দ্যা মরগ্যানের সূত্র (De Morgan's Law):

$$(A \cup B)' = A' \cap B'$$

$$(A \cap B)' = A' \cup B'$$

ধরি, $x \in (A \cup B)'$

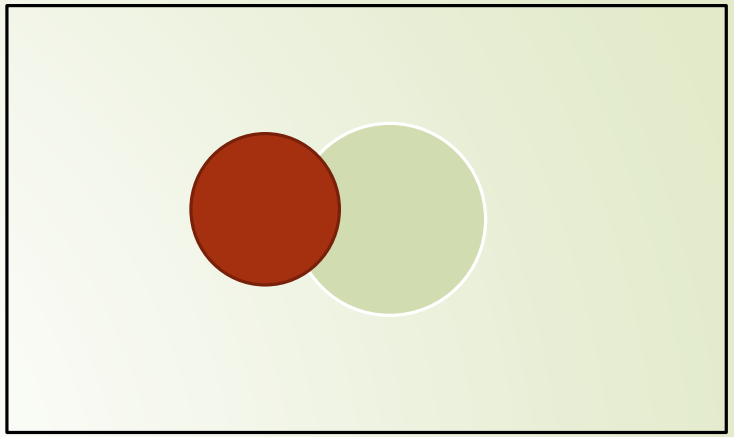
$\Rightarrow x \notin (A \cup B)$

$\Rightarrow x \notin A$ এবং $x \notin B$

$\Rightarrow x \in A'$ এবং $x \in B'$

$\Rightarrow x \in (A' \cap B')$

$\therefore \quad (A \cup B)' \subseteq (A' \cap B') \quad$ .....(i)



আবার ধরি, $x \in (A' \cap B')$

$\Rightarrow x \in A'$ এবং $x \in B'$

$\Rightarrow x \notin A$ এবং $x \notin B$

$\Rightarrow x \notin (A \cup B)$

$\Rightarrow x \in (A \cup B)'$

$(A' \cap B') \subseteq (A \cup B)' \quad$ .....(ii)

(i) ও (ii) হতে পাই,

$\therefore \quad (A \cup B)' \subseteq (A' \cap B')$

ধরি, $x \in (A \cap B)'$

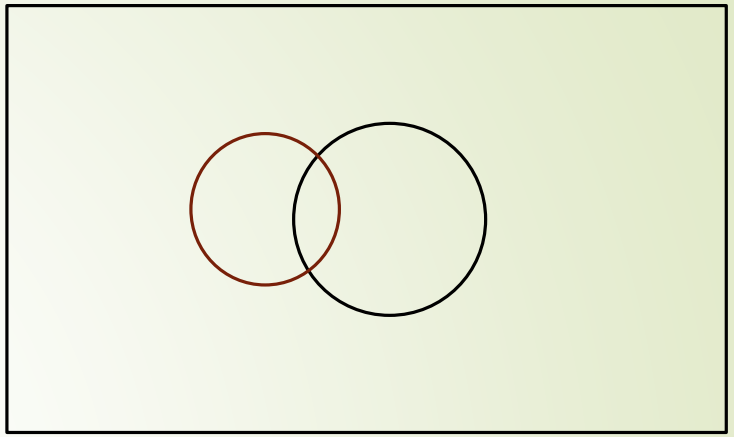
$\Rightarrow x \notin (A \cap B)$

$\Rightarrow x \notin A$ অথবা $x \notin B$

$\Rightarrow x \in A'$ অথবা $x \in B'$

$\Rightarrow x \in (A' \cup B')$

$\therefore \quad (A \cap B)' \subseteq (A' \cup B')$ .....(i)



আবার ধরি, $x \in (A' \cup B')$

$\Rightarrow x \in A'$ অথবা $x \in B'$

$\Rightarrow x \notin A$ অথবা $x \notin B$

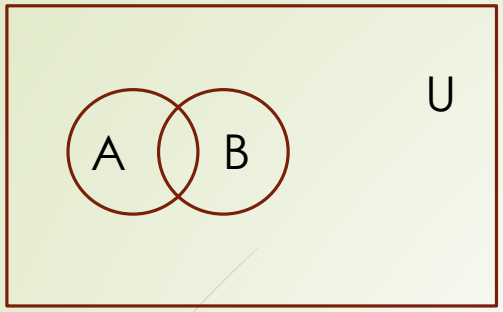
$\Rightarrow x \notin (A \cap B)$

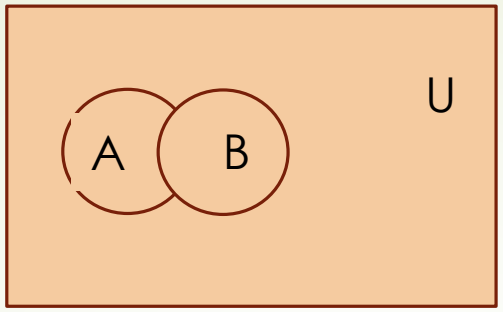
$\Rightarrow x \in (A \cap B)'$

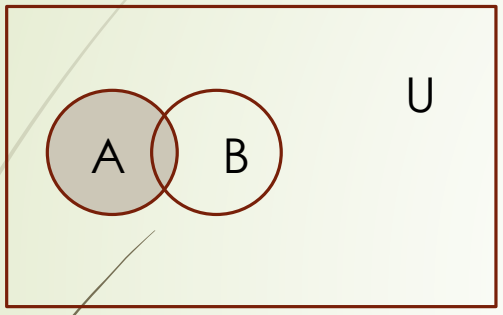
$(A' \cap B') \subseteq (A \cup B)'$ .....(ii)

