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Introduction

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Definition 1: [set]/ family_of_subsets

A family of subsets is a collection $\Omega \subseteq \mathcal{P}(X)$ of subsets of a set X.

Definition 2: [family_of_subsets]/ topology

A topology is topology is a family τ of subsets of X with:

1. $\emptyset, X \in \tau$

2. τ is closed under arbitrary unions

3. τ is closed under finite intersections

Definition 3: [topology]/ alexandroff_topology

An Alexandroff topology, also sometimes called a complete sublattice is a topology that is closed under arbitrary intersections.