$$\begin{array}{c|ccccc} & 1 & 2 & 3 & 4 & 5 \\ \hline 2 & 0.6 & 0.6 & 0.6 & 0.6 & 0.6 \\ 3 & 1 & 1 & 1 & 1 & 1 \\ 4 & 0.2 & 0.2 & 0.2 & 0.2 & 0.2. \end{array}$$

Ce(A) on domain X :

Ex : 2 C = diffuse market size $= \left\{ \frac{0.3}{1} + \frac{0.5}{2} + \frac{0.6}{3} + \frac{0.6}{4} + \frac{0.5}{5} + \frac{0.3}{6} \right\}$

$x = \{1, 2, 3, 4\}$

Ce(C) on domain X :

$$\begin{array}{c|cccccc} & 1 & 2 & 3 & 4 & 5 & 6 \\ \hline 1 & 0.3 & 0.5 & 0.6 & 0.6 & 0.5 & 0.3 \\ 2 & 0.3 & 0.5 & 0.6 & 0.6 & 0.5 & 0.3 \\ 3 & 0.3 & 0.5 & 0.6 & 0.6 & 0.5 & 0.3 \\ 4 & 0.3 & 0.5 & 0.6 & 0.6 & 0.5 & 0.3 \end{array}$$

08/10/2020

Cartation product :

row → $A = \left\{ \frac{0.1}{100} + \frac{0.2}{200} + \frac{0.3}{300} + \frac{0.4}{400} \right\} \in X$

column → $B = \left\{ \frac{0.6}{1} + \frac{0.5}{2} + \frac{0.8}{3} + \frac{0.9}{4} \right\} \in Y.$

$$A \times B = \begin{array}{c|cccc} & 1 & 2 & 3 & 4 \\ \hline 100 & 0.1 & 0.1 & 0.1 & 0.1 \\ 200 & 0.2 & 0.2 & 0.2 & 0.2 \\ 300 & 0.3 & 0.3 & 0.3 & 0.3 \\ 400 & 0.4 & 0.4 & 0.4 & 0.4 \end{array}$$

Composition:

* min - max
* max - max
* min - min
* max - average
* sum - product:

let $A = \left\{ \frac{1}{s_1} + \frac{0.5}{s_2} + \frac{0.2}{s_3} \right\}$

$B = \left\{ \frac{1}{\omega_1} + \frac{0.5}{\omega_2} + \frac{0.3}{\omega_3} \right\}$

$C = \left\{ \frac{0.1}{s_1} + \frac{0.6}{s_2} + \frac{1}{s_3} \right\}$

cartesion product

Find $R = A \times B$, $S = C \times B$

Find $S \circ R$ using max-min composition.

composition.

$\Rightarrow R = A \times B =$

$$\begin{array}{c|ccc} & \omega_1 & \omega_2 & \omega_3 \\ \hline s_1 & 1 & 0.5 & 0.3 \\ s_2 & 0.5 & 0.5 & 0.3 \\ s_3 & 0.2 & 0.2 & 0.2 \end{array}$$

$S = C \times B =$

$$\begin{array}{c|ccc} & \omega_1 & \omega_2 & \omega_3 \\ \hline s_1 & 0.1 & 0.1 & 0.1 \\ s_2 & 0.6 & 0.5 & 0.3 \\ s_3 & 1 & 0.5 & 0.3 \end{array}$$

$T = R.S$

$\quad A \quad B$

$= (\cancel{8} \times \cancel{W}).(C \times B)$

$= A \times B$

$$= \begin{array}{c|ccc|} & w_1 & w_2 & w_3 \\ s_1 & 0.5 & 0.5 & 0.3 \\ s_2 & 0.5 & 0.5 & 0.3 \\ s_3 & 0.2 & 0.2 & 0.2 \end{array}$$

$s_1 w_1 = \max[\min(1, 0.1)\ \min(0.5, 0.6)\ \min(0.3, 1)]$
$= \max[0.1, 0.5, 0.3]$
$= 0.5$

