Questionnaire of characterization and correspondence factor analysis: methodological contribution and applications

Lo Monaco, G., Piermattéo, A., Guimelli, C., & Abric, J.-C. (2012). Questionnaire of characterization and correspondence factor analysis: a methodological contribution in the field of social representations. *The Spanish Journal of Psychology*, *15*(3), 1233-1243.

Introduction

As a reminder, in the framework of the structural approach, several methods have been developed:

- The similarity analysis (Flament, 1981)
- The Attribute-Challenge Technique (Moliner, 1989)
- The Ambiguous Scenario Technique (Moliner, 1993)
- The hierarchical evocations method (Vergès, 1992 ; Abric, 2003)
- The Basic Cognitive Schemes Model (Guimelli & Rouquette, 1992 ; Rouquette & Rateau, 1998)
- The Test of Context Independence (Lo Monaco, Lheureux & Halimi-Falkowicz, 2008)

The characterization Questionnaire (see Abric, 2003)

The characterization questionnaire

- Directly inspired by the Q. Sort (Qualitative SORTing tasks) Technique (Stephenson, 1935).

Principle

1. Presenting subjects with a set of *n* proposals, each one concerning a particular content of the social representation under study.

2. We then ask participants to read all the proposals carefully and to evaluate them according to their own representation of the object.

3. Participants have to sort the proposals in hierarchized categories

The characterization questionnaire

For example, sorting items according to 3 categories:

1	Item « A »	+1
2	Item « B »	0
3	Item « C »	-1
4	Item « D »	0
5	Item « E »	+1
6	Item « F »	-1
7	Item « G »	0
8	Item « H »	+1
9	Item « I »	0
10	Item « J »	+1
11	Item « K »	-1
12	Item « L »	+1
13	Item « M »	0
14	Item « N »	-1
15	Item « O »	-1

- The 5 the most characteristics (+1)
- The 5 the least characteristics (-1)
- The 5 remaining items (0)

The characterization questionnaire

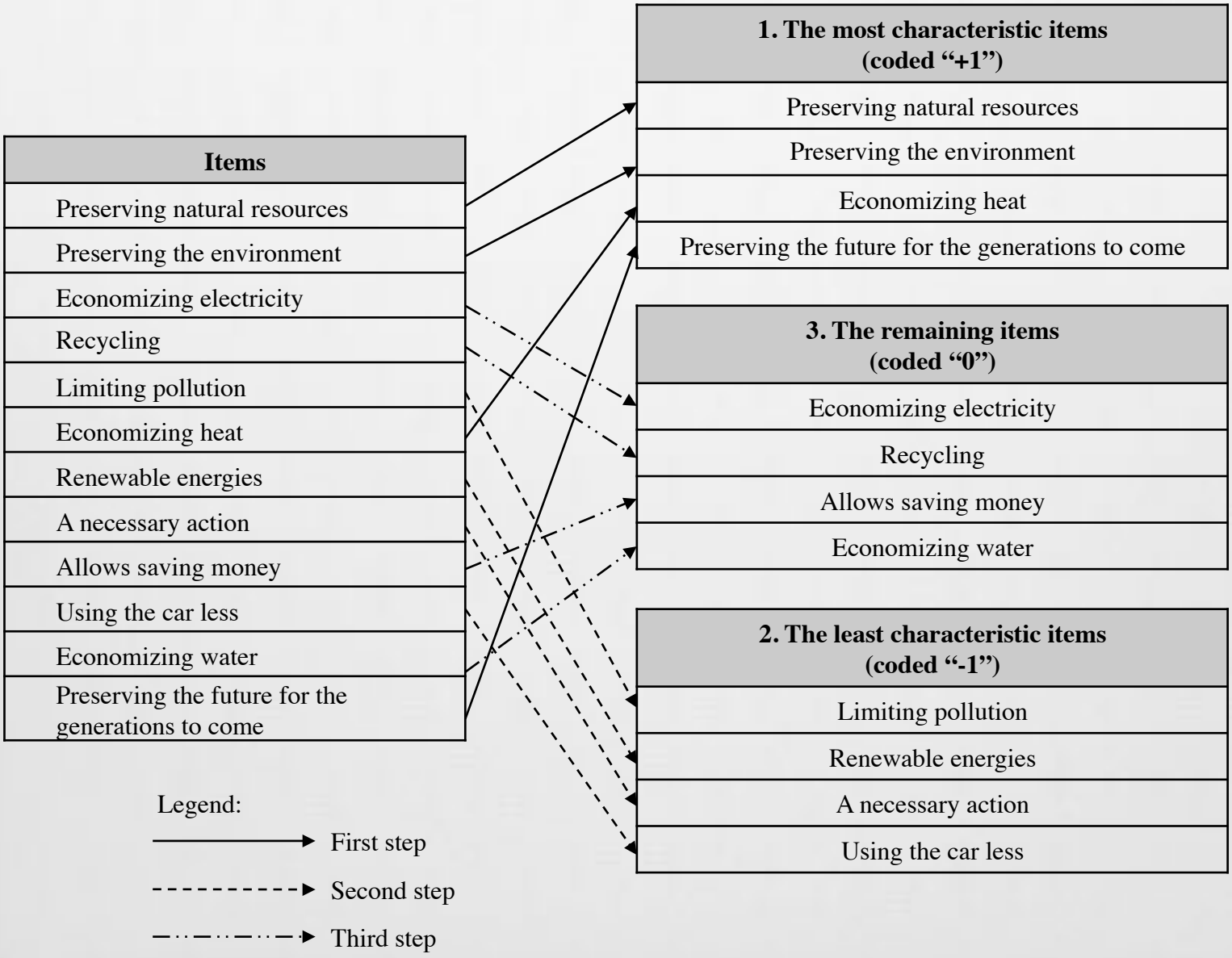
For example, sorting items according to 5 categories:

