Solution to Homework 3

Task. If the degree of confidence in a statement $A$ is 0.7 and the degree of confidence in a statement $B$ is 0.8, then what are the estimated degrees of confidence in statements $A \& B$ and $A \lor B$? Consider two cases:

- “and”-operation is $\min(a,b)$ and “or”-operation is $\max(a,b)$;
- “and”-operation is $a \cdot b$ and “or”-operation is $a + b - a \cdot b$.

Solution.

- In the first case,
  
  $f_k(0.7, 0.8) = \min(0.7, 0.8) = 0.7; \quad f_\lor(0.7, 0.8) = \max(0.7, 0.8) = 0.8.$

- In the second case,
  
  $f_k(0.7, 0.8) = 0.7 \cdot 0.8 = 0.56; \quad f_\lor(0.7, 0.8) = 0.7 + 0.8 - 0.7 \cdot 0.8 = 1.5 - 0.56 = 0.94.$