

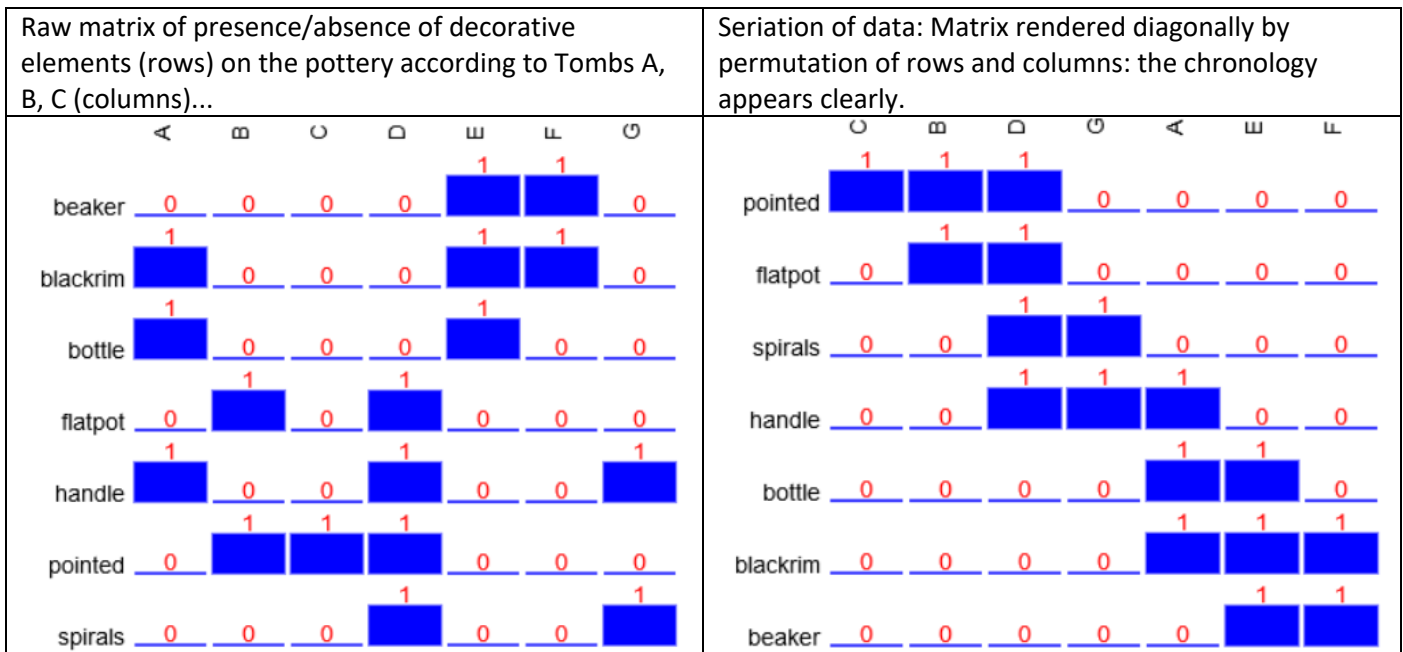
AMADO-online User Guide

<https://paris-timemachine.huma-num.fr/amado/>

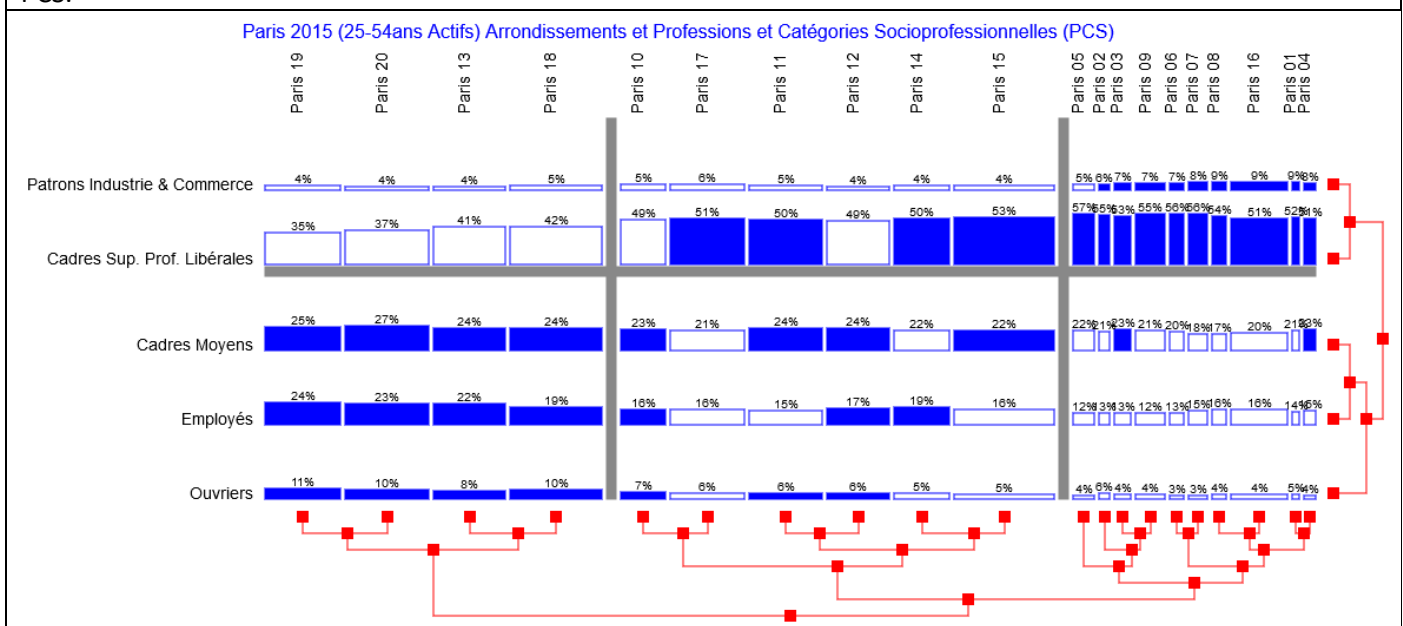
English, Español, Français, Русский , Tiếng Việt

AMADO-online was designed by **Nguyen-Khang PHAM (University of Can Tho)** using **Alban Risson's** code.

This instruction manual was written by Jean-Hugues Chauchat (University Lyon 2) V. 23 September 2020



Classification of Paris districts according to the distribution of socio-professional categories (PCS) of working inhabitants. The heights of the rectangles represent the % in the districts and their widths the populations of the districts; the surface area of each rectangle is proportional to the number of inhabitants in the district with this PCS.



AMADO-online

An online software for graphical analysis of data matrices.

AMADO-online is developed for the PTM (Paris Time Machine) consortium <https://paris-timemachine.huma-num.fr/amado/> within the "very large research infrastructure" (<https://www.huma-num.fr/>) dedicated to Human and Social Sciences in collaboration with Jean-Hugues Chauchat (Université Lumière Lyon2, <http://eric.ish-lyon.cnrs.fr>) and Alban Risson (ALSON company).

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- ... and to all those who have encouraged us.

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Introduction

AMADO-online allows you to graphically represent a numerical cross-table and then to permute the rows (and columns) to reveal the data structure: - either a diagonal structure (seriation) if it exists, - or a class structure of the rows and columns, or even blocks.

This user's guide presents several types of tables with, for each one, the source data and the sequence of commands in the AMADO-online menus that allow the reproduced graphics to be obtained.

AMADO-online is a tool adapted to small or medium sized tables (up to fifty rows and columns) such as those constructed in the Social and Human Sciences where each element has been precisely defined and must be clearly positioned in the overall picture.

The graphs produced by AMADO online are faithful to the data and simple to understand; they give the reader direct access to the result: each piece of information - each number in the data table - is restored in its original form, the numbers are represented by rectangles whose heights are proportional to the values in the original table, either in absolute numbers or in percentages.

The idea of permuting the rows and columns of a matrix in order to reveal a hidden structure in a data matrix is an old one: Sir W. M. Flinders Petrie (1899) presented a century ago a "sequence in prehistoric remains", i.e. a chronological "seriation" of the shapes and decorative elements of objects found during archaeological excavations in Egypt. As Phipps Arabia, Scott Boorman & Paul Levitt (1978), Giles Caraux (1984) and Jean-François Marcotorchino (1987) have pointed out, this idea is increasingly influential in applied mathematics and the cognitive sciences.

Jacques Bertin (1967, 1977) came up with the idea of putting histograms side by side, using an appropriate scale, and permuted the elements to reveal the underlying structures in the data. Since then, this approach has gained considerable momentum (Bord 1997, Palsky 2017, Harvey 2019). Originally, Bertin and his team worked with sets of wooden cubes that they moved several times by hand, first the rows, then the columns, then the rows, etc. Then, the spread of multidimensional data analysis methods (Cordier 1965, Benzécri 1973, Arabie & al. 1978, Greenacre 1984, Caraux 1984, Tenenhaus & Young 1985, Hoffman DeLeeuw 1992) somewhat overshadowed this empirical approach.

Of course, the numerical techniques of data analysis make it possible to quickly discover the main features of the structure of the table. This saves a considerable amount of time in the search for the best pair of permutations of the n rows and p columns of the table among the $n! p!$ possible solutions. However, in factor analysis, lists of coordinates and other "*numerical aids to interpretation*" are useful to the statistician but often incomprehensible to the social scientist; the same applies to *factorial graphs*, *cloud of individuals*, *circle of correlations*, *simultaneous representation*, etc. Their interpretation requires a trained eye, and they may owe part of their success with the general public to their very esotericism ... For their part, classification trees give a useful but distorted ("*ultrametric*") representation of the original table, and almost always for only one side of the table, either the rows or the columns. But many lists of *averages*, *marginal and conditional means*, *standard deviations*, *contributions*, etc., are necessary to clarify the meaning of such a tree.

On the contrary, as will be seen in the examples presented here, AMADO online uses factor analysis or classification and then gives the reader direct access to the result: each piece of information - each number in the data table - is restored in its original form, either as an absolute number or as a percentage. It is only the order of the rows and columns that has changed, but it is all there.

Elements of bibliography

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Some examples of graphs to help understanding a table

Chronological "seriation" of archaeological objects.

Example of data inspired by those used by the archaeologist Sir Flinders PETRIE to date tombs excavated at Diospolis Parva in Egypt at the end of the 19th century. He had hypothesised that the type of objects and decorative elements characterised their period and that, consequently, their variations reflected the chronology. (Renfrew, C., & Bahn, P. G.: *Archaeology: Theories Methods and Practice*, 1991) [https://en.wikipedia.org/wiki/Seriation_\(archaeology\)](https://en.wikipedia.org/wiki/Seriation_(archaeology))

File : Egyptian_pottery_example.TXT

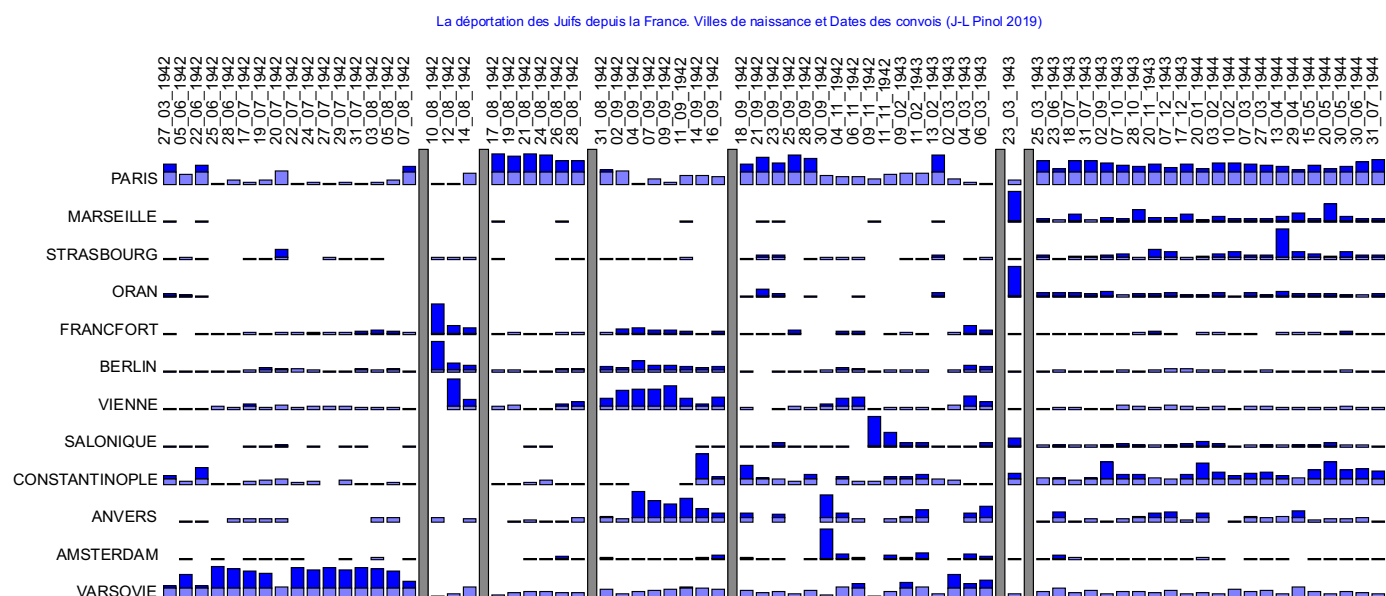
Raw matrix of presence/absence of decorative elements on pottery according to Tombs A, B, C ...	Matrix becomes diagonal by changing the rows and columns ranks (according Correspondence Analysis first factor): the chronology appears clearly.																																																																																																																																
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Chronological data: distribution of Jews deported from France according to convoys and cities of birth

Distribution of Jews deported from France according to the convoys that transported them to the death camps, and by city of birth. See Jean-Luc Pinol, *Convois, La déportation des Juifs de France*, Paris, Éditions du Détour, 2019.

