

On Methods of Access to the Structure of Social Representations: the Example of Europe

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The aim of this study is to identify the logic behind a range of statistical methods used to reveal the structure of social representations. Subjects ($N = 317$) were asked to answer the following question: “For each category of European person, please indicate which other European he would most like to have contact with”. The results of the similarity analysis lead us to the conclusion that there is an ethnocentric bias, and reveal the central factor of the representation. The representation obtained by factorial correspondence analysis seems closer to current reality and enables us to understand the divisions that have structured Europe and remained embedded in the subjects. Thus, the choice of analytical method is not merely anecdotal, given that representations obtained from the same data can vary immensely.

Keywords: social representations, Europe, similarity analysis, Factorial Correspondence Analysis.

El objetivo de este estudio es identificar la lógica detrás de una serie de métodos estadísticos utilizados para revelar la estructura de las representaciones sociales. Se solicitó a un número de sujetos ($n = 317$) responder a la pregunta siguiente: “Para cada categoría de europeo, por favor indique con qué otros europeos le gustaría tener contacto”. Los resultados de los análisis de similitud nos llevan a la conclusión de que existe un sesgo etnocéntrico, y revelan el factor central de la representación. La representación obtenida por el análisis factorial de correspondencias se parece más a la realidad actual y nos permite entender las divisiones que han estructurado Europa y permanecen incorporadas en los sujetos. Por lo tanto, la elección del método analítico no es meramente anecdótica, puesto que las representaciones obtenidas a partir de los mismos datos pueden variar enormemente.

Palabras clave: representaciones sociales, Europa, análisis de similitud, Análisis Factorial de Correspondencias.

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Moscovici defines social representations as “a community molding social objects with the aim of acting and communicating” (1963, p. 251). This definition reveals the functional aspect of representations, which may be conceived as the “construction of a social reality shared by the social group” (Jodelet, 1989, p. 36). Thus, social representations are “universes of opinions” (Moscovici, 1961, p.66) specific to a particular culture, social class or group and related to objects within the environment. These universes referring to stances and convictions have been progressively extended to all of the knowledge relating to a given subject.

Such knowledge forms the content of representations, and their structure gives them meaning. In his study of the representation of hunting given by hunters, Guimelli (1989), reveals that apparently opposing components (“shooting guns”, “giving an honorable account”, “preventing damage to the environment” and “showing respect to animals” acquire meaning when you consider the links that unite them. For example, respect for animals enables them to sustain hunting activity.

The importance of its structure has been established progressively possibly to the detriment of the study on representation as process (Duveen, 2001, Moloney, 2010). In fact, such “common sense”, composed of cognitive elements incorporated into a structure, has been the focus of special attention. According to Moscovici (1961, 1976) who demonstrates that structuring psycho-analytical components enables us to attribute meaning to this representations, the earliest researchers in the field termed by Guimelli (1995) as ethnography, identified a structure in the objects studied. Later on, other researchers attempted to create methods of access to the representations that were more directly focused on the structural aspects.

After a period of collecting data, which was often reduced to simple word associations, and/or a period of self-structuring of the most common data (paired evaluation questionnaire), they proposed various processing methods for revealing structure. On the one hand, Le Bouédec (1984) favored factorial analysis, which gave rise to isolated developments (Monteil et al., 1985; Monteil & Mayot, 1988), whilst Flament (1962, 1981) preferred hierarchical analysis, paving the way for a movement known as the School of Aix.

There is also a third movement, started by Doise (1985), which is still essentially based on representation. In fact, with this type of analysis, studying social representation involves identifying the lines along which opposing opinions may be expressed and identifying the links between such opposing opinions and the various groups involved. This approach is illustrated in the “Etude sur les Droits de l’Homme” (Doise, Clémence, & Lorenzi-Cioldi, 1994), where a number of topics are identified and the authors demonstrate that groups involved (students of various nationalities) are opposed to such topics. Thinking remains

open on such methods, which incorporate certain aspects from the two previous ones.

Today, there are works presenting the two types of method (Doise, Clémence, & Lorenzi-Cioldi, 1992; Moliner, Rateau, & Cohen-Scali, 2002). For instance, the study of social representation of psychology by Palmonari and Doise (1986) makes it possible to illustrate this particular perspective. The authors demonstrated the importance of taking both shared aspects and differences into consideration, being complementary to one another. Their study, which was carried out in Italy in 1978, relates to how psychologists represent the role of psychologist. Four different views are supported: psychology is indeed a science but all sciences are ideologies used by the groups in possession of power; psychology is a science relating to the individual; psychology is a science that uses scientific methods to gain an understanding of the individual; psychology is a social science. All four views are different, but they all share one major aspect, being that psychology is a science.

However, “the majority of investigations are limited to a single empirical method” (Wagner & Hayes, p. 131, 2005). Moreover, in the same study, the reason for the chosen method might be explained, but to our knowledge the reasons for rejecting the other one are never given. The methods are based on differing approaches which, in our opinion, relate to different positioning with regard to the object (Castel, Lacassagne, & Salès-Wuillemin, 2002).

Thus, we would like to show that the processing methods themselves have an effect on the representation obtained. If we consider (according to Wagner & Hayes, 2005) that each method corresponds to the implementation of a particular point of view, the underlying bases of the different methods need to be revealed so that we may understand their respective contributions to the structure of social representations.

