$A\widetilde{\subset}\mathbb{A},\ B\widetilde{\subset}\mathbb{B},\ C\widetilde{\subset}\mathbb{C}$

$$A\widetilde{\subset}\mathbb{A},\ B\widetilde{\subset}\mathbb{B},\ C\widetilde{\subset}\mathbb{C}$$

$$\star: \mathbb{A} \times \mathbb{B} \to \mathbb{C}$$
$$C = A \star B$$

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$$C = A \star B$$

$$ho_{\star} \subset (\mathbb{A} \times \mathbb{B}) \times \mathbb{C}$$
 $C = \rho_{\star}(A, B)$

$$egin{aligned} A\widetilde{\subset}\mathbb{A},\ B\widetilde{\subset}\mathbb{B},\ C\widetilde{\subset}\mathbb{C} \ &\star:\mathbb{A} imes\mathbb{B} o\mathbb{C} \ &C=A\star B \ \end{aligned} \ &
ho_\star\subset(\mathbb{A} imes\mathbb{B}) imes\mathbb{C} \ &C=
ho_\star(A,B) \ \end{pmatrix} \ \mu_C(c)=rac{\mathcal{S}}{(a,b)\in\mathbb{A} imes\mathbb{B}}\left[T\left(\mu_{(A,B)}(a,b),\mu_{
ho_\star}((a,b),c)
ight)
ight]$$

$$A\widetilde{\subset}\mathbb{A},\;B\widetilde{\subset}\mathbb{B},\;C\widetilde{\subset}\mathbb{C}$$

$$\star:\mathbb{A}\times\mathbb{B}\to\mathbb{C}$$

$$C=A\star B$$

$$ho_{\star}\subset(\mathbb{A}\times\mathbb{B})\times\mathbb{C}$$

$$C=
ho_{\star}(A,B)$$

$$\mu_{C}(c)=\int_{(a,b)\in\mathbb{A}\times\mathbb{B}}\left[T\left(\mu_{(A,B)}(a,b),\mu_{
ho_{\star}}((a,b),c)\right)\right]$$

$$\mu_{C}(c)=\int_{(a,b)\in\mathbb{A}\times\mathbb{B}}\left[(a\widetilde{\in}A)\widetilde{\wedge}(b\widetilde{\in}B)\widetilde{\wedge}((a,b,c)\widetilde{\in}
ho_{\star})\right]$$

$$A\widetilde{\subset}\mathbb{A},\ B\widetilde{\subset}\mathbb{B},\ C\widetilde{\subset}\mathbb{C}$$

$$\star:\mathbb{A}\times\mathbb{B}\to\mathbb{C}$$

$$C=A\star B$$

$$\rho_{\star}\subset(\mathbb{A}\times\mathbb{B})\times\mathbb{C}$$

$$C=\rho_{\star}(A,B)$$

$$\mu_{C}(c)=\int_{(a,b)\in\mathbb{A}\times\mathbb{B}}\left[T\left(\mu_{(A,B)}(a,b),\mu_{\rho_{\star}}((a,b),c)\right)\right]$$

$$\mu_{C}(c)=\int_{(a,b)\in\mathbb{A}\times\mathbb{B}}\left[(a\widetilde{\in}A)\widetilde{\wedge}(b\widetilde{\in}B)\widetilde{\wedge}((a,b,c)\widetilde{\in}\rho_{\star})\right]$$

$$\mu_{C}(c)=\max_{a,b\in\mathbb{A}\times\mathbb{B}}\left[\mu_{A}(a)\mu_{B}(b)\right]$$

$$\mathbb{Z}_4 = \{0,1,2,3\}$$

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	0	1	2	3
0	0	0	0	0
1	0 0 0	1	2	3
2	0	2	0	2
3	0	3	2	1

$$A = \frac{0.5}{0} + \frac{0.9}{1} + \frac{0.1}{2} + \frac{0.1}{3}$$
$$B = \frac{0.1}{0} + \frac{0.1}{1} + \frac{0.9}{2} + \frac{0.5}{3}$$
$$C = A + B$$

$$\mathbb{Z}_4 = \{0, 1, 2, 3\}$$

$$\begin{array}{c|ccccc} + & 0 & 1 & 2 & 3 \\ \hline 0 & 0 & 1 & 2 & 3 \\ 1 & 1 & 2 & 3 & 0 \\ 2 & 2 & 3 & 0 & 1 \\ 3 & 3 & 0 & 1 & 2 \end{array}$$

