

ANALYTIC EQUIVALENCE RELATIONS WITH ALL BOREL CLASSES ARE BOREL SOMEWHERE

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ABSTRACT. The question of interest in this talk is whether certain equivalence relations on Polish spaces can be a Δ_1^1 equivalence relation when restricted to certain subsets.

As every equivalence relation is Δ_1^1 when restricted to countable subsets, this triviality can be removed by requiring the subsets to be non-small according to σ -ideals. This question will be considered for the large class of σ -ideals whose forcing of positive Δ_1^1 subsets is a proper forcing. A positive answer can only be feasible if the equivalence relations bear at least some resemblance to Δ_1^1 equivalence relations. Hence, Kanovei, Sabok, and Zapletal asked the following precise question: Is every Σ_1^1 equivalence relation with all Δ_1^1 classes a Δ_1^1 equivalence relation on some Δ_1^1 I^+ set, whenever I is a σ -ideal whose associated forcing is a proper forcing.

This talk will discuss this question and how to use a measurable cardinal (or sharps of certain sets) to give a positive answer.

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