Universität Konstanz

Logic in Konstanz

Invitation

Lasse Vogel

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About Shelah's classification program.

The talk will take place
on **Monday, 18.12.2023** at **15:15** in room **F426**.

All interested are welcome to attend.

Abstract: Classification problems arise in many areas of mathematics. Their main concern is, given a certain property one now wants to find all objects that posses said property, as well as all objects without the property. In model theory the objects under examination can now be the models of a fixed (complete) first-order theory, i.e. we want to classify all models of a certain theory algebraically. On the other hand one could also think of classifying theories themselves, i.e. classify all first-order theories that have a model with a certain property. Shelah's classification program encompasses both these approaches. At its centre stands the notion of stability. This notion is the dividing line where the first examination is reasonable: The models of a stable theory can (in theory) be classified well, while unstable theories are too chaotic for a reasonable classification of models. But even among unstable theories some behave tamer than others. Another essential part of Shelah's classification program is to establish more such 'dividing lines', separating 'well-behaved' theories from more chaotic ones. This talk aims to give an overview of the most important such dividing lines and give a glimpse of what the work on this classification program entails. The main focus will be the properties which allow the structure to be endowed with an ordering, as ordered structures are the main object of interest for me, especially ordered fields.

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