1	Item « A »	+2
2	Item « B »	+2
3	Item « C »	-2
4	Item « D »	0
5	Item « E »	+1
6	Item « F »	-2
7	Item « G »	0
8	Item « H »	+1
9	Item « I »	0
10	Item « J »	+1
11	Item « K »	-1
12	Item « L »	-2
13	Item « M »	+2
14	Item « N »	-1
15	Item « O »	-1

- The 3 the most characteristics (+2)
- The 3 the least characteristics (-2)

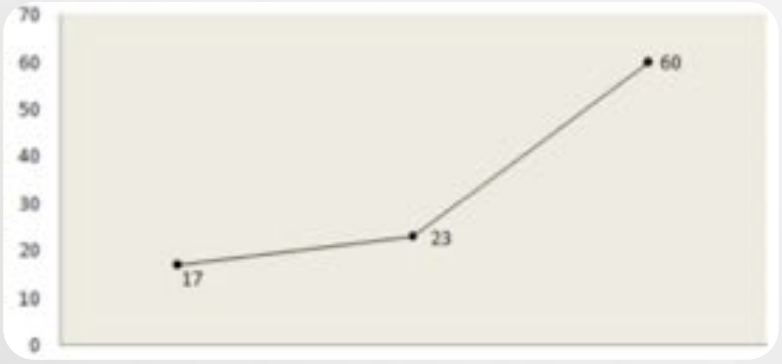
- Then, among the 9 remaining items:

- The 3 the most characteristics (+1)
- The 3 the most characteristics (-1)
- The 3 remaining items (0)

