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Idempotent Keisler measures

Abstract. In model theory, a type is an ultrafilter on the Boolean algebra of definable sets, and is the same thing as a finitely additive 0,1-valued measure. This is a special kind of a Keisler measure, which is just a finitely additive probability measure on the Boolean algebra of definable sets. If the structure we are considering expands a group (i.e. the group operations are definable), it often lifts to a natural semigroup operation on the space of its types/measures, and it makes sense to talk about the idempotent ones among them. For instance, idempotent ultrafilters on the integers provide elegant proofs of various results in additive combinatorics, and fit into this setting taking the structure to be (Z,+) with all of its subsets named by predicates. On the other hand, in the context of locally compact abelian groups, classical work by Wendel, Rudin, Cohen (before inventing forcing) and others classifies idempotent measures. I will discuss joint work with Kyle Gannon aiming to unify these two settings, especially for groups definable in model theoretically tame structures.