By analyzing the perception of the same matrix of colors by different populations, Mac Laury (1997, 2000) has shown two different processes of categorization, one employing similarities starting from a fixed color (“dominant vantage”) and the other, on the contrary, based on the dissimilarities between distinct colors (“recessive vantage”). The processing method used, a mechanism that the author labels as “vantage”, results in different delimitations of colors.

Likewise, it appears to us that the different processing techniques giving access to the structure of the representation bring one or the other vantage to the fore: dominant vantage for similarity analyses and recessive vantage for factorial analyses.

Similarity analysis techniques (Flament, 1962, 1981; Vergès & Bouriche, 2001) relate directly to dominant vantage. In fact, techniques that enable us to classify individuals in terms of the degree to which their characters are similar, processing similarities being local i.e. beginning with an analysis of the strongest values without taking the weaker values into account.

In analysis of similarity using graphs, the edges reveal the strength of the relations of similarity uniting the nodes indicating factors of representation. Graphic representation by the tree of maximum similarity corresponds to the strongest relations of similarity between elements considered in pairs. Interpretation of the graph consists of searching for areas of great density, in other words, areas where connectivity is very strong and, as a result, revealing a central zone, sometimes even a core and peripheral elements. Graphic representation by dendrogram (minimum jump) enables us to visualize the progressive structuring of the representation elements by beginning with the closest. Here too, the lower the distance of aggregation, the more the elements are considered to be similar.

Thus, the dominant feature of these two methods is the strength of the proximity between elements.

Factorial analysis techniques focus on differences. In fact, they enable us to reveal lines of strength shaping the dimensions of a point cloud (Moliner, Rateau, & Cohen-Scali, 2002). To achieve this, they are based on the correlations between patterns in the subjects' answers and, therefore, on differences between individuals. The aim is to attempt to discover a set of independent concepts known as factors for describing data organization. In Principal Component Analysis (PCA), the total variation of a large number of variables is reduced to a noticeably more limited number of dimensions or "factors" with no correlation between them. This method enables us to observe data covariance, opposition and independence. Factorial Correspondence Analysis (FCA) developed by Benzecri and Benzecri (1980) enables us to respond to situations where observations produce contingency tables (a table distributing a population according to binary measures) or frequency tables. FCA projects the point cloud over successive planes chosen in such a way that the actual distances between the points are deformed as little as possible. To achieve this, the technique takes account of the comparison between real values and theoretical values from the χ^2 . FCA reveals the structure of any deviations from independence. Equal importance is accorded to weak and strong values and all values are considered concomitantly. We can therefore call this *global* processing.

We examine the nature of the opposition between the items with the most extreme coordinates in order to understand and analyze each factor structuring the data.

Moliner et al. (2002) emphasize the opposition between collective and inter-individual methods. We propose substituting this opposition with one that is between the methods centered on similarity and the methods centered on difference. In other words, we focus on the points of view applied to the object by the analyst rather than taking account of the respondents. According to Moliner et al. (2002), hierarchical analysis based on the frequency of common responses, refers to a consensual approach to social

representations, in other words they show the most salient and connected collective responses. Factorial analyses, on the other hand, are carried out through the analyzing the differences between individuals, in other words, it is the differences in variation that deliver the factors obtained. In this way, the principle of FCA reveals oppositions. Factors are denoted by the greater or lesser differences between individuals' factors. In other words, in the first case, we work on what is common to the individuals whereas, in the second case, we work on what differentiates them.

This enables us to posit the following hypotheses:

- Analyses based on similarities should reveal the importance given to different elements, thereby putting the focus on the important zones (the hard core, for example)
- Analyses based on the differences should reveal the major oppositions structuring the social field concerned.

In this study, we will test these hypotheses and show the respective contributions of the different methods of processing data in the general analysis of the structure of representations. The study was conducted on the topic of Europe and based on all European nationalities.

The working hypotheses will then be:

- Similarity analyses, and more particularly the tree of similarity, should reveal the classification of countries according to their relative importance. The resulting image should be shaped by ethnocentrism.
- FCA, on the other hand, should show the quasi ideological oppositions that structure Europe.

As with Echebarria, Elejabarrieta, Valencia, and Villarreal (1992) in their study on SR in Europe in young Spaniards, we have not concerned ourselves with what people think of or know about Europe, but have focused on the structure of representation. In other words, we have worked directly on the relationships between the elements and not on the semantic field itself.

Method

Participants

The subjects ($N = 317$) were first year students at the Université de Bourgogne. They belonged to all disciplines (history, mathematics...).

Material

The material was a questionnaire which proposed the following instruction: "We would like to find out how interpersonal relations are represented in Europe. We therefore ask each European person to state with which other European person(s) he would most like to have contact". (Mollot & Journiac, 2001; Morlot & Castel, 2007). In this regard, our method was akin to the one used by Spini (2002) in his study of the representation of a factory, where

he asked subjects to evaluate the similarity between each pair of departments in their factory.

