Solution to Problem 22

Task. If the expert’s degrees of confidence in two statements $A$ and $B$ are 0.7 and 0.9, and we use min as an “and”-operation and max as an “or”-operation, what degree of confidence shall we assign to $A \& B$? To $A \lor B$? If a statement $C$ has degree of confidence 0.8, what is our degree of belief in $(A \& B) \lor C$?

Solution. For $A \& B$, we get $d(A \& B) = \min(0.7, 0.9) = 0.7$. Similarly,

$$d(A \lor B) = \max(0.7, 0.9) = 0.9,$$

and

$$d((A \& B) \lor C) = \max(d(A \& B), d(C)) = \max(0.7, 0.8) = 0.8.$$