1067-40-1448     **Jeff Connor\*** (`connorj@ohio.edu`), Department of Mathematics, Ohio University, Athens, OH 45701, and **Hafize Gok**. *Results on asymptotically regular matrix methods.* Preliminary report.

Two sequences $x$ and $y$ are defined to be asymptotically equivalent if the $\lim_k (x_k/y_k) = 1$ and a summability matrix is defined to be *asymptotically regular* if it maps nonnegative asymptotically equivalent sequences to asymptotically equivalent sequences. Pobyvanets(1980) introduced asymptotically equivalent matrices and characterized nonnegative asymptotically regular matrices. More recently Marouf(1993) and Li(1997) have explored variations of the definition of asymptotically equivalent sequences and studied nonnegative matrices which preserve these variations. Given an ideal $I$ of subsets of $\mathbb{N}$ that contains finite subsets, a sequence is said to be $I$-convergent to $l$ provided $\{k : |x_k - l| \geq \varepsilon\} \in I$ for all $\varepsilon > 0$, and two nonnegative sequences $x$ and $y$ are said to be $I-$asymptotically equivalent provided $x_n/y_n$ is $I$-convergent to 1. In this note, given ideals $I$ and $J$, we characterize nonnegative matrices which map $I$-asymptotically equivalent sequences to $J$-asymptotically equivalent sequences and establish results analogous to those of Marouf and Li. The constraint that the summability matrix be nonnegative is also discussed. (Received September 21, 2010)

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