File: Deportation_Villes-naissance_Convois.TXT

The graph shows the distribution of deportees according to their city of birth in each of the convoys (% in columns).



On this graph, it is clear that the first 19 convoys (from March to August 7th 1942) included mostly Jews refugees in France, born in Warsaw (Varsovie); then from Germany and Austria on August 10th, 12th and 14th 1942; after the *Rafle du Vel d'Hiv* (more than 13,000 French Jews were rounded up in Paris and herded into Paris velodrome), the deportees of the convoys from August 17th to 28th were mostly born in Paris.

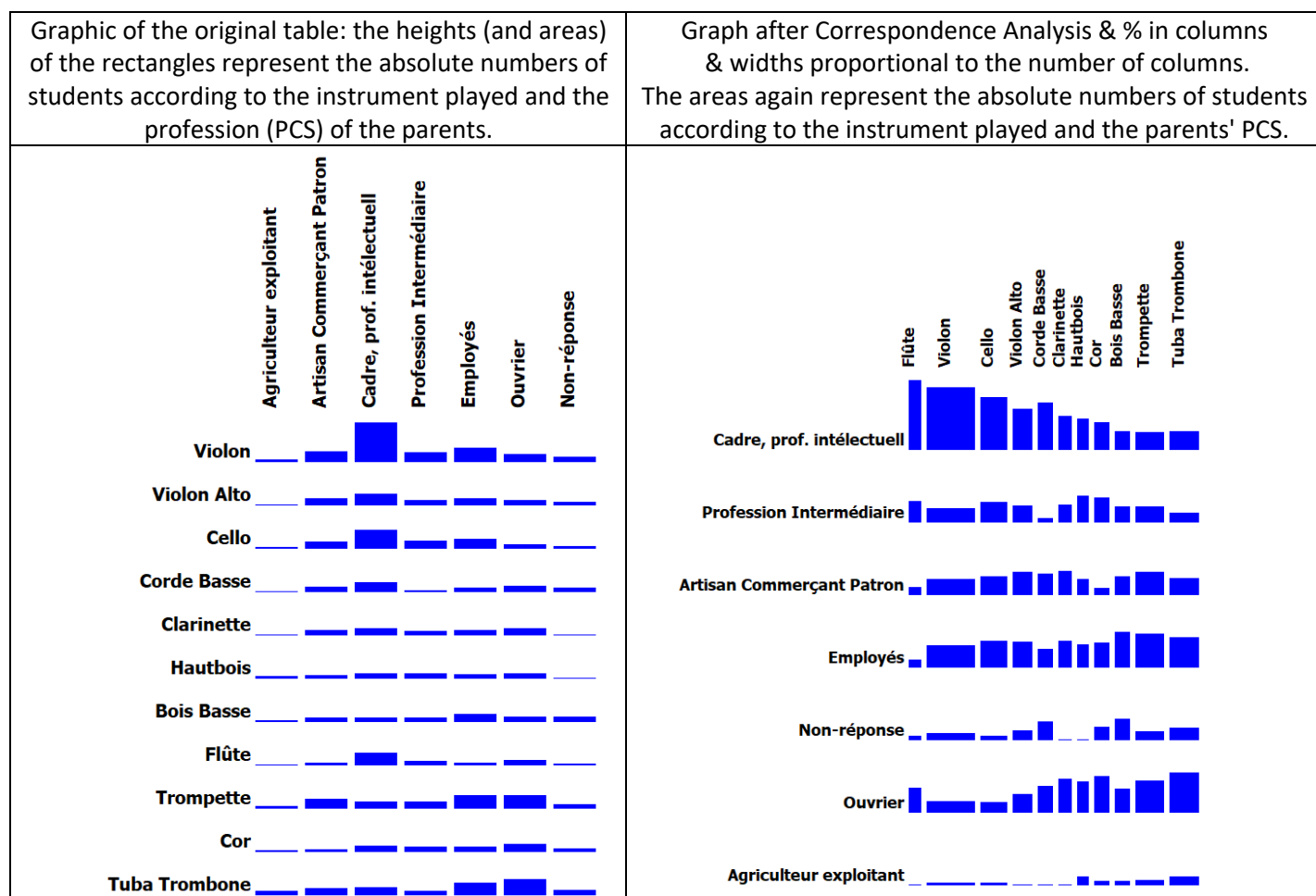
From 31 August 1942 until 16 September, eight convoys transported people arrested during the great round-up of 26 August in the *unoccupied zone* where many Jews from Germany, Austria and Belgium had taken refuge.

The convoy that left on March 23rd, 1943 deported mostly Jews born in Marseille or Algeria, arrested after the destruction of the *Vieux Port* district of Marseille in January 1943.

Instruments played by students of the Paris National Conservatory of Music and Dance (CNSM) and their parents' professions and socio-professional categories (PCS)

L'orchestre dans tous ses éclats : sociologie de la profession de musicien, by B. Lehmann. Doctoral thesis in Sociology defended in 1995 in Paris, EHESS. File: EN_musical_instruments-parents_professions.TXT

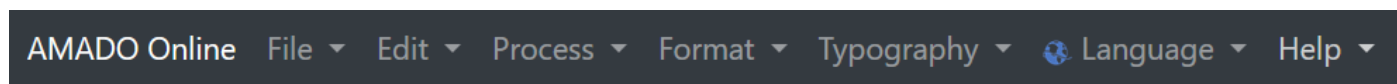
Sociology of the music profession. Lehmann 1995. Student's musical instruments & parent's profession	Farmer operator	Craftsman, shopkeeper, entrepreneur	Professional, executive, higher intellectual profession	Intermediate profession	Clerk, shop assistant, domestic worker	Manual worker	Nonresponse
Violin	2	17	69	15	24	12	7
Viola	0	10	18	7	11	8	4
Cello	1	11	32	12	16	6	2
Basse	0	7	16	1	6	9	6
Clarinet	0	7	10	5	8	10	0
Oboe	2	4	8	7	6	8	0
Bass woodwinds	1	6	6	5	12	8	7
Flute	0	2	20	6	2	7	1
Trompet	3	15	11	10	22	21	5
English horn	1	2	9	8	8	12	4
Tuba & Trombone	5	11	12	6	20	27	8



The graph on the right shows that the flute and stringed instruments are chosen more by children from the well-to-do and "cultured" categories. On the other hand, brass and woodwind instruments are played more by the children of clerks, shop assistants, domestic worker and, blue collards (these instruments are played in the harmonies and brass bands thanks to which they often began their musical education); the children of farmers are few in number at the Higher Conservatory and their share of flute or string players is nil or very low.

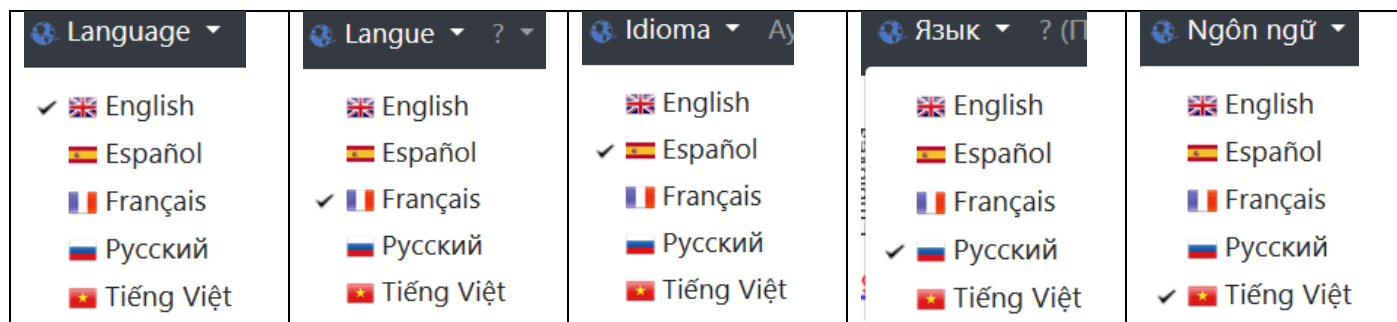
The Menus

The main menu:

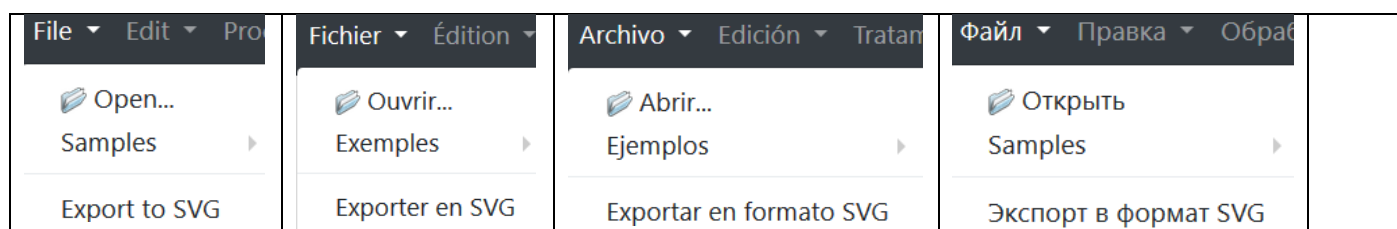


⇒ The User's Guide is accessible via the "Help" menu.

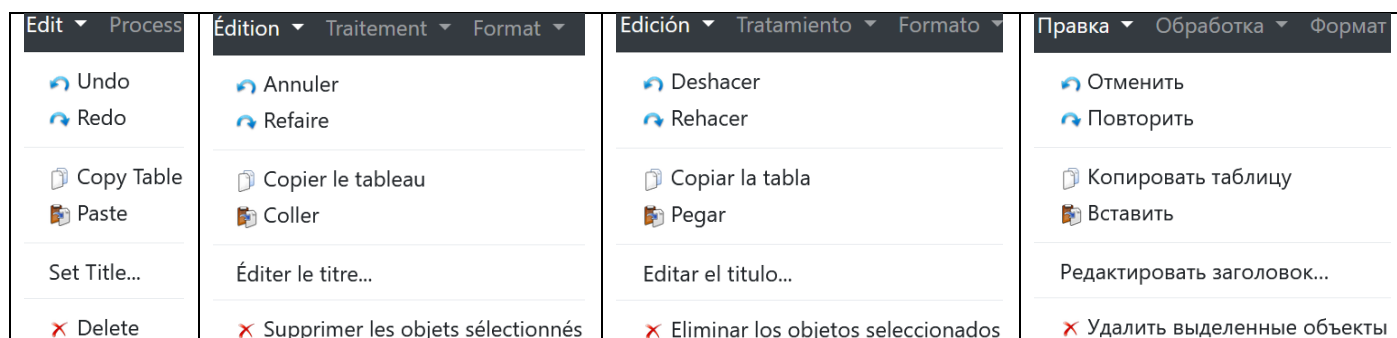
The Menu Language, Idioma, Langue, язык, ngôn ngữ :



The Menu File, Fichier, Archivo, Файл :



The Menu Edit, Édition, Edición, Правка :



The Menu Process, Traitement, Tratamiento, Обработка :

