

AN EXTENDED PROBLEM TO BERTRAND'S PARADOX

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Abstract

Bertrand's paradox is a longstanding problem within the classical interpretation of probability theory. The solutions $1/2$, $1/3$, and $1/4$ were proposed using three different approaches to model the problem. In this article, an extended problem, of which Bertrand's paradox is a special case, is proposed and solved. For the special case, it is shown that the corresponding solution is $1/3$. Moreover, the reasons of inconsistency are discussed and a proper modeling approach is determined by careful examination of the probability space.

Keywords: probability space, probability theory, problem modeling, random chords.

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