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A Convex Combination of Two-Sample U-Statistics

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Abstract: A convex combination of one-sample U-statistics was introduced by Toda and Yamato (2001) and its Edgeworth expansion was derived by Yamato *et al.* (2003). We introduce a convex combination of two-sample U-statistics, which includes two-sample U-statistic, V-statistic and limit of Bayes estimate. Its Edgeworth expansion is derived with remainder term $o(N^{-1/2})$, under the condition that the kernel is non-degenerate. We give some examples of the expansion for three statistics, two-sample U-statistic, V-statistic and limit of Bayes estimate, based on some distributions.

Key words: convex combination, two-sample U-statistic, two-sample V-statistic

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