

## Consumer knowledge structures with regards to organic foods

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# **CONSUMER KNOWLEDGE STRUCTURES WITH REGARD TO ORGANIC FOODS**

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## PREFACE

The research reported here was conducted as part of the project *Consumer Decision-Making with Regard to Organic Products* (CONDOR; supported financially by the European Commission through project no. QLK1-2002-02446). The project is coordinated by Richard Shepherd, University of Surrey. The overall objectives of the CONDOR project are:

- To provide a basic understanding of the processes involved in consumer decision-making with regard to the purchase and consumption of processed and fresh organic foods
- To model consumer choice of organic foods based on attitudes, values, affective and moral concerns over eight EU member countries.

The report constitutes Deliverable 13, completed as part of Work Package 3.

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Lone Bredahl and John Thøgersen  
Aarhus, November 2004

## TABLE OF CONTENTS

|  |    |
|--|----|
| <a href="#">EXECUTIVE SUMMARY</a> .....  | 3  |
| <a href="#">INTRODUCTION</a> .....   | 4  |
| <a href="#">Food-Related Lifestyle segmentation</a> .....  | 6  |
| <a href="#">MATERIALS AND METHODS</a> .....  | 8  |
| <a href="#">Stimuli</a> .....  | 8  |
| <a href="#">Samples</a> .....  | 8  |
| <a href="#">Data collection method</a> .....   | 11 |
| <a href="#">Interview sequence</a> .....   | 12 |
| <a href="#">Translations</a> .....   | 13 |
| <a href="#">Analysis of results – categorisation and coding</a> .....  | 13 |
| <a href="#">Analysis of results – investigation of knowledge structures and discriminating means-end chains</a> .....                | 15 |
| <a href="#">RESULTS</a> .....  | 16 |
| <a href="#">Hierarchical value maps for FRL segments</a> .....   | 17 |
| <a href="#">Hierarchical value maps for FRL segments, concerning the ‘Organic/ not organic’ attribute</a> .....                      | 20 |
| <a href="#">Hierarchical value maps for organic and non-organic consumers, concerning the ‘Organic/ not organic’ attribute</a> ..... | 28 |
| <a href="#">Results of correspondence analyses</a> .....   | 34 |
| <a href="#">CONCLUDING REMARKS AND DIRECTIONS FOR FURTHER RESEARCH</a> .....   | 44 |
| <a href="#">REFERENCES</a> .....   | 48 |
| <a href="#">ANNEX A. STIMULI</a> .....   | 51 |
| <a href="#">ANNEX B. INTERVIEW GUIDE</a> .....   | 53 |
| <a href="#">ANNEX C. ASSIGNMENT OF CODES TO FINAL BIPOLAR CATEGORIES</a> .....   | 61 |
| <a href="#">ANNEX D. HIERARCHICAL VALUE MAPS FOR FROZEN, ORGANIC PIZZA FOR ALL FRL SEGMENTS</a> .....                                | 66 |

## EXECUTIVE SUMMARY

1. This paper presents results of an empirical study conducted among European consumers to explore consumer knowledge structures with regard to organic foods and to identify the beliefs and the attribute-to-value chains that discriminate best among different consumer segments.
2. Using means-end chain theory as the theoretical basis, the objectives of the study were met through carrying out laddering interviews with consumers in Germany, Great Britain, Denmark and Spain, using a Food-Related Lifestyle (FRL) segment-based approach and interviewing both organic and non-organic consumers. Respondents covered as subset of 13 FRL segments, with three or four segments represented per country. Pizza was used as stimuli, with two of four specified alternatives identified as organic (frozen pizza and ready-to-eat pizza).
3. Results of the initial ranking procedure show product preferences to vary considerably among countries, with frozen, organic pizza as the most preferred choice among German segments and chilled pizza as the most preferred choice among British segments. Throughout Spanish segments and among most Danish segments home-made pizza was the preferred option.
4. The data were analysed in two ways; through hierarchical value maps and through perceptual maps derived from correspondence analyses, both across stimuli. Results point to marked differences in knowledge structures concerning organic foods among consumer segments, both at product-knowledge level and at self-knowledge level. The exact values associated with self-relevant consequences do not appear to discriminate clearly among segments, however. Generally, organic origin has significant links to personal values among segments of adventurous, enthusiastic, hedonistic and eco-healthy food consumers while it appears a dysfunctional means of achieving important personal values among segments of snacking, impulsive and, partly also, rational food consumers. Similarly, regular consumers of organic foods exhibit more complex knowledge structures than non-organic consumers.

