

EGOPROX SEQUENCES

Why

We talk about sequences in a metric space which are "bunching up."

Definition

A sequence in a metric space is *egoprox* (or *Cauchy*) if for every positive real number, there exists a final part of the sequence so that any two terms are less than the positive number apart.¹

Notation

Let (X,d) be a metric space. Then $(x_n)_{n\in\mathbb{N}}$ a sequence in X is egoprox if, for every $\varepsilon > 0$, there exists $N \in \mathbb{N}$ so that, for all $m, n \geq N$

$$d(x_n, x_m) < \varepsilon.$$

¹The term Cauchy is universal, but in accordance with the Bourbaki project's guidelines on naming, we will tend to use the term egoprox.

