



Definition

Given a family of topological spaces $\mathcal{F} = \{(X_\alpha, \mathcal{T}_\alpha)\}_{\alpha \in I}$, the *product topology* of \mathcal{F} is the topology on $\prod_{\alpha \in I} X_\alpha$ generated by the set

$$\left\{ p_\beta^{-1}(U_\beta) \mid (\exists \beta)(U_\beta \in \mathcal{T}_\beta) \right\}$$

where $p_\beta : \prod_{\alpha \in I} X_\alpha \rightarrow X_\beta$ is the β coordinate projection. Some authorities also use the terminology *Tychonoff topology*.

