Abstract

We prove a lemma called the Order Ideal Lemma, as a corollary of the FKG inequality. It can be used to combinatorially prove log-concavity and log-convexity results for various sequences including binomial coefficients, Catalan numbers, Fibonacci numbers, Stirling numbers of the second kind, order polynomials, and more. In the process we define some new and interesting distributive lattices. This is joint work with Bruce Sagan.