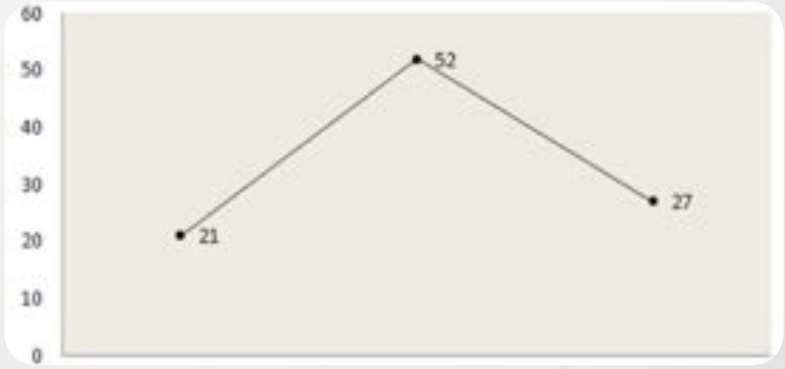

Items
Preserving natural resources
Preserving the environment
Economizing electricity
Recycling
Limiting pollution
Economizing heat
Renewable energies
A necessary action
Allows saving money
Using the car less
Economizing water
Preserving the future for the generations to come
1. The most characteristic items (coded "+1")
Preserving natural resources
Preserving the environment
Economizing heat
Preserving the future for the generations to come
3. The remaining items (coded "0")
Economizing electricity
Recycling
Allows saving money
Economizing water
2. The least characteristic items (coded "-1")
Limiting pollution
Renewable energies
A necessary action
Using the car less
Legend:
First step
Second step
Third step

The characterization questionnaire

Abric (2003) proposes to study the distributions for each item in order to examine the profile of each representational element.



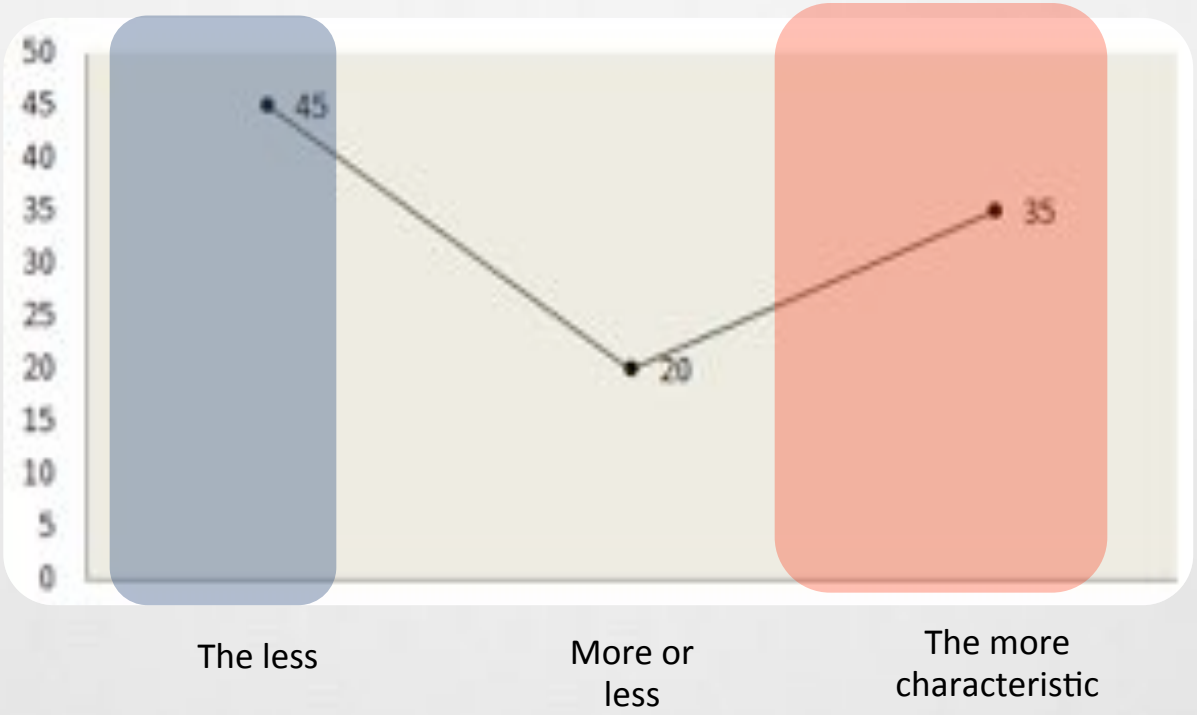
Pattern of a central element



Pattern of a peripheral element

Pattern of a a contrasted element
(possibility of the presence of two subgroups)

The characterization questionnaire and Corr.F.A.?



→ **Attention to revealing the existence of sub-groups**

Convergent with the starting preoccupations (Abric, 1976, pp. 137-138, our translation):

''A social representation is determined by the social structure in which it develops, and it reflects the ***anchoring*** *of the individual in his social and physical environment. Its internal structure, the weighting of the elements that consitute it, allows subsequently to know the attributes of the group to which this internal structure refers to [...] It allows to the social relations to express themselves under a imaged or symbolic form.''*

The characterization questionnaire and Corr.F.A.?

