

# Optimal Selection Strategy for the Group Interview Problem

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## ABSTRACT

We propose a more generalized version of the secretary problem, called the group interview problem, in which each group contains several alternatives and each group of alternatives is presented and evaluated sequentially over time. Using the assumptions corresponding to the classical secretary problem, we derive an optimal selection strategy which maximizes the probability of winning or selecting the single best choice in a given sequence of groups. We further address the problem of choosing at the beginning of the evaluation process a sequence of groups to maximize the winning probability. Because of formidable computational requirements to obtain an optimal solution to this sequencing problem, we then develop a heuristic algorithm based on several properties inherent in an optimal selection strategy. The heuristic procedure is evaluated experimentally using Monte Carlo simulation and is shown to be effective in obtaining near-optimal (within 5 percent) solutions.

*Subject Areas: Decision Process, Heuristics, and Statistical Decision Theory.*

## INTRODUCTION

The secretary problem, which first appeared in Chow, Moriguti, Robbins, and Samuels [4], is the most common name for the sequential evaluation and selection problem in which one must make an irrevocable choice from a number of applicants whose values are revealed only sequentially. The simplest version of the classical secretary problem has the following characteristics [9]: (1) there is only one position available, (2) the number of applicants  $N$  is known, (3) the applicants are interviewed sequentially in random order, each order being equally likely, (4) the decision-maker (DM) can rank all the applicants from best to worst without ties, (5) the decision to reject or accept an applicant is based solely on the relative ranking of those applicants interviewed so far, (6) an applicant once rejected cannot be recalled, and (7) the DM is satisfied with nothing but the very best.

One of the most elegant solutions proposed for the above problem was given by Gilbert and Mosteller [11]. Their and other similar formulations, however, embody assumptions which under some circumstances are unrealistic and unlikely to be encountered in practice. Consequently, a number of variations on the classical secretary problem have been proposed to enhance the decision situations to which such models may be applied. One can note from the review paper by Freeman [10] how extensive and vast the literature on the secretary problem has become.