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ON ASYMPTOTICALLY EQUIVALENCE OF ORDER α FOR SEQUENCE OF SETS USING σ

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ABSTRACT. This paper presents the following definitons which is a natural combination of the definition for asymptotically equivalent, λ -statistical convergence and σ -convergence. Two set sequences $\{A_k\}$ and $\{B_k\}$ are said to be $S^{\alpha}_{\sigma,\lambda}$ -asymptotically equivalent (Wijsman sense) of multiple L if for each $\varepsilon > 0$, for each $x \in X$,

$$\lim_{n\to\infty}\frac{1}{\lambda_{n}^{\alpha}}\left|\left\{k\in I_{n}:\left|d\left(x;A_{\sigma^{k}\left(m\right)},B_{\sigma^{k}\left(m\right)}\right)-L\right|\geq\varepsilon\right\}\right|=0,$$

uniformly in m=1,2,3,..., (denoted by $\{A_{\sigma^k(m)}\}$ $\overset{S^\alpha_{\sigma,\lambda}}{\sim}$ $\{B_{\sigma^k(m)}\}$). Also, we introduce the concept of $S^\alpha_{\sigma,\theta}$ -asymptotically equivalent (Wijsman sense) of multiple L for the set sequences $\{A_k\}$ and $\{B_k\}$ and give some inclusion relations. Using the definition of $S^\alpha_{\sigma,\theta}$ -asymptotically equivalence, we shall prove $S^\alpha_{\sigma,\theta}$ -asymptotically equivalent analogues of Fridy and Orhan's theorems in [11] and analogues results of Das and Patel in [8] shall also be presented.

1. Introduction

Fast [9] presented an interesting generalization of the usual sequential limit which he called statistical convergence for number sequences.

Mursaleen [29] defined λ -statistical convergence by using the λ sequence. He denoted this new method by S_{λ} and found its relation to statistical convergence, [C, 1]-summability and [V, λ]-summability. The concept of lacunary statistical convergence was defined by Fridy and Orhan [11]. By using uniform invariant density, invariant statistical convergence and σ -statistically convergence and lacunary σ -statistically convergence were given in [16].

Asymptotic equivalence of sequences was introduced by Pobyvanets [19]; Marouf's work [14] was extension of Pobyvanets's work. In, 2003, Patterson [17] extended these concepts by presenting an asymptotically statistical equivalent analog of these definitions and natural regularity conditions for nonnegative summability matrices.

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