U-FUNCTIONS OF CONCOMITANTS OF ORDER STATISTICS

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Abstract: Let \((X_i, Y_i), 1 \leq i \leq n,\) be i.i.d. \(R^{1+d}\)-valued random vectors. Denote by \(Y_{[i:n]}\) the \(Y\)-value associated with the \(i\)-th order statistic \(X_{i:n}\). Concomitants of order statistics may be used to exhibit special features of the dependence structure between \(X_i\) and \(Y_i\). We prove various distributional limit theorems for so-called \(U\)-functions (of degree two) of concomitants. The method of proof is based on a new conditional projection lemma.

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