$$A = \frac{0.5}{0} + \frac{0.9}{1} + \frac{0.1}{2} + \frac{0.1}{3}$$

$$B = \frac{0.1}{0} + \frac{0.1}{1} + \frac{0.9}{2} + \frac{0.5}{3}$$

$$C = A + B$$

$$\mu_C(c) = \max_{a,b : a+b=c} [\mu_A(a)\mu_B(b)]$$

$$A = \frac{0.5}{0} + \frac{0.9}{1} + \frac{0.1}{2} + \frac{0.1}{3}$$

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$$C = A + B$$

$$\mu_C(c) = \max_{a,b : a+b=c} [\mu_A(a)\mu_B(b)]$$

 $\mu_{C}(0) =$

$$\mathbb{Z}_4 = \{0, 1, 2, 3\}$$

$$\begin{array}{c|ccccc} + & 0 & 1 & 2 & 3 \\ \hline 0 & 0 & 1 & 2 & 3 \\ 1 & 1 & 2 & 3 & 0 \\ 2 & 2 & 3 & 0 & 1 \\ 3 & 3 & 0 & 1 & 2 \end{array}$$

$$A = \frac{0.5}{0} + \frac{0.9}{1} + \frac{0.1}{2} + \frac{0.1}{3}$$

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$$C = A + B$$

$$\mu_C(c) = \max_{a,b : a+b=c} [\mu_A(a)\mu_B(b)]$$

$$\mu_C(0) = \max\left(\begin{array}{cc} 0.5 \cdot 0.1, & 0.9 \cdot 0.5, \\ 0.1 \cdot 0.9, & 0.1 \cdot 0.1 \end{array}\right) =$$

$$= \max(0.05, 0.45, 0.09, 0.01) = 0.45$$

$$\mathbb{Z}_4 = \{0, 1, 2, 3\}$$

$$\begin{array}{c|ccccc} + & 0 & 1 & 2 & 3 \\ \hline 0 & 0 & 1 & 2 & 3 \\ 1 & 1 & 2 & 3 & 0 \\ 2 & 2 & 3 & 0 & 1 \\ 3 & 3 & 0 & 1 & 2 \end{array}$$

$$A = \frac{0.5}{0} + \frac{0.9}{1} + \frac{0.1}{2} + \frac{0.1}{3}$$

$$B = \frac{0.1}{0} + \frac{0.1}{1} + \frac{0.9}{2} + \frac{0.5}{3}$$

$$C = A + B$$

$$\mu_C(c) = \max_{a,b \ : \ a+b=c} \left[\mu_A(a) \mu_B(b) \right]$$

$$C = \frac{0.45}{0} +$$

$$\mathbb{Z}_4 = \{0, 1, 2, 3\} \\
+ \begin{vmatrix} 0 & 1 & 2 & 3 \\
0 & 0 & 1 & 2 & 3 \\
1 & 1 & 2 & 3 & 0 \\
2 & 2 & 3 & 0 & 1 \\
3 & 3 & 0 & 1 & 2
\end{vmatrix}$$

$$A = \frac{0.5}{0} + \frac{0.9}{1} + \frac{0.1}{2} + \frac{0.1}{3}$$

$$B = \frac{0.1}{0} + \frac{0.1}{1} + \frac{0.9}{2} + \frac{0.5}{3}$$

$$C = A + B$$

$$\mu_C(c) = \max_{a,b \ : \ a+b=c} \left[\mu_A(a)\mu_B(b) \right]$$

$$C = \frac{0.45}{0} + \mu_C(1) = \max(0.05, 0.09, 0.05, 0.09)$$

$$\mathbb{Z}_4 = \{0, 1, 2, 3\}$$

$$\begin{array}{c|ccccc} + & 0 & 1 & 2 & 3 \\ \hline 0 & 0 & 1 & 2 & 3 \\ 1 & 1 & 2 & 3 & 0 \\ 2 & 2 & 3 & 0 & 1 \\ 3 & 3 & 0 & 1 & 2 \end{array}$$