## INTRODUCTION

This paper presents results of a qualitative study conducted among German, British, Danish and Spanish consumers to explore knowledge structures with regard to organic foods in different consumer segments.

Whether bought fresh or processed, many food products enter a phase of (further) processing in the home in connection with meal preparation. The more processed a product is at the point of purchase, the less meal preparation efforts are generally required by the consumer. Hence, the degree of industrial processing of a product can be expected to be closely related to the degree of convenience that consumers associate with the product.

Now, consumer demands on the quality of food products have been found to comprise both hedonistic, health-related, convenience and process dimensions, including organic origin (Brunsø, Grunert & Fjord, 2002). At the same time, the perceived naturalness of food products has been shown to be crucial to product acceptance (Bredahl, 1999; Brunsø, Grunert & Fjord, 2002; Holm & Kildevang, 1996). While it seems that organic foods are generally regarded as natural products, processed foods tend to be considered, if not unnatural, then at least less natural (Bredahl, 1999; Makatouni, 2002; Zanolli & Naspetti, 2002). Most organic foods that have been marketed until now are only minimally processed foods. Hence, the case of processed organic foods constitutes a potential mental conflict in the minds of consumers, which may result in product acceptance among some consumers and rejection among others, regardless of whether they generally favour organic foods. This potential incompatibility in the minds of consumers between organic production and industrial processing was dealt with explicitly in the design of this research.

Moreover, we anticipated that consumers would not only react differently towards processed and fresh organic foods but also that they would have different underlying motives for purchasing or rejecting products based on their subjective knowledge structures, relating the acquisition and consumption of products to the fulfilment of personal life values. In order to catch this diversity, a segment-based approach is required that relates values to product choice. Means-end chain theory and the Food-Related Lifestyle (FRL) concept are suitable to this end.

Means-end chain theory models the consumption-related part of consumers' cognitive structures and explains how consumers mentally link perceptions of product attributes to personal values through associated self-relevant consequences (Gutman, 1982; Olson 1989; Olson & Reynolds, 1983). A basic assumption of the theory is that products are not interesting in themselves, instead consumers are expected to evaluate products based on how they perceive that individual product attributes may serve as means to reach desired end states, i.e. to comply with personal values. According to means-end theory, different cognitive categories are linked to each other in hierarchically structured means-end chains, with attributes at the one end of the chain proceeding over perceived consequences, to finally reach personal values level at the other end. Because of this,

categories at value level are often referred to as consumers' abstract purchasing motives (Cohen & Warlop, 1991; Grunert & Grunert, 1995). Whereas the lower parts of consumers' means-end chains (attribute-to-consequence links) comprise consumers' product knowledge, the upper part (consequence-to-value links) can be regarded as comprising consumers' self knowledge (Walker & Olson, 1991).

The FRL concept builds explicitly on means-end chain theory to explain how consumers mentally relate the acquisition and consumption of food products, as a general product category, to the attainment of basic life values. The link between attributes and values is constituted by five interrelated domains: ways of shopping, cooking methods, quality aspects, consumption situations, and purchasing motives (Grunert, Brunsø & Bisp, 1997; Brunsø & Grunert, 1995). The FRL concept is measured by a survey instrument that covers 23 dimensions, each of which are measured by three questionnaire items. The instrument has been cross-culturally validated in a Western European context (Brunso, Grunert & Bredahl, 1996; Brunsø, Bredahl & Grunert, 1996; Grunert, Brunsø & Bisp, 1997; O'Sullivan, Scholderer & Cowan, 2005; Scholderer, Brunsø, Bredahl & Grunert, 2004), and has been found a useful means to explain differences in patterns of food-related behaviours, both across and within countries (Bredahl & Grunert, 1997a, b; Buckley, Cowan, McCarthy & O'Sullivan, 2003; Grunert, Brunsø, Bredahl & Bech, 2001; Reid, Li, Bruwer and Grunert, 2001; Scholderer, Brunsø & Grunert, 2002).