$s_1 w_2 = \max[\min(1, 0.1)\ \min(0.5, 0.5)\ \min(0.3, 0.5)]$
$= \max[0.1, 0.5, 0.3]$
$= 0.5$

$s_1 w_3 = \max[\min(1, 0.1)\ \min(0.5, 0.3)\ \min(0.3, 0.3)]$
$= \max[0.1, 0.3, 0.3]$
$= 0.3$

$s_2 w_1 = \max[\min(0.5, 0.1)\ \min(0.5, 0.6)\ \min(0.3, 1)]$
$= \max[\cancel{0.5}\ 0.1, 0.5, 0.3]$
$= 0.5$

$s_2 w_2 = \max[\min(0.5, 0.1)\ \min(0.5, 0.5)\ \min(0.3, 0.3)]$
$= \max[0.1, 0.5, 0.3]$
$= 0.5$

Scanned with CamScanner

Problem

1.

$$\mu_B = \left\{ \frac{0.5}{60} + \frac{0.7}{40} + \frac{1}{20} \right\}$$

$$\mu_T = \left\{ \frac{0.9}{10} + \frac{0.7}{8} + \frac{0.\cancel{8}5}{6} \right\}$$

$$\mu_U = \left\{ \frac{1}{0.9} + \frac{0.8}{0.8} + \frac{0.6}{0.7} + \frac{0.4}{0.6} \right\}.$$

$$R = \underset{r \times c}{B \times T} = \begin{array}{c} \\ 60 \\ 40 \\ 20 \end{array} \begin{array}{c} \begin{array}{ccc} 10 & 8 & 6 \end{array} \\ \left[\begin{array}{ccc} 0.5 & 0.5 & 0.5 \\ 0.7 & 0.7 & 0.\cancel{7}5 \\ 0.9 & 0.7 & 0.\cancel{8}5 \end{array} \right] \end{array}$$

$$S = T \times U = \begin{array}{c} \\ 10 \\ 8 \\ 6 \end{array} \begin{array}{c} \begin{array}{cccc} 0.9 & 0.8 & 0.7 & 0.6 \end{array} \\ \left[\begin{array}{cccc} 0.9 & 0.8 & 0.6 & 0.4 \\ 0.7 & 0.7 & 0.6 & 0.4 \\ 0.5 & 0.5 & 0.5 & 0.4 \end{array} \right] \end{array}$$

I:- $W = R.S$ using max-min composition.

$= (B \times T).(T \times U)$

$W = B \times U$

$M =$

	0.9	0.8	0.7	0.6
60	0.5	0.5	0.5	0.4
40	0.7	0.7	0.6	0.4
20	0.9	0.8	0.6	0.4

$(60, 0.9) = \max[\min(0.5, 0.9)\ \min(0.7, 0.7)\ \min(0.9, 0.9)]$
$= \max[0.5, 0.5, 0.5]$
$= 0.5$

$(60, 0.8) = \max[\min(0.8, 0.5)\ \min(0.7, 0.5)\ \min(0.5, 0.5)]$
$= \max[0.5, 0.5, 0.5]$
$= 0.5$

$(60, 0.7) = \max[\min(0.5, 0.6)\ \min(0.5, 0.6)\ \min(0.5, 0.5)]$
$= \max[0.5, 0.5, 0.5]$
$= 0.5$

$(60, 0.6) = \max[\min(0.5, 0.4)\ \min(0.5, 0.4)\ \min(0.5, 0.4)]$
$= \max[0.4, 0.4, 0.4]$
$= 0.4$

$(40, 0.9) = \max[\min(0.7, 0.9)\ \min(0.7, 0.7)\ \min(0.5, 0.5)]$
$= \max[0.7, 0.7, 0.5]$
$= 0.7$

$(40, 0.8) = \max[\min(0.7, 0.8)\ \min(0.7, 0.7)\ \min(0.5, 0.5)]$
$= \max[0.7, 0.7, 0.5]$
$= 0.7$

$(40, 0.7) = \max[\min(0.7, 0.6)\ \min(0.7, 0.6)\ \min(0.5, 0.5)]$
$= \max[0.6, 0.6, 0.5]$
$= 0.6$

(20/10.

