

A MODIFIED LEAST-FAILURES SAMPLING PROCEDURE FOR BERNOULLI SUBSET SELECTION

Abstract

We restrict attention to a class of Bernoulli subset selection procedures which take observations one-at-a-time and can be compared directly to the Gupta-Sobel single-stage procedure. For the criterion of minimizing the expected total number of observations required to terminate experiments, we show that optimal sampling rules within this class are not of practical interest. We thus turn to procedures which, although not optimal, exhibit desirable behavior with regard to this criterion. A procedure which employs a modification of the so-called least failures sampling rule is proposed, and is shown to possess many desirable properties among a restricted class of Bernoulli subset selection procedures. Within this class, it is optimal for minimizing the number of observations required. In addition, it can result in substantial savings in the expected total number of observations required as compared to a single-stage procedure, thus it may be desirable to a practitioner if sampling is costly or the sample size is limited.

Full citation:

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