Relationships between countries may be marked by two biases, depending on the point of reference applied. With a single point, information processing that favors assimilatory vantage should favor ethnocentrism. In fact, according to Codol (1984), an individual will accept a relationship of similarity between himself and other people (or, in the case of our study, affective proximity) more easily if he becomes a model against which the other is compared i.e. a point of reference. French people see themselves positioned as the point of reference i.e. the nationality that all Europeans wish to meet. In contrast to this, data processing that favors differentiating vantage should be more linked to category oppositions and refers to biases that are traditionally associated with relationships between groups.

Procedure

The participants, contacted by the operator, answered the questionnaire at the beginning of their course. They were required to establish links to friendly and interpersonal attractiveness between the inhabitants of the different countries. They were totally free to participate.

Results

Presentation of the data

In order to build a contingency matrix enabling us to process data, we consider X to be the nationality variable and the different items in this variable to be represented by the whole $\{i, j, \dots\}$ corresponding to 39 European nationalities. In this respect, $[XxX]$ represents all pairs (i, j) of elements of X .

This is a very specific case, where we obtain the matrix $[XxX']$ almost directly, where X represents the nationality stimulus and X' the associated nationality, as each subject indicates for each nationality i , according to him, its members would want to have contact with those of each of the other nationalities.

We enter the responses of each subject directly into a matrix $[XxX']$, each dyad of items obtaining either the coding 1 (if the subject pursued this relationship) or the coding 0 (if no relationship formed between these two nationalities). Thus, the variable is binary (or dichotomous) and coded [0.1]; in our case, it is not sequenced, as the presence of the dyad has a meaning in itself (only the 1 is univalent).

We then aggregate the 317 individual matrices into a single one by addition. This enables us to obtain a matrix where each dyad is represented, and the number of subjects having achieved the dyad in question is located at the

intersection of the two nationalities. The higher the number within the space in the table, the higher the number of subjects who believe that the two nationalities in question have a good opinion of each other (Contingency matrix, Appendix).

Several processing methods were applied using the contingency matrix, one based on proximities and the other based on oppositions. Similarity analysis was conducted using the Excel software, whilst the FCA was conducted using STATISTICA software.

Analysis based on similarities

For analyses based on similarities, we chose to use similarity analysis; the contingency table can be considered as a distance table, since the more two nationalities were associated by a large number of individuals, the closer these nationalities are.

Given that analysis does not take account of the orientation of the dyad of items, it is important to make the matrix symmetrical in order to obtain a matrix $[XxX]$. Thus the French-German relationship, for example, was considered to be equivalent to the German-French relationship, and the two cases were therefore added together.

Thus, to create a tree of maximum similarity, we used a table crossing the stimuli (transmitting) and response (receiving) nationalities as a distance matrix. By focusing here on the link between nationalities considered in pairs and by taking into account the fact that each pair appears twice, we divided the table in two along the diagonal and added the two halves of the contingency table together. As a result, each pair is only considered once, each area representing the number of individuals who associated the two nationalities

We can pre-order similarity in one of two ways to enable us to construct the tree (Vergès & Bouriche, 2001):

a) We can do it almost directly by observing the whole $[XxX]$, in this case obtaining a hierarchy based on pairs ij . In the case of non oriented binary variables, this involves calculating an indicator of similarity for each dyad to reveal the actual extent of distances and majority effect. This involves calculating co-occurrences. This indicator corresponds to the number of times where i and j are both coded 1. Here, the indicator of similarity is equivalent to co-occurrence ($S_{ij} = C_{ij}$). This indicator reveals the majority phenomenon as, the greater the presence of items i and j , the greater the chance that C_{ij} will be large. It renders what we might call the strength of the absolute link.

b) It can be obtained from calculating a similarity indicator S . To do this, we need to establish a measure of resemblance across X to give the relationship with statistical independence. Co-occurrence is weighted in such a way that it does not favor methods with greater populations and to only take account of statistical independence deviations. Still in the particular case of a non ordered binary variable,

