

Title: On the conditional expectation given Boolean functions of events in the n-space

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Abstract: It is shown in Lee and Prekopa (2017) and Lee (2017) that there exists a systematic way to construct a suitable partial order relation regarding union of orthants in the n-space. Employing projections and related recursion, the probability of union of such events can efficiently be calculated. In this paper we study other important Boolean functions of events and develop theorems in the mentioned papers for more general cases. Related optimization problems are also presented.