Approximate limits of m-compact spaces

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Abstract: The conception of set convergence is used to study properties of approximate systems of m-compact spaces and their limits in the sence of S. Mardešić [6]. The main results of this paper are the following. (a) Let $\mathbf{X} = \{\mathbf{X_a}, \mathbf{p_{ab}}, \mathbf{A}\}$ be an approximate inverse system of non-empty initially $|A|$-compact Tychonoff spaces. If $\prod X_a$ is initially $|A|$-compact, then $X = \lim \mathbf{X}$ is a non-empty initially $|A|$-compact Tychnoff space. If all spaces X_a are normal and if $p_a : \lim \mathbf{X} \to \mathbf{X_a}$ are the projections, then the approximate map $\mathbf{p} = \{p_a : \lim \mathbf{X} \to \mathbf{X_a}, \mathbf{a} \in \mathbf{A}\}$ is an approximate resolution. (Theorems 2.4. and 2.20.). (b) Let $\mathbf{X} = \{\mathbf{X_a}, \mathbf{p_{ab}}, \mathbf{A}\}$ be an approximate inverse system of Tychonoff spaces of character $\leq |A|$ (of the covering weight $cw(X_a) \leq |A|$). Let $\mathbf{r} = \{r_a : X \to X_a, a \in A\}$ be an approximate resolution of $|A|$-compact Tychonoff space X. Then $\mathbf{r}$ is a limit of $\mathbf{X}$ (Theorem 2.24.).