Exercises

E8.35 [OHS] Topics:directed ordering.Prerequisites:[06N].

Let $(J, \leq)$ be a set with direct ordering. We decide that an "open set" in J is a set A that contains a "half-line" of the form $\{k \in J : k \geq j\}$ (for a $j \in J$) [a]. Let therefore τ be the family of all such open sets, to which we add $\varnothing, J$. Show that τ is a topology. Is this topology Hausdorff? What are the accumulation points?

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[a] We could call such a A a *neighborhood of infinity*, as was already done in Sec. [29H].