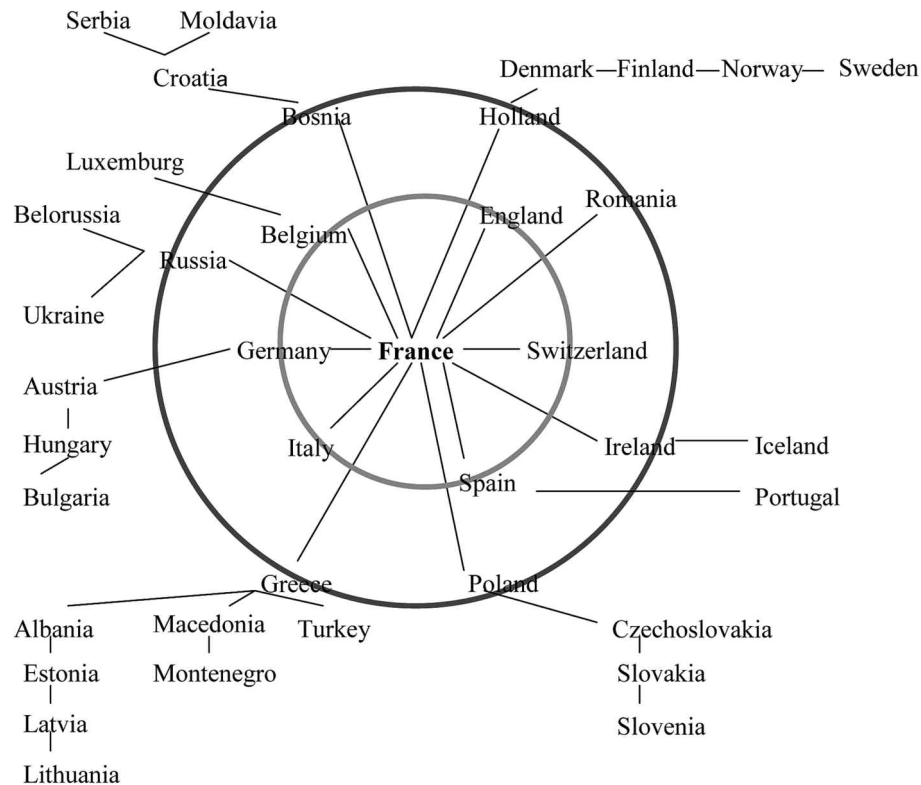


Figure 1. Analysis of similarity

NB: we had to reduce the distances between the countries situated beyond the circles surrounding France considerably in order for the figure to remain legible: all of these distances should be greater than the France-Poland distance, which moves all of these countries to a very distant periphery.

the similarity indicator is calculated as follows: $C_{ij} / [(N_i * N_j) / N]$, where N_i and N_j are respectively the sum of all associations made with regard to item i versus j , without distinguishing the identity of the other nationality. This indicator makes it possible to calculate a relative strength ratio.

We are presenting the results of the first type of indicator here, but we would emphasize that data processed using the second type of indicator leads us to the same conclusions.

Pre-ordering similarity consists of an ordered list associating edges and their value. The tree is constructed by running through the pre-order in decreasing order and taking the edges that do not constitute a cycle (closed loop) with edges already recorded. A tree of similarity has $(n-1)$ edges where n is the cardinal of X . In our case, we obtain 39-1 edges. This tree is valued (the strength of the link is indicated) but not orientated. The graphic representations do not relate to an approximate representation of the distances expressed by the similarity matrix (in the sense of a geometrical representation as in FCA) but aims for a representation that expresses links (similarity) between variables through traces. The representation obtained is more topological than geometrical.

This similarity tree reveals the very special position held by French nationality. This element is by far the most connected, as it is linked to 13 other elements, while the other nationalities maintain relations with no more than 3 other nationalities. Moreover, if we consider the same similarity tree by revealing the maximal cliques, we observe that French nationality is part of the densest zone of the entire graph. In terms of structure, we can conclude that French nationality is a highly important element in this representation.

We might continue the interpretation by isolating different "rings" in some way, the first being composed of immediate neighbors, being the English, the Germans, the Swiss, the Belgians, the Italians and the Spanish.

This analytical method enables us to demonstrate the special place of French nationality and to structure the representation in terms of centrality and periphery.

In order to go deeper into the analysis of the position of France, we created a general table of occurrences concerning all of the countries, which we classified in descending order (socio-metric method).

The classification of nationalities by number of occurrences in decreasing order shows that the French are in first place if we consider both the stimuli countries

Table 1
Table of occurrences

Nationality	Transmitting country	Receiving country	Number of connections
French	469	982	1451
German	250	339	589
Norwegian	224	259	483
Finnish	216	261	477
Belgian	241	227	468
Italian	212	250	462
Swiss	229	226	455
Swedish	231	220	451
Spanish	212	234	446
English	200	244	444
Danish	200	234	434
Russian	168	203	371
Dutch	210	152	362
Luxembourger	206	155	361
Austrian	189	165	354
Greek	144	161	305
Polish	158	128	286
Hungarian	147	137	284
Portuguese	154	102	256
Ukrainian	149	107	256
Bulgaria	131	119	250
Icelandic	139	107	246
Lithuanian	114	131	245
Estonian	130	110	240
Latvian	144	95	239
Belorussia	129	109	238
Romanian	140	98	238
Czech	125	107	232
Irish	135	78	213
Slovakian	110	97	207
Albanian	102	81	183
Croatian	109	69	178
Macedonian	98	80	178
Bosnian	106	64	170
Serbian	105	62	167
Slovenian	101	61	162
Turkish	97	50	147
Montenegrin	86	46	132
Moldavian	85	45	130

(countries at the origin of the relationships: 469) and the response countries (countries receiving the choices: 982).

Similarity analysis can be complemented by a Chi square analysis in order to test if the French nationality is significantly the most often associated nationality.

The French (number of connections = 1451) are associated almost five times more than the mean of other countries ($M = 297.18$) and this difference is highly significant ($\chi^2(1) = 759.06$; $p < .000001$). Even if Germany (number of connections = 589), the country most chosen

after France, is considered, the difference remains striking and is still extremely significant ($\chi^2(1) = 367.01$; $p < .000001$).

However, in light of the distribution of occurrences, it does not seem possible to support the notion of rings within the periphery in statistics terms.

