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Erratum

Erratum to "Compact Operators for Almost Conservative and Strongly Conservative Matrices"

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We redefine the space f and state the results of [1] in this light.

Let $\mathscr{B}$ be a semigroup of positive regular matrices $B = (b_{nk})$.

A bounded sequence $x = (x_k)$ is said to be *$\mathscr{B}$-almost convergent* to the value l if and only if $t_{pn}(x) \to l$, as $p \to \infty$ uniformly in n, where

$$t_{pn}(x) = \frac{1}{p+1}\sum_{m=0}^{p} B_{m+n}(x); \quad (p, n \in \mathbb{N}), \tag{1}$$

and $B_n(x) = \sum_{k=1}^{\infty} b_{nk}x_k$ which is B-transform of a sequence x (see Mursaleen [2]). The number l is called the generalized limit of x, and we write $l = f - \lim x$. We write

$$f = \left\{x \in \ell_\infty : \lim_{p\to\infty} t_{pn}(x) = L \text{ uniformly in } n\right\}. \tag{2}$$

Using the idea of $\mathscr{B}$-almost convergence, we define the following.

An infinite matrix $A = (a_{nk})_{n,k=1}^{\infty}$ is said to be *$\mathscr{B}$-almost conservative* if $Ax \in f$ for all $x \in c$, and we denote it by $A \in (c, f)$. An infinite matrix $A = (a_{nk})_{n,k=1}^{\infty}$ is said to be *$\mathscr{B}$-strongly conservative* if $Ax \in c$ for all $x \in f$, and we denote it by $A \in (f, c)$.

Now, we restate Theorem 11 and Theorem 15 of [1] as follows, respectively.

Theorem 11. *Let $A = (a_{nk})$ be a $\mathscr{B}$-almost conservative matrix. Then, one has*

$$\begin{gathered} 0 \le \left\|L_A\right\|_\chi \le \limsup_{n\to\infty}\left(\sum_{k=1}^{\infty}\left|\tilde{a}_{nk}\right|\right), \\ L_A \text{ is compact if } \lim_{n\to\infty}\left(\sum_{k=1}^{\infty}\left|\tilde{a}_{nk}\right|\right) = 0, \end{gathered} \tag{3}$$

where $\tilde{a}_{nk} = \sum_{j=1}^{\infty} a_{nj}b_{jk}$.

Proof. It follows on the same lines as of Theorem 11 [1] by only replacing a_{nk} by $\tilde{a}_{nk}$. □

Theorem 15. *Let B be a normal positive regular matrix. Let $A = (a_{nk})$ be an infinite matrix. Then, one has the following.*

(i) *If $A \in (f, c_0)$, then*

$$\left\|L_A\right\|_\chi = \limsup_{n\to\infty}\left(\sum_{k=1}^{\infty}\left|\hat{a}_{nk}\right|\right). \tag{4}$$

(ii) *If $A \in (f, c)$, then*

$$\begin{aligned} &\frac{1}{2}\cdot\limsup_{n\to\infty}\left(\sum_{k=1}^{\infty}\left|\hat{a}_{nk}-\alpha_k\right|\right) \\ &\quad\le \left\|L_A\right\|_\chi \le \limsup_{n\to\infty}\left(\sum_{k=1}^{\infty}\left|\hat{a}_{nk}-\alpha_k\right|\right), \end{aligned} \tag{5}$$

where $\alpha_k = \lim_{n\to\infty}\hat{a}_{nk}$ for all $k \in \mathbb{N}$.