

### **Theorem 3.19** (Variation of the Inclusion-Exclusion Formula)

$$\mu \left( \bigcap_{k=1}^m A_k - B \right) = \sum_{1 \leq i \leq m} \mu(A_i - B) - \sum_{1 \leq i < j \leq m} \mu(A_i \cup A_j - B) + \cdots + (-1)^{m+1} \mu(A_1 \cup A_2 \cup \cdots \cup A_m - B).$$