

Let \mathbb{R}^∞ be the subset of \mathbb{R}^ω consisting of all sequences that are "eventually zero" that is, all sequences (x_1, x_2, \dots) s.t. $x_i \neq 0$ for only finitely many values of i . What is the closure of \mathbb{R}^∞ in \mathbb{R}^ω in box and product topologies? Justify your answer.

product $\sim \overset{\mathbb{R}^\omega}{(0, 0, \dots)} \xrightarrow{\xi}$

we let $U_i = \mathbb{R}$ when $x_i \neq 0$

box topology: \mathbb{R}^ω ~~we need every~~
~~open set~~ $(0, 0, \dots)$