

A Sense of Diversity

Second European Conference on Sensory
Consumer Science of Food and Beverages

26 - 29 SEPTEMBER 2006

WORLD FORUM CONVENTION CENTRE, THE HAGUE, THE NETHERLANDS

A New Behavioural Extension to Preference Mapping: The Kano's Satisfaction Model

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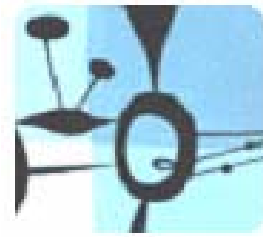


³Cedric, CNAM, France



Context :

The Preference Mapping

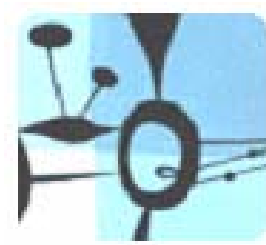


- relate sensory properties of the products to hedonic scores
 - monadic sequential and blind consumer test
 - product sensory profiles from expert panel

- « *the empirical problems may be attributed to the lack of satisfactory explanation of the underlying preference related consumer behaviour* » (MacFie and Wakeling, 1996)

- **Aim of the study is to provide a new Preference Mapping methodology in line with the consumer preference formation process**

Preference formation model applied to Preference Mapping



Preference formation model (Jaeger et al. 2000)

→ *Activation*

Activation of sensory senses by exposure to stimulus

→ *Detection*

Identification of single sensory characteristics

→ *Synthesis*

Formation of perceptual representation of product similarities and differences

→ *Evaluation*

Perceptual comparison of synthesis representation internal personal reference

→ *Scoring*

Transformation of the evaluation to a preference score

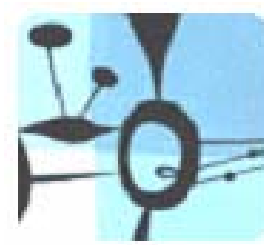
“Product spaces derived from experts and consumers may not be comparable”

“Not all sensory characteristics are equally important to consumers”

“Consumers use only a few key sensory dimensions during preference formation”

→ **What can we learn from the EVALUATION process?**

Process of Evaluation relates to the Expectancy-Disconfirmation model

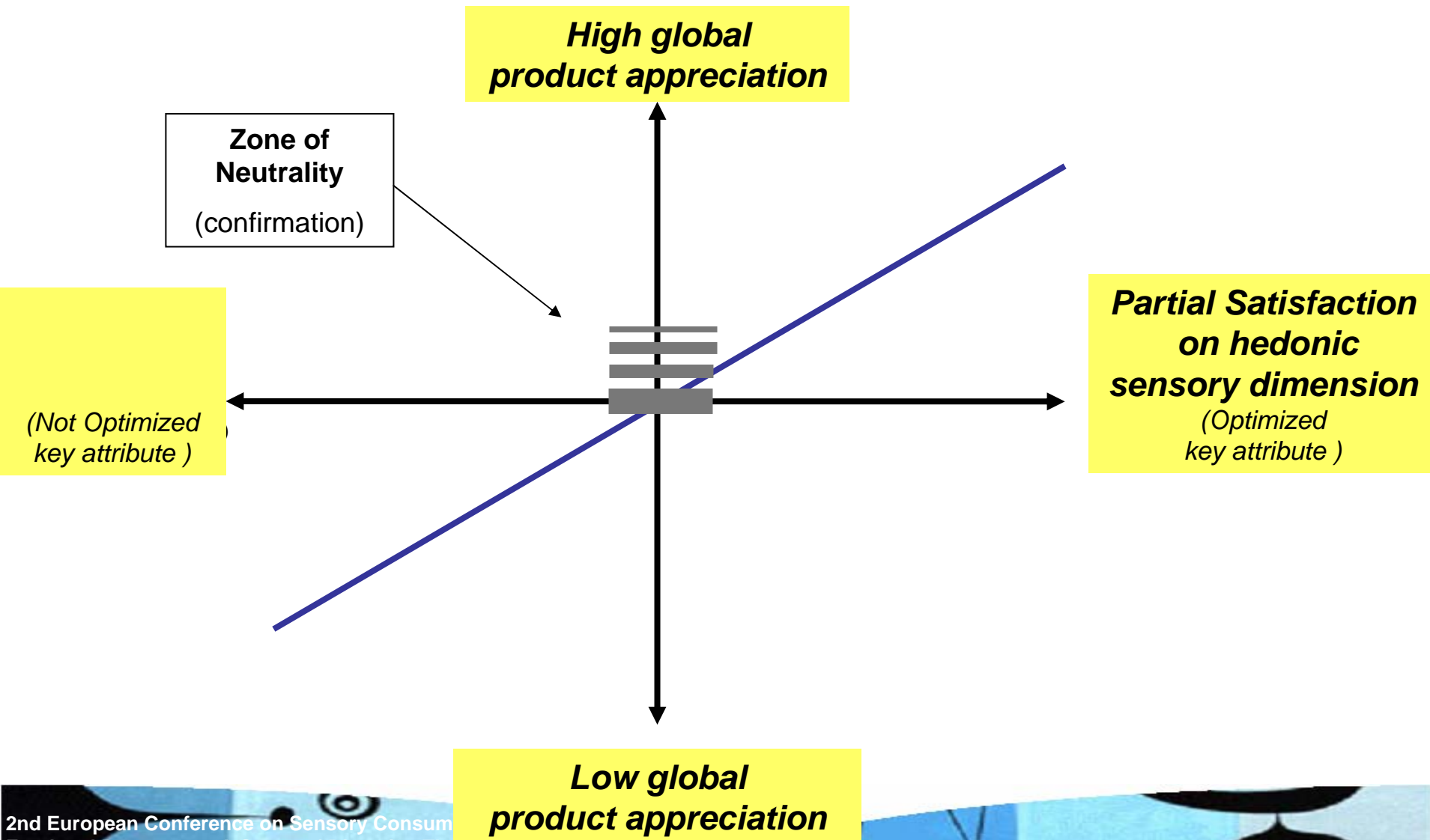
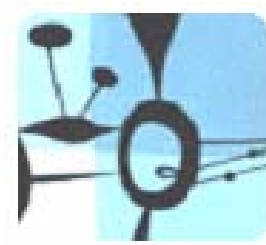


