Definition 8.40. [0J3] *A subset $K \subseteq X$ is* compact [a] *if, from every family of open sets $(A_i)_{i\in I}$ whose union $\bigcup_{i\in I} A_i$ covers K, we can choose a finite number $J \subset I$ of open set whose union $\bigcup_{i\in J} A_i$ covers K.*

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[a] The definition shows that the empty set is compact. Some texts however explicitly exclude this case.