II : using max - product composition.

$$
W = \begin{array}{c|cccc|}
 & 0.9 & 0.8 & 0.7 & 0.6 \\
60 & 0.45 & 0.40 & 0.30 & 0.2 \\
40 & \overset{0.63}{\cancel{0.56}} & 0.56 & 0.42 & 0.28 \\
20 & 0.81 & 0.72 & 0.54 & 0.36
\end{array}
$$

Max products

$(60, 0.9) = \max[(0.5, 0.9), (0.5, 0.7)(0.5, 0.5)]$

$= \max[0.45, 0.35, 0.25]$

$= 0.45$

$(60, 0.8) = \max[(0.5, 0.8), (0.5, 0.7), (0.5, 0.5)]$

$= \max[0.40, 0.35, 0.25]$

$= 0.40$

$(60, 0.7) = \max[(0.5, 0.6)(0.5, 0.6)(0.5, 0.5)]$

$= \max[0.30, 0.30, 0.25]$

$= 0.30$

$(60, 0.6) = \max[(0.5, 0.4)(0.5, 0.4)(0.5, 0.4)]$

$= 0.2$

/10/2020

1. Let $A = \left\{ \frac{0.2}{1} + \frac{1}{2} + \frac{0.7}{4} \right\}$

$B = \left\{ \frac{0.5}{1} + \frac{1}{2} \right\}$

find,

algebric product (A×B) using max-min composition.

$\Rightarrow$ $A \times B = C = \left\{ \frac{}{1\times 1} + \frac{}{1\times 2} + \frac{}{2\times 1} + \frac{}{2\times 2} + \frac{}{4\times 1} + \frac{}{4\times 2} \right\}$

$C = \max \left\{ \frac{\min(0.2, 0.5)}{1} + \frac{\min(0.2, 1)}{2} + \frac{\min(1, 0.5)}{2} + \frac{\min(1,1)}{4} + \frac{\min(0.7, 0.5)}{4} + \frac{\min(0.7, 1)}{8} \right\}$

$C = \max \left\{ \frac{0.2}{1} + \frac{0.2}{2} + \frac{0.5}{2} + \frac{1}{4} + \frac{0.5}{4} + \frac{0.7}{8} \right\}$

$= \left\{ \frac{0.2}{1} + \frac{\max(0.2, 0.5)}{2} + \frac{\max(1, 0.5)}{4} + \frac{0.7}{8} \right\}$

$= \left\{ \frac{0.2}{1} + \frac{0.5}{2} + \frac{1}{4} + \frac{0.7}{8} \right\}$

2. $A = \left\{ \frac{0.6}{1} + \frac{1}{2} + \frac{0.8}{3} \right\} \in U = \{1, 2, 3\}$

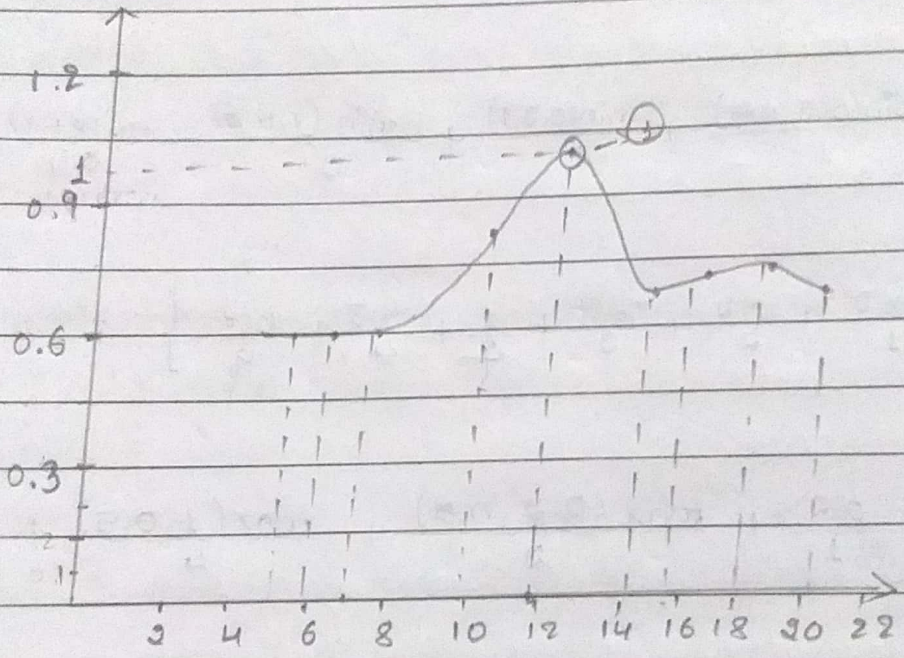
$B = \left\{ \frac{0.8}{5} + \frac{1}{6} + \frac{0.7}{7} \right\}$