<div><div><div><div></div></div><div>Transpose</div></div></div> <div><div><div><div></div></div><div>Sort A to Z</div></div><div><div><div></div></div><div>Sort Z to A</div></div></div> <div><div>Frequency Data</div><div>Homogeneous Numerical Data</div><div>Heterogeneous Numerical Data</div></div> <div><div>Remove Trees</div><div>Compute Row Percentages</div><div>Compute Column Percentages</div></div> <div><div>Normalize Rows</div><div>Normalize Columns</div></div> <div><div>Insert Separator</div><div>Remove Separator</div></div>	<div><div><div><div></div></div><div>Transposer</div></div></div> <div><div><div><div></div></div><div>Trier ascendant</div></div><div><div><div></div></div><div>Trier descendant</div></div></div> <div><div>Données de fréquences</div><div>Données numériques homogènes</div><div>Données numériques hétérogènes</div></div> <div><div>Supprimer les arbres</div><div>Calculer des pourcentages lignes</div><div>Calculer des pourcentages colonnes</div></div> <div><div>Normaliser des lignes</div><div>Normaliser des colonnes</div></div> <div><div>Insérer séparateurs</div><div>Supprimer séparateurs</div></div>	<div><div><div><div></div></div><div>Транспонировать</div></div></div> <div><div><div><div></div></div><div>Сортировка А-Я</div></div><div><div><div></div></div><div>Сортировка Я-А</div></div></div> <div><div>Частота</div><div>Гомогенные числовые данные</div><div>Гетерогенные числовые данные</div></div> <div><div>Удалить деревья</div><div>Вычислить проценты строк</div><div>Вычислить проценты столбцов</div></div> <div><div>Нормализовать строки</div><div>Нормализовать столбцы</div></div> <div><div>Вставить разделители</div><div>Удалить разделители</div></div>
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The Menu Format, Formato, Формат :

<div><div><div><div></div></div><div>Graph Size...</div></div></div> <div><div><div><div></div></div><div>Scale By Line</div></div><div><div><div></div></div><div>Common Scale</div></div></div> <div><div><div><div></div></div><div>Same Width for All Columns</div></div><div><div><div></div></div><div>Weight Width of Columns</div></div></div> <div><div><div><div></div></div><div>Mode 1</div></div><div><div><div></div></div><div>Mode 2</div></div><div><div><div></div></div><div>Mode 3</div></div><div><div><div></div></div><div>Mode 4</div></div><div><div><div></div></div><div>Mode 5</div></div><div><div><div></div></div><div>Mode 6</div></div></div> <div><div>Row Legends</div><div>Column Legends</div><div>Value Format</div></div> <div><div>Separators</div></div>	<div><div><div><div></div></div><div>taille du graphique...</div></div></div> <div><div><div><div></div></div><div>Ligne échelle propre</div></div><div><div><div></div></div><div>Ligne échelle commune</div></div></div> <div><div><div><div></div></div><div>Même largeur pour chaque colonne</div></div><div><div><div></div></div><div>Pondérer la largeur des colonnes par la somme de chaque colonnes</div></div></div> <div><div><div><div></div></div><div>Mode 1</div></div><div><div><div></div></div><div>Mode 2</div></div><div><div><div></div></div><div>Mode 3</div></div><div><div><div></div></div><div>Mode 4</div></div><div><div><div></div></div><div>Mode 5</div></div><div><div><div></div></div><div>Mode 6</div></div></div> <div><div>Légende ligne</div><div>Légende colonne</div><div>Format valeur</div></div> <div><div>Séparateurs</div></div>	<div><div><div><div></div></div><div>Размер графика...</div></div></div> <div><div><div><div></div></div><div>Масштабировать по строке</div></div><div><div><div></div></div><div>Общая шкала</div></div></div> <div><div><div><div></div></div><div>Одинаковая ширина для всех столбцов</div></div><div><div><div></div></div><div>Взвешенная ширина столбцов</div></div></div> <div><div><div><div></div></div><div>Графический режим-1</div></div><div><div><div></div></div><div>Графический режим-2</div></div><div><div><div></div></div><div>Графический режим-3</div></div><div><div><div></div></div><div>Графический режим-4</div></div><div><div><div></div></div><div>Графический режим-5</div></div><div><div><div></div></div><div>Графический режим-6</div></div></div> <div><div>Легенда строк</div><div>Легенда столбцов</div><div>Формат значений</div></div> <div><div>Разделители</div></div>
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The Menu Typography, Typographie, Tipograffa, Печать :

Typography ▾ 🌐 Language ▾	Typographie ▾ 🌐 Langue ▾ ? ▾	Печать ▾ 🌐 Язык ▾ ? (Помощь) ▾
Graph Color...	Couleur du graphique...	Цвет графика
⚡ Increase Column Spacing ⚡ Decrease Column Spacing	⚡ Augmenter l'intervalle entre colonnes ⚡ Réduire l'intervalle entre colonnes	⚡ Увеличить интервал между столбцами ⚡ Уменьшить интервал между столбцами
⚡ Increase Row Spacing ⚡ Decrease Row Spacing	⚡ Augmenter l'intervalle entre lignes ⚡ Réduire l'intervalle entre lignes	⚡ Увеличить интревал между строками ⚡ Уменьшить интервал между строками
Row Legend Color... Row Legend Font Size ▶	Couleur de la légende ligne... Taille des noms de ligne ▶	Цвет строки легенды... Размер легенды строки ▶
Column Legend Color... Column Legend Font Size ▶	Couleur de la légende colonne... Taille des noms de colonnes ▶	Цвет столбца легенды... Размер легенды столбца ▶
Value Color... Value Font Size ▶	Couleur des valeurs... Tailles des valeurs ▶	Цвет значений Размер значения ▶
Separator Color...	Couleur des séparateurs...	Цвет разделителей

Moving a row or column

To show the data structure, rows and/or columns can be reordered.

Moves can be made "by hand": select a row by clicking on it and move it while keeping the mouse button pressed. You can also move a block of contiguous rows by clicking on one row and then on another using the Ctrl key. The same applies to one column or a block of contiguous columns.

Automatic diagonalization (by Factorial Correspondent Analysis) and classification methods will be discussed later.

Sort the rows according to the values of a column (or sort the columns according to the values of a row)

Select a column by clicking on its label, then **Process / Sort ascending (or descending)**.

Same when you select a line.

File: open a data file

Open a file (in UNICODE format, or UTF-8 if there are accents or special characters), with "tab separators".

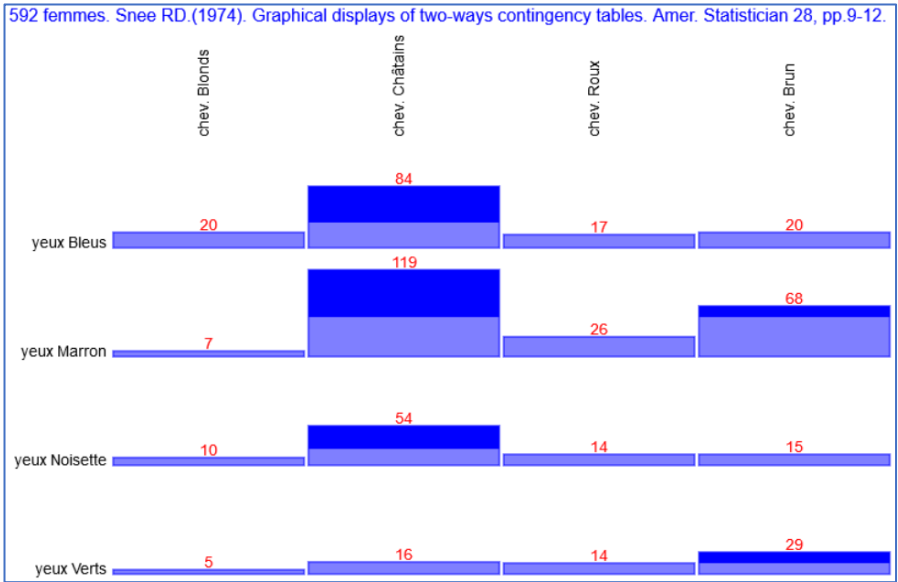
Open / Sample / EN_Hair_color-Eye_color.TXT

Example: Hair and eye colours of 592 people. Snee RD. (1974). Graphical displays of two-ways contingency tables.

Hair_color-Eye_color. Snee R. The American Statistician Volume 28, 1974	Black hair	Brunette hair	Red hair	Blond hair
Brown eye	68	119	26	7
Blue eye	20	84	17	94
Hazel eye	15	54	14	10
Green eye	5	29	14	16

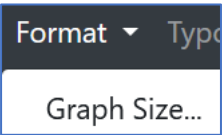
By default, labels are displayed with 10 characters. To display the full labels "Format / Row Legend / Complete", and "Format / Column Legend / Complete".

For a clearer reading of the graph: « Typography / Increase Column Spacing »

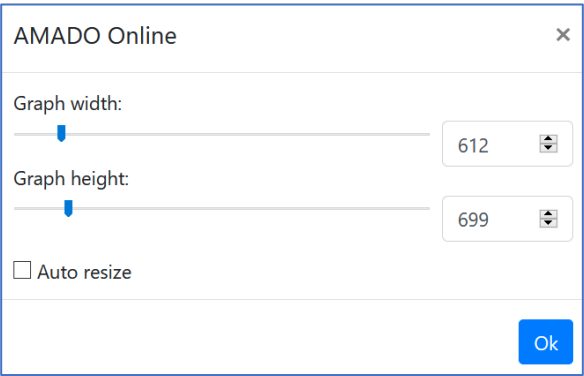


The numbers in the table are represented by the heights (and areas) of the rectangles.

How to change the size, and the height/width ratio, of the graphic



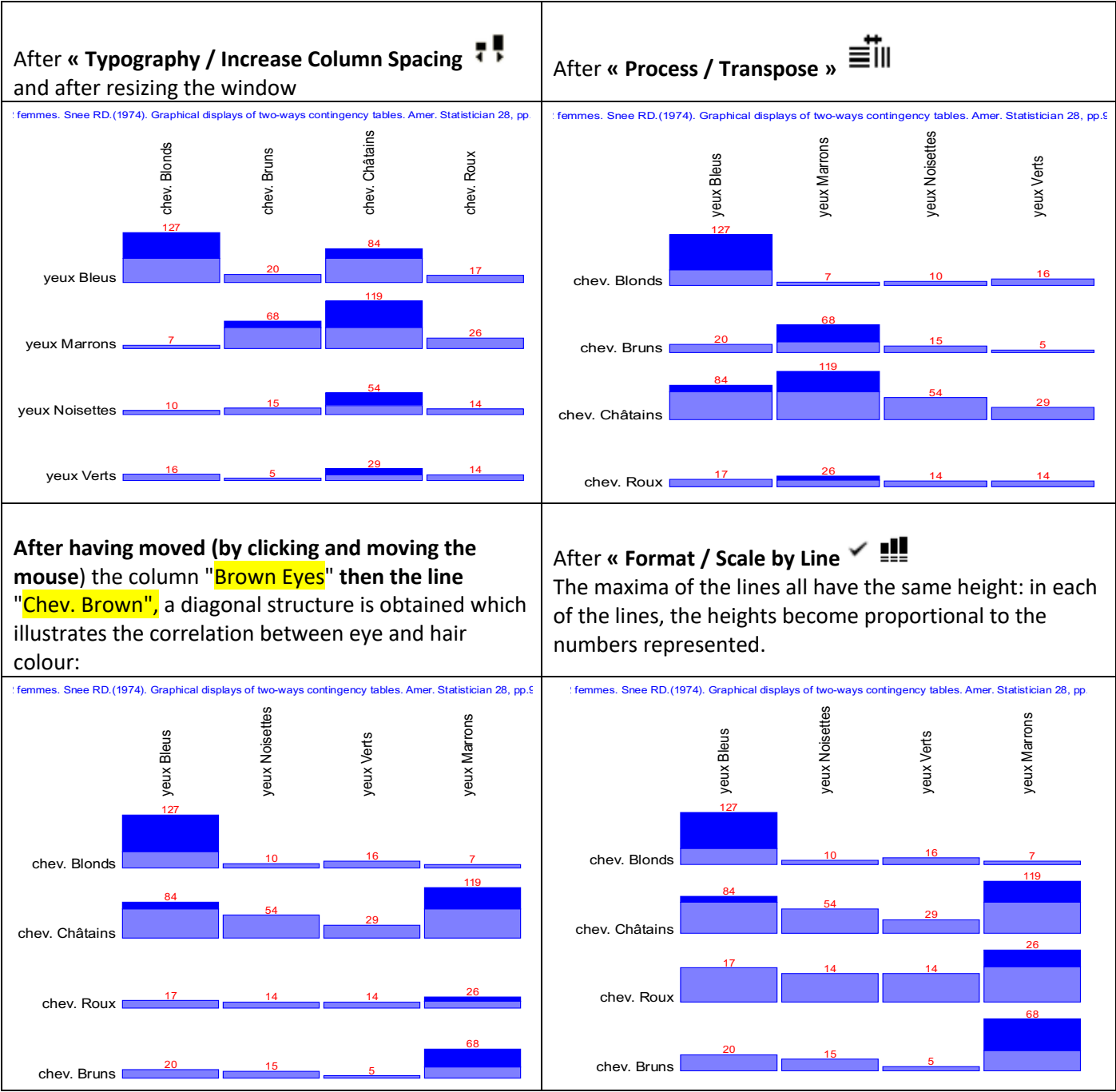
Opens the window:



