An indexed family $\{A_\alpha\}$ of subsets of $X$ is said to be a point-finite-indexed family if each $x \in X$ belongs to $A_\alpha$ for only finitely many values of $\alpha$.

Shrinking Lemma: Let $X$ be a normal space. Let $\{U_1, U_2, \ldots\}$ be a point finite indexed open covering of $X$. Then $\exists$ indexed open covering $\{V_1, V_2, \ldots\}$ of $X$ s.t $\bar{V}_n \subset U_n$ for all