

1. $\mathcal{H} = \{H_1, H_2, \dots, H_n\}$ is a family of subsets of X .
 2. \mathcal{H} is closed under finite intersections.
 3. \mathcal{H} is closed under finite unions.
 4. \mathcal{H} is closed under finite intersections.
 5. \mathcal{H} is closed under finite unions.

Let \mathcal{H} be a family of subsets of X . Define \mathcal{H}^* to be the family of all subsets of X which can be written as a finite intersection of members of \mathcal{H} . Then \mathcal{H}^* is a family of subsets of X which is closed under finite intersections and finite unions.

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