Conversion from horizontal to vertical representation

Find the membership functions (=vertical representations) of the following fuzzy sets of real numbers.

Exercise 2.1

$$\mathcal{R}_A(\alpha) = \begin{cases} \mathbb{R} & \text{if } \alpha = 0\,, \\ \{7,8,9,10,12,13,14,15,17,19\} & \text{if } 0 < \alpha \leq 0.3\,, \\ \{7,8,10,13,14,17,19\} & \text{if } 0.3 < \alpha \leq 0.7\,, \\ \{8,10,14,17\} & \text{if } 0.7 < \alpha \leq 1\,. \end{cases}$$

Exercise 2.2

$$\mathcal{R}_(\alpha) = \begin{cases} \mathbb{R} & \text{if } \alpha = 0\,, \\ \{7,8,10,12,13,14,15,17,19\} & \text{if } 0 < \alpha \leq 0.3\,, \\ \{7,8,10,14,17,19\} & \text{if } 0.3 < \alpha \leq 0.7\,, \\ \{8,10,13,14,17\} & \text{if } 0.7 < \alpha \leq 1\,. \end{cases}$$

Exercise 2.3

$$\mathcal{R}_C(\alpha) = \begin{cases} \mathbb{R} & \text{if } \alpha = 0\,, \\ [\alpha, 1/\alpha] & \text{if } 0 < \alpha < 1\,, \\ \{1\} & \text{if } \alpha = 1\,. \end{cases}$$

Exercise 2.4

$$\mathcal{R}_D(\alpha) = \begin{cases} \mathbb{R} & \text{if } \alpha = 0\,, \\ [\alpha - 1, 1/\alpha] & \text{if } 0 < \alpha < 1\,, \\ \{1\} & \text{if } \alpha = 1\,. \end{cases}$$