

Senior Thesis

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Characterizations of the Forbidden Patterns of Functions

Abstract: There are three components to this thesis. Considering the poset of permutations ordered by consecutive pattern avoidance, the first component discusses the relationship between antichains and their bases, the second one investigates the requirements an antichain must satisfy in order to be the set of basic forbidden patterns of a map (with certain mild restrictions), and the third one deals with the basic forbidden patterns of logistic maps as well as a generalization of these maps. In particular, we give several characterizations of sets of basic forbidden patterns, including an upper bound on their growth rate, an upper bound on their minimum length, and a sufficient condition on maps such that they have infinitely many basic forbidden patterns.