Uncheck: ☒ Auto resize → ☐ Auto resize

Then choose the desired width and height for the graphic. At the end, validate by clicking on:

Example of order sequence for a small-sized example

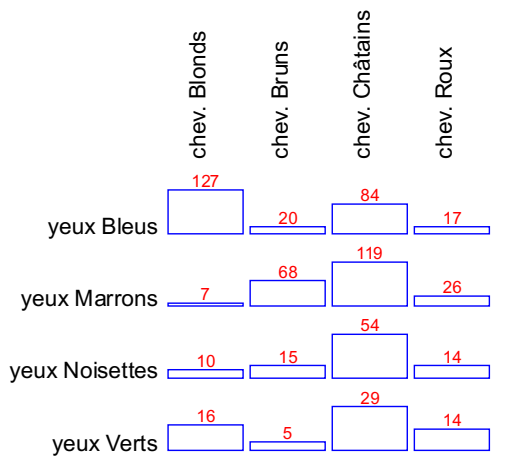


The 6 Display Modes

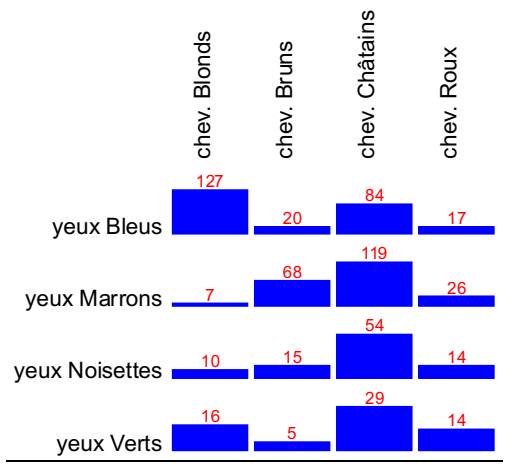
« Format / Mode 1, etc. »

allow, in different ways, to visually distinguish values below or above the average value of each line.

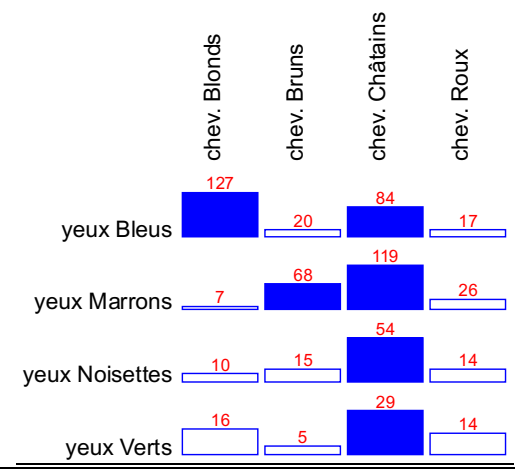
l.(1974). Graphical displays of two-ways contingency tables. Amer. §



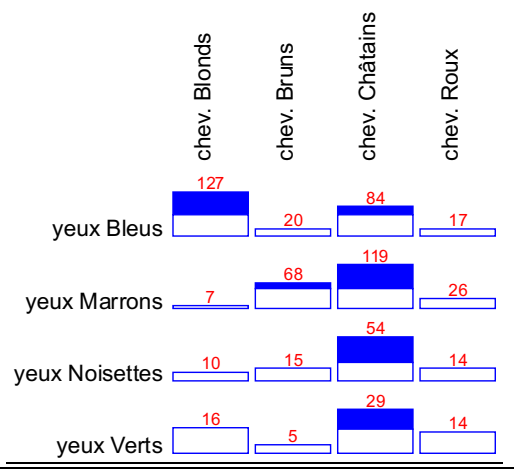
l.(1974). Graphical displays of two-ways contingency tables. Amer.



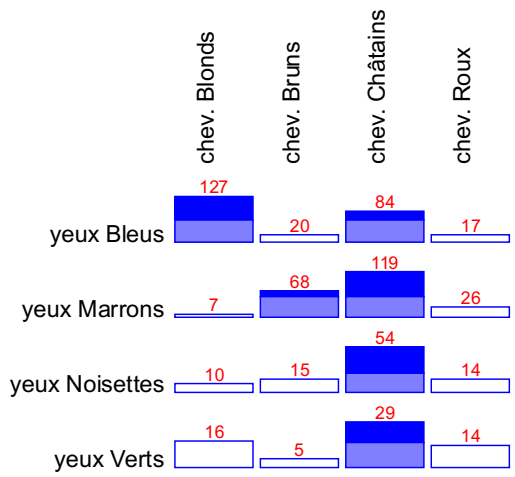
l.(1974). Graphical displays of two-ways contingency tables. Amer.



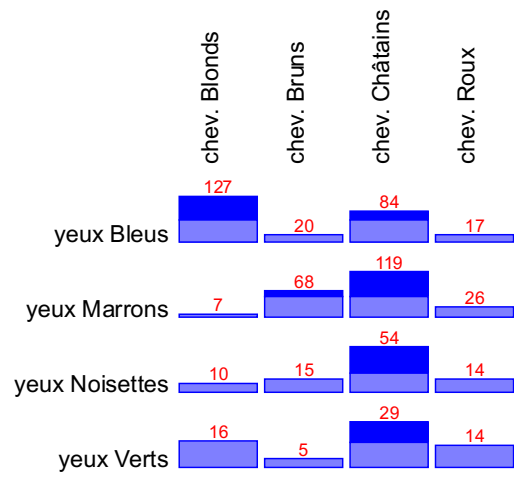
l.(1974). Graphical displays of two-ways contingency tables. Amer.




l.(1974). Graphical displays of two-ways contingency tables. Amer.

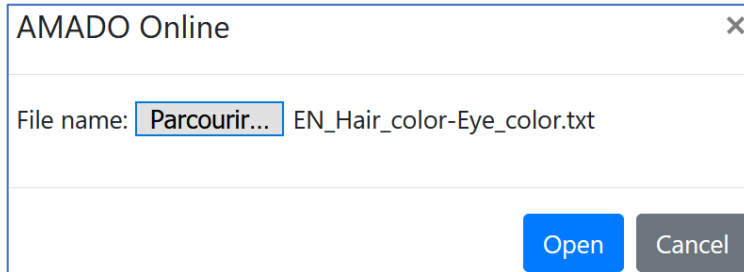


l.(1974). Graphical displays of two-ways contingency tables. Amer.



File: Open, Samples..., Export to SVG, Export to PNG

File / Open  allows you to open a .TXT format file from your computer. The fields must be separated by "Tab" characters. If the title or the line or column labels contain accented characters, the file must have been saved in UTF or UNICODE format.



File / Sample: Some ".TXT" files are available, including those used in this Guide. The English file names begin with EN (Example: EN_Hair_color-Eye_color.TXT). If the cell at the top left of the .TXT table contains a text, this appears as the title of the graph. **Edit / Set Title** allows you to create or change the title of the chart.

File / Export to SVG copies the chart, in SVG (*Scalable Vector Graphic*) format, to the "Downloads" folder on the computer. See the appendix on how to crop an SVG chart that has been pasted into Word, Excel or PowerPoint.

File / Export to PNG copies the chart in PNG (*Portable Network Graphics*) format, to the "Downloads" folder on the computer, so that it can be pasted into Word, Excel or PowerPoint.



SVG and PNG both are a type of image format to store images. SVG is a vector based image format where an image is represented by set of mathematical figures and PNG is a binary image format and it uses lossless compression algorithm to represent image as pixels.


Following are the important differences between SVG and PNG.

Sr. No.	Key	SVG	PNG
1	Stands for	SVG stands for <i>Scalable Vector Graphics</i> .	PNG stands for <i>Portable Network Graphics</i> .
2	Image type	SVG image is vector based.	PNG image is pixel based.
3	On Zoom	SVG image quality remains same while zooming.	PNG image quality degrades while zooming.
4	Basis	SVG images is made up of paths and shapes.	PNG images is made up of pixels.
5	Editable	SVG images are editable.	PNG images are not editable.
6	Extensions	SVG images use .svg extension.	PNG images use .png extension.
7	Usage	SVG images are used in devices using high resolution images.	PNG images are generally used in image creation.

<https://www.tutorialspoint.com/difference-between-svg-and-png>


Edit: Undo, Redo, Copy Table, Paste, Set Title..., Delete

Edit / Undo  allows you to go back and **Edit / Redo**  to redo.

Edit / Copy table  If you are using a PC, use **Ctrl + C** to copy the current table from AMADO-online (in order to paste it into a Text, Excel, Word or PowerPoint file). **ERREUR : la réponse est « Please use Ctrl/Cmd + C ».**

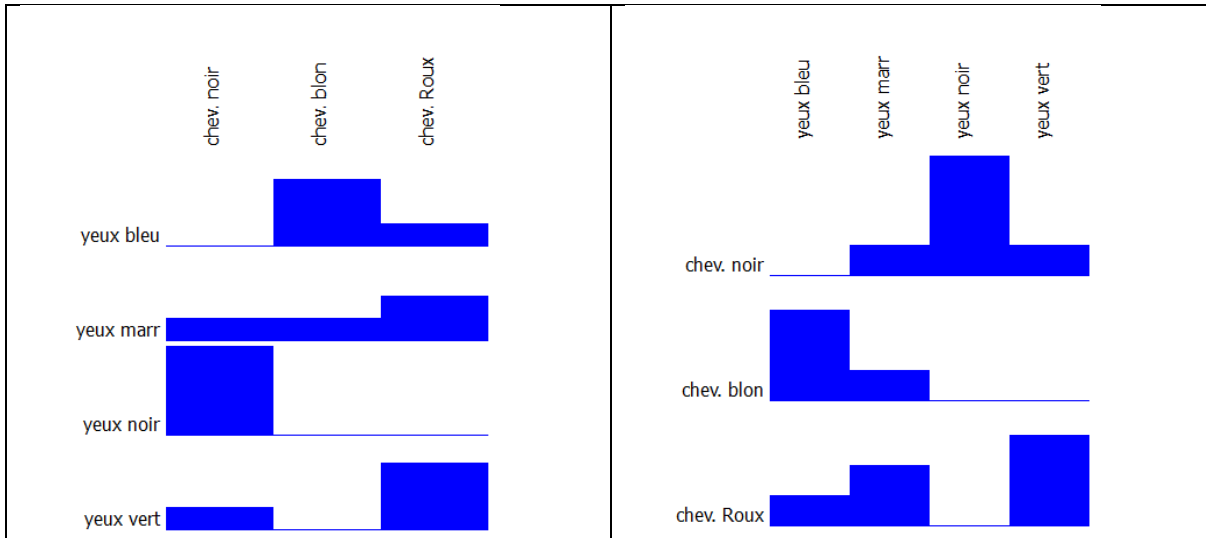
Edit / Paste  If you are using a PC, use **Ctrl + V** to paste a table (e.g. from a Text, Excel, Word file) to AMADO-online to become a graph; this is an alternative to File / Open. **ERREUR : la réponse est « Please use Ctrl/Cmd +V ».**


Edit / Set Title: To create or change the graph title.

Edit / Delete  To delete a row or a column, first select a row or column by clicking on the name of the row or column and then "Edit / Delete ". By "Ctrl + Click" you can also select several rows or columns to be deleted.


Process: Transpose, Sort, Frequency Data..., Homogeneous Numerical Data..., Heterogeneous Numerical Data..., Remove Tree, Compute Row Percentages, Compute Column Percentages, Normalize Rows, Normalise Columns, Insert Separators, Remove Separator

Process / Tranpose



Process / Sort A to Z  First, select a row by clicking on its label. Then, execute the command to reorder all the columns according to the increasing order of the values in that row.

Or select a column by clicking on its label. Then, execute the command to reorder all the rows according to the values in this column.

