AN EXTENDED PROBLEM TO BERTRAND’S PARADOX

MOSTAFA K. ARDAKANI

School of Engineering Technology
State University of New York
Farmingdale, NY, USA

e-mail: Ardakani@farmingdale.edu

AND

SHAUN S. WULFF

Department of Statistics
University of Wyoming
Laramie, WY, USA

e-mail: wulff@uwyo.edu

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.

2010 Mathematics Subject Classification: 60A99, 60D99, 97K99, 97G99.

References


Received 14 March 2014