

$$I = (S_1 \cap S_2 \cap S_3)$$

$$S_1 \cup S_2 \cup S_3 = (S_1 \Delta S_2 \Delta S_3)$$

$$\cup I$$

$$\cup ((S_1 \cap S_2) \setminus I)$$

$$\cup ((S_2 \cap S_3) \setminus I)$$

$$\cup ((S_3 \cap S_1) \setminus I)$$

