obtain an estimate of the population mean, an estimate of the standard deviation of this estimate of the mean, and an estimate of the population standard deviation. This paper derives a nonparametric estimate for each of these three cases. These estimates are approximately valid for most continuous statistical populations of practical interest when a small number of sample values are truncated and the sample size is not too small. The mean estimate consists of a linear function of the ordered values of the truncated sample, while each standard deviation estimate is the square root of a quadratic function of these observations. (Received April 10, 1957.)

7. Distinguishability of Sets of Distributions (The Case of Independent and Identically Distributed Chance Variables.), W. HOEFFDING, University of North Carolina, and J. WOLFOWITZ, Cornell University.

Let $\mathfrak{I}$ be a class of tests, based on a sequence of independent chance variables with the common distribution F (assumed to belong to a set $\mathfrak{F}$ of distributions), for testing whether F belongs to one of two disjoint subsets, $\mathcal{G}$ and $\mathcal{H}$, of $\mathfrak{F}$. We consider the cases where $\mathfrak{I}$ is either the class of all tests which terminate with probability one if $F \in \mathfrak{F}$, or the class of all fixed sample size tests, or one of several classes intermediate between these two. The sets $\mathcal{G}$ and $\mathcal{H}$ are said to be distinguishable in $\mathfrak{I}$ if, for every $\epsilon > 0$, there exists a test in $\mathfrak{I}$ such that the error probability is $< \epsilon$ for all $F \in \mathcal{G} \cup \mathcal{H}$. It is shown that if there exists a test in $\mathfrak{I}$ such that the sum of the maximum error probability in $\mathcal{G}$ and the maximum error probability in $\mathcal{H}$ is less than 1, then $\mathcal{G}$ and $\mathcal{H}$ are distinguishable in $\mathfrak{I}$. Sufficient conditions and necessary conditions for the distinguishability of two sets are expressed in terms of certain distance functions. Certain simple necessary conditions for distinguishability are found to be also sufficient if the class of distributions is suitably restricted. (Received May 20, 1957.)

8. An Extension of Box's Results on the Use of the F Distribution in Multivariate Analysis, SEYMOUR GEISSER AND SAMUEL W. GREENHOUSE, National Institute of Mental Health.

The mixed model in a 2-way analysis of variance is characterized by fixed classification, e.g. treatments, and a random classification, e.g. plots. Under the usual analysis of variance assumptions the proper error for the fixed effect is the fixed $\times$ random interaction component, and the resulting ratio has the F-distribution. If we have individuals instead of plots as the random component and the treatments are correlated, then Box has shown that one may still use the same F-ratio as before as a test of treatment effects; however, the F-ratio does not have the requisite F-distribution, but it can be shown that it is distributed approximately like an F-distribution but with modified degrees of freedom. Box did this for one group of individuals; the authors have extended the Box technique to g groups of individuals and give the modified F-distribution for the tests of treatment effects and treatment $\times$ group interaction effects. (Received May 24, 1957.)

NEWS AND NOTICES

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Personal Items

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