



**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.<sup>1</sup>

**Notation**

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

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

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