All of the results lead us to conclude that there is an ethnocentric bias. In fact, the French place themselves at the center of their representation of Europe, as if it were organized around them. Moreover, they associate themselves

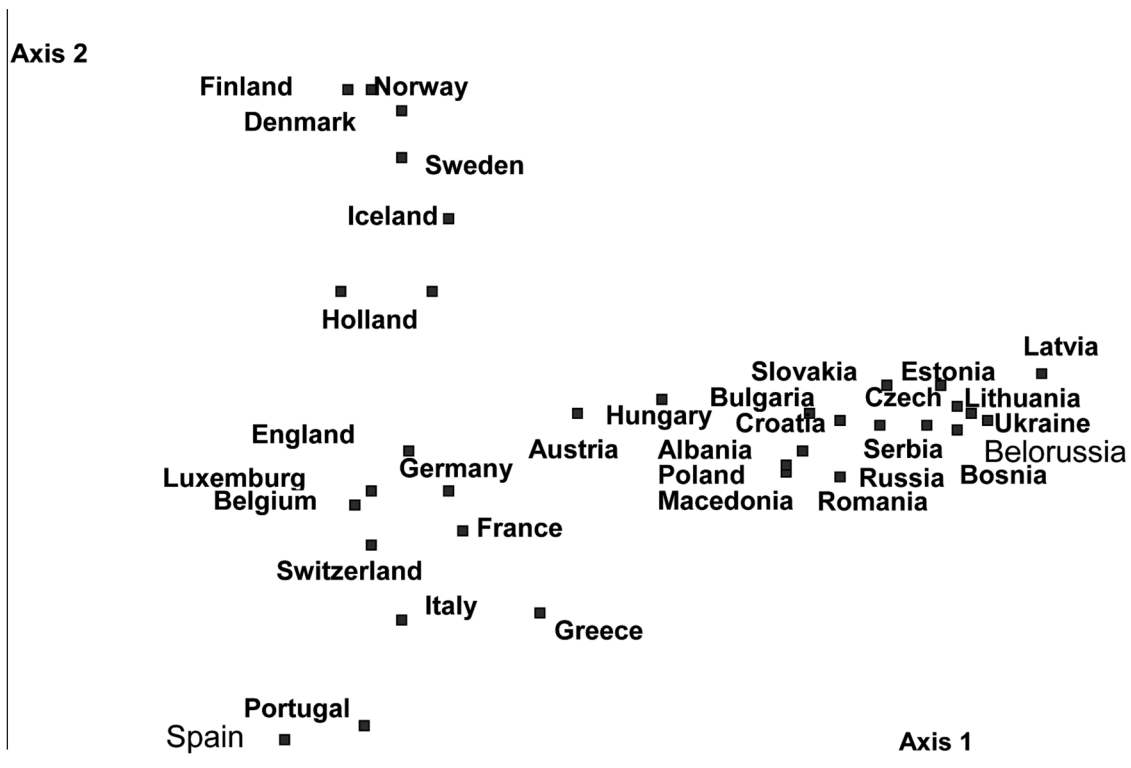


Figure 2. Correspondence analysis.

most often with other nationalities, meaning that they believe that all nationalities would like to have contact with them in particular. This method emphasizes the link between national identity and European identity (This link is worked on in the studies from Doise & Devos, 1999; Curelaru, Nastas, & Puzdriac, 2000; Licata, 2003).

In conclusion, the tree of similarity shows the rank of the countries according to their relative importance and the resulting image, in the form of concentric circles, is deformed by ethnocentrism.

Analysis based on differences

Analyses based on differences are known as factorial analyses. There are two types of principal component analysis and correspondence analysis. We have chosen the second method because it is the only one that allows us to process frequency data or a contingency table.

In fact, it is possible to work directly on the matrix $[XxX']$ crossing stimulus and response nationalities. The intersection of the lines and columns represents the number of subjects who have made an association between items i and j . The marginal distributions in lines and columns enable us to see the distribution of stimulus and response nationalities independently of each other. According to Moliner et al. (2002), in order to conduct an analysis of the table, we have to compare the distribution of one line against the other lines and apply the same procedure for

the columns. If there is no relationship between lines and columns, marginal distributions are representatives of lines versus columns. However, if there is a relationship between lines and columns, we need to look for organizing structures within the table itself. To do this, this type of analysis proposes to compare the contingency table (actual data: matrix $[XxX']$) with a theoretical table calculated from the marginal distributions in the contingency table. The theoretical table gives us a precise indication of what we would observe if there were no link between lines and columns. It is then possible to calculate the difference between the theoretical populations and those observed in each space. The Chi square statistical test enables us to ascertain whether or not statistical independence deviations are due to chance. FCA looks for the structure of independence deviations. This procedure makes it possible to identify a factor to explain this link and position each item for the factor. The analysis also looks for a second factor independently of the first one, and so on. Results are presented as a two-dimensional graph, showing the coordinates of the items for the two factors. In order to interpret the graph, we need to start by establishing the meaning of each factor, imagining the projection of all the points along the axis representing a factor and trying to ascertain, for example, what sets the items located furthest left against those located furthest right.

In terms of axis 1 (19.4%), we note that the nationalities of the former communist bloc are opposed to the nationalities

of the capitalist bloc. This factor might be directly linked to socioeconomic, political, and even geographical characteristics. This type of organization opposes Eastern and Western Europe.

In terms of axis 2 (14.6 %), we observe that the nationalities of countries with a cold climate are opposed to nationalities of countries with a warm climate. Again, this factor refers to a certain reality concerning the north/south opposition.

Since the representation obtained seems to be fairly in keeping with the reality of Europe, we propose to focus on the quality of the representation in terms of how it reproduces geographical oppositions.

