

# IDEAL CONVERGENCE VERSUS MATRIX SUMMABILITY

RAFAL FILIPÓW

Ideal convergence and matrix summability are examples of extensions of the ordinary convergence of sequences of reals to a larger class of sequences (i.e. ordinary convergent sequences remain convergent to the same limits and there are ordinary divergent sequences that are convergent in these new methods).

An example of ideal convergence is asymptotic convergence (also known as statistical convergence) and an example of matrix summability is convergence of means (a.k.a. Cesàro summability). It is easy to show that these two examples of convergence methods are not comparable (i.e. there are asymptotically convergent sequences that are not Cesàro convergent and vice versa). However if we consider only bounded sequences it is not difficult to see that statistically convergent sequences are Cesàro convergent (to the same limits). On the other hand, Cesàro convergence is strictly stronger in this case (i.e. there are bounded sequences that are Cesàro convergent and are not asymptotically convergent).

I'm going to present some results on characterizations of ideal convergence with the aid of matrix summability. In the case of statistical convergence the question about a characterization by matrix convergence was posed in 1935 by S. Mazura in "*The Scottish Book*" (Question 5) and the answer was given by M. K. Khana and C. Orhana in 2007.

My talk is based on the paper "*Ideal convergence versus matrix summability*" written jointly with Jacek Tryba.

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