Department of Mathematics
University of Notre Dame

LOGIC SEMINAR

Guest Speaker: Will Adkisson
University of Illinois, Chicago

Date: Tuesday, September 12, 2023
Time: 2:00 PM
Location: 125 Hayes-Healy Hall
Zoom URL:

Lecture Title:
Tree Properties at Successors of Singulars

Abstract

The tree property is an analogue of König's Lemma for uncountable trees. An inaccessible cardinal is weakly compact if and only if it has the tree property; in this way, the tree property characterizes weak compactness up to inaccessibility. The strong tree property and ITP (also called the super tree property) are generalizations of the tree property that characterize strong compactness and supercompactness in much the same way. That is, an inaccessible cardinal κ is strongly compact if and only the strong tree property holds at κ, and supercompact if and only if ITP holds at κ. Generalizing a result of Neeman about the tree property, we show that it is consistent for ITP to hold at $\aleph_n$ for $2 \leq n < \omega$ and the strong tree property to hold at $\aleph_{\omega+1}$ simultaneously. This answers a question of Fontanella. We also show that it is consistent for ITP to hold at $\aleph_n$ for $4 \leq n < \omega$ and at $\aleph_{\omega+1}$ simultaneously. Finally, we examine the situation at successors of singulars of uncountable cofinality.

Will Adkisson - University of Illinois, Chicago