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Baire Domination

Say that a space X is “Baire-dominated” by a space Y provided the Baire subsets of X are precisely the sets of the form $\phi^{-1}(B)$ for some Baire subset B of Y and some continuous function $\phi : X \rightarrow Y$.

Theorem 1 *Every space is Baire-dominated by the Hilbert cube.*

Example 1 I^2 is not Baire-dominated by I .

Observation 1 *Every space is “weakly Baire-dominated” (allowing ϕ to be of Baire class 1) by every uncountable complete separable metric space.*

Problem 1 *Which spaces Baire-dominate all spaces?*