extends the notion of a choice sequence given in [4] and uses it to construct a generalised system capable of expressing results about intensional properties of choice sequences. This is achieved by constructing a language capable of representing intensional first order restrictions on choice sequences (the language of knowledge states) and their relations to other sequences. This extended system allows us to formulate a notion of lawlessness that evades a series of paradoxes highlighted in [4], allows us to prove a generalised form of open data and offers additional clarity to other key areas of the theory. When a certain set of restrictions are applied to this extended theory (extensionality and a second order restriction on knowledge states) we obtain a system suitable for the foundation of analysis.

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DIANA CAROLINA MONTOYA, *Some Cardinal Invariants of the Generalized Baire Spaces*, Universität Wien, Austria, 2017. Supervised by Sy-David Friedman. MSC: 03E17, 03E35, 03E55. Keywords: cardinal invariants, consistency results, forcing, large cardinals.

Abstract

The central theme of the research in this dissertation is the well-known *Cardinal invariants of the continuum*. This thesis consists of two main parts which present the results obtained in joint work with (alphabetically): Jörg Brendle, Andrew Brooke-Taylor, Vera Fischer, Sy-David Friedman, and Diego Mejía.

The first part focuses on the generalization of the classical cardinal invariants of the continuum to the generalized Baire spaces κ^κ, when κ is a regular uncountable cardinal. First, we present a generalization of some of the cardinals in Cichoń's diagram to this context and some of the *ZFC* relationships that are provable between them. Furthermore, we study their values in some generic extensions corresponding to $<\kappa$-support and κ-support iterations of generalized classical forcing notions. We point out the similarities and differences with the classical case and explain the limitations of the classical methods when aiming for such generalizations. Second, we study a specific model where the ultrafilter number at κ is small, 2^κ is large and in which a larger family of cardinal invariants can be decided and proven to be $< 2^\kappa$.

The second part focuses exclusively on the countable case: We present a generalization of the method of matrix iterations to find models where various constellations in Cichoń's diagram can be obtained and the value of the almost disjointness number can be decided. The method allows us also to find a generic extension where seven cardinals in Cichoń's diagram can be separated.

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