Quality of the reproduction of FCA

This involves comparing the subjective data provided by FCA against the objective data from the same nationalities. The longitudes represent the objective data related to factor 1 (by taking the capitals of the countries into account) and the latitudes represent the objective data related to axis 2 (of these same capitals); the subjective data is made up of the abscissas and the ordinates of FCA respectively.

Although we are aware that the distances given by FCA do not follow the rules of proportionality for geographical maps, we carried out an analysis of the linear correlation between the two types of data. A strong correlation between the two types of data indicates that the criteria used by the subjects to assemble the nationalities were geographical in nature.

The correlation between the longitude and the abscissas of FCA (.70) is significantly higher than 0.5 ($Z = 1.91, p = .028$) and the correlation between the latitude and the ordinates of FCA (.79) is significantly higher than 0.5 ($Z = 3.13, p = .00087$).

We can therefore conclude that the quality of the representation of Europe is good.

Discussion – Conclusion

This study shows that the choice of analytical method is not anecdotal, since the representations obtained from the same data can vary immensely: a two-speed Europe or a Europe divided into blocs resulting from the Cold War.

There is therefore a certain risk of allowing you to be guided, even if unconsciously, by presupposed ideologies or trends related to the sense of belonging. Can we always be sure that the representation shown is not a projection of the researcher and/or an artifact of the method? FCA will always produce oppositions and analysis of similarity centrality. The problem of the pertinence of the chosen method in relation to the real representation of the subjects remains.

One initial solution, which is simpler and more economical, would be to choose a method that is suitable for the issue in question.

In their report, Wagner and Hayes (2005), proposed distinguishing SR arising from cognitive and individual approaches from those referring to a more social level.

Authors from the initial movement research individual strategies, as in the study of the prisoner dilemma game (Abric & Kahan, 1972). They can also attempt to understand how the structure of a representation changes within a group, as in the study by Flament (1987), relating to the introduction of new forms of agriculture in traditional areas of Cameroon in colonial times or, as in the study of representations of hunting and nature by Guimelli (1989). From this point of view, authors approach research into structure by examining traits shared by a significant number of subjects belonging to the same group. In fact, the central position relates to a consensus, and consequently the search for similarity.

According to the second approach, conflict is the basis of social representations (Moscovici, 1988). In this case, the authors locate the notion of social representation in the understanding of intergroup dynamics and social identities as in the study of the social representation of Europe by Echebarria et al. (1992), for example. According to this approach, and in line with the work by De Paolis, Doise, and Mugny (1987), “the central position of elements defining a representation are not primarily determined by numeric consensus, but by social marking.” (Wagner & Hayes, 2005; p. 185).

Here, it would seem logical to apply similarity analysis in the first case and analysis based on difference in the second, but, in scientific terms, there is a risk of favoring elements following the direction of the hypothesis (confirmation bias).

Spini (2002) focuses on another methodology, incorporating contributions from both methods. To study the structure of representation, he proposes that we apply multidimensional scaling in reference to Tournois and Dicks (1993). Multidimensional scaling effects the ordinal transformation of a “proximity” matrix, presenting it in the form of Euclidian distance, the term “proximity” covering both the notion of similarity and dissimilarity by the concomitant inclusion of all data. This procedure, which is now used in various areas of psychology (Jaworska & Chupetlovska-Anastasova, 2009), is one of a series of inductive methods, and appears to presuppose that social representation is a static object that we need to approach in the optimum way. Nevertheless, in terms of studying the structure of social representations, there is a risk here of obscuring processes that might be essential to a concept and linked to intergroup relationships.

Finally, the third approach might consist of employing both analytical methods, considering them, with reference to Doise (1985), as tools for revealing a range of generating principles. Depending on the type of relationships conducted

by groups in terms of their specific social position, it is probable that social representations constitute a plurisemic structural basis, facilitating the emergence of symbolic processes specific to the various types of relationship. For instance, as demonstrated by Moloney and Blair (2009), African refugees are now viewed in terms of the image of the Sudanese, who came before them in the immigration process (Moloney, 2010). In this sense, where dependent upon the capacity for appropriation or rejection generated by the positioning of the groups present, principles would involve forms of group coexistence. This third approach, which would help us to systematize principles, still requires further exploration.

