construction; this construction takes a pseudo-elementary class \mathcal{C} of linear orders and produces a theory T such that the Scott ranks of models of T are related to the well-founded parts of linear orders in \mathcal{C} .

The main result is a descriptive-set-theoretic classification of the collections of ordinals which are the Scott spectrum of a theory. We will also see that for each ordinal α , there is a Π_2^0 theory which has no models of Scott rank less than α . We will also construct a computable model of Scott rank $\omega_1^{CK} + 1$ which is not approximated by models of low Scott rank. This is a new construction of a computable model of high Scott rank, as all prior constructions yield a model which can be approximated.