Find the product of of approx two & approx. six on domain V using max-min comp.

$$\Rightarrow \max C = \max\left\{ \frac{\min(0.6,0.8)}{1\times5} + \frac{\min(0.6,0.1)}{1\times6} + \frac{\min(1,0.8)}{1\times7} + \frac{\min(1,1)}{2\times5} + \frac{\min(0.1,0.7)}{2\times1} + \frac{\min(0.8,0.8)}{3\times5} + \frac{\min(0.8,0.1)}{3\times6} + \frac{\min(0.8,\ldots)}{3\times7} \right.$$

$$C = \max\left\{ \frac{0.6}{5} + \frac{0.6}{6} + \frac{0.6}{7} + \frac{0.8}{10} + \frac{1}{12} + \frac{0.7}{14} + \frac{0.8}{15} + \frac{0.8}{18} + \frac{0.7}{21} \right\}$$

$$C = \left\{ \frac{0.6}{5} + \frac{0.6}{6} + \frac{0.6}{7} + \frac{0.8}{10} + \frac{1}{12} + \frac{0.7}{14} + \frac{0.8}{15} + \frac{0.8}{18} + \frac{0.7}{21} \right\}$$



UNIT-8 Theory of Approximate Reasoning

Liguistic hedges

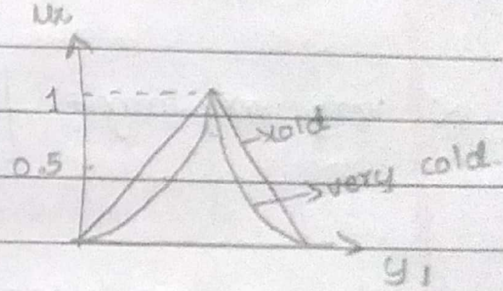
[Adj added to intensive or moderate the system]

1. Very - concentrating
2. Very very - concentrating
3. Plus - concentrating
4. Slightly - diluting
5. Minus - diluting

* $\alpha = \int_0^n \frac{[u_\alpha(y)]^2}{y}$ for very.

Ex:- cold = $\left\{ \frac{0.6}{20} + \frac{0.5}{21} \right\}$

concentration



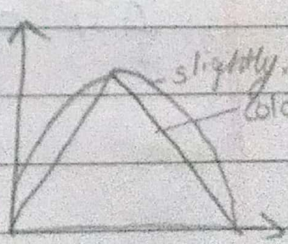
Very cold = $\left\{ \frac{(0.6)^2}{20} + \frac{(0.5)^2}{21} \right\}$

$= \left\{ \frac{0.36}{20} + \frac{0.25}{21} \right\}$

* $\alpha = \int_0^n \frac{[u_\alpha(y)]^4}{y}$ for very very.

* $\alpha = \int_0^n \frac{[u_\alpha(y)]^{1.5}}{y}$ for plus

dilution



* $\alpha = \int_0^n \frac{[u_\alpha(y)]^{0.5}}{y}$ for slightly

* $\alpha = \int_0^n \frac{[u_\alpha(y)]^{0.75}}{y}$ for minus.

