

# Statistique multidimensionnelle

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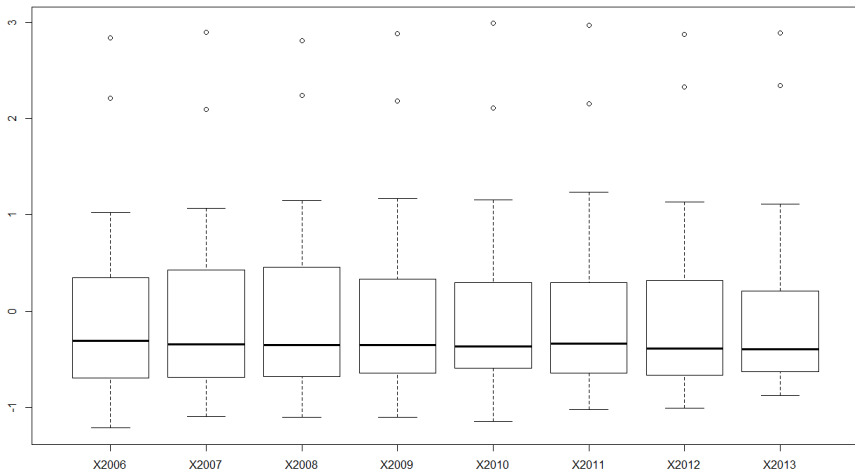
UMons

June 11, 2019

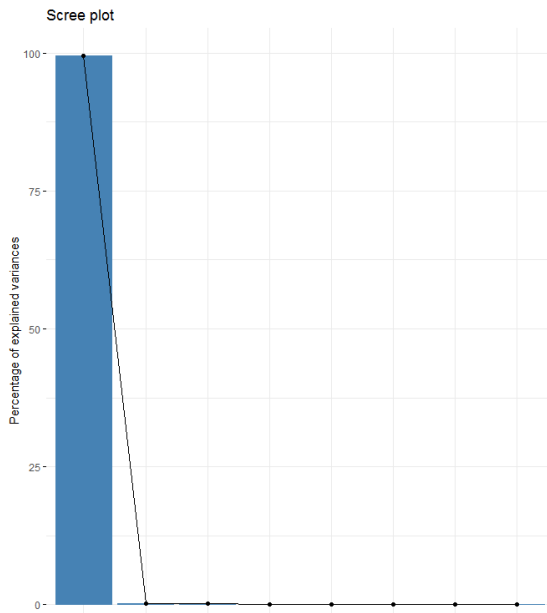
# Aperçu des données

geo/time	2006	2007	2008	2009	2010	2011	2012	2013
Île de France	1,5953	1,6908	1,6766	1,7645	1,8914	1,9128	1,9533	2,005
Champagne-Ardenne (NUTS 2013)	0,2839	0,2838	0,3204	0,2878	0,2973	0,3065	0,3234	0,3264
Picardie (NUTS 2013)	0,3541	0,3698	0,3885	0,3743	0,3954	0,3901	0,4044	0,4386
Haute-Normandie (NUTS 2013)	0,3878	0,4085	0,4164	0,4091	0,4145	0,4364	0,4992	0,5185
Centre (FR) (NUTS 2013)	0,4811	0,4989	0,5068	0,5069	0,5196	0,519	0,5099	0,5203
Basse-Normandie (NUTS 2013)	0,5005	0,3912	0,3764	0,4132	0,4428	0,455	0,4706	0,4585
Bourgogne (NUTS 2013)	0,3372	0,34	0,3486	0,3605	0,3729	0,3605	0,3875	0,3828
Nord - Pas-de-Calais (NUTS 2013)	0,3148	0,3182	0,3528	0,3878	0,3953	0,3967	0,393	0,4206
Lorraine (NUTS 2013)	0,4322	0,4408	0,4148	0,4581	0,4021	0,4222	0,4275	0,4418
Alsace (NUTS 2013)	0,6377	0,6278	0,6075	0,6478	0,6944	0,7061	0,7375	0,7179
Franche-Comté (NUTS 2013)	0,7089	0,7844	0,7836	0,7199	0,7205	0,7839	0,7698	0,778
Pays de la Loire (NUTS 2013)	0,4335	0,4125	0,4456	0,4681	0,4827	0,5187	0,5287	0,5355
Bretagne (NUTS 2013)	0,683	0,7591	0,7665	0,7591	0,7641	0,7839	0,8287	0,7984
Poitou-Charentes (NUTS 2013)	0,2932	0,269	0,2914	0,3055	0,3274	0,3154	0,346	0,3634
Aquitaine (NUTS 2013)	0,5232	0,5018	0,5323	0,6018	0,5887	0,6269	0,6287	0,6297
Midi-Pyrénées (NUTS 2013)	1,3713	1,3886	1,4607	1,4907	1,5224	1,5701	1,7134	1,7593
Limousin (NUTS 2013)	0,3234	0,3148	0,3303	0,319	0,3385	0,3699	0,3993	0,3943
Rhône-Alpes (NUTS 2013)	0,9497	1,0018	1,0457	1,0909	1,1253	1,1803	1,1898	1,2045
Auvergne (NUTS 2013)	0,4702	0,5367	0,5214	0,5084	0,494	0,5421	0,595	0,5575
Languedoc-Roussillon (NUTS 2013)	0,7374	0,7569	0,7909	0,8706	0,8292	0,8053	0,9085	0,9084
Provence-Alpes-Côte d'Azur (NUTS 2013)	0,8938	0,902	0,8762	0,8702	0,939	0,9014	0,9335	1,0402
Corse (NUTS 2013)	0,1516	0,187	0,1935	0,1922	0,1638	0,23	0,2482	0,3116

