Corrigendum to

"Bounded Index and Summability Methods" *by* S. SRIDHAR

Indian J. pure appl. Math., Vol. 10(2) : 161-65, February 1979

Theorems I, II, III, and IV are not as such true unless additional assumptions are made on the sequence $\{z_n\}_1^\infty$. The proof of Theorem I as given is erroneous. Theorem V is true as it stands. For Theorems I, II, III and IV, read Theorems I′, II′, III′ and IV′. Note that Theorem V is the same as Theorem I′.

Theorem I′ — If $f(z)$ is an entire function of bounded index, then for any sequence $\{z_n\}_1^\infty$, $A(f, z_n) = (a_{nk})$ is a c_0-Γ method, if and only if,

$$\left(\frac{|f^{(k)}(z_n)|}{k!}\right)^{1/n} \to 0, \text{ as } n \to \infty, (k = 1, 2, \ldots). \qquad \ldots(1')$$

PROOF : Let $A(f, z_n) = (a_{nk})$ be a c_0-Γ method. Then by Theorem 1, given $\epsilon > 0$, there exists n_0 such that

$$\left(\sum_{k=1}^{\infty} |a_{nk}|\right)^{1/n} < \epsilon, \ \forall\ n \geqslant n_0, k = 1, 2, \ldots. \qquad \ldots(2')$$

But we have $|a_{nk}| = \dfrac{|f^{(k)}(z_n)|}{k!}$. Hence we have (1′).

Conversely, let $\{z_n\}_1^\infty$ be a sequence satisfying (1′). Since $f(z)$ is of bounded index, $f(3z)$ is also of bounded index (see Fricke 1972). Let N be the index of $f(3z)$.

Hence, $$\max_{0\leqslant j\leqslant N}\left\{\frac{|f^{(j)}(z)|}{j!}\right\} \geqslant 3^{k-N}\cdot\frac{|f^{(k)}(z)|}{k!} \quad \forall\ z \text{ and } \forall\ k.$$

$$\left(\sum_{k=1}^{\infty} |a_{nk}|\right)^{1/n} = \left(\sum_{k=1}^{\infty} \frac{|f^{(k)}(z_n)|}{k!}\right)^{1/n}$$

$$\leqslant \left[\sum_{k=1}^{\infty} 3^{N-k} \max_{0\leqslant j\leqslant N}\left\{\frac{|f^{(j)}(z_n)|}{j!}\right\}\right]^{1/n}$$

$$\leqslant \left[\frac{3^{N+1}}{2} \max_{0\leqslant j\leqslant N}\left\{\frac{|f^{(j)}(z_n)|}{j!}\right\}\right]^{1/n}$$

$$\to 0, \text{ by } (1').$$

Hence $A(f, z_n) \doteq (a_{nk})$ is a c_0-Γ method. ∎

Theorem II′ — For c-Γ method also, Theorem I' holds.

Theorem III′ — If $f(z)$ is an entire function of bounded index, then for any sequence $\{z_n\}_1^\infty$, $A(f, z_n) = (a_{nk})$ is a c_0-χ method, if and only if,

$$(\mid f^{(k)}(z_n) \mid)^{1/n} \to 0, \text{ as } n \to \infty, \ \forall\ k = 1, 2, \ldots.$$

Theorem IV′ — If $f(z)$ is an entire function of bounded index then for any sequence $\{z_n\}_1^\infty$, $A(f, z_n) = (a_{nk})$ is a c-Γ^* method, if and only if, $\left\{ \frac{\mid f^{(k)}(z_n) \mid}{k!} \right\}^{1/n}$ is bounded for all n.

Omit lines 8, 9 on page 164. On p. 165, line 5, please read (4) instead of Theorem 3.