$$A = \frac{0.5}{0} + \frac{0.9}{1} + \frac{0.1}{2} + \frac{0.1}{3}$$

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$$C = A + B$$

$$\mu_C(c) = \max_{a,b \ : \ a+b=c} \left[\mu_A(a)\mu_B(b) \right]$$

$$C = \frac{0.45}{0} + \frac{0.09}{1} + \frac{0.09}{1}$$

$$\mathbb{Z}_4 = \{0, 1, 2, 3\}$$

$$\begin{array}{c|ccccc} + & 0 & 1 & 2 & 3 \\ \hline 0 & 0 & 1 & 2 & 3 \\ 1 & 1 & 2 & 3 & 0 \\ 2 & 2 & 3 & 0 & 1 \\ 3 & 3 & 0 & 1 & 2 \end{array}$$

$$A = \frac{0.5}{0} + \frac{0.9}{1} + \frac{0.1}{2} + \frac{0.1}{3}$$

$$B = \frac{0.1}{0} + \frac{0.1}{1} + \frac{0.9}{2} + \frac{0.5}{3}$$

$$C = A + B$$

$$\mu_C(c) = \max_{a,b \ : \ a+b=c} [\mu_A(a)\mu_B(b)]$$

$$C = \frac{0.45}{0} + \frac{0.09}{1} + \frac{0.09}{1}$$

$$\mu_C(2) = \max(0.45, 0.09, 0.01, 0.05)$$

$$\mathbb{Z}_4 = \{0, 1, 2, 3\}$$

$$\begin{array}{c|ccccc} + & 0 & 1 & 2 & 3 \\ \hline 0 & 0 & 1 & 2 & 3 \\ 1 & 1 & 2 & 3 & 0 \\ 2 & 2 & 3 & 0 & 1 \\ 3 & 3 & 0 & 1 & 2 \end{array}$$

$$A = \frac{0.5}{0} + \frac{0.9}{1} + \frac{0.1}{2} + \frac{0.1}{3}$$

$$B = \frac{0.1}{0} + \frac{0.1}{1} + \frac{0.9}{2} + \frac{0.5}{3}$$

$$C = A + B$$

$$\mu_C(c) = \max_{a,b : a+b=c} \left[\mu_A(a)\mu_B(b) \right]$$

$$C = \frac{0.45}{0} + \frac{0.09}{1} + \frac{0.45}{2} + \frac{0.45}{2}$$

$$A = \frac{0.5}{0} + \frac{0.9}{1} + \frac{0.1}{2} + \frac{0.1}{3}$$

$$B = \frac{0.1}{0} + \frac{0.1}{1} + \frac{0.9}{2} + \frac{0.5}{3}$$

$$C = A + B$$

$$\mu_C(c) = \max_{a,b : a+b=c} [\mu_A(a)\mu_B(b)]$$

$$C = \frac{0.45}{0} + \frac{0.09}{1} + \frac{0.45}{2} + \frac{0.09}{2}$$

$$\mu_C(3) = \max(0.25, 0.81, 0.01, 0.01)$$

$$\mathbb{Z}_4 = \{0, 1, 2, 3\}$$

$$\begin{array}{c|ccccc} + & 0 & 1 & 2 & 3 \\ \hline 0 & 0 & 1 & 2 & 3 \\ 1 & 1 & 2 & 3 & 0 \\ 2 & 2 & 3 & 0 & 1 \\ 3 & 3 & 0 & 1 & 2 \end{array}$$

$$A = \frac{0.5}{0} + \frac{0.9}{1} + \frac{0.1}{2} + \frac{0.1}{3}$$

$$B = \frac{0.1}{0} + \frac{0.1}{1} + \frac{0.9}{2} + \frac{0.5}{3}$$

$$C = A + B$$

$$\mu_C(c) = \max_{a,b : a+b=c} \left[\mu_A(a) \mu_B(b) \right]$$

$$C = \frac{0.45}{0} + \frac{0.09}{1} + \frac{0.45}{2} + \frac{0.81}{3}$$

$$\mathbb{Z}_4 = \{0, 1, 2, 3\} \\
+ \begin{vmatrix} 0 & 1 & 2 & 3 \\
\hline
0 & 0 & 1 & 2 & 3 \\
1 & 1 & 2 & 3 & 0 \\
2 & 2 & 3 & 0 & 1 \\
3 & 3 & 0 & 1 & 2
\end{vmatrix}$$

