

Композиционное правило нечеткого вывода Заде

Дано нечеткое правило: если $x = \tilde{A}$, то $y = \tilde{B}$, где \tilde{A} и \tilde{B} — заданные нечеткие множества. Найти y при $x = \tilde{C}$. Нечеткое отношение рассчитывается по t -норме — минимум.

Задача 19.1.

2

$$\begin{aligned} A &= (0.1/a, 0.1/b, 0.9/c, 0.3/d, 0/e), \\ B &= (0.3/X, 0.3/Y, 0.3/Z, 0/V), \\ C &= (0.4/a, 0.6/b, 0.6/c, 0/d, 0.3/e). \end{aligned}$$

Задача 19.2.

2

$$\begin{aligned} A &= (0.8/a, 0.4/b, 0/c, 0.9/d, 0.1/e), \\ B &= (0.3/X, 0.4/Y, 0.4/Z, 0.4/V), \\ C &= (0.4/a, 0.1/b, 0.4/c, 0.4/d, 0.9/e). \end{aligned}$$

Задача 19.3.

2

$$\begin{aligned} A &= (0.4/a, 0.7/b, 0.3/c, 0.6/d, 0.9/e), \\ B &= (0.3/X, 0.3/Y, 0.3/Z, 0.1/V), \\ C &= (1/a, 0.3/b, 0.3/c, 0.1/d, 0.6/e). \end{aligned}$$

Задача 19.4.

2

$$\begin{aligned} A &= (0.6/a, 1/b, 0.6/c, 0.7/d, 0.6/e), \\ B &= (0.5/X, 0.6/Y, 0.5/Z, 0.2/V), \\ C &= (0.6/a, 0.3/b, 0.5/c, 0.5/d, 1/e). \end{aligned}$$

Задача 19.5.

2

$$\begin{aligned} A &= (0.1/a, 0.7/b, 0.7/c, 0.6/d, 0.9/e), \\ B &= (0.2/X, 0.3/Y, 0.4/Z, 0.4/V), \\ C &= (0.4/a, 0.7/b, 0.7/c, 0.7/d, 0.3/e). \end{aligned}$$

Задача 19.6.

2

$$\begin{aligned} A &= (0.4/a, 0.4/b, 0.9/c, 0.1/d, 0.5/e), \\ B &= (0.3/X, 0.1/Y, 0.5/Z, 0.6/V), \\ C &= (0.5/a, 0.5/b, 0.5/c, 0.9/d, 1/e). \end{aligned}$$

Задача 19.7.

2

$$\begin{aligned} A &= (1/a, 0.8/b, 0.5/c, 0.7/d, 0.9/e), \\ B &= (0.6/X, 0.3/Y, 0.4/Z, 0.6/V), \\ C &= (0.2/a, 0.4/b, 0.1/c, 0.3/d, 0.8/e). \end{aligned}$$

Задача 19.8.

2

$$\begin{aligned} A &= (0.6/a, 0.7/b, 0.1/c, 0.1/d, 0.2/e), \\ B &= (0/X, 0.6/Y, 0.4/Z, 0.3/V), \\ C &= (0.7/a, 0.6/b, 0.7/c, 0.3/d, 0.5/e). \end{aligned}$$

Задача 19.9.

2

$$\begin{aligned} A &= (0.6/a, 0.9/b, 0.3/c, 0.4/d, 0.3/e), \\ B &= (0.1/X, 0.3/Y, 0.1/Z, 0.1/V), \\ C &= (0.8/a, 0.3/b, 0.4/c, 0.4/d, 0.1/e). \end{aligned}$$

Задача 19.10.

2

$$\begin{aligned} A &= (0.8/a, 0.6/b, 0.6/c, 0.7/d, 0.7/e), \\ B &= (0.2/X, 0.4/Y, 0.1/Z, 0.4/V), \\ C &= (0.4/a, 0.3/b, 0/c, 0.3/d, 1/e). \end{aligned}$$

Задача 19.11.

