Math 733 - Fall 2020

Homework 1

Due: 09/13, 10pm

Zijie Zhang

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1. *Proof.* We noticed that $A \circ B = (A \cup B) \setminus (A \cap B)$. So it gives

$$B \circ C \cup A \circ C = (A \cup B \cup C) \setminus (A \cap B \cap C)$$

this means

$$B \circ C \cup A \circ C \supset A \circ B$$

thus

$$\mathbf{P}(B \circ C \cup A \circ C) \geqslant \mathbf{P}(A \circ B)$$

we know

$$\mathbf{P}(B \circ C) + \mathbf{P}(A \circ C) \geqslant \mathbf{P}(B \circ C \cup A \circ C)$$

so, we proved

$$\mathbf{P}(A \circ B) \leqslant \mathbf{P}(B \circ C) + \mathbf{P}(A \circ C)$$

□

2. *Proof.* □