ON BAYES TESTS FOR $p \leq 1/2$ VERSUS $p > 1/2$: ANALYTIC APPROXIMATIONS*

Gordon Simons

and

Xizhi Wu

University of North Carolina at Chapel Hill

1. Preface.

Few if any obtain a measure of success in their chosen profession without the beneficient influence of others. The first author is no exception. His interest in optimal stopping problems was ignited as a student in 1965 when Professor Robbins was visiting the University of Minnesota. Perhaps a fitting way of expressing appreciation would be to use this occasion to introduce the second author, Xizhi Wu, a member of a new generation of students whose interest in optimal stopping has been kindled by those who have "made straight the way" - and in particular by the one we seek here to honor.

The present subject is not new. Much of the topic has already been resolved by Wetherill (1961), Moriguti and Robbins (1962), and Lindley and Barnett (1965). What is new is an attempt to approximate the optimal stopping rule analytically. There are several reasons why one should want such an approximation: 1. The exact rule cannot be obtained explicitly. In the present context, the required backward induction is not difficult, and it can

* The authors' work is supported by the National Science Foundation, Grant DMS-8400602.

AMS 1980 subject classifications: Primary 62L15; Secondary 62F03, 62C10.

Key words and phrases: backward induction, optimal stopping.