On Rota’s Conjecture

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Abstract. The most promising strategy for resolving Rota’s Conjecture at present is to extend the Graph Minors Structure Theorem of Robertson and Seymour to representable matroids. That is, given a GF(q)-representable matroid N, we would like a qualitative structural description of the class of GF(q)-representable matroids with no N-minor. In particular, since N is a restriction of a projective space (say PG(k,q)), we are interested in the class of GF(q)-representable matroids with no PG(k,q)-minor. Such a characterization would help to prove Rota’s Conjecture since: an excluded minor of GF(q)-representability cannot contain a “large” projective space over GF(q) as a minor.