“ During Evaluation process consumers compare their perceptual representation of the products to a set of individual rules governing preference”

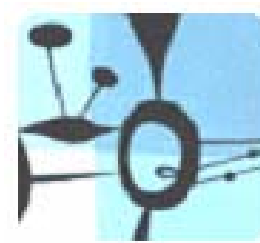


(adapted from Anderson, 1973)

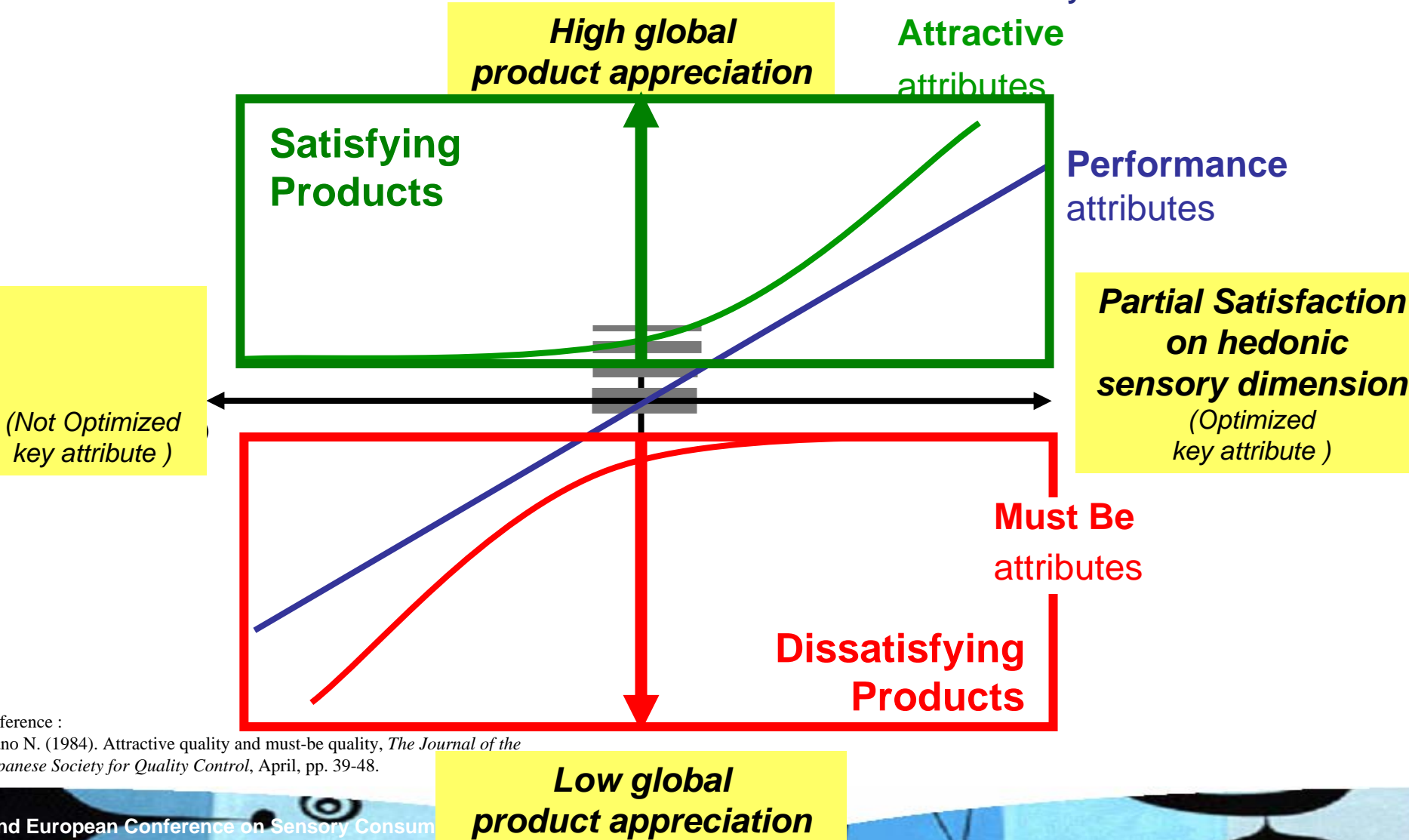
Process of Evaluation relates to the Expectancy-Disconfirmation model



