SEQUENTIAL ANALYSIS AND THE LAW OF THE ITERATED LOGARITHM*

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Some recent developments in sequential statistics
are reviewed which are connected with the law of the
iterated logarithm. On the one hand optimal properties
of sequential tests with parabolic boundaries are
discussed, on the other hand approximations to curved
boundary crossing distributions of Brownian motion. The
connection of both topics is also indicated.

1. Introduction.

H. Robbins was one of the first who noted that the law of the iterated

logarithm (LIL) has some statistical meaning. In his 1952 paper he observed

that the repeated significance test (RST) gives false alarm eventually with

probability one. He further asked for the operating characteristics of the RST

if it is truncated.

Later Robbins found a way to correct the misbehavior of the RST. He

discovered the positive side of the LIL. His idea was that, to control the

error probabilities over all sample sizes, one has just to make the boundaries a

little bit wider than $\sqrt{n}$. However this meant the construction of tests of power

one (cf. Robbins, (1970)).

Together with Darling and Siegmund, Robbins studied the error

probabilities and expected sample sizes of these tests. His students