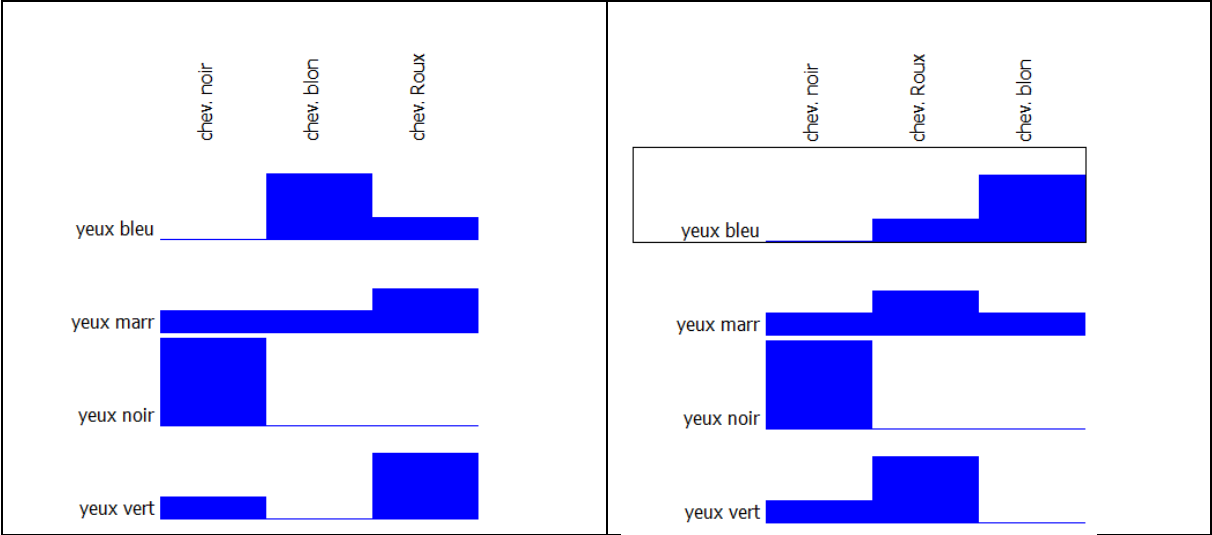
Process / Sort Z to A  The same to reorder the rows (columns or lines) in descending order

Frequency Data... These commands are suitable for frequency cross-tabulation:

- in a population described by two qualitative variables, N_{ij} is the number of individuals with the character " i " of the variable "rows" and the character " j " of the variable "columns" (examples: number of inhabitants of district " i " with the occupation " j ". Number of people according to the colours " i " of their eyes and " j " of their hair),
- tables of 0/1. $N_{ij}=1$ if the character " j " of the variable "column" is present in the individual " i ", $N_{ij}=0$ if not (example: the pottery found in the archaeological site " i " has, or does not have, the shape or design " j "),
- square co-occurrence tables: N_{ij} is the number of times characters " i " and " j " have been matched together.

Ces commandes sont adaptées pour les tableaux croisés de fréquences.

- dans une population décrite par deux variables qualitatives, N_{ij} est le nombre d'individus possédant le caractère " i " de la variable "lignes" et le caractère " j " de la variable "colonnes" (exemples: nombre des habitants du quartier " i " ayant la profession " j "; nombre des personnes selon les couleurs " i " de leurs yeux et " j " de leurs cheveux),
- les tableaux de 0/1 de présence/absence, $N_{ij}=1$ si le caractère " j " de la variable "colonne" est présent chez l'individu " i ", et $N_{ij}=0$ si non (exemple: les poteries trouvées dans le site archéologique " i " possèdent, ou non, la forme ou le dessin " j "),
- les tableaux carrés de co-occurrences: N_{ij} est le nombre de fois où le caractère " i " et le caractère " j " sont placés ensemble.



Frequency Data Processing: diagonalisation & classification

For any cross-count or presence-absence table: Pre-processing by FCA (Factorial Correspondence Analysis) and Supervised Classification.

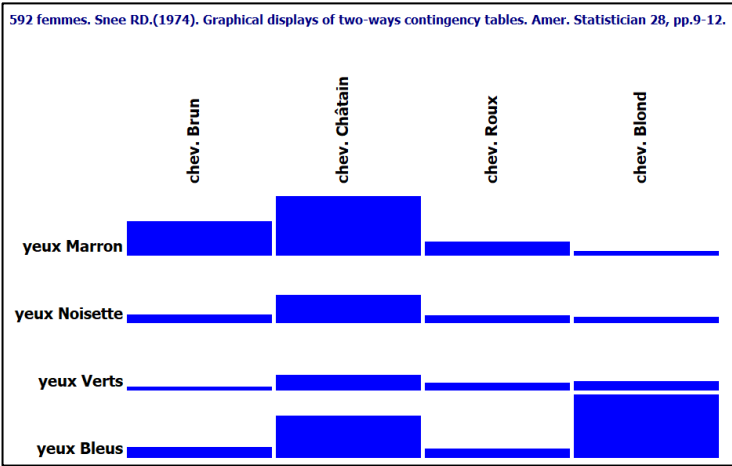
Example-1: eye and hair colours of 592 people

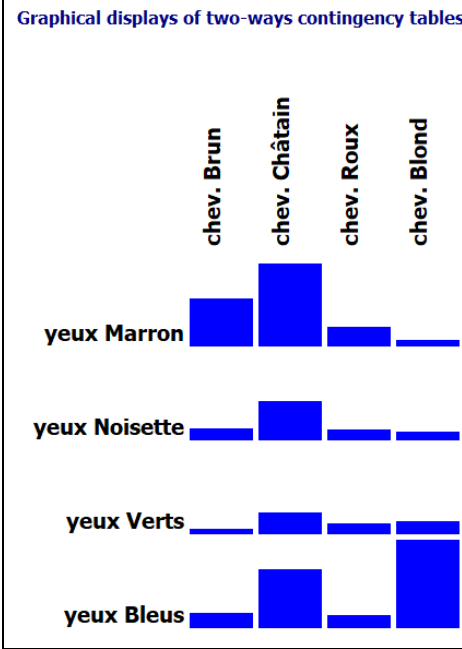
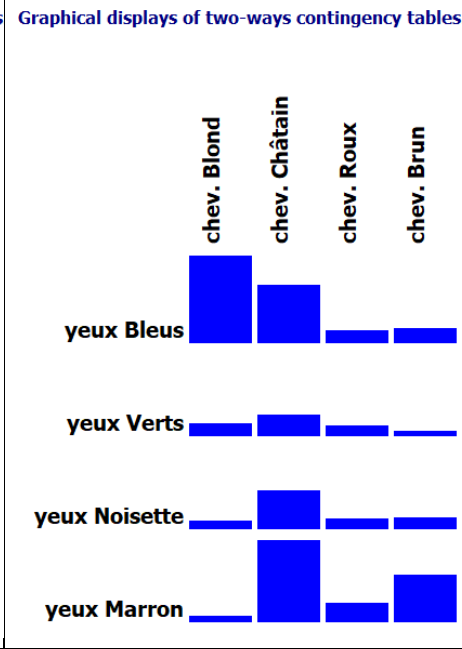
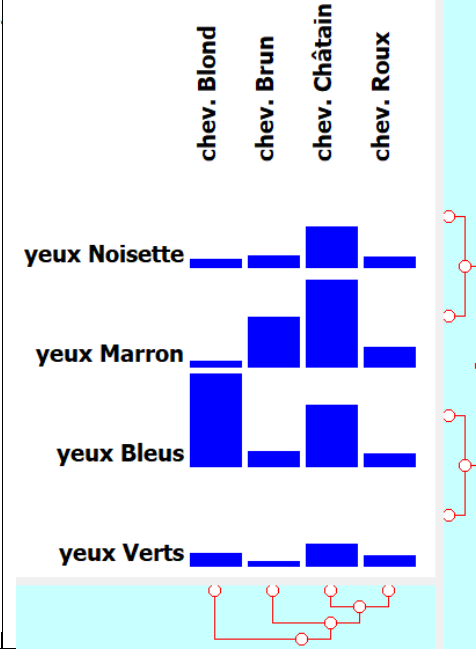
Open / Sample / EN_Hair_color-Eye_color.TXT

Hair_color-Eye_color. Snee R. The American Statistician Volume 28, 1974	Black hair	Brunette hair	Red hair	Blond hair
Brown eye	68	119	26	7
Blue eye	20	84	17	94
Hazel eye	15	54	14	10
Green eye	5	29	14	16

By default, labels are displayed with 10 characters. To display the full labels "Format / Row Legend / Complete", and "Format / Column Legend / Complete".

For a clearer reading of the graph: « **Typography / Increase Column Spacing** »

