Integrating by parts, we find that $S_n = \frac{1}{2}\int_0^1 R_n(t)\, dt$. By the result proved in Section 2 this last expression converges stochastically to

$$\frac{1}{2}\int_0^1 \left[1 - \int_A^B f(x)\, e^{-tf(x)}\, dx\right] dt = \frac{1}{2}\left[1 + \int_A^B e^{-f(x)}\, dx - (B - A)\right].$$

Therefore Ω_n converges stochastically to $\frac{1}{2}(1 + A - B) + \int_A^B e^{-f(x)}\, dx$. For the special case $A = 0$ and $B = 1$, this is essentially the result contained in theorems 3 and 4 of [1].

REFERENCE

[1] B. Sherman, "A random variable related to the spacing of sample values," *Ann. Math. Stat.*, Vol. 21 (1950), pp. 339–361.

Note added in proof. Professor Julius Blum has pointed out that Lemma 2 holds with the words "converges stochastically" replaced by "converges with probability one." Then it is easily seen that all the results above hold when this replacement is made.

ABSTRACTS OF PAPERS

(*Abstracts of papers presented at the Chapel Hill meeting of the Institute, April 22–23, 1955*)

1. Estimation of Location and Scale Parameters by Order Statistics from Singly and Doubly Censored Samples. Part I. The Normal Distribution up to Samples of Size 10. A. E. Sarhan and B. G. Greenberg, University of North Carolina.

The variances and covariances of the order statistics for samples of sizes $\leqq 20$ from a normal distribution were calculated to 10 decimal places from Teichroew's tables of the expected value of the product of two order statistics. By the use of these values, and with the table of expected values of Rosser, the best linear estimates of the mean and standard deviation were calculated from singly and doubly censored samples up to samples of size 10. This was accomplished by applying the method of least squares to the linear combination of the ordered known observations to obtain unbiased estimates with minimum variance. The variances of the estimates were also calculated. An alternative linear estimate was derived for larger values of n which can be used to obtain estimates from doubly censored samples.

2. An Application of Chung's Lemma to the Kiefer-Wolfowitz Stochastic Approximation Procedure. Cyrus Derman, Syracuse University.

Let $M(x)$ be a strictly increasing regression function for $x < \theta$, and strictly decreasing regression function for $x > \theta$. Kiefer and Wolfowitz (Ann. Math. Stat., Vol. 23 (1952), pp. 462–466) suggested a recursive scheme for estimating θ. They proved, under certain regularity conditions, that their scheme converges stochastically to θ. Their conditions