$$A = \frac{0.5}{0} + \frac{0.9}{1} + \frac{0.1}{2} + \frac{0.1}{3}$$

$$B = \frac{0.1}{0} + \frac{0.1}{1} + \frac{0.9}{2} + \frac{0.5}{3}$$

$$C = A + B$$

$$\mu_C(c) = \max_{a,b : a+b=c} \left[\mu_A(a)\mu_B(b) \right]$$

$$C = \frac{0.09}{1} + \frac{0.45}{2} + \frac{0.81}{3} + \frac{0.45}{0}$$

$$\mathbb{Z}_4 = \{0, 1, 2, 3\}$$

$$A = \frac{0.1}{0} + \frac{0.5}{1} + \frac{0.9}{2} + \frac{0.1}{3}$$

$$C = A \cdot A$$

$$\mu_C(c) = \max_{a,b : a \cdot b = c} [\mu_A(a)\mu_B(b)]$$

$$\mathbb{Z}_4 = \{0, 1, 2, 3\}$$

$$\begin{array}{c|ccccc} + & 0 & 1 & 2 & 3 \\ \hline 0 & 0 & 1 & 2 & 3 \\ 1 & 1 & 2 & 3 & 0 \\ 2 & 2 & 3 & 0 & 1 \\ 3 & 3 & 0 & 1 & 2 \end{array}$$

$$A = \frac{0.1}{0} + \frac{0.5}{1} + \frac{0.9}{2} + \frac{0.1}{3}$$

$$C = A \cdot A$$

$$\mu_C(c) = \max_{a,b : a \cdot b = c} [\mu_A(a)\mu_B(b)]$$

$$C = \frac{1}{0} + \frac{1}{1} + \frac{1}{2} + \frac{1}{3}$$

$$\mathbb{Z}_4 = \{0, 1, 2, 3\}$$

$$\begin{array}{c|ccccc} + & 0 & 1 & 2 & 3 \\ \hline 0 & 0 & 1 & 2 & 3 \\ 1 & 1 & 2 & 3 & 0 \\ 2 & 2 & 3 & 0 & 1 \\ 3 & 3 & 0 & 1 & 2 \end{array}$$

$$A = \frac{0.1}{0} + \frac{0.5}{1} + \frac{0.9}{2} + \frac{0.1}{3}$$

$$C = A \cdot A$$

$$\mu_C(c) = \max_{a,b : a \cdot b = c} [\mu_A(a)\mu_B(b)]$$

$$C = \frac{0.81}{0} + \frac{1}{1} + \frac{1}{2} + \frac{1}{3}$$

$$A = \frac{0.1}{0} + \frac{0.5}{1} + \frac{0.9}{2} + \frac{0.1}{3}$$

$$C = A \cdot A$$

$$\mu_C(c) = \max_{a,b : a \cdot b = c} [\mu_A(a)\mu_B(b)]$$

$$C = \frac{0.81}{0} + \frac{0.25}{1} + \frac{0.2}{2} + \frac{0.3}{3}$$

$$A = \frac{0.1}{0} + \frac{0.5}{1} + \frac{0.9}{2} + \frac{0.1}{3}$$

$$C = A \cdot A$$

$$\mu_C(c) = \max_{a,b : a \cdot b = c} [\mu_A(a)\mu_B(b)]$$

$$C = \frac{0.81}{0} + \frac{0.25}{1} + \frac{0.45}{2} + \frac{3}{3}$$

$$A = \frac{0.1}{0} + \frac{0.5}{1} + \frac{0.9}{2} + \frac{0.1}{3}$$

$$C = A \cdot A$$

$$\mu_C(c) = \max_{a,b : a \cdot b = c} [\mu_A(a)\mu_B(b)]$$

$$C = \frac{0.81}{0} + \frac{0.25}{1} + \frac{0.45}{2} + \frac{0.05}{3}$$

$$A = \frac{0.1}{0} + \frac{0.5}{1} + \frac{0.9}{2} + \frac{0.1}{3}$$

$$C = A \cdot A$$

$$\mu_C(c) = \max_{a,b : a \cdot b = c} [\mu_A(a)\mu_B(b)]$$

$$C = \frac{0.81}{0} + \frac{0.25}{1} + \frac{0.45}{2} + \frac{0.05}{3}$$