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language based:

Linguistic variables:

size = {S, M, L, XL}
Temp = {L, M, H}

Fuzzy rules:
1] If ______ Then ______
2. If ______ then ______ else

1] If ______ then ______
=> If x is A then y is B.
$\underbrace{x \text{ is } A}_{\text{rule antencedent}}$ then $\underbrace{y \text{ is } B}_{\text{rule consequent}}$

Ex: If motor speed is low then increase voltage to medium.

If x is A then y is B
$R = (A \times B) \cup (\bar{A} \times Y)$
(cartation product) (union) (cartcation) product

2] If ______ then ______ else ______
Ex:- If hot climate then slow on AC else slw off AC
rule antoncedent
rule consequent.

If X is A then y is B else is C
$R = (A \times B) \cup (\bar{A} \times C)$

upto if. then

22/10/2020

Problem

1. $X = [1,2,3,4]$, $Y = [1,2,3,4,5,6]$

A = medium uniqueness $= \left\{ \frac{0.6}{2} + \frac{1}{3} + \frac{0.2}{4} \right\}$

$A = \left\{ \frac{0}{1} + \frac{0.6}{2} + \frac{1}{3} + \frac{0.2}{4} \right\}$

B = Medium market size $= \left\{ \frac{0.4}{2} + \frac{1}{3} + \frac{0.8}{4} + \frac{0.3}{5} \right\}$

$B. = \left\{ \frac{0}{1} + \frac{0.4}{2} + \frac{1}{3} + \frac{0.8}{4} + \frac{0.3}{5} + \frac{0}{6} \right\}$

To find, if A then B $\Rightarrow (A \times B) \cup (\bar{A} \times \underbrace{Y}_{\text{universe}})$

$\bar{A} = \left\{ \frac{1}{1} + \frac{0.4}{2} + \frac{0}{3} + \frac{0.8}{4} \right\}$

$Y = \left\{ \frac{1}{1} + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} \right\}$

$$A \times B = R = \begin{array}{c} \\ 1 \\ 2 \\ 3 \\ 4 \end{array} \begin{array}{c} \begin{array}{cccccc} 1 & 2 & 3 & 4 & 5 & 6 \end{array} \\ \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0.4 & 0.6 & 0.6 & 0.3 & 0 \\ 0 & 0.4 & 1 & 0.8 & 0.3 & 0 \\ 0 & 0.2 & 0.2 & 0.2 & 0.2 & 0 \end{bmatrix} \end{array}$$

$$\bar{A} \times Y = S = \begin{array}{c} \\ 1 \\ 2 \\ 3 \\ 4 \end{array} \begin{array}{c} \begin{array}{cccccc} 1 & 2 & 3 & 4 & 5 & 6 \end{array} \\ \begin{bmatrix} 1 & 1 & 1 & 1 & 1 & 1 \\ 0.4 & 0.4 & 0.4 & 0.4 & 0.4 & 0.4 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0.8 & 0.8 & 0.8 & 0.8 & 0.8 & 0.8 \end{bmatrix} \end{array}$$

If A then B $\Rightarrow (A \times B) \cup (\bar{A} \times Y)$

$(A \times B) \cup (\bar{A} \times Y) =$

$$\begin{array}{c} \\ 1 \\ 2 \\ 3 \\ 4 \end{array} \begin{array}{c} \begin{array}{cccccc} 1 & 2 & 3 & 4 & 5 & 6 \end{array} \\ \begin{bmatrix} 1 & 1 & 1 & 1 & 1 & 1 \\ 0.4 & 0.4 & 0.6 & 0.6 & 0.4 & 0.4 \\ 0 & 0.4 & 1 & 0.8 & 0.3 & 0 \\ 0.8 & 0.8 & 0.8 & 0.8 & 0.8 & 0.8 \end{bmatrix} \end{array}$$

If A then B else C $\Rightarrow (A \times B) \cup (\bar{A} \times C)$

$$\bar{A} = \left\{ \frac{1}{1} + \frac{0.4}{2} + \frac{0}{3} + \frac{0.8}{4} \right\}$$

$$C = \left\{ \frac{0.3}{1} + \frac{0.5}{2} + \frac{0.6}{3} + \frac{0.6}{4} + \frac{0.5}{5} + \frac{0.3}{6} \right\}$$

