Borel's conjecture for the Marczewski ideal

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We will show the following ZFC theorem which is recently finished work joint with Jörg Brendle: There is no set of size continuum which is "s_0-shiftable", i.e., which can be translated away from every set in the Marczewski ideal s_0 (where a set of reals is in s_0 if for every perfect set there is a perfect subset disjoint from it).

We will concetrate on regular continuum, since the proof is easier in this case.

The theorem is very much in contrast to the respective situation when s_0 is replaced by the meager ideal: there are models (e.g., all models that satisfy CH) with large meager-shiftable (i.e., strong measure zero) sets.

Our original proof dealt with the reals in the sense of the Cantor space 2^ω. However, it can be generalized to other Polish groups.