THE SLO PRINCIPLE FOR BOREL SUBSETS OF THE GENERALIZED CANTOR SPACE

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ABSTRACT. The Wadge hierarchy establishes a hierarchy of complexity through the comparison of sets via continuous reductions. The Semi-Linear Ordering principle (SLO) asserts that, for any two subsets A and B of a space X, either A can be continuously reduced to B or the complement of B can be continuously reduced to A. While classical descriptive set theory primarily focuses on studying subsets of the space of all countable binary sequences, generalized descriptive set theory aims at developing a higher analogue in which ω is replaced with an uncountable cardinal κ satisfying the condition $\kappa^{<\kappa} = \kappa$. Motivated by understanding the Wadge structure for (various classes of) generalized Borel sets, in this talk we will first discuss the consistency of the failure of the SLO principle for $\mathbf{\Sigma}_2^0(\kappa^+)$ sets and then, starting from the bottom of the Wadge hierarchy, we will analyze the validity of the semi-linear ordering principle as we ascend through the difference hierarchy. This is joint work with Luca Motto Ros and Philipp Schlicht.

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