Theorem (2.2.38a)**.** *Let* A*, and* B *be sets. The symmetric difference of sets is associative such that* $(A \oplus B) = (B \oplus A)$*.*

Proof. By Theorem 2.2.35, $A \oplus B = (A \cup B) - (A \cap B)$. Because set union is associative, and because set intersection is associative, we have
$(B \cup A) - (B \cap A)$. Again, according to Theorem 2.2.35, that is $B \oplus A$. ∎