A NOTE ON LOGARITHMIC SUMMABILITY (L): CORRIGENDUM

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I am indebted to Dr. B. Kuttner for having kindly drawn my attention to certain corrections necessary in my paper with the above title, appearing in these Proceedings, Vol. 15 (Series II), Part 1, June 1966, pages 47-55.

The major corrections are as follows. On pages 48-9, Lemma 1 should appear *without* the factor $\log(1-z)^{-1}$ of the denominator in the integrand at the end of the lemma; the formula in the proof of Lemma 1 is incorrect, its correct form being

$$\int_{|z|=1-n^{-1}} \frac{\sum_{m=0}^{\infty}\left(\sum_{\nu=0}^{m}\frac{s_\nu - S}{\nu+1}\right)z^{m+1}}{z^{n+1}}\,dz = 2\pi i \sum_{\nu=0}^{n-1}\frac{s_\nu - S}{\nu+1}.$$

Further consequential changes, which do not substantially affect the text elsewhere, are noted below.

(1) On page 51, statement of Theorem 1, delete $\log(1-z)^{-1}$ from the second $\{\ldots\}$ in the integrand of (14).

(2) On page 53, replace the statement of Theorem 2 by the following, and on page 55, omit Corollary:

Suppose that s_n $(n = 0, 1, 2, \ldots)$ *is such that*

$$\text{(i)}\quad s_n = o(n \log n),\ n \to \infty$$

and therefore $F(z) = \sum_0^{\infty} \frac{s_n}{n+1} z^{n+1}$ *has circle of convergence* $|z| = 1$. *Suppose also that*

(ii) $F(z) - S \log(1-z)^{-1} \to 0$ *uniformly as* $z \to 1$ *subject to the condition* $|z| < 1$.
Then $s_n \to S$ (l).

Other corrections of less importance, which also I owe to Dr. Kuttner, are the following.

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On page 49, replace definitions (6) and (7) of Lemma 3 by the following

$$F_1(z, n) = \sum_{\nu \geq 0, \nu \neq n-1} \frac{s_\nu}{(\nu+1)(\nu-n+1)} z^{\nu-n+1} + \frac{s_{n-1}}{n} \log z; \tag{6}$$

$$\left.\begin{aligned} F_2(z, n) = \sum_{\substack{\nu \geq 0, \nu \neq n-1, \\ \nu \neq n-2}} \frac{s_\nu}{(\nu+1)(\nu-n+1)(\nu-n+2)} z^{\nu-n+2} \\ - \frac{s_{n-2}}{n-1} \log z + \frac{s_{n-1}}{n} (z \log z - 1) \end{aligned}\right\}. \tag{7}$$

The reason for these replacements is that the integrand in (6) as originally stated involves n, and hence $F_1(z)$, $F_2(z)$ as originally defined are in general functions of n. As a result, the constant k on page 50, line 9, for instance, is generally a function of n; and whether or not the conclusion (8) of Lemma 3 holds will depen on how this constant is chosen. Such difficulties arising out of the original definitions of $F_1(z)$ and $F_2(z)$ disappear, and the conclusion of Lemma 3 evidently continues to hold, if $F_1(z) = F_1(z, n)$ and $F_2(z) = F_2(z, n)$ are defined by (6), (7). Since $F_1(z)$ is *an* indefinite integral of $F(z)/z^{n+1}$, and $F_2(z, n)$ of $F_1(z, n)$, it is still possible to carry out (as required in the proof of Theorem 1) the integration by parts on the left side of (21) on page 53, as indicated in line 6 of page 53.

Two minor misprints require the deletion of c_0 in the following two terms appearing in (16) of page 52:

$$(c_0 + c_1)z^2, \quad (c_0 + c_1)\frac{s_{n-3}}{n-2}.$$

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