Process of Evaluation relates to the Kano's model of satisfaction

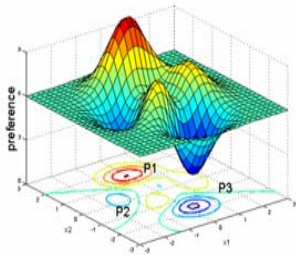
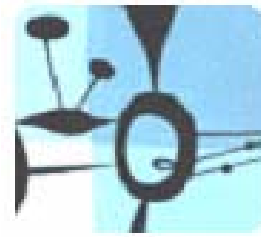


Reasons of satisfaction and reasons of dissatisfaction are not necessarily the same

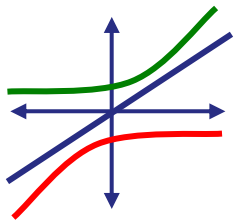


Reference :
 Kano N. (1984). Attractive quality and must-be quality, *The Journal of the Japanese Society for Quality Control*, April, pp. 39-48.

Methodology



**Preference
Mapping**



**Kano's
Satisfaction Model**

step 1
satisfaction threshold
definition

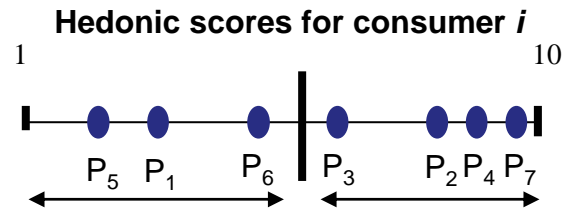
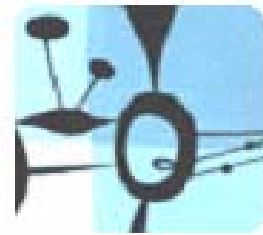
step 2
hedonic scores coding

step 3
modelling

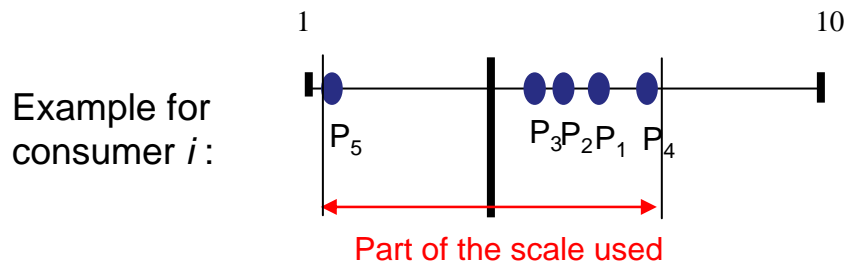
step 4
attribute mapping:
identification of Kano's key
drivers typology

step # 1

satisfaction threshold definition

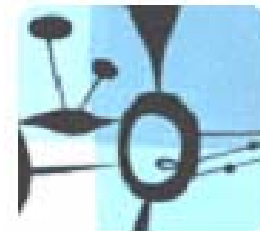


Between several possible solutions, we propose to define the satisfaction threshold score as the center of the part of scale 'used' by the consumer



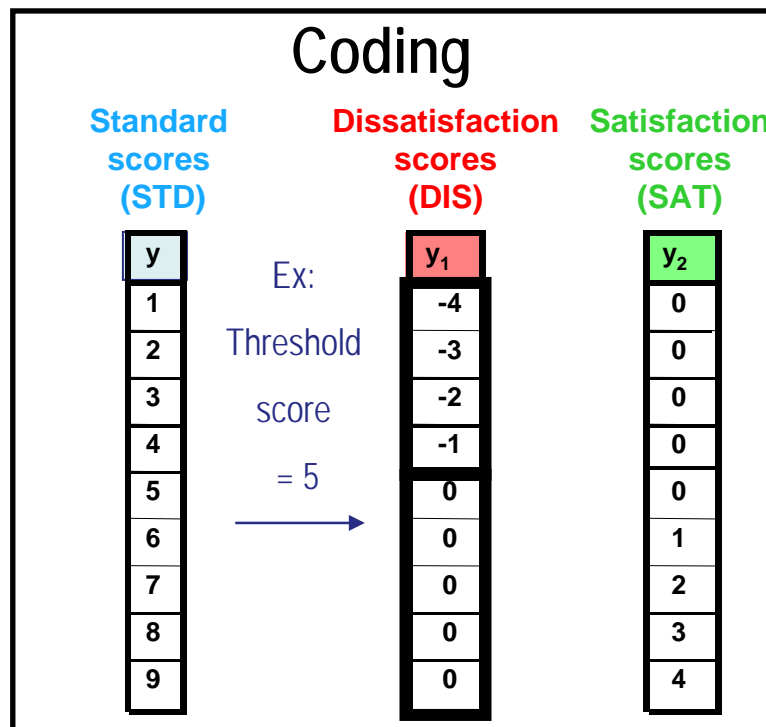
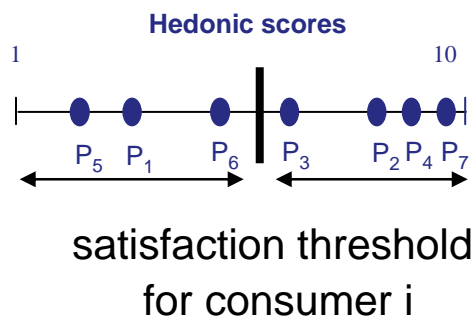
This threshold score is supposed to :