Salesses (2004)

- Studies the Internet social representation
- Uses the characterization questionnaire
- Compared distributions by means of the Kolmogorov-Smirnov test

She reveals differences in terms of representations of the object function to the practices level.

→ Attention to revealing the existence of sub-groups

The characterization questionnaire and Corr.F.A.?

Guimelli (1989)

- Studies the social representation of hunting
- Uses the characterization questionnaire
- Reveals means for each item
- Mean comparisons with Student *t*-test *t*

He reveals differences of represnetations of hunting function to the degree of ecological practices.

→ Attention to revealing the existence of sub-groups

The characterization questionnaire and Corr.F.A.?

Interest of the Correspondence Factor Analysis

It aims at highlighting differences in terms of number of participants in correspondence with variables.

Note that results obtained by means of Corr.F.A. give access to distributions, that is to number of participants.

→ Using the Corr.F.A. in relation with Characterization Questionnaire seems possible.

Moreover, il would allow to highlight different sub-groups and thus ti identify the social anchoring involved in the social representations of the object under study.

How to proceed?

Coding data

We have to start with this kind of table:

	Items			Variables	
Part.	Item X	Item Y	Item Z	Sex	SPC
1	-1	0	1	Man	High
2	1	1	1	Woman	High
3	-1	-1	0	Man	Low
4	0	0	-1	Woman	Low

How to proceed?

We obtain this frequency (contingency) table:

	Modalities of the variables			
Responses modalities for each item	**Man**	**Woman**	**SPC+**	**SPC -**
Item X the most characteristic (+1)	38	65	52	51
Items X remaining (0)	5	11	6	10
Item X the least characteristic (-1)	12	17	17	12
Item Y the most characteristic (+1)	13	34	25	22
Items Yremaining (0)	14	18	12	20
Item Y the least characteristic (-1)	28	43	39	32
Item Z the most characteristic (+1)	17	38	26	29
Items Z remaining (0)	13	18	14	17
Item Z the least characteristic (-1)	25	38	36	27

Empirical illustration

Study carried out about the "good wine"

Participants

- 100 wine consumers (M_{age} = 41.51, *SD* = 13.83)
- 55 men and 45 women / 54 SPC- et 46 SPC+
- 50 consumers surveyed about the good red wine
- 50 consumers surveyed about the good rosé wine

Empirical illustration

Procedure

- Consumers surveyed in supermarkets wine sections
- Characterization questionnaire

List of the 15 quality cues identified in a previous associative task (*N* = 100)

1	Region of origin	9	Colour
2	Castle	10	Medal
3	AOC (controlled appellation)	11	Price
4	Grape	12	Label
5	Reputation	13	Advice from a friend
6	Priori knowledge	14	Year
7	Brand	15	Shape of the bottle
8	Taste		

- Sorting instruction : 3 categories (5 items / Category)

