

ASYMPTOTIC MULTIVARIATE NORMALITY FOR THE SUBSERIES
VALUES OF A GENERAL STATISTIC FROM A STATIONARY SEQUENCE
WITH APPLICATIONS TO NONPARAMETRIC CONFIDENCE INTERVALS

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Abstract: Let $\{Z_i : -\infty < i < +\infty\}$ be a strictly stationary α -mixing sequence with unknown marginal distributions and unknown dependence structure. Suppose that, given data $\vec{Z}_m^i := (Z_{i+1}, Z_{i+2}, \dots, Z_{i+m})$, the statistic $s_m^i := s_m(\vec{Z}_m^i)$ is a point estimator of the unknown parameter θ . If a sample series \vec{Z}_n^0 is available, then the subseries values $s_m^i (0 \leq i < i+m \leq n)$ may be used to construct a nonparametric confidence interval on θ via either Student's distribution or via the Typical Value principle. The asymptotic justification for both methods rests upon a more general result which provides necessary and sufficient conditions for asymptotic multivariate normality of subseries values.

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