

CERTAIN SEQUENTIAL ADAPTIVE DESIGN PROBLEMS

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Abstract

Here we discuss three problems, namely (i) Robbins - Monro procedure, (ii) sequential estimation of the common mean of a set of normal populations and (iii) sequential estimation of the mean of response function using Spearman-Kärber estimator, the common thread among them being that they use adaptive sequential designs.

1. Introduction. In sequential analysis, especially in sequential estimation, it is natural to resort to adaptive designs. In the following we will discuss three such problems. An early adaptive sequential design was proposed by Robbins and Monro (1951). Since the problems are somewhat disjoint, in each problem, we briefly survey the literature and provide a summary as well.

2. The Robbins-Monro procedure. Given a random response $Y(x)$ at x having $EY(x) = M(x)$, we wish to estimate θ such that for specified α

(2.1)

$$M(\theta) = \alpha,$$

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