PROPERTIES AND APPLICATIONS FOR (P or Q) FOR TOPOLOGICAL PROPERTIES P and Q

Charles Dorsett

Abstract

Given two topological properties P and Q, the conjunctions "and" and "or" can be used to obtain the topological properties $(P$ and $Q)$ and $(P$ or $Q)$. In classical topology the topological properties $(P$ and $Q)$ and $(P$ or $Q)$ received little attention, leaving the opportunity for further investigation of the two properties. Within a recent paper, it was established that if P and Q are subspace properties, then $(P$ and $Q)$ is a subspace property, raising a similar question for $(P$ or $Q)$. In classical topology, the topological properties T_1 and T_0 are well-studied and it is known that T_1 is stronger than T_0, but no topological properties between T_1 and T_0 are given, raising the question of whether there are topological properties between T_1 and T_0. Within this paper, recently discovered topological properties and tools are used to investigate $(P$ or $Q)$, giving some surprising properties with enlightening applications used to address the questions above and others.