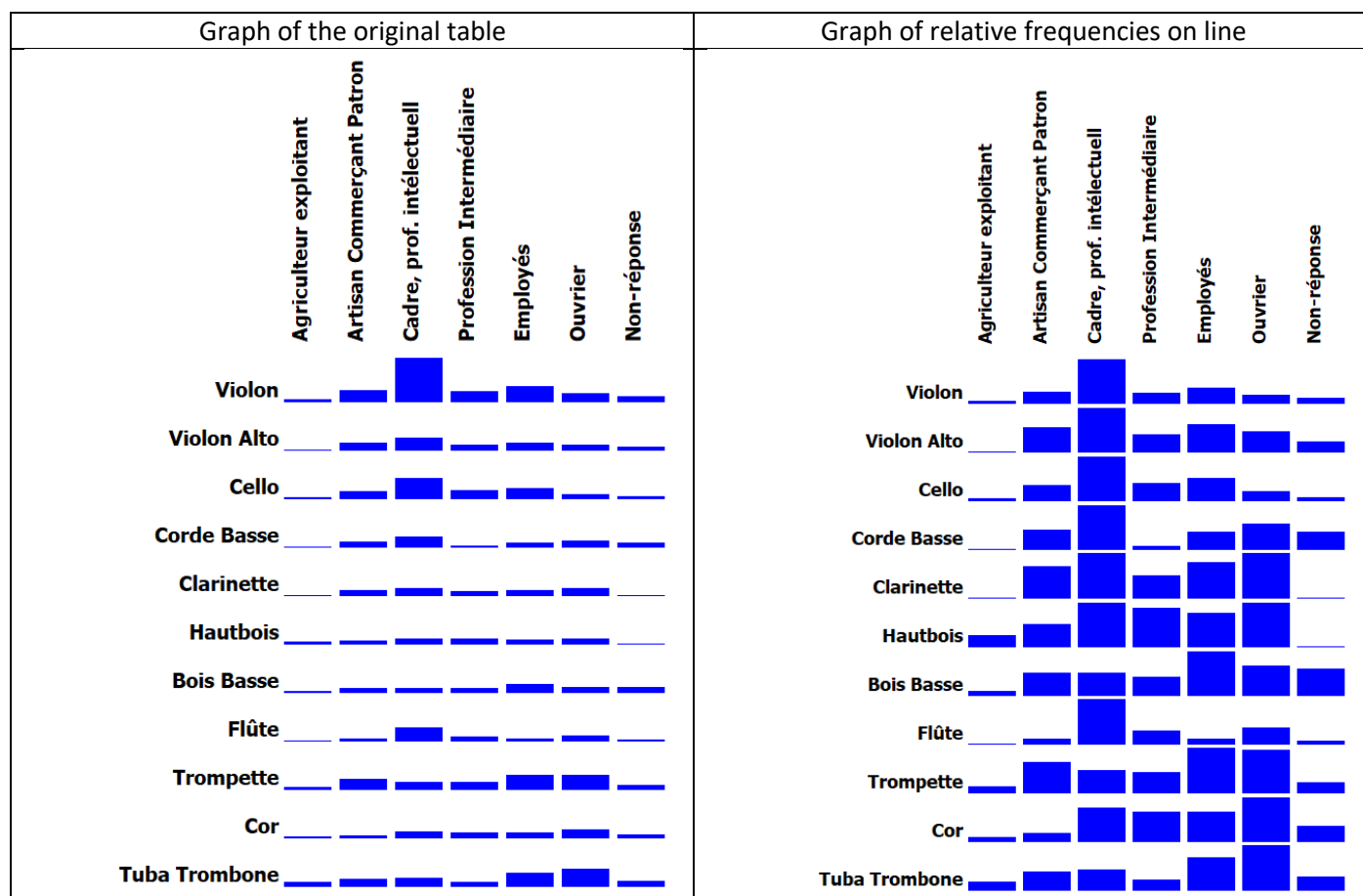


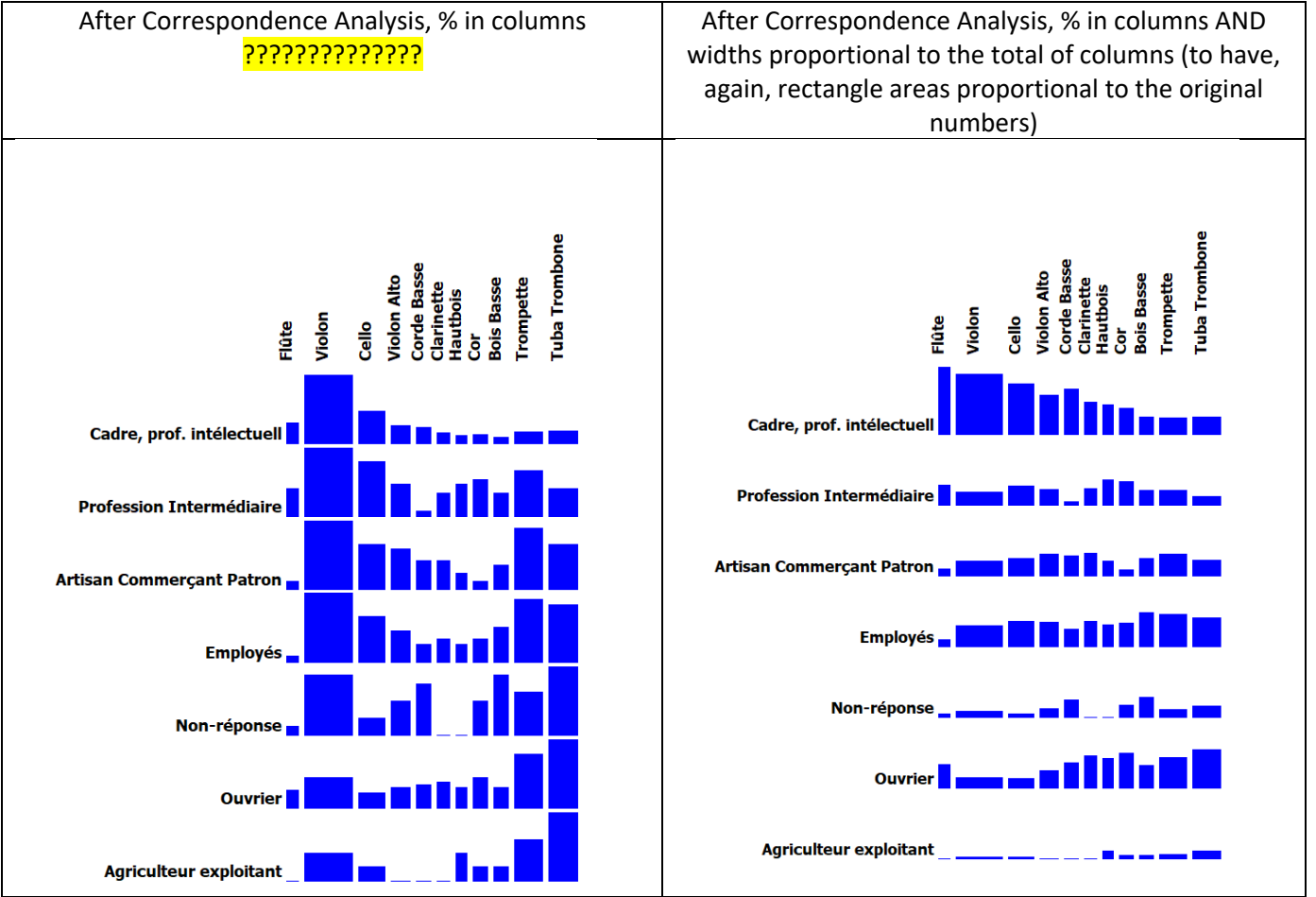
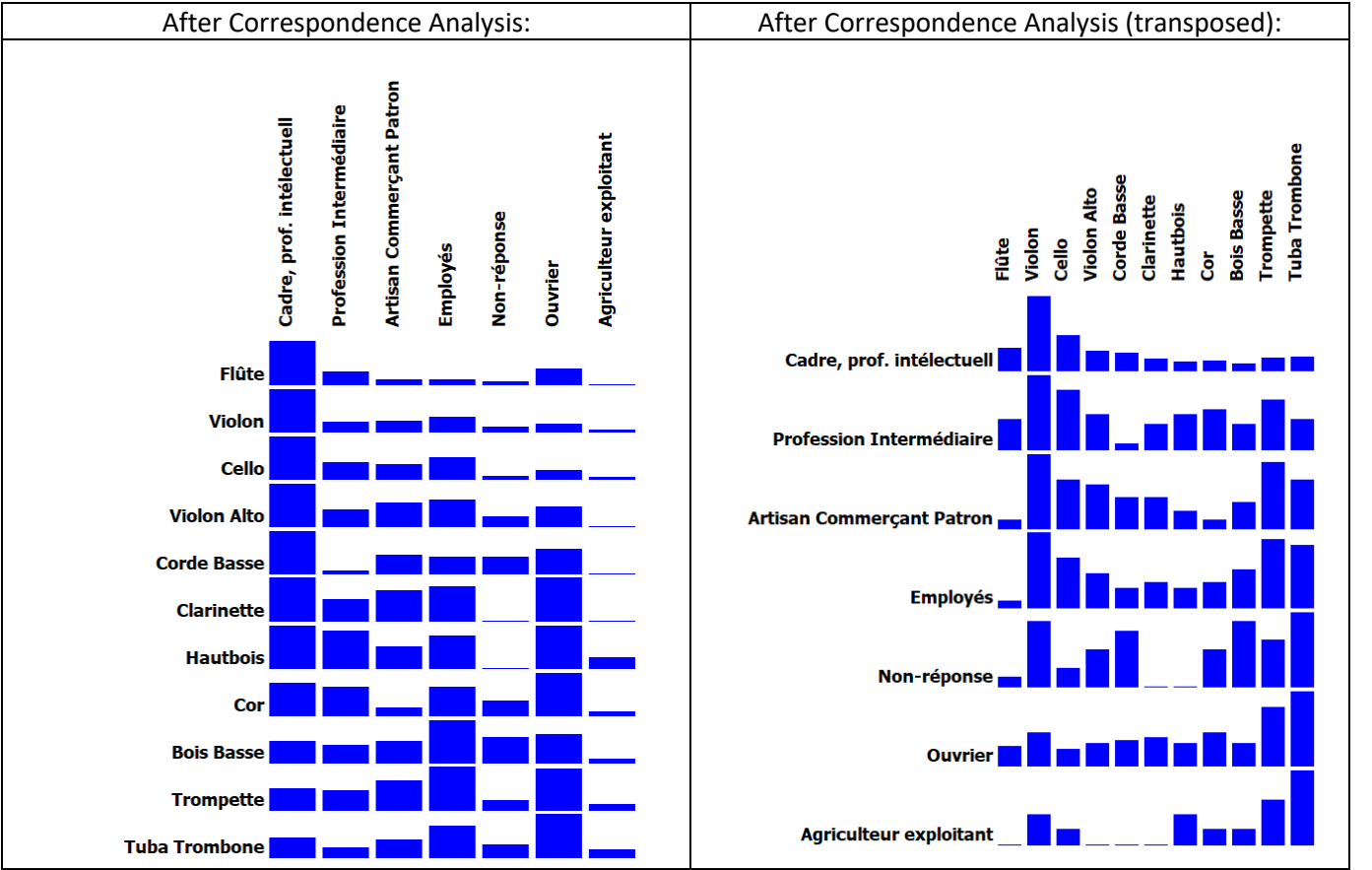
Graph. Original data	Frequency Data / Processing with CA	Frequency Data / Hierarchical Clustering
Graphical displays of two-ways contingency tables	Graphical displays of two-ways contingency tables	
		

Example-2: Instruments played by students of the Paris National Conservatory of Music and Dance (CNSM) and their parents' professions and socio-professional categories (PCS)

L'orchestre dans tous ses éclats : sociologie de la profession de musicien, by B. Lehmann. Doctoral thesis in Sociology defended in 1995 in Paris, EHESS. File: EN_musical_instruments-parents_professions.TXT

Sociology of the music profession. Lehmann 1995. Student's musical instruments & parent's profession	Farmer operator	Craftsman, shopkeeper, entrepreneur	Professional, executive, higher intellectual profession	Intermediate profession	Clerk, shop assistant, domestic worker	Manual worker	Nonresponse
Violin	2	17	69	15	24	12	7
Viola	0	10	18	7	11	8	4
Cello	1	11	32	12	16	6	2
Basse	0	7	16	1	6	9	6
Clarinet	0	7	10	5	8	10	0
Oboe	2	4	8	7	6	8	0
Bass woodwinds	1	6	6	5	12	8	7
Flute	0	2	20	6	2	7	1
Trompet	3	15	11	10	22	21	5
English horn	1	2	9	8	8	12	4
Tuba & Trombone	5	11	12	6	20	27	8





Example-3. The working population of the Paris districts (25 to 54 years old) in 2015

Labour force aged 25 to 54 in Paris (2015), by Profession and Socio-Professional Categories (PCS), and by Arrondissement
File: EN_Paris2015_Arrondissements.TXT

Paris labour force (2015) 25 to 54 y. old	entrepreneur	Professional, executive	Intermediate profession	Clerk, shop assistant, domestic	Manual worker
Paris 01	601	3651	1491	991	325
Paris 02	647	5969	2239	1404	599
Paris 03	1161	9005	3811	2206	713
Paris 04	871	5908	2621	1738	418
Paris 05	1145	12188	4699	2627	849
Paris 06	1062	7971	2842	1813	487
Paris 07	1532	10642	3417	2836	638
Paris 08	1203	7546	2461	2236	633
Paris 09	1880	15821	6028	3534	1247
Paris 10	2322	21477	9936	7228	2937
Paris 11	3211	35521	17426	10837	4143
Paris 12	2172	29285	14779	10556	3550
Paris 13	2604	28770	16884	15580	5503
Paris 14	2116	26809	11685	9988	2832
Paris 15	4066	50880	21436	15601	4676
Paris 16	4730	27917	10677	8916	2382
Paris 17	4095	37101	15304	11636	4051
Paris 18	4299	37529	21749	17266	8808
Paris 19	3213	25364	18532	17815	7803
Paris 20	3096	30256	21563	18382	7829

File / Open / Parcourir / EN_Paris2015_Arrondissements.TXT

Format / Row Legends / Complete

Format / Graph Size... Graph width = 950 Graph height =400 (Uncheck: ☒ Auto resize → ☐ Auto resize)

Typography / Increase Column Spacing (2 times)

Format / Mode 3

Process / Frequency Data / Hierarchical Clustering

Process / Compute Column Percentage

Click on the line "Manual Worker", then Process / Insert separator (the insertion is done before the selected column or above the selected line).

Click on the column "Paris_10", then Process / Insert separator

Click on the "Paris_05" column, then Process / Insert separator

>>>>>> Graph <<<<<<<<

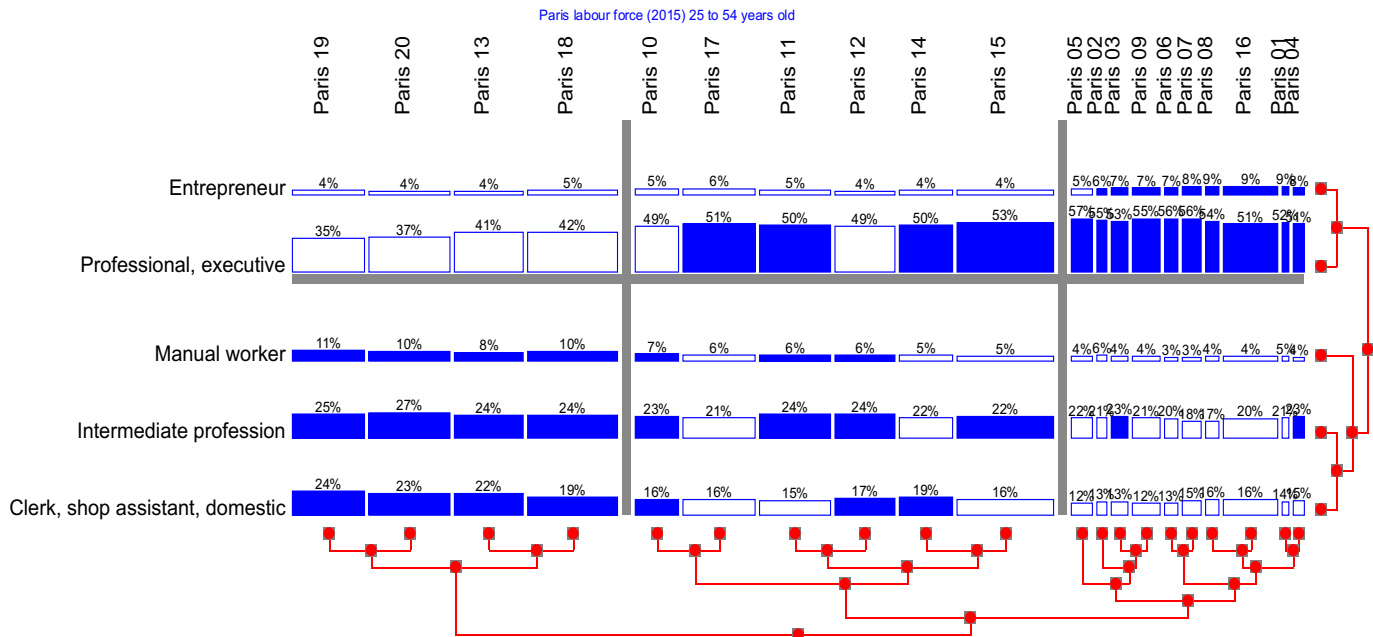
On this graph, we can see the separation between - on the one hand, the eastern districts of Paris (19°, 20°, 13° and 18°) where relatively more manual workers, middle-class people and employees live; - on the other hand, the arrondissements of the Centre of Paris (5°, 2°, 3°, 9°, 6°, 16°, 1° and 4°) where more Managers and Senior Executives live; - and, in the middle of the graph, the intermediate arrondissements from the sociological point of view (10°,

17°, 11°, 12°, 14° and 15°). Here the numbers and heights represent the column %, i.e. the distribution of the working population aged 25 to 54 in each district.

