

SECOND ORDER LOGIC, SET THEORY AND FOUNDATIONS OF MATHEMATICS

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In a metamathematical investigation first order logic and second order logic look very different. The rich model theory of the former is dominated by non-categoricity results going back to Skolem, while the latter is celebrated for its ability to characterize important mathematical structures categorically. I will argue in my talk that the difference is much smaller if first order set theory or second order logic is used foundationally. I will pay special attention to the substance and impact of categoricity results. I will also present some recent results on the model theory of second order logic and will discuss their possible impact.