b) Probar $A \cap B \cap C = \emptyset \Rightarrow (A \setminus B) \cup (B \setminus C) \cup (C \setminus A) = A \cup B \cup C$

Por exploración: $A \cap B \cap C = \emptyset \to V$

PDQ: $(A \setminus B) \cup (B \setminus C) \cup (C \setminus A) = A \cup B \cup C$

$(A \cap B^c) \cup (B \cap C^c) \cup (C \cap A^c)$

$[(A \cup B) \cap (A \cup C^c) \cap (B^c \cup B) \cap (B^c \cup C^c)] \cup (C \cap A^c)$

$[(A \cup B) \cap (A \cup C^c) \cap U \cap (B^c \cup C^c)] \cup (C \cap A^c)$

$[(A \cup B) \cap (A \cup C^c) \cap (B^c \cup C^c)] \cup (C \cap A^c)$

$[(A \cup B) \cup (C \cap A^c)] \cap [(A \cup C^c) \cup (C \cap A^c)] \cap [(B^c \cup C^c) \cup (C \cap A^c)]$

$[B \cup [(A \cup C) \cap (A \cup A^c)]] \cap [A \cup ((C^c \cup C) \cap (C^c \cup A^c))] \cap [B^c \cup ((C^c \cup C) \cap (C^c \cup A^c))]$

$(B \cup [(A \cup C) \cap U]) \cap (A \cup [U \cap (C^c \cup A^c)]) \cap (B^c \cup [U \cap (C^c \cup A^c)])$

$(B \cup A \cup C) \cap (A \cup (C^c \cup A^c)) \cap (B^c \cup C^c \cup A^c)$

$(B \cup A \cup C) \cap U \cap (B \cap C \cap A)^c$

$(A \cup B \cup C) \cap (A \cap B \cap C)^c$ / Asumimos que $A \cap B \cap C = \emptyset \Rightarrow (A \cap B \cap C)^c = U$

$(A \cup B \cup C) \cap U$

$A \cup B \cup C$ ✓

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