Application of generalized sequential probability ratio test to ranking evaluation

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Abstrct

To avoid destructive competition among students, Ministry of Education would like to transfer the grading system from continuity scoring system to ranking system, in which it uses only five different ratings to evaluate student's ability. Grade ranking evaluation can be viewed as a sequential multi-hypothesis test problem. In this paper, we apply generalized sequential probability ratio test (GSPRT) to solve the problem of grade ranking evaluation. We found that the correct decision rates of GSPRT is over 80% when using GSPRT to solve grading ranking evaluation problem. Moreover, we identity that using the idea of likelihood ratio to solve the problem, it usually fail to evaluate student's ability during the test period.

Keywords: generalized sequential probability ratio test, grade ranking evaluation, sequential multi-hypothesis test