

## UNIMODALITY OF UNIFORM GENERALIZED ORDER STATISTICS, WITH APPLICATIONS TO MEAN BOUNDS

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**Abstract.** We prove that uniform generalized order statistics are unimodal for an arbitrary choice of model parameters. The result is applied to establish optimal lower and upper bounds on the expectations of generalized order statistics based on nonnegative samples in the population mean unit of measurement. The bounds are attained by two-point distributions.

*Key words and phrases:* Generalized order statistics, uniform sample, nonnegative sample, unimodal distribution, expectation, optimal bound.