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On the Lindelöf property of spaces of continuous functions over a Tychonoff space and its subspaces

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Abstract: We study relations between the Lindelöf property in the spaces of continuous functions with the topology of pointwise convergence over a Tychonoff space and over its subspaces. We prove, in particular, the following: a) if $C_p(X)$ is Lindelöf, $Y = X \cup \{p\}$, and the point p has countable character in Y, then $C_p(Y)$ is Lindelöf; b) if Y is a cozero subspace of a Tychonoff space X, then $l(C_p(Y)^\omega) \leq l(C_p(X)^\omega)$ and $\mathrm{ext}(C_p(Y)^\omega) \leq \mathrm{ext}(C_p(X)^\omega)$.

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