The graph can be enriched by introducing additional information: by making the column widths proportional to the sum of each column in the initial table (i.e. to the total population of 25-54 year olds in the district), the heights of the rectangles remain proportional to the % of each PCS in the district, but the surface area of the rectangles becomes proportional to the size of the sub-population concerned.

Format / Pondérer la largeur des colonnes par la somme de chaque colonne

Format / Format valeurs / 0%



Example-4. Searching for blocks in a square co-occurrence matrix. A study in territory marketing

In order to attract new businesses to their territories, many towns and cities are marketing possible business location sites. These sites (brands) have various names (industrial zone, techno-park, etc.).

To help reduce the "range" of possible location names offered to businesses by local authorities, 72 business leaders were asked to group 49 cards on which were written the names of sites proposed by different French cities, with each group gathering the names that seemed synonymous to them. There were no constraints on the number and size of groups a respondent could form. Each interviewee also had the option of omitting any card bearing a site name that was unknown to him or her.

The matrix gives the number of times two names have been put together¹. It can be seen as a proximity type similarity matrix.

File / Open / Parcourir / MARKETING-Territorial.TXT

Ctrl + - => to decrease the menu font and access the last lines of the sub-menus.

Format / Value Format / None

Format / Row Legends / Complete

Format / Column Legends / 20

Format / Graph Size / 1438 et 1278

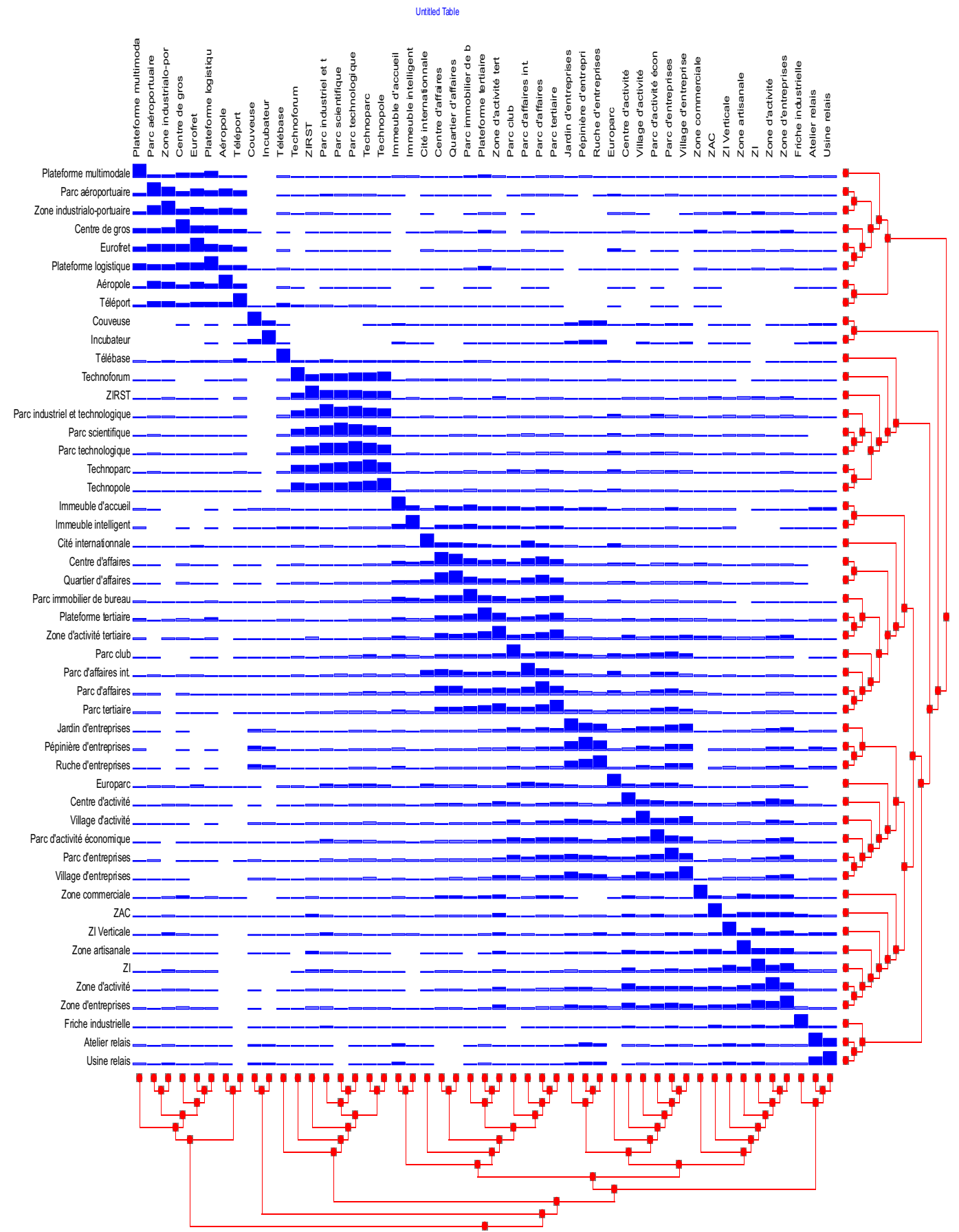
¹ TEXIER Laurence. 1999, « Une clarification de l'offre d'implantation en marketing territorial : produit de ville et offre de territoire », RERU Revue d'économie régionale et urbaine, no 5, p. 1021-1036

Untitled Table



To find blocks of names that are often classified together as synonyms, the classification (hierarchical ascending clustering) integrated in AMADO online is used:

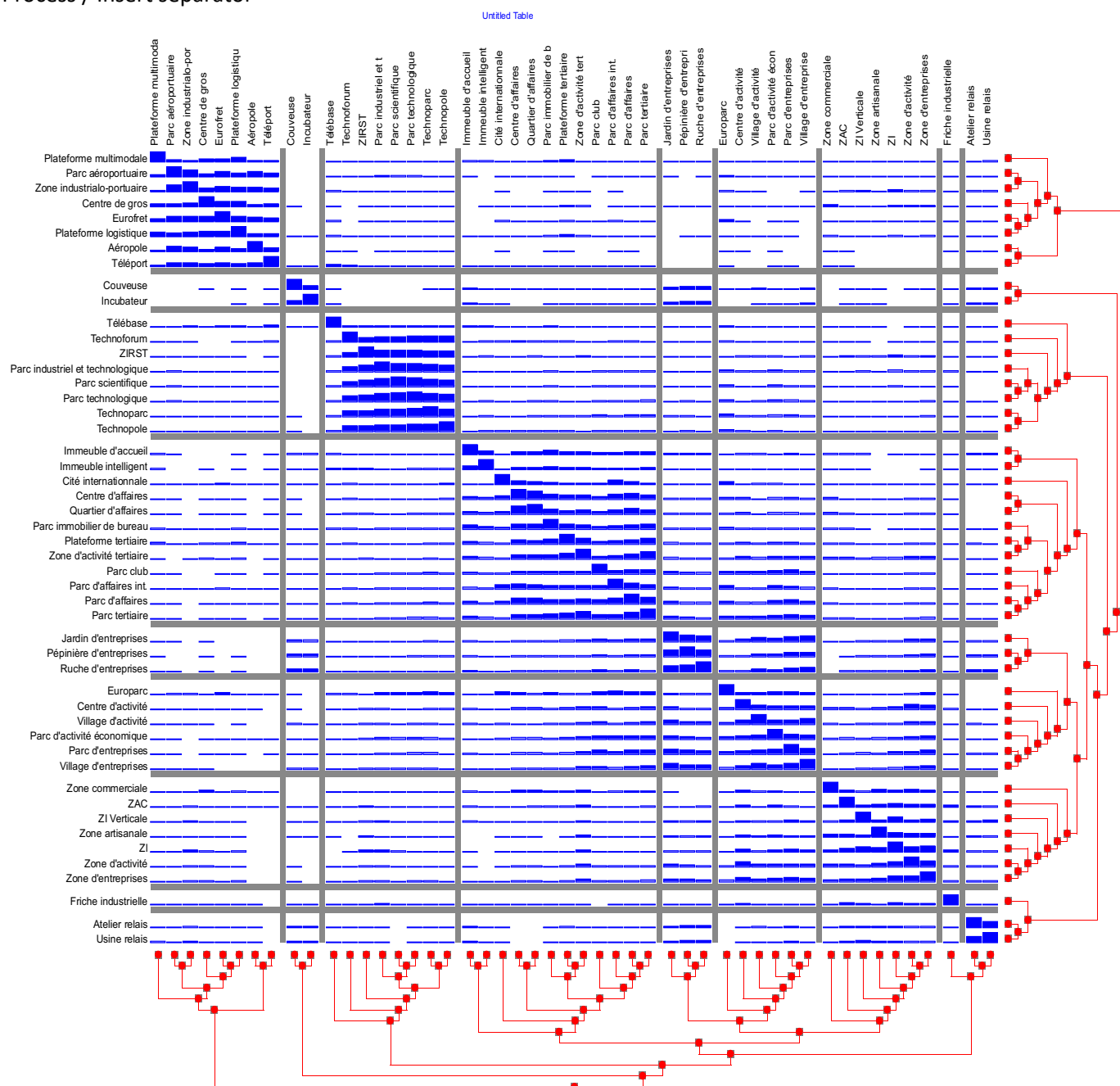
Process / Frequency Data / Hierarchical Clustering



Classes are best seen by isolating them with separators:

Click on a column (or a row) to select it and insert a separator between it and the previous one:

Process / Insert separator



On this graph, we can see that certain groups of names are almost synonymous for the heads of companies:

- *Plateforme multimodale, Parc aéroportuaire, Zone industrialo-portuaire, Centre de gros, Eurofret, Plateforme logistique*; then slightly separated: *Aéropole, Téléport*.
- *Couveuse (hatchery), Incubateur*.
- *Technoforum, ZIRST (Zones d'Innovation et de Recherche Scientifique et Technique), Parc industriel et technologique, Parc scientifique, Parc technologique, Technoparc, Technopole*. It can be observed that the names *Parc Scientifique* et *Parc Technologique* are almost confused in the minds of business leaders.
- *Jardin d'entreprises, Pépinière d'entreprises (Business Nursery), Ruche d'entreprises (Business Beehive), Atelier relais (Bridging Plant) et Usine Relais (Bridging Factory)*.

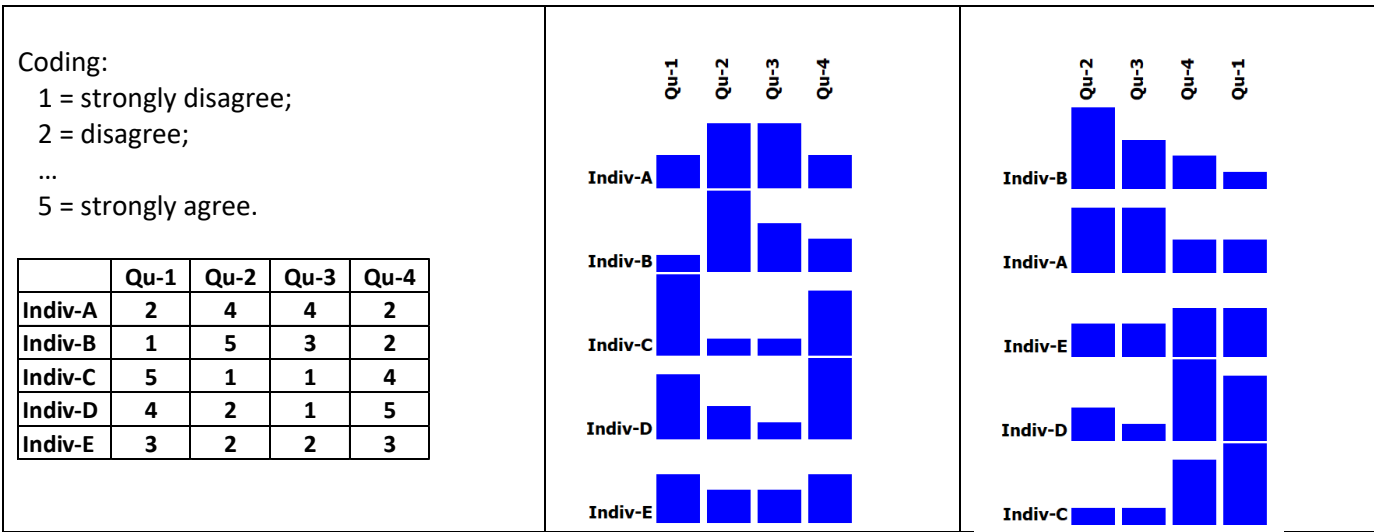
Those responsible for a territory's marketing campaign will have to reduce the range of activity sites they offer and use only one name per group, while being aware that other territories use synonyms.

