

INFERENCES ON INTERCLASS AND INTRACLASS CORRELATIONS IN MULTIVARIATE FAMILIAL DATA*

SADANORI KONISHI^{1,2,**} AND C. G. KHATRI^{2,***}

¹*The Institute of Statistical Mathematics, 4-6-7 Minami-Azabu, Minato-ku, Tokyo 106, Japan*

²*Center for Multivariate Analysis, Department of Statistics, The Pennsylvania State University,
University Park, PA 16802, U.S.A.*

(Received May 18, 1989; revised November 21, 1989)

Abstract. Inference procedures for interclass and intraclass correlations are given in the multivariate context of familial data for which measurements are taken on more than one characteristic. Unified estimators are proposed based on a certain class of unbiased estimators of covariance matrices. Asymptotic distributions of the proposed estimators are derived under the assumption of multivariate normality. The results can be used to construct approximate confidence intervals and test procedures.

Key words and phrases: Asymptotic distribution, interclass and intraclass correlation matrices, interval estimation, hypothesis testing, multivariate familial data.