

Discrete multivariate analysis has also witnessed a phenomenal growth of literature in the past two decades and there are by now several texts covering the main developments in this area in an up-to-date fashion. However, there appears to be a different picture with the development of mixed multivariate models involving partly continuous and partly discrete variables. These models arise often in applications and it would be a natural expectation to see an adequate treatment of the theory in a text. This may be a glaring omission in Dillon and Goldstein! Another important area with an outstanding growth of literature in the past fifteen years is the so-called variance component models. Frankly, I expected a more detailed treatment of this important topic in Anderson's second edition, and I am to a greater extent disappointed to see an inadequate treatment of this topic in either of the two books reviewed by Mark Schervish. I would like to make a specific reference to the forthcoming book of Rao and Kleffe (1987) for an in-depth coverage of this important area. I expect a significant amount of applications of these models in various applied areas.

As I tend to draw an overview of modern multivariate statistical analysis, more and more, I feel the need for robust (if not nonparametric) methods. Although some of these methods (mostly, in the context of simple MANOVA models) have been treated adequately in some contemporary textbooks, I have no doubt in my mind that in the coming years, there will

be a far reaching impact of this vital area in multivariate analysis.

To summarize, let me congratulate Mark Schervish for a job well done. In principle, I would have argued in favor of a modified title "A Review of Two Texts in Multivariate Analysis." The area of multivariate statistical analysis is indeed too vast to be covered entirely by these two (or, as a matter of fact, by any two) texts. However, Anderson's second edition will naturally help us in identifying the other pockets where an equally sound and lucid treatment of the theory (and methodology) should be developed in the form of a text, and once this has been accomplished, we are all set to close the whole area in the form of two texts. Until then, the second edition is a major step in the right direction.

ADDITIONAL REFERENCES

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Comment

R. Gnanadesikan and J. R. Kettenring

In our experience, most statistical problems that arise in practice are genuinely multivariate in character. This is almost surely as true in other settings as it is in the telecommunications business that we work in. A recent literature search (Gnanadesikan and Kettenring, 1984) covering seven disciplines over the period 1965 to 1982 turned up 15,000 articles that involved multivariate methods.

It is natural, therefore, to expect that new books on

R. Gnanadesikan is Assistant Vice President of the Mathematical, Communications, and Computer Sciences Research Laboratory and J. R. Kettenring is Division Manager of Statistics and Economics Research at Bell Communications Research, 435 South Street, Morristown, New Jersey 07960.

the subject, such as those by Anderson and by Dillon and Goldstein, as well as comprehensive reviews, such as that of Schervish, will have a wide audience. However, our intention in this commentary is not so much to critique either the books or the review as it is to bring out some of our own views on multivariate data analysis.

In outlook, if not detail, these overlap with views of Schervish who makes many telling points about the state of multivariate analysis. The best known and most frequently used of the classical methods have not always served well and often leave the user with the question "What have I really learned about my data and how sure can I be about it?" Much of the elegant theory is of little practical value. Standard multivariate hypothesis tests, which have been so extensively developed (see Schervish's comments in