- be defined at individual level
- be dependent on the individual use of the scale
- be dependent on the tested product category
- be independent on individual product score distribution



step #2

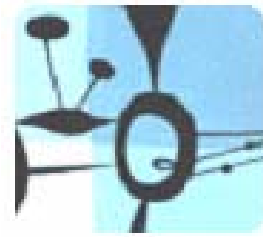
hedonic scores coding scheme



this coding scheme allows to

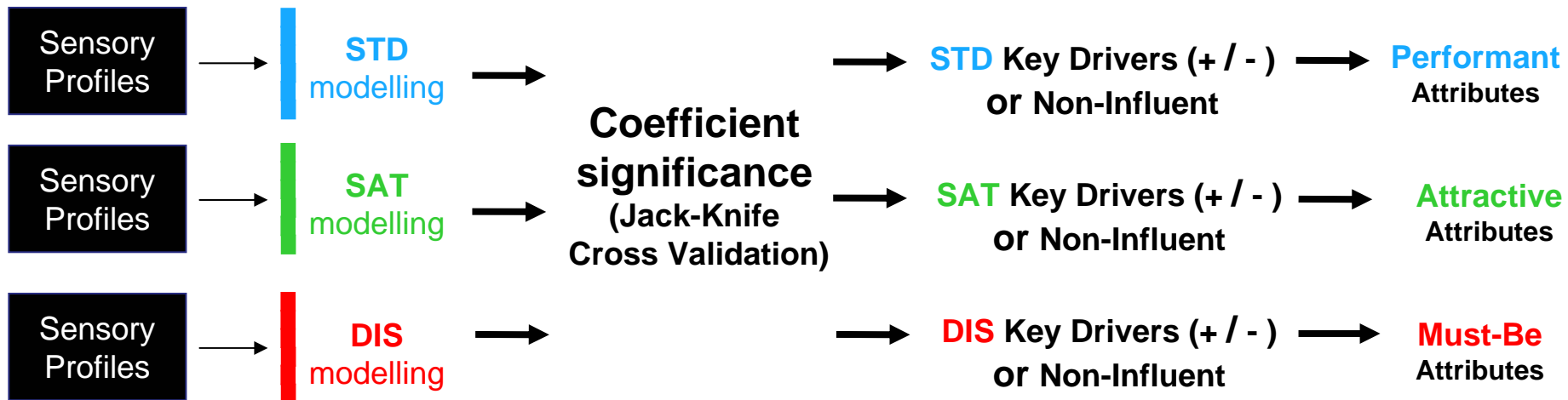
consider Satisfaction and Dissatisfaction independently
discriminate between satisfying products (and between
dissatisfying products)