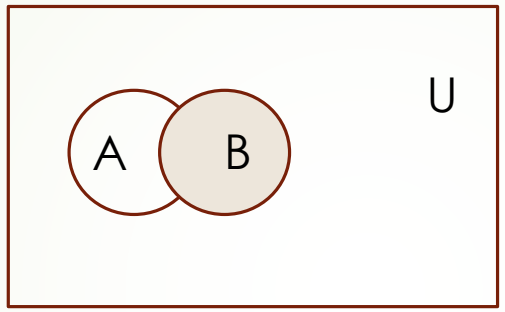
(i) ও (ii) হতে পাই,

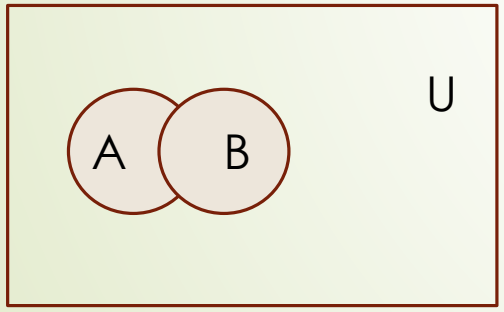
$\therefore \quad (A \cup B)' \subseteq (A' \cap B')$



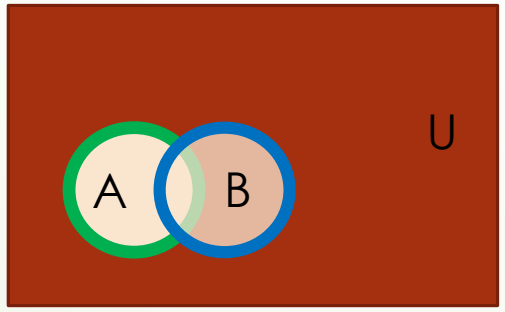




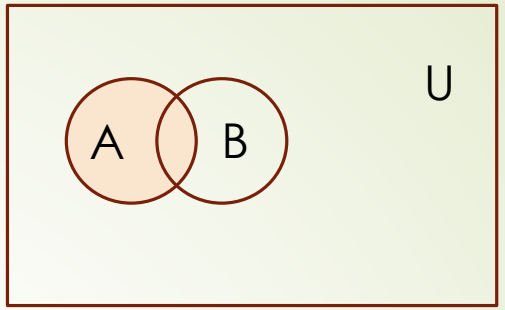




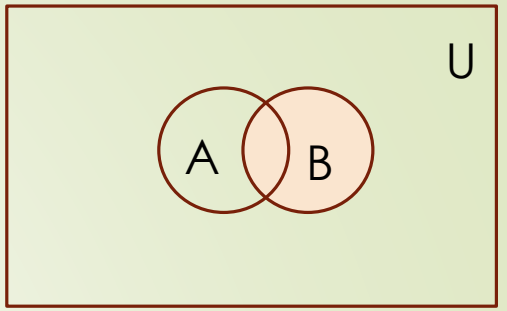
A ∪ B



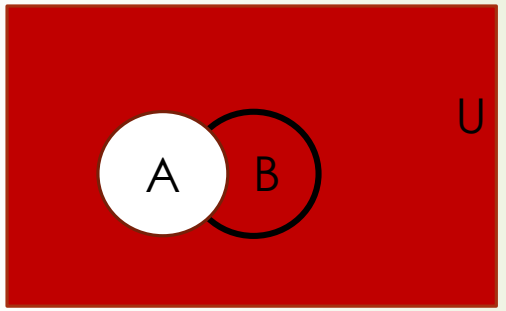
$(A \cup B)'$



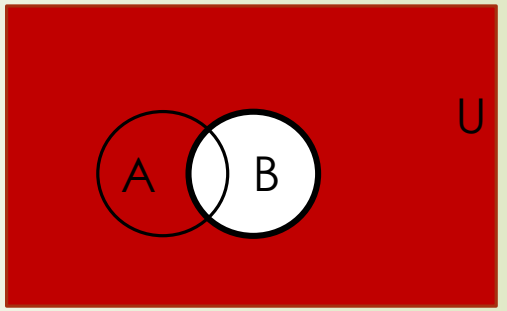
A



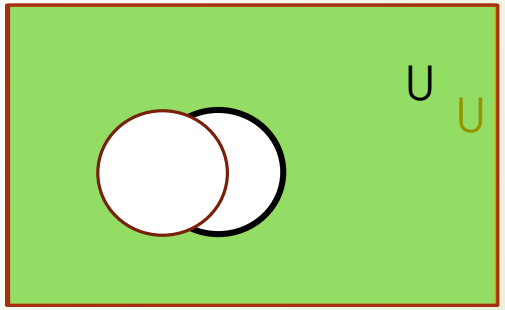
B



A´



B´



$A' \cap B'$