COMPARISONS OF SEQUENTIAL PROCEDURES FOR SELECTING THE BEST BINOMIAL POPULATION

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1. Introduction

Recently the problem of selecting the best one of several binomial populations has been studied from the point of view of different sampling rules. In this paper, we compare some sequential procedures with and without early elimination. The main breakdown is between those using the cyclic play the winner (PWC) sampling rule and those using the vector at a time (VT) sampling rule.

The PWC rule orders the k given populations at random at the outset and uses this ordering in a cyclic manner. After each success, we sample from the same population; after each failure, we switch to the next population in the ordering scheme. After the kth population, we complete the cycle by going back to the first population.

The VT rule consists of taking k tuple observations, one component from each population. In a variation of this, the cyclic (VTC) rule, we start as in the PWC rule by randomizing the order of the populations and then take one observation from each population using the fixed cyclic order; thus, we need not complete the last vector in the VTC rule.

Both of the above rules can be modified as follows. Let the order of the populations sampled be $\pi_1, \pi_2, \cdots, \pi_k$. From the beginning of sampling π_1 to the end of sampling π_k, we have gone through one complete sampling cycle. Our new modification is to reorder the k populations after each complete sampling cycle; this reordering *can* depend on the observed results. We denote such a modification of the PWC and VTC rules by PWO and VTO, respectively.

Several papers dealing with the PW and VT sampling rules [6], [9], [12], and [13] consider termination rules based on a fixed sample size or on inverse sampling, that is, we sample until at least one population reaches a fixed number of

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