



# Metric Convergence

## 1 Why

Once we have a notion of distance, we can define a more general notion of convergence.

## 2 Definition

A sequence of elements of a metric space *converges* to an fixed element of the space if the sequence of distances between the elements of the fixed element converges to zero.

### 2.1 Notation

Let  $(A, d)$  be a metric space. Let  $(a_n)_n$  be a sequence in  $A$  Then  $\{a\}$  converges to  $a_0$  if  $d(a_n, a) \rightarrow 0$ .