Homogeneous Numerical data processing: diagonalisation & clustering

These statistical methods are suitable for tables where the columns represent variables with homogeneous units, e.g. the responses of a set of individuals to questions all using the same scale (for instance: strongly disagree=1; disagree=2; ... strongly agree=5), or unit prices, or temperatures, etc.

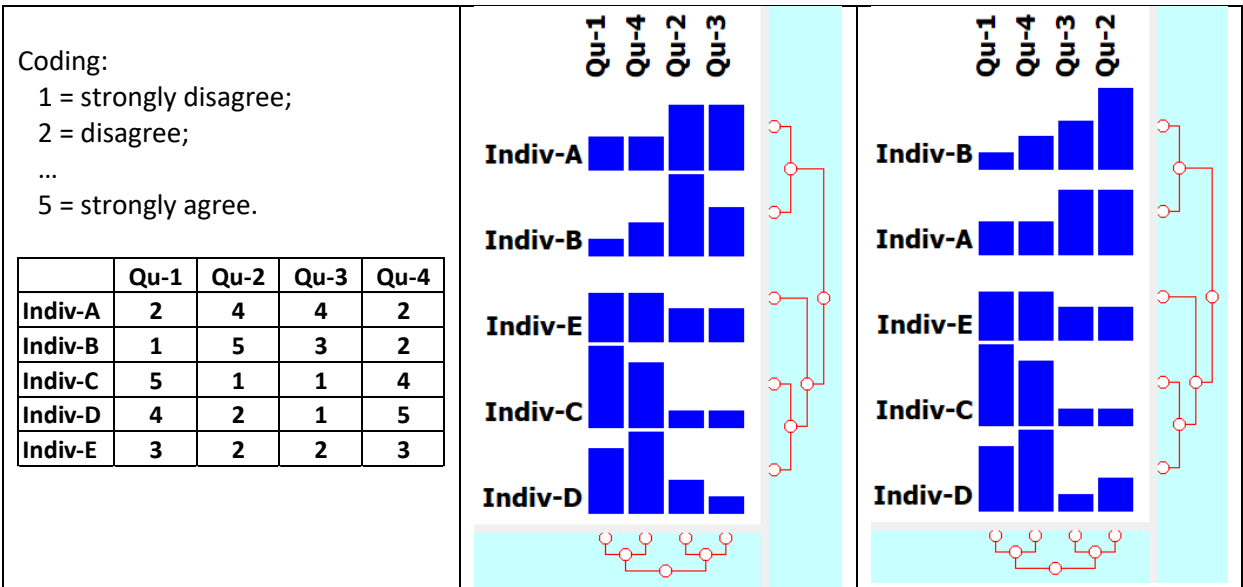
With "Process / Homogeneous numerical data / Processing by PCA (Principal Component Analysis)", the rows-individuals are reordered according to their coordinates on the first factor (i.e. the first principal component), and the columns-variables according to their correlations with this first factor.

Principal Component Analysis.



With « Process / Homogeneous numerical data / Hierarchical Clustering », the lines are permuted as the nodes of the Hierarchical Ascending Classification tree and this tree is drawn to the right of the graph. As the columns are swapped as the nodes of the Hierarchical Ascending Classification tree and this tree is drawn at the bottom of the graph.

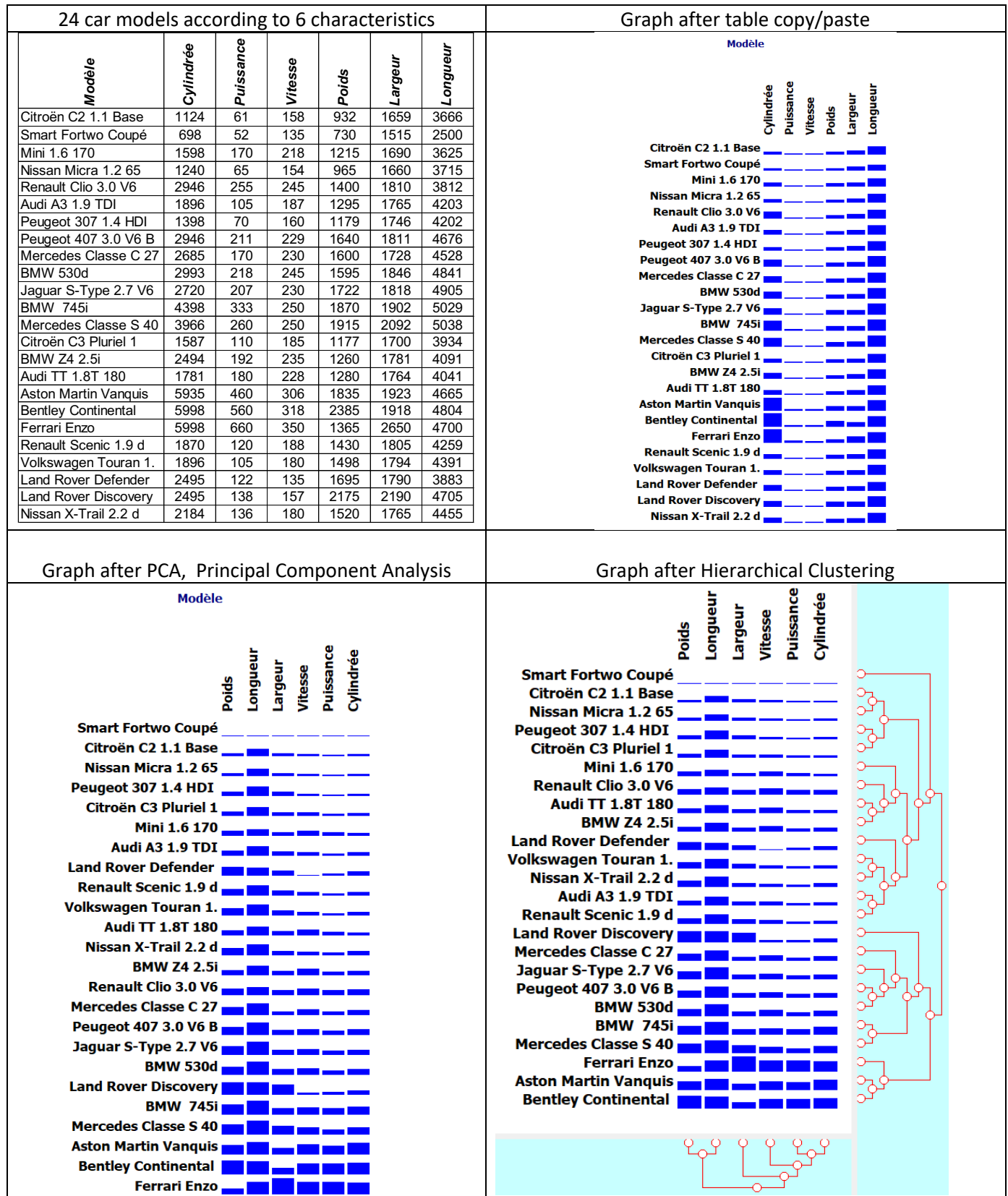
Note: since at each node of the tree the order of the two classes is arbitrary, this order can be reversed by simply clicking on the small red square representing the node. Below, the columns Qu-2 and Qu-3, and the rows Indiv-A and Indiv-B have been swapped.



Heterogeneous Numerical data processing: diagonalisation & clustering

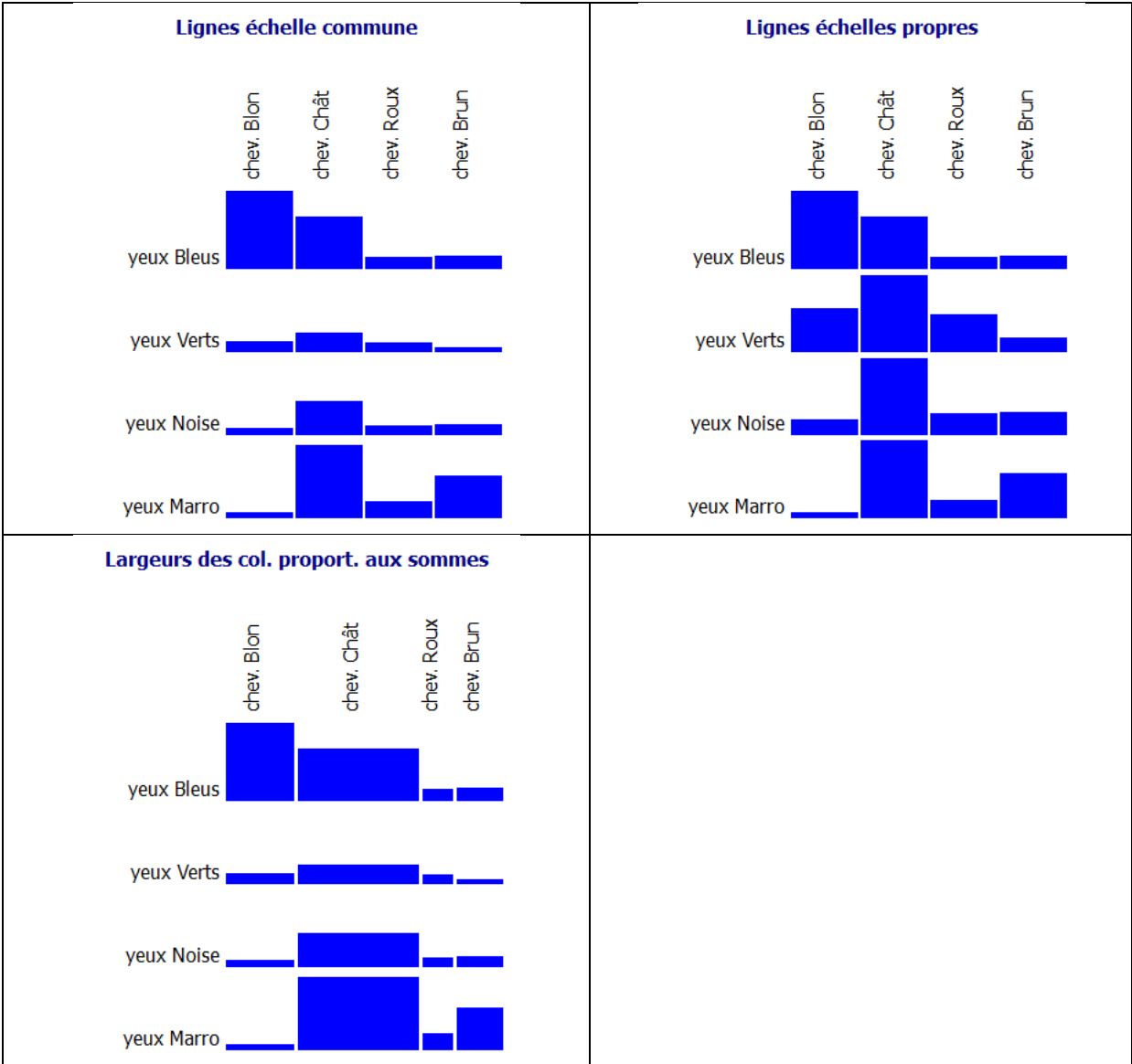
These treatments are suitable for tables with columns representing variables of different units. Example for cars: Engine capacity in cm³, Power (horsepower), Speed in Km/h, Weight in Kg, Width and Length in cm. In order to avoid the choice of units, and to make them homogeneous for the calculations, each variable is "normalized".

File: EN_Cars_2004_Tenenhaus.TXT



Autres commandes simples

Format : Ligne échelle propre ; Ligne échelle commune ; Même largeur pour chaque colonne ; Pondérer la largeur de chaque colonne par la somme de la colonne



Format : Légende lignes ; Légende colonnes ; Format valeurs

