Theory and Methodology

Selecting the best choice in the full information group interview problem

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Abstract

We consider the problem of selecting the single best choice when several groups of choices are presented sequentially for evaluation. In the so-called group interview problem, we assume that the values of choices are random observations from a known distribution function and derive the optimal search strategy that maximizes the probability of selecting the best among all choices. Under the optimal search strategy derived by means of a dynamic programming technique, a decision maker simply selects the best choice in the group under consideration if its value is higher than the pre-specified decision value for that group. We also consider the optimal ordering strategy for the case where the decision maker is permitted to rearrange the sequence of groups for evaluation. We show that the optimal search and ordering strategies can be applied to many sequential decision problems such as the store location problem. © 1999 Elsevier Science B.V. All rights reserved.

1. Introduction

In many decision situations such as hiring a secretary, selling a house, or seeking a job, it can be construed that a decision maker (DM) receives a sequence of offers. Following an evaluation of each offer, the DM must decide whether to take the offer on hand or reject it and consider the next one. If the decision is irrevocable, the question is when to make the positive decision of accepting an offer. If the decision is made too early in the search process, the DM could have found better offers at a later stage. If made too late, however, the DM may have already passed over the best opportunities.

Such a sequential decision problem under certain assumptions is commonly referred to as the *secretary problem* (Freeman, 1983). In the classical secretary problem, an executive is faced with the problem of hiring a secretary from a known number of applicants. The executive can interview the applicants one at a time. After each interview,

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