COMPUTER IMPLEMENTATION OF MULTIPLE COMPARISONS WITH THE BEST AND SELECTION PROCEDURES

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RESEARCH SUMMARY

The lack of computer software for Ranking and Selection has often been cited as a reason for it not having caught on in practice (Hayes 1982). Actually, this lack of software was a manifestation of some deeper perceived difficulties with practical usage, we believe. It was perceived that Bechhofer's (1954) Indifference Zone selection type inference was unavailable for single-stage experiments. The Multiple Comparisons with the Best (MCB) result of Hsu (1981) showed that not only is it available for single-stage experiments, it can be given simultaneously with Gupta's (1965) Subset Selection inference without decreasing the minimum confidence level of either. It has also been perceived that the unequal sample size case requires more complex methodologies than the equal sample size case. It is pointed out in Hsu (1983) that, so long as the analysis is performed on the computer, there needs to be no difference in methodology between the two cases. Based on these recent developments, a computer package has been written for Multiple Comparisons with the Best. Given the data (equal sample size or not) and the desired confidence level \( \alpha \), the first page output includes Subset Selection inference and Indifference Zone selection inference (extended to single-stage experiments), while the second page output gives the confidence intervals inference of Hsu (1981, 1982). All the inferences are guaranteed to be correct simultaneously with a probability of at least \( \alpha \). The result of analysis of some water filter data using an earlier version of the package has been reported in Lorenz, Hsu, and Tuovinen (1982).

REFERENCES


Hsu JC (1982), Two-sided simultaneous confidence intervals for multiple comparisons with the best treatments, Technical Report No. 274, Department of Statistics, The Ohio State University, Columbus, Ohio.

Hsu JC (1983), Ranking and selection and multiple comparisons with the best, Technical Report No. 286, Department of Statistics, The Ohio State University, Columbus, Ohio.


ACKNOWLEDGEMENT

This research is supported in part by Grant No. 1 RO1 GM 31287-01, awarded by the National Institute of General Medical Sciences.