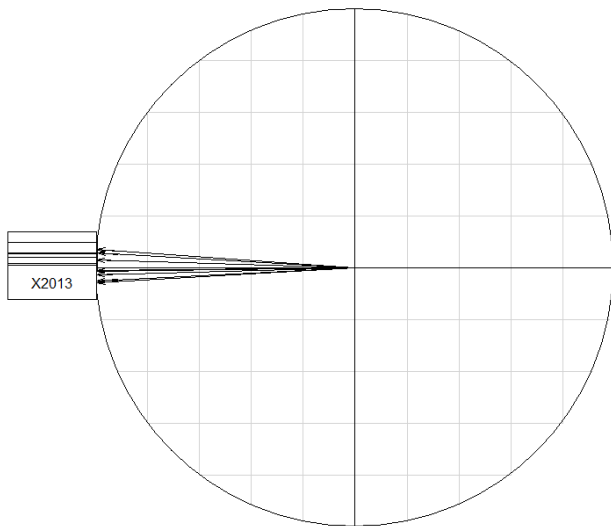
# Boxplot des données centrées-réduites



# Valeurs propres

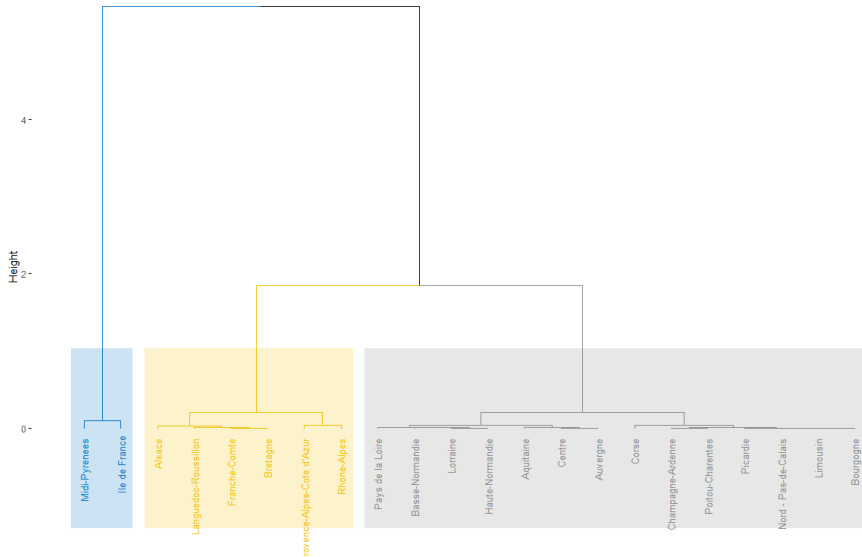


# Cercle des corrélations

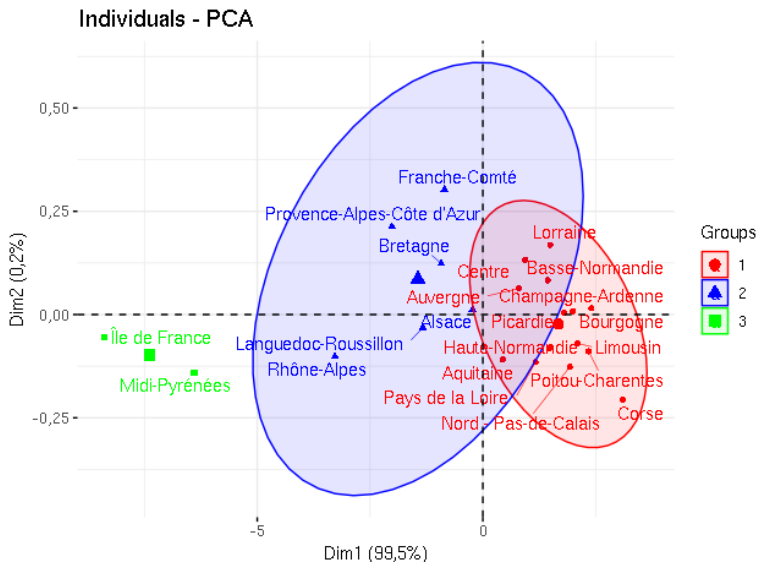


# Arbre de classification

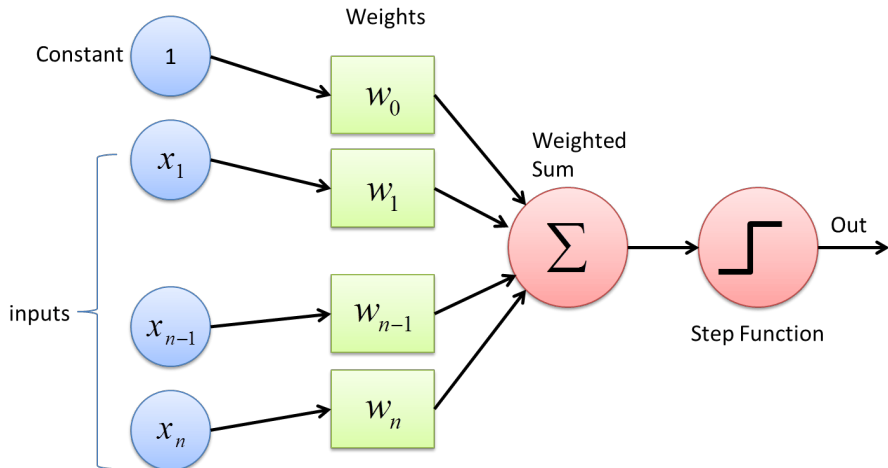
Cluster Dendrogram