$\bar{A} \times C =$

$$\begin{array}{c} \\ 1 \\ 2 \\ 3 \\ 4 \end{array} \begin{array}{c} \begin{array}{cccccc} 1 & 2 & 3 & 4 & 5 & 6 \end{array} \\ \begin{bmatrix} 0.3 & 0.5 & 0.6 & 0.6 & 0.5 & 0.3 \\ 0.3 & 0.4 & 0.4 & 0.4 & 0.4 & 0.3 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0.3 & 0.5 & 0.6 & 0.6 & 0.5 & 0.3 \end{bmatrix} \end{array}$$

$(A \times B) \cup (\bar{A} \times C) =$

$$\begin{array}{c} \\ 1 \\ 2 \\ 3 \\ 4 \end{array} \begin{array}{c} \begin{array}{cccccc} 1 & 2 & 3 & 4 & 5 & 6 \end{array} \\ \begin{bmatrix} 0.3 & 0.5 & 0.6 & 0.6 & 0.5 & 0.3 \\ 0.3 & 0.4 & 0.6 & 0.6 & 0.4 & 0.3 \\ 0 & 0.4 & 1 & 0.8 & 0.3 & 0 \\ 0.3 & 0.5 & 0.6 & 0.6 & 0.5 & 0.3 \end{bmatrix} \end{array}$$

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2 $X = \{1, 2, 3, 4\}$
$Y = \{1, 2, 3, 4, 5, 6\}$

$$A = \left\{ \frac{0}{1} + \frac{1}{2} + \frac{1}{3} \right\} = \left\{ \frac{0}{1} + \frac{1}{2} + \frac{1}{3} + \frac{0}{4} \right\}$$

$$B = \left\{ \frac{0}{1} + \frac{0}{2} + \frac{1}{3} + \frac{1}{4} + \frac{0}{5} + \frac{0}{6} \right\}$$

If A then $B = (A \times B) \cup (\bar{A} \times y)$

$$\bar{A} = \left\{ \frac{1}{1} + \frac{0}{2} + \frac{0}{3} + \frac{1}{4} \right\}$$

$$y = \left\{ \frac{1}{1} + \frac{1}{2} + \frac{1}{3} + \frac{1}{4} + \frac{1}{5} + \frac{1}{6} \right\}$$

$$A \times B = \begin{array}{c|c} & \begin{array}{cccccc} 1 & 2 & 3 & 4 & 5 & 6 \end{array} \\ \begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \end{array} & \begin{bmatrix} 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 1 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \end{bmatrix} \end{array}$$

$$\bar{A} \times y \quad \begin{array}{c|c} & \begin{array}{cccccc} 1 & 2 & 3 & 4 & 5 & 6 \end{array} \\ \begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \end{array} & \begin{bmatrix} 1 & 1 & 1 & 1 & 1 & 1 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 & 0 \\ 1 & 1 & 1 & 1 & 1 & 1 \end{bmatrix} \end{array}$$

$(A \times B) \cup (\bar{A} \times Y) =$

	1	2	3	4	5	6
1	1	1	1	1	1	1
2	0	0	1	1	0	0
3	0	0	1	1	0	0
4	1	1	1	1	1	1

$\bar{A} = \{$

$C = \{$

$(A \times B) \cup (\bar{A} \times C) =$

29/10/2020

5.11 $X = [0, 50, 100, 150, 200]$

$Y = [0, 50, 100, 150, 200]$

W = "weak stimulus" $= \left\{ \frac{1}{0} + \frac{0.9}{50} + \frac{0.3}{100} + \frac{0}{150} + \frac{0}{200} \right\} \in X$

S = severe response $= \left\{ \frac{0}{0} + \frac{0}{50} + \frac{0.5}{100} + \frac{0.9}{150} + \frac{1}{200} \right\} \in Y$

If "weak stimulus then not severe response"

