

## A variation on lacunary statistical quasi-Cauchy sequences

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**Abstract:** We introduce a concept of ideal lacunary statistical quasi-Cauchyness of order  $\alpha$  of a sequence of real numbers in the sense that a sequence  $(x_k)$  of points in  $\mathbf{R}$  is called  $I$ -lacunary statistically quasi-Cauchy of order  $\alpha$ , if  $\{r \in \mathbf{N} : \frac{1}{h_r^\alpha} |\{k \in I_r : |\Delta x_k| \geq \varepsilon\}| \geq \delta\} \in I$  for each  $\varepsilon > 0$  and for each  $\delta > 0$ , where an ideal  $I$  is a family of subsets of positive integers  $\mathbf{N}$  which is closed under taking finite unions and subsets of its elements. The main purpose of this paper is to investigate ideal lacunary statistical ward continuity of order  $\alpha$ , where a function  $f$  is called  $I$ -lacunary statistically ward continuous of order  $\alpha$  if it preserves  $I$ -lacunary statistically quasi-Cauchy sequences of order  $\alpha$ , i.e.  $(f(x_n))$  is a  $S_\theta^\alpha(I)$ -quasi-Cauchy sequence whenever  $(x_n)$  is.

**Keywords:** sequences, series, ideal convergence, continuity

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