Mathematics, Statistics, and Computer Science   **@ UIC**

Logic Seminar

Uncountable Categoricity in Continuous Logic

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Abstract: In recent years, some progress has been made towards understanding uncountable categoricity in the continuous setting, particularly in the context of classes of Banach spaces. Currently, it is unknown if the Baldwin-Lachlan characterization of uncountable categoricity holds in continuous logic. Namely, is it the case a continuous theory T is kappa-categorical for some uncountable cardinal kappa if and only if T is omega-stable and has no Vaughtian pairs?

In order to address this question, we provide the necessary continuous characterization of Vaughtian pairs, and in the process, prove Vaught's two-cardinal theorem, as well as a partial converse of the theorem in the continuous setting. This allows us to prove the forward direction of the Baldwin-Lachlan characterization.

Trying to prove the reverse direction leads us to an attempt to characterize strong minimality in continuous logic. We propose a notion of strong minimality, and show that it has many of the properties of its classical analogue. Unfortunately, we find that it fails to provide the required machinery, and in fact, conjecture that the reverse direction of the Baldwin-Lachlan characterization is false for continuous logic.

Tuesday, November 22 at 4:00 PM in SEO 427