LOG-CONCAVITY OF STIRLING NUMBERS AND UNIMODALITY OF STIRLING DISTRIBUTIONS

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Abstract. A series of inequalities involving Stirling numbers of the first and second kinds with adjacent indices are obtained. Some of them show log-concavity of Stirling numbers in three different directions. The inequalities are used to prove unimodality or strong unimodality of all the subfamilies of Stirling probability functions. Some additional applications are also presented.

Key words and phrases: Inequalities, strong unimodality, total positivity 2, Stirling family of probability distributions.