

Exercise from cylindric extension and projections.

Exercise 5.1 Fuzzy sets A, B have the following vertical representations:

$$\mu_A(x) = \begin{cases} x, & x \in [0, \frac{4}{5}], \\ \frac{4}{5}, & x \in (\frac{4}{5}, 2], \\ \frac{4}{5}(3-x), & x \in (2, 3], \\ 0, & \text{otherwise,} \end{cases}$$
$$\mu_B(x) = \begin{cases} x, & x \in [0, 1], \\ 2-x, & x \in (1, 2], \\ 0, & \text{otherwise.} \end{cases}$$

- Find the cylindric extension $C := A \times B$.
- Find its projections $P_1(C), P_2(C)$.
- Draw diagrams of the results.