step #3 PLS modelling



$$\text{Appreciation} = f(\text{sensory profiles})$$

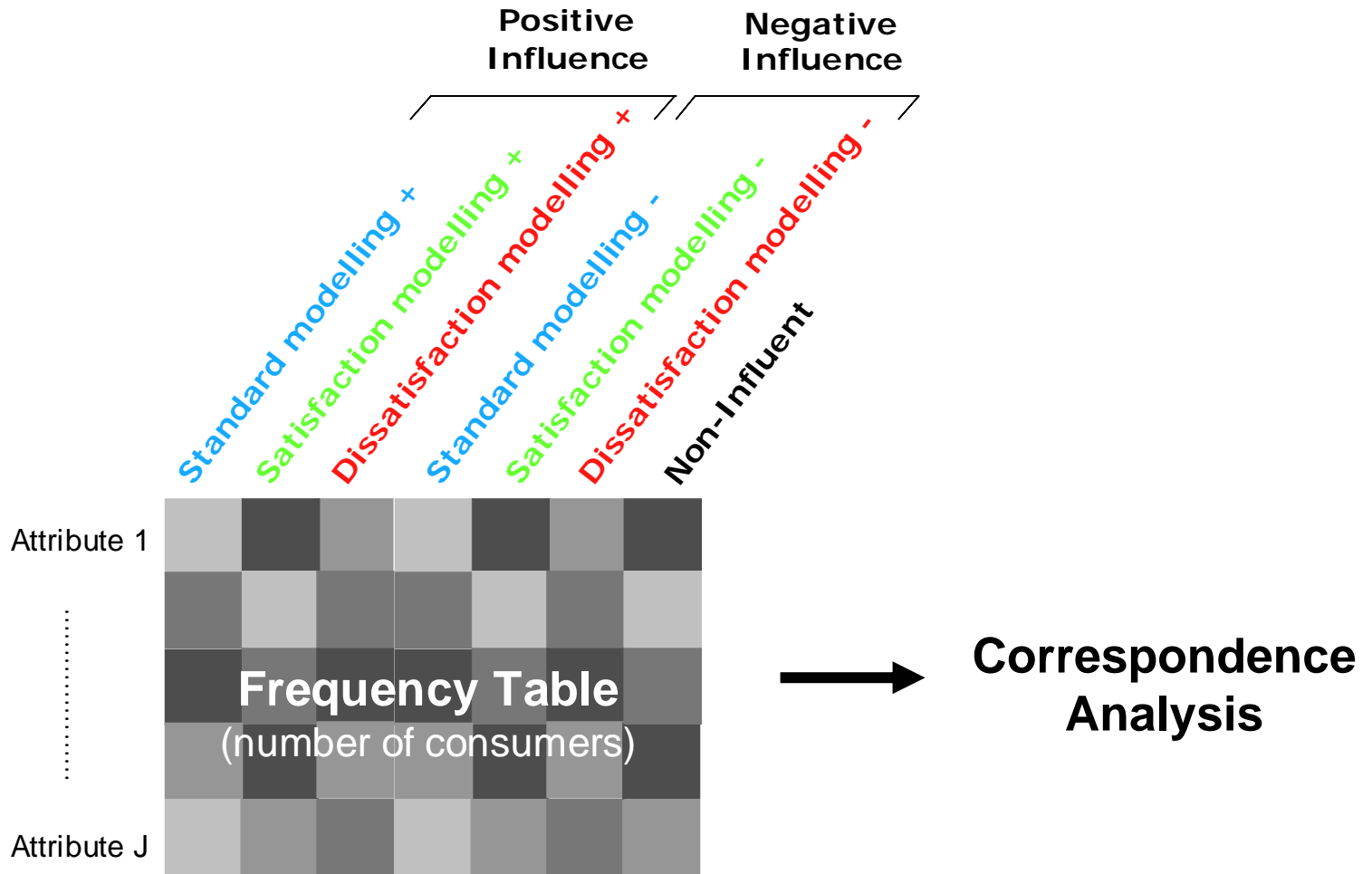
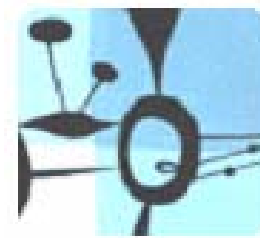
Individual Models
(Linear PLS1)

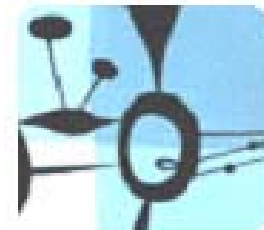


step #4

attribute mapping:

identification of Kano 's Key Drivers Typology





Case study

● Descriptive Sensory Evaluation

16 sweet biscuits

16 trained expert judges

31 sensory descriptors

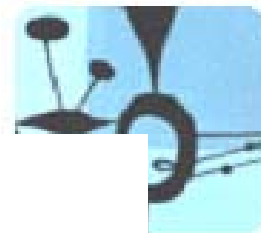
● Consumer Study

99 consumers

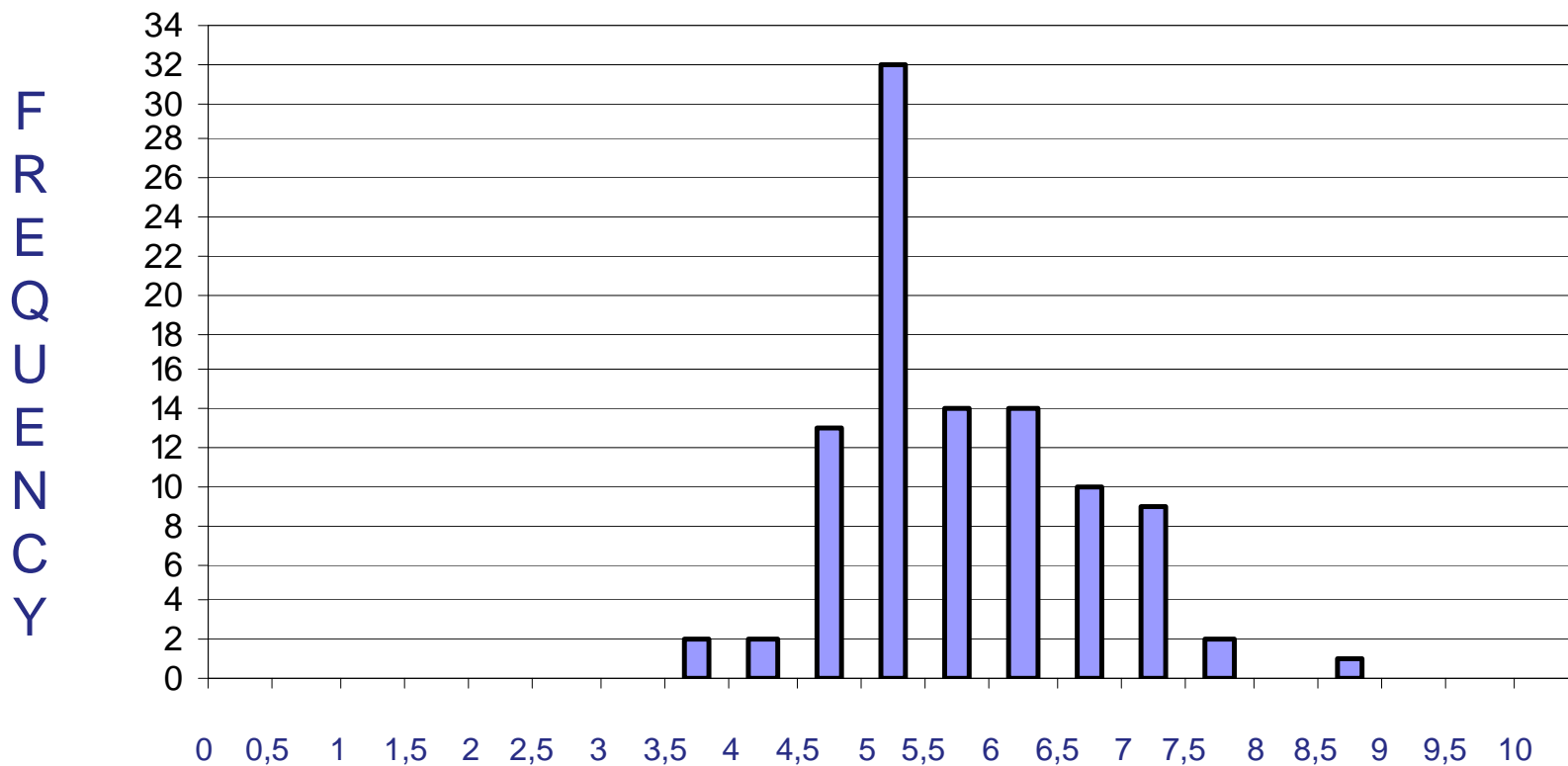
11 points hedonic scale

2 tasting sessions by consumer

2 cities: Paris and Lyon

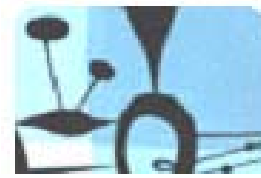


Satisfaction Threshold Score Distribution

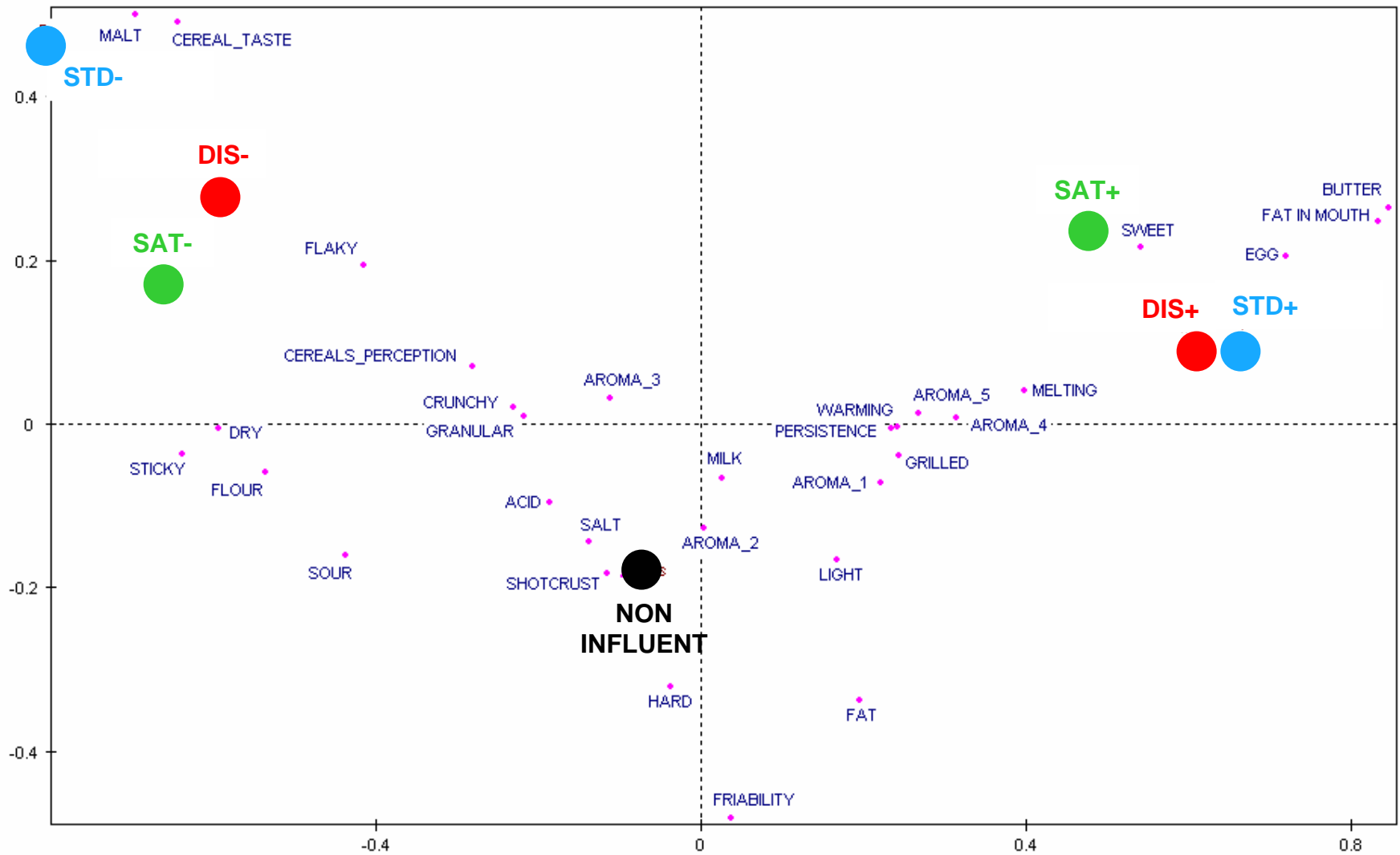


Results

Global Attribute Mapping

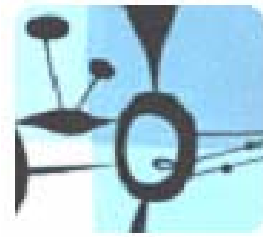


Facteur 2 - 15.97 %

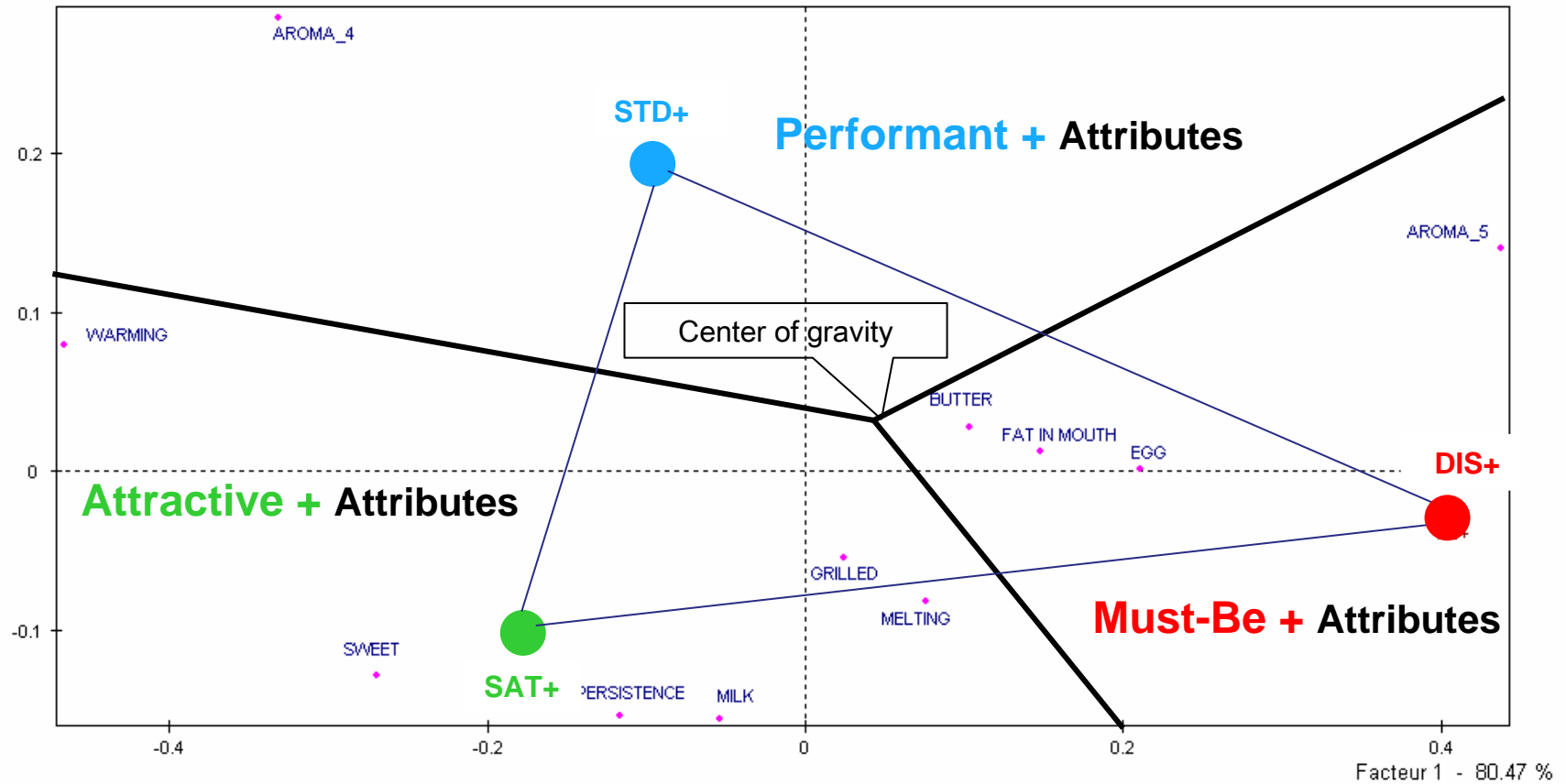


Results

Positive Influence Attribute Mapping