If X is W the Y is $\bar{S}$

$\Rightarrow (W \times \bar{S}) \cup (\bar{W} \times Y)$

$\bar{W} = \left\{ \frac{0}{0} + \frac{0.1}{50} + \frac{0.7}{100} + \frac{1}{150} + \frac{1}{200} \right\}$

$Y = \left\{ \frac{1}{0} + \frac{1}{50} + \frac{1}{100} + \frac{1}{150} + \frac{1}{200} \right\}$

$\bar{S} = \left\{ \frac{1}{0} + \frac{1}{50} + \frac{0.5}{100} + \frac{0.1}{150} + \frac{0}{200} \right\}$

$$(W \times \bar{S}) = \begin{array}{c|c} & \begin{matrix} 0 & 50 & 100 & 150 & 200 \end{matrix} \\ \begin{matrix} 0 \\ 50 \\ 100 \\ 150 \\ 200 \end{matrix} & \begin{bmatrix} 1 & 1 & 0.5 & 0.1 & 0 \\ 0.9 & 0.9 & 0.5 & 0.1 & 0 \\ 0.3 & 0.3 & 0.3 & 0.1 & 0 \\ 0 & 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 0 \end{bmatrix} \end{array}$$

$$(\bar{W} \times Y) = \begin{array}{c|c} & \begin{matrix} 0 & 50 & 100 & 150 & 200 \end{matrix} \\ \begin{matrix} 0 \\ 50 \\ 100 \\ 150 \\ 200 \end{matrix} & \begin{bmatrix} 0 & 0 & 0 & 0 & 0 \\ 0.1 & 0.1 & 0.1 & 0.1 & 0.1 \\ 0.7 & 0.7 & 0.7 & 0.7 & 0.7 \\ 1 & 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 & 1 \end{bmatrix} \end{array}$$

$R = (W \times \tilde{S}) \cup (\bar{W} \times y)$:

$$
\begin{array}{c}
 \\ 0 \\ 50 \\ 100 \\ 150 \\ 200
\end{array}
\begin{array}{c}
\begin{array}{ccccc} 0 & 50 & 100 & 150 & 200 \end{array} \\
\left[\begin{array}{ccccc}
1 & 1 & 0.5 & 0.1 & 0 \\
0.9 & 0.9 & 0.5 & 0.1 & 0.1 \\
0.7 & 0.7 & 0.7 & 0.7 & 0.7 \\
1 & 1 & 1 & 1 & 1 \\
1 & 1 & 1 & 1 & 1
\end{array}\right]
\end{array}
$$

* If a new anticident is introduced.

$$M = \left\{ \frac{0}{50} + \frac{0.4}{100} + \frac{1}{100} + \frac{0.4}{150} + \frac{0}{200} \right\}$$

Then find the consequent P' using max-min composition.

$$\Rightarrow P' = M.R = \begin{bmatrix} 0 & 0.4 & 1 & 0.4 & 0 \end{bmatrix}_{1\times5} \begin{bmatrix} 1 & 1 & 0.5 & 0.1 & 0 \\ 0.9 & 0.9 & 0.5 & 0.1 & 0.1 \\ 0.7 & 0.7 & 0.7 & 0.7 & 0.7 \\ 1 & 1 & 1 & 1 & 1 \\ 1 & 1 & 1 & 1 & 1 \end{bmatrix}_{5\times5}$$

$= \text{Max}[\min(0,1) + \min(0.4,0.9) + \min(1,0.7) + \min(0.4,1) + \min(0,1)]$

$= \text{Max}(0, 0.4, 0.7, 0.4, 0)$

$= 0.7$

$= \max[\min(0,1), \min(0.4,0.9), \min(1,0.7), \min(0.4,1), \min(0,1)]$

$= \max(0, 0.4, 0.7, 0.4, 0)$

$= 0.7$

$= \max(0, 0.4, 0.7, 0.4, 0)$

$= 0.7$

$$P' = \begin{bmatrix} 0.7 & 0.7 & 0.7 & 0.7 & 0.7 \end{bmatrix}$$

"Not measurable response"