Homework 4

The Paulson's procedure that we introduced in class assumes equal and known variance, but the KN procedure (Kim and Nelson 2001) allows unequal and unknown variances.

1. Please read Kim and Nelson (2001) and develop a Paulson's procedure that allows unequal and unknown variances.

2. Code both the KN and Paulson's procedures.

3. Consider a simple example with 10 alternatives. Alternative i is normally distributed with mean $\mu_i = i/10$ and variance $\sigma_i^2 = i$ for all $I = 1, \ldots, 10$. Use the procedures that you coded to solve the example with the indifference-zone parameter $\delta = 0.1$, $1 - \alpha = 0.95$, and independent observations from the alternatives (no common random numbers). Compare the observed probabilities of correct selection and the total sample sizes of the procedures based on 100 macro-replications.

Reference

Kim, S.-H. and B. L. Nelson. 2001. A fully sequential procedure for indifference-zone selection in simulation. *ACM Transactions on Modeling and Computer Simulation*, 11(3):251–273.