References

- Abric, J.-C., & Kahan, J. (1972). The effects of representations on behavior in experimental games. *European Journal of Social Psychology*, 2, 129–144. <http://dx.doi.org/10.1002/ejsp.2420020203>
- Benzecri, J. P., & Benzecri, F. (1980). *Pratique de l'analyse de données, 1: Analyse des correspondances, exposé élémentaire* [Practice of data analysis, 1: Correspondences analysis, the first theory]. Paris, France: Dunod.
- Castel, P., Lacassagne, M.-F., & Salès-Wuillemin, E. (2002). Categorical points of view in social representation. *Languages Science*, 24, 667–678. [http://dx.doi.org/10.1016/S0388-0001\(01\)00009-2](http://dx.doi.org/10.1016/S0388-0001(01)00009-2)
- Curelaru, M., Nastras, D., & Puzdriac, C. (2000). L'intégration européenne et l'identité religieuse [European integration and religious identity]. *Psychologia Sociale*, 6, 2–23.
- Codol, J.-P. (1984). La perception de la similitude interpersonnelle: Influence de l'appartenance catégorielle et du point de référence de la comparaison [Interpersonal similarity perception: The influence of the categorical belonging and the referent point of comparison]. *L'Année Psychologique*, 84, 43–56. <http://dx.doi.org/10.3406/psy.1984.29000>
- De Paolis, P., Doise, W., & Mugny, G. (1987). Social marking in cognitive operations. In W. Doise & S. Moscovici (Eds.), *Current issues in European social psychology* (pp. 1-45). Cambridge, MA: Cambridge University Press.
- Doise, W. (1985). Les représentations sociales. Définition d'un concept [Social representation: Definition of a concept]. *Connexions*, 45, 245–253.
- Doise, W., Clémence, A., & Lorenzi-Cioldi, F. (1992). *Représentations sociales et analyse de données* [Social representation and data analysis]. Grenoble, France: Presses Universitaires de Grenoble.
- Doise W., Clémence A., & Lorezi-Cioldi, F. (1994). Prises de positions et principes organisateurs des représentations sociales [Positions and organizing principles of social representations]. In C. Guimelli (Ed.), *Structures et transformations des représentations sociales* [Structures and transformations of social representations] (pp. 119-152). Paris, France: Delachaux et Niestlé.
- Doise, W., & Devos, T. (1999). Identité et interdépendance: Pour une psychologie sociale de l'Union européenne [Identity and interdependence: To go to a European social psychology]. *Psychologie et Société*, 1, 11–27.
- Duveen, G. (2001). Representations, identities, resistance. In K. Deaux & G. Philogène (Eds.), *Representations of the social: Bridging Theoretical Traditions* (pp. 257-270). Oxford, England: Blackwell publishers.
- Echebarria, A., Elejabarrieta, F., Valencia, J., & Villarreal, M. (1992). Représentations sociales de l'Europe et identités sociales [Social representations of Europe and social identities]. *Bulletin de Psychologie*, 45, 280–288.
- Flament, C. (1962). L'analyse de similitude [Similarity analysis]. *Cahiers du Centre de Recherche Opérationnelle*, 4, 63–97.
- Flament, C., (1981). L'analyse de similitude: Une technique pour les recherches sur les représentations sociales [Similarity analysis: How to work on social representations]. *Cahiers de Psychologie Cognitive*, 4, 357–396.
- Flament, C. (1987). Pratiques et représentations sociales [Practices and social representations]. In J.-L. Beauvois, R.-V. Joule, & J.-M. Monteil (Eds.), *Perspectives cognitives et conduites sociales* [Social behavior and cognitive perspectives]. Cousset, Switzerland: DelVal.
- Guimelli, C. (1989). Pratiques nouvelles et transformations sans rupture d'une représentation sociale: La représentation de la chasse et de la nature [New practices and soft transformation of a social representation: Hunting and nature representation]. In J.-L. Beauvois, R.-V. Joule, & J.-M. Monteil (Eds.), *Perspectives cognitives et conduites sociales* [Social behavior and cognitive perspectives]. Cousset, Switzerland: DelVal.
- Guimelli, C. (1995). L'étude des représentations sociales [Social representations studies]. *Psychologie Française*, 40, 367–375.
- Jaworska, N., & Chupetlovska-Anastasova, A. (2009). A review of multidimensional scaling (MDS) and its utility in various psychological domains. *Tutorials in Quantitative Methods for Psychology*, 5(1), 1–10.
- Jodelet, D. (1989). *Les représentations sociales* [Social representations]. Paris, France: Presses Universitaires de France.
- Le Bouédec, G. (1984). Contribution à la méthodologie d'étude des représentations sociales [Contribution to the study methodology of social representations]. *Cahiers de Psychologie Cognitive*, 4, 245–272.
- Licata, L. (2003). Representing the future of the European Union: Consequences on national and European identifications, *Textes sur les Représentations Sociales*, 12, 5–32.
- Mac Laury, R. E. (1997). *Color and cognition in Mesoamerica*. Austin, TX: University of Texas Press.
- Mac Laury, R. E. (2000, July). *Vantage theory as first formulated: A few basics*. Proceedings of the 6th International Cognitive Linguistics Conference. Stockholm, Sweden.
- Moliner, P., Rateau, P., & Cohen-Scali, V. (2002). *Les représentations sociales: Pratique des études de terrain* [Social representations: doing empirical studies]. Rennes, France: Presses Universitaires de Rennes.

