



Mathematics > Logic

On the structure of finite level and ω -decomposable Borel functions

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We give a full description of the structure under inclusion of all finite level Borel classes of functions, and provide an elementary proof of the well-known fact that not every Borel function can be written as a countable union of Σ^0_α -measurable functions (for every fixed $1 \leq \alpha < \omega_1$). Moreover, we present some results concerning those Borel functions which are ω -decomposable into continuous functions (also called countably continuous functions in the literature): such results should be viewed as a contribution towards the goal of generalizing a remarkable theorem of Jayne and Rogers to all finite levels, and in fact they allow us to prove some restricted forms of such generalizations. We also analyze finite level Borel functions in terms of composition of simpler functions, and we finally present an application of the previous results to Banach space theory.

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