

CHANCE-CONSTRAINED SELECTION OF THE BEST

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Selecting the solution with the largest or smallest mean of a primary performance measure from a finite set of solutions while requiring secondary performance measures to satisfy certain constraints is called constrained selection of the best (CSB). We consider CSB problems whose secondary performance measures are subject to probabilistic constraints. We design procedures that first check the feasibility of all solutions and then select the best among all of the sample feasible solutions; we prove the statistical validity of these procedures for variations of the problem; and we show via numerical results that they are efficient.