Empirical illustration

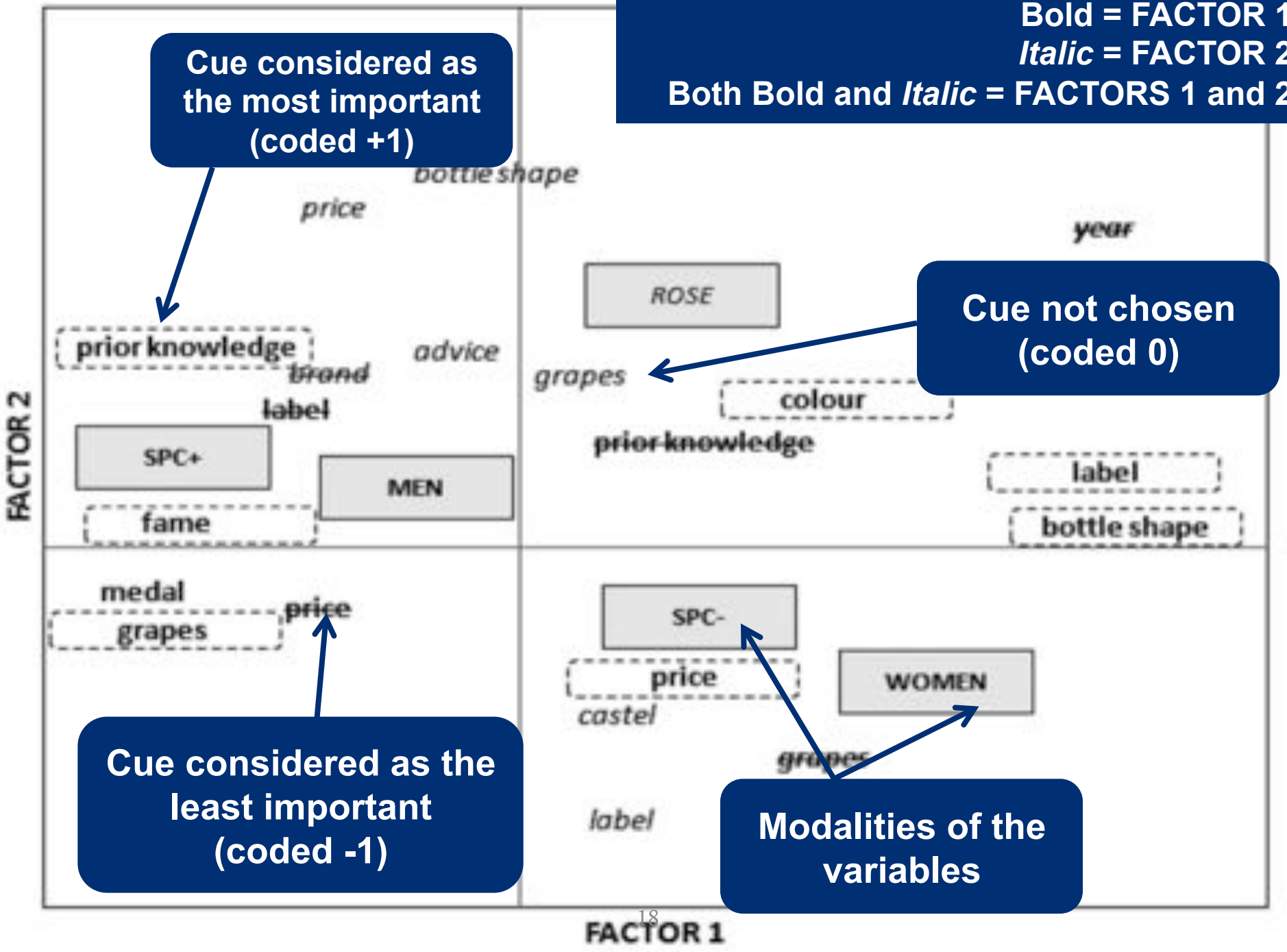
Results

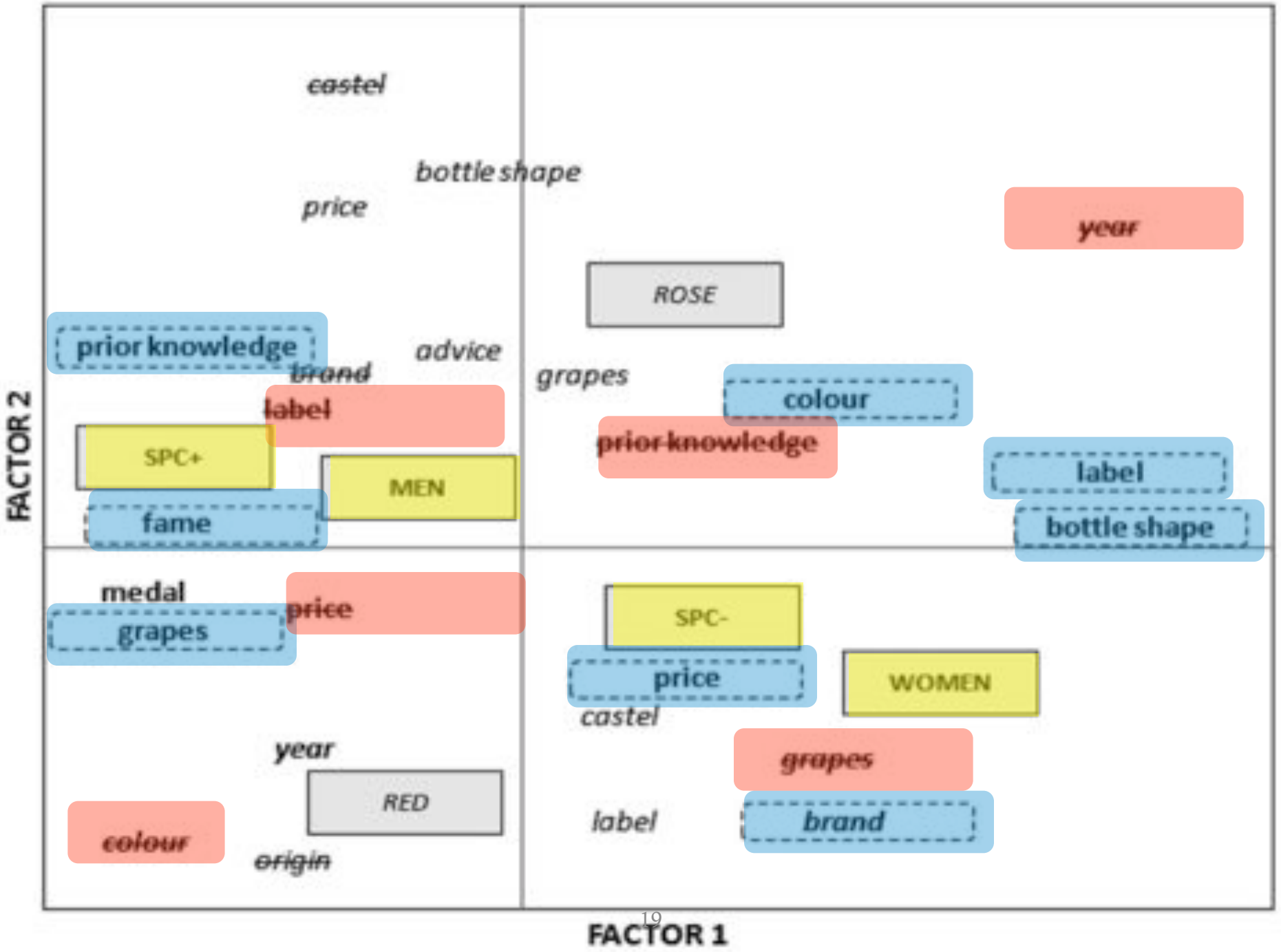
In terms of % of inertia:

- Facteur 1 = 64.08%
- Facteur 2 = 23.16%
- % total = 87.24 %

Oppositions On the dimensions:

- Factor 1: « Men vs. Women » et « SPC+ vs. SPC– »
- Factor 2: « Good Red Wine » vs. « Good Rosé Wine »


Bold = FACTOR 1
Italic = FACTOR 2
Both Bold and *Italic* = FACTORS 1 and 2
Cue considered as the most important (coded +1)
bottle shape
price
year
ROSE
Cue not chosen (coded 0)
prior knowledge
advice
brand
grapes
label
colour
prior knowledge
SPC+
MEN
label
fame
bottle shape
medal
price
grapes
SPC-
price
WOMEN
castel
grapes
label
Cue considered as the least important (coded -1)
Modalities of the variables
FACTOR 2
FACTOR 1


castel
bottle shape
price
year
ROSE
prior knowledge
advice
brand
grapes
colour
label
prior knowledge
SPC+
MEN
label
fame
bottle shape
medal
price
SPC-
grapes
price
WOMEN
castel
year
grapes
RED
label
brand
colour
origin
FACTOR 2
FACTOR 1

The Characterization Questionnaire
Q. Sort Method

The advantages…

- Easy to use
- Generate oppositions
- Allows several ways of data analyses
  - Descriptives statistics (distributions, see Abric, 2003)
  - Similarity Analysis (D index, see Guimelli, 1989, 1998)
  - Means comparison
  - CFA
  - PCA

The Characterization Questionnaire
Q. Sort Method

The disadvantages…

- Centrality hypotheses
- Limited concerning the number of elements to test

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