- Mollot, R., & Journiac, C. (2001). Représentations sociales de l'Europe: Etude comparative de deux cohortes (1996/1999) [Social representations of Europe: Comparative studies of two groups (1996/1999)]. In C. Sabatier, J. Palacio, & H. Namane (Eds.), *Savoirs et enjeux de l'interculturel: Nouvelles approches, nouvelles perspectives* (pp. 121-136). Paris, France: L'Harmattan.
- Moloney, G. (2010). Acknowledging Gerard. Articulating social representations and identity through process and content: The resettlement of refugees in regional Austria. *Papers on Social Representations*, 19, 1–16
- Moloney, G., & Blair, D. (2009, November). *A community view of Coffs Harbour report*. Paper presented at Coffs Harbour Regional Art Gallery. Coff Harbour, Australia: Southern Coff University
- Monteil, J.-M., & Maillot, L. (1988). Eléments de la représentation sociale de la formation: Analyse d'une enquête auprès d'une population de formateurs [Elements concerning the social representation of adult education: Analysis of an inquiry concerning educators]. *Connexions*, 51, 9–26.
- Monteil, J.-M., Bavent, L., Chambre, P., Joubin, O., Lacassagne, M.-F., & Maillot, L. (1985). Les formateurs, la formation et la représentation de son champ [Representation of educators and adult education]. Région Auvergne, France: Rapport E.P.R.
- Morlot, R., & Castel, P. (2007). Les aspects identitaires des biais de catégorisation sociale: Le cas de la représentation de l'Europe [Social categorisation bias and identity: The example of Europe representation]. *Cahiers de Psychologie Politique: L'Europe*, 10. <http://odel.irevues.inist.fr/cahierspsychologiepolitique/index.php?id=930>
- Moscovici, S. (1961). *La psychanalyse, son image et son public* [The psychoanalysis, its image and its public]. Paris, France: Presses Universitaires de France.
- Moscovici, S. (1963). Attitudes and opinions. *Annual Review of Psychology*, 14, 231–260. <http://dx.doi.org/10.1146/annurev.ps.14.020163.001311>
- Moscovici, S. (1988). Notes towards a description of social representations. *European Journal of Social Psychology*, 18, 211–250. <http://dx.doi.org/10.1002/ejsp.2420180303>
- Palmonari, A., & Doise, W. (1986). Caractéristiques des représentations sociales [Characteristics of social representations]. In W. Doise & A. Palmonari (Eds.), *L'étude des représentations sociales* (pp. 13-33). Paris, Neuchâtel: Delachaux et Niestlé
- Spini, D. (2002). Multidimensional Scaling: A technique for the quantitative analysis of common field of social representations. *European Review of Applied Psychology*, 52, 231–240.
- Tournois J., & Dicks P. (1993). Pratique de l'échelonnement multidimensionnel [How to do multidimensional scaling]. Louvain-la-Neuve, France: De Boeck.
- Vergès, P., & Bouriche, B. (2001). L'analyse des données par les graphes de similitude [Data analysis by similarity graphs]. *Sciences Humaines*. <http://www.scienceshumaines.com/textes/Inedits/Bouriche.pdf>
- Wagner, W., & Hayes, N. (2005). *Every day discourse and common sense: The theory of social representations*. New York, NY: Palgrave Macmillan.

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APPENDIX

Contingency matrix

	alb	all	ang	aut	bel	bié	bos	bul	cro	dan	esp	fin	fra	gre	hol	hon	irl	isl	ita	let	lux	mac	mor	nor	pol	por	rou	rus	ser	slq	sln	sué	sui	tch	tur	ukr	SO			
alb	2	1	0	0	1	1	1	1	1	1	0	10	2	9	14	0	2	0	3	3	6	0	0	6	3	1	0	1	6	3	0	1	3	1	3	5	10	0	102	
all		20	29	21	0	3	1	3	8	7	2	2	65	4	11	3	2	1	13	0	1	9	0	0	1	4	3	1	0	5	2	1	0	6	17	1	1	0	248	
ang			2	17	0	9	0	1	0	5	9	3	15	68	4	5	1	12	5	8	0	0	0	0	8	0	1	1	0	0	0	0	6	8	0	1	3	200		
aut				4	0	0	4	1	6	1	0	6	19	0	17	35	0	3	6	0	0	4	0	0	3	3	0	0	1	0	1	0	6	14	3	0	2	188		
bel					0	0	2	0	3	8	1	2	79	5	13	1	1	1	9	0	0	28	1	1	0	4	2	1	1	0	2	1	0	5	28	0	0	241		
bié						1	1	1	2	0	2	1	10	0	0	2	1	1	0	2	4	2	2	0	2	6	3	1	1	30	2	8	7	2	1	3	1	16	127	
bos							3	10	1	0	2	3	19	2	2	1	0	1	2	1	2	0	1	1	0	4	2	0	1	5	5	3	2	3	3	5	1	5	106	
bul								3	0	3	2	1	11	2	1	19	0	0	3	0	2	1	5	2	2	6	8	0	15	7	1	3	3	2	1	6	2	2	131	
cro									3	1	0	1	10	2	1	8	0	1	1	5	3	1	2	6	1	2	1	1	2	7	10	3	3	1	0	2	0	2	109	
dan										4	0	49	11	3	16	1	3	5	2	0	0	10	1	0	1	34	1	1	1	0	0	3	0	16	4	2	0	0	199	
esp											0	1	72	6	1	1	1	31	0	0	2	2	0	1	0	2	51	0	0	0	0	0	0	3	3	0	1	1	210	
est													2	6	3	0	3	1	0	19	18	0	2	1	0	1	3	0	3	7	1	3	5	3	0	1	0	10	128	
fin																																							215	
fra																																							468	
gre																																								144
hol																																								210
hon																																								146
irl																																								135
isl																																								211
ita																																								144
let																																								98
lit																																								85
lux																																								86
mac																																								223
mor																																								158
mon																																								154
nor																																								140
pol																																								167
por																																								105
rou																																								108
rus																																								101
ser																																								229
slq																																								229
sln																																								101
sue																																								97
sui																																								148
tch																																								124
tur																																								97
ukr																																								148
SO																																								6371