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On the density of λ-box products. (In English)

General Topol. Appl. 9, 307-312 (1978).

If X is a topological space with density $d(X) \geq 2$, then $\mathrm{cf}(d((X^{\varkappa})_{(\lambda)})) \geq \mathrm{cf}\lambda$, where $(X^{\varkappa})_{(\lambda)}$ is the λ-box product of $\varkappa$ copies of X. We use this observation to get lower bounds for the function $\delta(\varkappa, \lambda) = d((D(2)^{\varkappa})_{(\lambda)})$, where $D(2)$ is the discrete space $\{0, 1\}$. It turns out that $\delta(\varkappa, \lambda)$ is usually (if not always) equal to the well-known upper bound $(\log \varkappa)^{<\lambda}$. We also answer a question of *W.W.Comfort* and *S.Negrepontis* [The theory of ultrafilters (1974; Zbl 298.02004) Sect. 3, p. 79] about necessary and sufficient conditions for $\delta(\varkappa^{+}, \lambda) \leq \varkappa$.

Classification:
54A25 Cardinality properties of topological spaces
54B10 Product spaces (general topology)

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