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D.R. Cox, P.J. Solomon

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#6149994 in Books Chapman and Hall/CRC 2002-07-30Original language:EnglishPDF # 1 9.21 x .50 x 6.14l, .85 #File Name: 1584883545184 pages | File size: 44.Mb

D.R. Cox, P.J. Solomon : Components of Variance (Chapman Hall/CRC Monographs on Statistics Applied Probability) before purchasing it in order to gage whether or not it would be worth my time, and all praised Components of Variance (Chapman Hall/CRC Monographs on Statistics Applied Probability):

27 of 27 people found the following review helpful. variance components from a famous statistician and prolific

authorBy Michael R. ChernickD. R. Cox is clearly one of the most famous statisticians of the 20th/21st centuries. He has published hundreds of papers and a number of important books. I know of two of his papers that are included in the volumes on breakthroughs in statistics. He is also an excellent writer of books and very good at collaborating with others such as Solomon on this book Nancy Reid on an experimental design book and David Hinkley on a well-known graduate text in theoretical statistics. I have read a lot of his work and heard some of his eloquent lectures. The topic here is variance components. In regression and ANOVA it is often important to try to separate the various contributions the various factors or regression variables have on the overall variability in the data. However in these models it is possible when using the standard unconstrained estimates to get negative estimates for one or more of the components. But of course we know that all variances are non-negative. So this constraint should be included in the construction of the estimator. This book deals with that type of estimation problem and covers Poisson distributed variables as well a normally distributed ones. At this time there are many fine books written on the subject including Wolter's book that applies to finite populations and books by Searle and others. The advantage of this book is that a reader who wnt to understand the concepts and have a reference for the various techniques gets a concise tratment in this monograph. Cox is very adept at writing such monographs as he has written many for Chapman and Hall. This texts fits well into that category.

Identifying the sources and measuring the impact of haphazard variations are important in any number of research applications, from clinical trials and genetics to industrial design and psychometric testing. Only in very simple situations can such variations be represented effectively by independent, identically distributed random variables or by random sampling from a hypothetical infinite population. Components of Variance illuminates the complexities of the subject, setting forth its principles with focus on both the development of models for detailed analyses and the statistical techniques themselves. The authors first consider balanced and unbalanced situations, then move to the treatment of non-normal data, beginning with the Poisson and binomial models and followed by extensions to survival data and more general situations. In the final chapter, they discuss ways of extending and assessing various models, including the study of exceedances, the use of nonlinear representations, the study of transformations of the response variable, and the detailed examination of the distributional form of the underlying random variables. Careful signposting and numerous examples from genetic data analysis, clinical trial design, longitudinal data analysis, industrial design, and meta-analysis make this book accessible - and valuable - not only to statisticians but to all applied research scientists who use statistical methods.

The book succeeds in providing a good starting point for a statistician interested in an introduction to many of the issues associated with variance component estimation. [V]ery approachable to a statistician with little background in the analysis of mixed models. - Journal of the Americal Statistical Association, Sept. 2004, Vol. 99, No. 467
Components of Variance is easy to read and to find examples. Its main features are the excellent discussions of the various models and the wealth of examples.-Technometrics, 2003
This is a superb book on a topic of central importance in a wide variety of areas of research. A particular strength is attention given to first principles as a prelude to the treatment of many of the technical topics. What distinguishes this book from other material is the depth of the discussion combined with the use of only essential technical details. -Vern Farewell, MRC Biostatistics Unit, Institute of Public Health, Cambridge, UK