2

$$\begin{aligned} A &= (0.2/a, 0.9/b, 0.6/c, 1/d, 0.1/e), \\ B &= (0.2/X, 0.7/Y, 0.2/Z, 0.4/V), \\ C &= (0.9/a, 1/b, 0.5/c, 0.7/d, 0.6/e). \end{aligned}$$

Задача 19.12.

2

$$\begin{aligned} A &= (0.9/a, 0.1/b, 0.6/c, 0.9/d, 0.5/e), \\ B &= (0.1/X, 0.2/Y, 0.1/Z, 0.3/V), \\ C &= (0.8/a, 0.5/b, 0.4/c, 0.3/d, 0.9/e). \end{aligned}$$

Задача 19.13.

2

$$\begin{aligned} A &= (0.3/a, 0/b, 0.5/c, 0.4/d, 0.6/e), \\ B &= (0.1/X, 0.4/Y, 0.5/Z, 0.2/V), \\ C &= (0.3/a, 0.3/b, 0.4/c, 0.1/d, 0.3/e). \end{aligned}$$

Задача 19.14.

2

$$\begin{aligned} A &= (0.1/a, 0.4/b, 0/c, 1/d, 0.9/e), \\ B &= (0.6/X, 0.4/Y, 0.3/Z, 0.3/V), \\ C &= (0.2/a, 0/b, 0.4/c, 0.6/d, 0.7/e). \end{aligned}$$

Задача 19.15.

2

$$A = (0.5/a, 0/b, 1/c, 0.1/d, 0.6/e),$$
$$B = (0.3/X, 0.1/Y, 0.3/Z, 0.3/V),$$
$$C = (0.4/a, 0.4/b, 0.6/c, 0.6/d, 0.4/e).$$

Задача 19.16.

2

$$A = (0.5/a, 0.5/b, 0.8/c, 0.6/d, 0.6/e),$$
$$B = (0.3/X, 0.5/Y, 0.4/Z, 0.1/V),$$
$$C = (1/a, 0.8/b, 0.7/c, 0.1/d, 0.6/e).$$

Задача 19.17.

2

$$A = (0.4/a, 0.9/b, 0.9/c, 0.6/d, 0.1/e),$$
$$B = (0/X, 0.3/Y, 0.4/Z, 0/V),$$
$$C = (0.7/a, 0.3/b, 0.4/c, 0/d, 0.6/e).$$

Задача 19.18.

2

$$A = (0.3/a, 0.5/b, 0.4/c, 0.8/d, 0.5/e),$$
$$B = (0.1/X, 0.2/Y, 0.1/Z, 0.4/V),$$
$$C = (0.8/a, 0.5/b, 0.1/c, 0.7/d, 0.9/e).$$

Задача 19.19.

2

$$A = (0.9/a, 0.7/b, 0.5/c, 0.9/d, 0.2/e),$$
$$B = (0.3/X, 0.5/Y, 0.3/Z, 0.5/V),$$
$$C = (0.5/a, 0.9/b, 0.3/c, 0.8/d, 0.5/e).$$

Задача 19.20.

2

$$A = (0.3/a, 0.9/b, 0.4/c, 0.6/d, 0.8/e),$$
$$B = (0.1/X, 0.4/Y, 0.3/Z, 0.1/V),$$
$$C = (0.8/a, 0.7/b, 0.3/c, 0.1/d, 0.4/e).$$

Задача 19.21.

2

$$A = (0/a, 0.4/b, 0.7/c, 0.3/d, 0.6/e),$$
$$B = (0.4/X, 0.4/Y, 0.6/Z, 0.1/V),$$
$$C = (0/a, 0.6/b, 1/c, 0.4/d, 0.2/e).$$

Задача 19.22.

2

$$A = (0.1/a, 0.1/b, 0.1/c, 0.5/d, 0.6/e),$$
$$B = (0.1/X, 0.5/Y, 0.7/Z, 0.3/V),$$
$$C = (0.8/a, 0.8/b, 1/c, 0.6/d, 0/e).$$

Задача 19.23.

