

Countably Generated Complete Boolean Algebras of Arbitrary Size

Chase Fleming

September 21, 2021

Abstract

A Boolean algebra is, intuitively, a collection of subsets with two binary operations called meet and join that behave much like set union and intersection. Complete Boolean algebras are those which are closed under any amount of meets and joins. Solovay proved that there is a countably generated complete Boolean algebra of size greater \aleph_λ for every ordinal λ . We will show this result again by examining the Boolean algebra formed by the regular open sets of the Baire Space of Weight λ , and, by topological means, show that the size of this Boolean algebra is exactly 2^{\aleph_λ} .