# Classification Hiérarchique / ACP

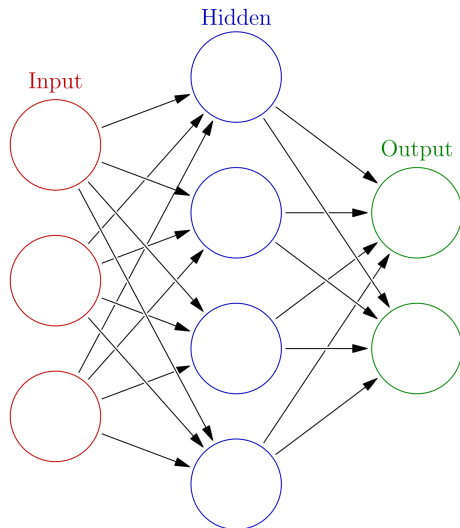


# Neurone

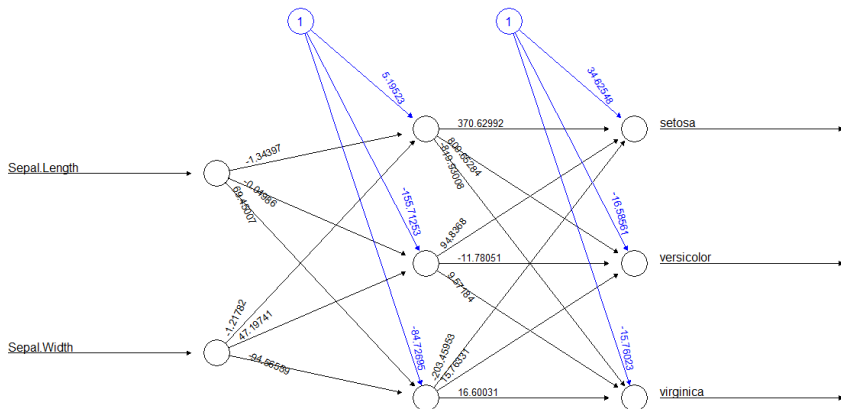




# Réseau de neurones



# Réseau de neurones - Exemple



Error: 49.860195 Steps: 39076

# Résultats de la classification

pred	setosa	versicolor	virginica
setosa	26	0	0
versicolor	0	17	10
virginica	1	4	17