2

$$A = (0.4/a, 0.8/b, 0.7/c, 0.6/d, 0.9/e),$$
$$B = (0.1/X, 0.3/Y, 0.7/Z, 0.7/V),$$
$$C = (0.3/a, 0.7/b, 1/c, 1/d, 0.5/e).$$

Задача 19.24.

2

$$A = (0.3/a, 0.5/b, 0.9/c, 0.6/d, 0.3/e),$$
$$B = (0.4/X, 0.4/Y, 0.2/Z, 0.4/V),$$
$$C = (0/a, 0.5/b, 0.8/c, 0.7/d, 0.7/e).$$

Задача 19.25.

2

$$A = (0.5/a, 0.1/b, 1/c, 0.8/d, 0.9/e),$$
$$B = (0.4/X, 0.4/Y, 0.7/Z, 0.5/V),$$
$$C = (0.5/a, 0.1/b, 0.7/c, 0.5/d, 0/e).$$

Задача 19.26.

2

$$A = (0.8/a, 0.3/b, 0.1/c, 0.1/d, 0.8/e),$$
$$B = (0.4/X, 0.4/Y, 0.3/Z, 0.1/V),$$
$$C = (0.5/a, 0.4/b, 0.9/c, 0.1/d, 0.5/e).$$

Задача 19.27.

2

$$A = (0.9/a, 0.8/b, 0.9/c, 0.7/d, 0.6/e),$$
$$B = (0.6/X, 0/Y, 0/Z, 0.4/V),$$
$$C = (0.7/a, 0.3/b, 0/c, 0.7/d, 1/e).$$

Задача 19.28.

2

$$A = (0/a, 1/b, 0.6/c, 0.5/d, 0.3/e),$$
$$B = (0.4/X, 0.3/Y, 0.3/Z, 0.6/V),$$
$$C = (0/a, 1/b, 0.6/c, 0.9/d, 0/e).$$

Задача 19.29.

2

$$A = (1/a, 0.1/b, 0.2/c, 0.8/d, 0.9/e),$$
$$B = (0.5/X, 0.5/Y, 0.6/Z, 0/V),$$
$$C = (0.6/a, 0.5/b, 0.3/c, 0.3/d, 0.6/e).$$

Задача 19.30.

2

$$A = (0.9/a, 0.7/b, 0.5/c, 0.4/d, 0.9/e),$$
$$B = (0.3/X, 0.3/Y, 0.6/Z, 0.6/V),$$
$$C = (1/a, 0.6/b, 0.9/c, 0.9/d, 0.4/e).$$

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№	X	Y	Z	V
1	0.3	0.3	0.3	0
2	0.3	0.4	0.4	0.4
3	0.3	0.3	0.3	0.1
4	0.5	0.6	0.5	0.2
5	0.2	0.3	0.4	0.4
6	0.3	0.1	0.5	0.5
7	0.6	0.3	0.4	0.6
8	0	0.6	0.4	0.3
9	0.1	0.3	0.1	0.1
10	0.2	0.4	0.1	0.4
11	0.2	0.7	0.2	0.4
12	0.1	0.2	0.1	0.3
13	0.1	0.4	0.4	0.2
14	0.6	0.4	0.3	0.3
15	0.3	0.1	0.3	0.3
16	0.3	0.5	0.4	0.1
17	0	0.3	0.4	0
18	0.1	0.2	0.1	0.4
19	0.3	0.5	0.3	0.5
20	0.1	0.4	0.3	0.1
21	0.4	0.4	0.6	0.1
22	0.1	0.5	0.5	0.3
23	0.1	0.3	0.7	0.7
24	0.4	0.4	0.2	0.4
25	0.4	0.4	0.7	0.5
26	0.4	0.4	0.3	0.1
27	0.6	0	0	0.4
28	0.4	0.3	0.3	0.6
29	0.5	0.5	0.6	0
30	0.3	0.3	0.6	0.6