

# Near-consistent robust estimations of moments for unimodal distributions

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orderliness | invariant | unimodal | adaptive estimation |  $U$ -statistics

**A. Congruent distribution.** In the realm of nonparametric statistics, the relative differences, or orders, of robust estimators are of primary importance. Based on this principle, when there is a shift in the parameters of the baseline distribution, all nonparametric location estimates should asymptotically change in the same direction.

**Data Availability.** Data for Table ?? are given in SI Dataset S1. All codes are attached.

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