Rapport TP RCR

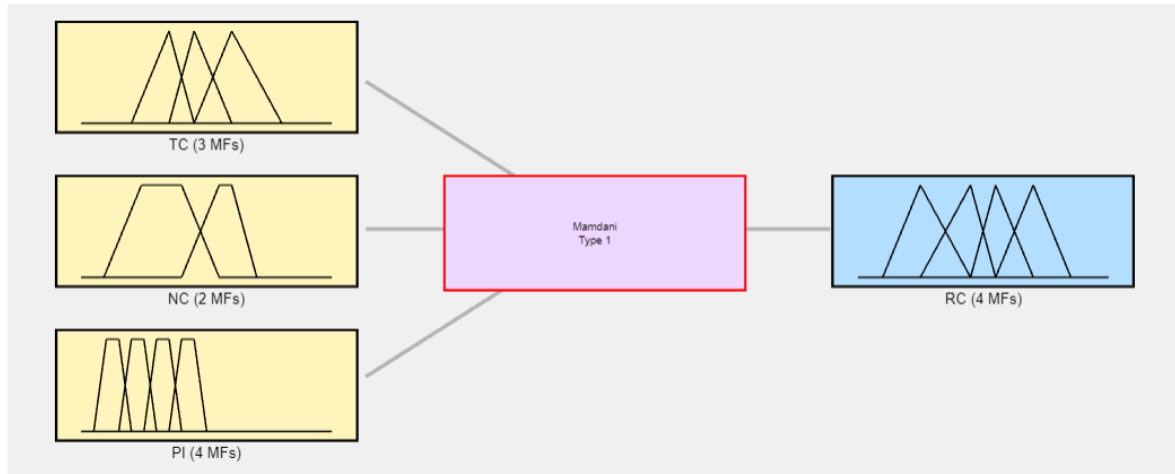## TP : Logique Floue

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Dans ce TP, nous avons utilisé matlab Online et son application Fussz logic designer qui permet d'implémenter des contrôleur flou graphiquement.

Exercice 1:

Graphique montrant la structure de notre contrôleur.

Nous devons d'abord définir les inputs de notre contrôleur:

	Name	Range	Number of MFs
1	TC	[0 100]	3
2	NC	[0 100]	2
3	PI	[0 100]	4

nous avons ici 3 inputs

le premier possède 3 paramètres triangulaire qui sont les suivants:

PROPERTY EDITOR: INPUT

Name	TC
Range	[0 100]

Number of MFs: 3

Name	Type	Parameters
AV	Triangular	[20 35 45]
AC	Triangular	[35 45 60]
IN	Triangular	[45 60 80]

le deuxième possède 2 paramètres trapézoïdal :

PROPERTY EDITOR: INPUT

Name	NC
Range	[0 100]

Number of MFs: 2

Name	Type	Parameters
DN	Trapezoidal	[9 24 40 55]
HN	Trapezoidal	[40 55 60 70]

le troisième possède 4 paramètre trapézoïdal aussi:

| EXPORT |

PROPERTY EDITOR: INPUT

Name	PI
Range	[0 100]

Number of MFs: 4

Name	Type	Parameters
TG	Trapezoidal	[5 10 15 20]
GR	Trapezoidal	[15 20 25 30]
MO	Trapezoidal	[25 30 35 40]
FA	Trapezoidal	[35 40 45 50]

nous avons un seul output qui possède 4 paramètre triangulaire:

PROPERTY EDITOR: OUTPUT

Name	RC
Range	[-100 100]

Number of MFs: 4

Name	Type	Parameters
TF	Triangular	[-80 -50 -10]
FO	Triangular	[-50 -10 10]
MO	Triangular	[-10 10 40]
FA	Triangular	[10 40 70]

Après avoir créer la structure de notre contrôleur, nous devons introduire les règles qui ont été donné dans l'énoncé:

	Rule
1	If TC is AV and NC is DN and PI is TG then RC is FA
2	If TC is AV and NC is DN and PI is GR then RC is FA
3	If TC is AV and NC is DN and PI is MO then RC is MO
4	If TC is AV and NC is DN and PI is FA then RC is FO
5	If TC is AC and NC is DN and PI is TG then RC is FA
6	If TC is IN and NC is DN and PI is TG then RC is FA
7	If TC is AC and NC is DN and PI is GR then RC is MO
8	If TC is AC and NC is DN and PI is MO then RC is MO
9	If TC is AC and NC is DN and PI is FA then RC is FO
10	If TC is IN and NC is DN and PI is GR then RC is MO
11	If TC is IN and NC is DN and PI is MO then RC is MO
12	If TC is IN and NC is DN and PI is FA then RC is FO
13	If TC is AV and NC is HN and PI is TG then RC is MO
14	If TC is AV and NC is HN and PI is GR then RC is MO
15	If TC is AV and NC is HN and PI is MO then RC is FO
16	If TC is AV and NC is HN and PI is FA then RC is TF
17	If TC is AC and NC is HN and PI is TG then RC is MO
18	If TC is AC and NC is HN and PI is GR then RC is FO
19	If TC is AC and NC is HN and PI is MO then RC is FO
20	If TC is AC and NC is HN and PI is FA then RC is TF
21	If TC is IN and NC is HN and PI is TG then RC is MO
22	If TC is IN and NC is HN and PI is GR then RC is FO
23	If TC is IN and NC is HN and PI is MO then RC is TF
24	If TC is IN and NC is HN and PI is FA then RC is TF

maintenant que toutes les règles on été défini, il ne nous reste plus qu'a inférer ces règles en utilisant "Rule Inference" pour observer le résultat:

System: Exercice 1

	TC = 52	NC = 42	PI = 17		RC = 22.4
1				AND (min)	
2				AND (min)	
3				AND (min)	
4				AND (min)	
5				AND (min)	
6				AND (min)	
7				AND (min)	
8				AND (min)	
9				AND (min)	
10				AND (min)	
11				AND (min)	
12				AND (min)	

13				AND (min)	
14				AND (min)	
15				AND (min)	
16				AND (min)	
17				AND (min)	
18				AND (min)	
19				AND (min)	
20				AND (min)	
21				AND (min)	
22				AND (min)	
23				AND (min)	
24				AND (min)	

0   100   0   100   0   100   100   100