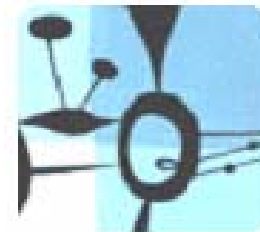


Facteur 2 - 19.53 %

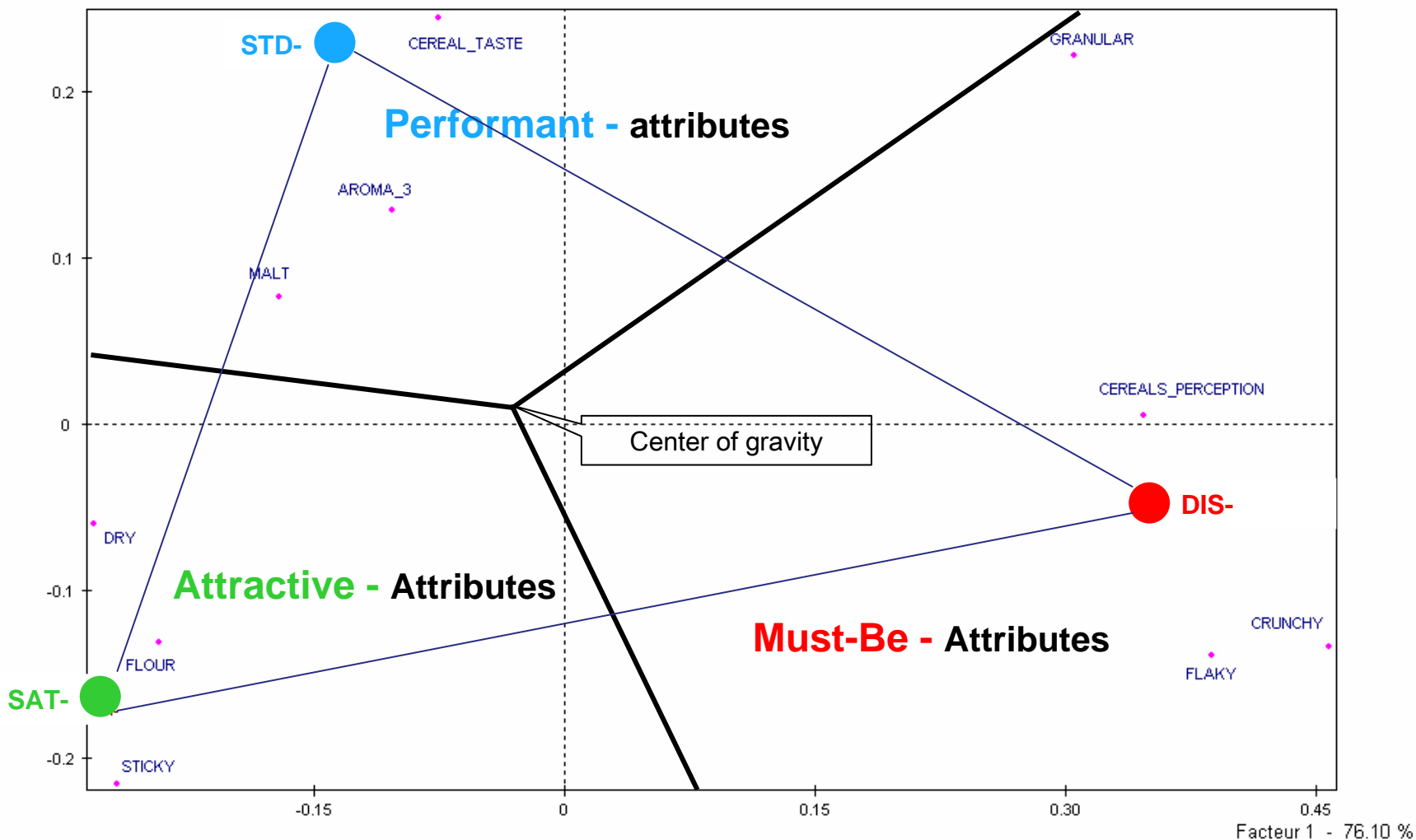


Results

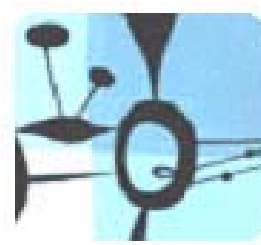
Negative Influence Attribute Mapping



Facteur 2 - 23.90 %



Conclusion



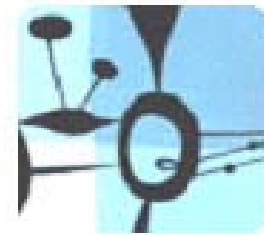
- Integration of Kano's model of satisfaction to Preference Mapping context
 - deals with both SYNTHESIS and EVALUATION process
 - allows identifying the few key sensory attributes driving hedonic appreciation
 - categorizes key sensory attributes into Must-be, Performant and Attractive attributes

- Limits & Prospect
 - threshold from a category-rating scale
 - consumers Segmentation based Kano's Attribute typology
 - investigate directly relationships between Global Product Appreciation and Partial Attribute Satisfaction (ex: JAR, Partial Attribute Liking, ...)



**Thank you
for
your attention**

Food Action rating Scale (SCHUTZ, 1965)



Satisfying
products



- I would eat this food every opportunity I had
- I would eat this food very often
- I would frequently eat this
- I like this and would eat it now and then

Dissatisfying
products



- I would eat this if available but would not go out of my way
- I don't like it but would eat it on occasion
- I would eat this only if there were no other food choice
- I would eat this only if I were forced to