Based on means-end chain theory, the FRL frame of reference and the above considerations on consumer perceptions regarding organic food, the specific objectives of the empirical study were:

- to explore consumer knowledge structures with regard to organic foods, focusing particularly on processed foods
- to identify the beliefs and the attribute-to-value chains that discriminate best among different consumer segments, by comparing results across countries, food-related lifestyles and levels of experience with organic products

Using means-end chain theory as the theoretical basis, the objectives of the study were met through conducting a laddering study with consumers in Germany, Great Britain, Denmark and Spain, using a Food-Related Lifestyle segment-based approach and using realistic product stimuli. Laddering is a semi-structured qualitative interview method that has been developed as a way of measuring consumers' means-end chains (Gutman, 1991; Reynolds & Gutman, 1988). The technique and means-end theory have previously been applied to investigate consumer purchase motivations with regard to organic foods, in all cases known of either in purely national contexts and/or towards organic foods as a generalized product category (Baker, Thompson & Engelken, 2004; Fotopoulos, Krystallis & Ness, 2003; Makatouni, 2002; Zanolli & Naspetti, 2002).



## Food-Related Lifestyle segmentation

The FRL instrument has been extensively used to segment consumers in Western World markets (Bredahl & Grunert, 1997a, b; Brunsø, Grunert & Bredahl, 1996; Buckley, Cowan, McCarthy & O'Sullivan, 2003) and has also, though less successfully, been applied for segmentation purposes in other parts of the world (Askegaard & Brunsø, 1999; Grunert, 1997; Reid, Li, Bruwer and Grunert, 2001).

Generally, in applications of FRL, segments are derived through hierarchical cluster analysis, whereafter profiling and naming of each segment take place by evaluating the profile of the segment on the underlying FRL dimensions relative to the population profile in the country. In Western Europe, several segments have been identified cross-nationally while others have been found to be country-specific (Brunso, Grunert & Bredahl, 1996; Bredahl & Grunert, 1997b). Importantly, while cross-national segments share the same relative food-related lifestyle characteristics and, hence, can be expected to react similarly to the same type of marketing initiatives, these segments do not necessarily favour the same meals or products, nor can they necessarily be targeted in exactly the same way.

Table 1 shows the FRL segments that have been identified in the most recent applications of the survey instrument on nationally representative samples in Germany, Great Britain, Spain and Denmark (Bredahl & Grunert, 1997a; 1997b; Buckley, Cowan, McCarthy & O'Sullivan, 2003; Jysk Analyseinstitut, 2002).

Table 1. Food-related lifestyle segments in Germany, Great Britain, Denmark and Spain

| Type of food consumer | <b>Germany</b><br>(1996;<br>n=1042) | <b>Great Britain</b><br>(2002;<br>n=1004) | <b>Spain</b><br>(1996;<br>n=1000) | <b>Denmark</b><br>(2002;<br>n=1655) |
|-----------------------|-------------------------------------|---|-----------------------------------|-------------------------------------|
| Extremely uninvolved  | 16%                                 |   |                                   |                                     |
| Uninvolved            | 16%                                 | 14%                                       | 16%                               | 23%                                 |
| Careless              |                                     | 14%                                       |                                   |                                     |
| Snacking              |                                     | 20%                                       |                                   |                                     |
| Hedonistic            | 18%                                 |   |                                   |                                     |
| Impulsive             |                                     |   |                                   | 19%                                 |
| Eco-healthy           |                                     |   |                                   | 12%                                 |
| Rational              |                                     | 26%                                       | 26%                               | 20%                                 |
| Conservative          | 11%                                 | 9%  | 26%                               | 13%                                 |
| Adventurous           | 21%                                 | 17%                                       | 20%                               | 13%                                 |
| Enthusiastic          | 17%                                 |   | 12%                               |                                     |

The extremely uninvolved food consumers, the uninvolved food consumers, the careless food consumers and the snacking food consumers all display a below average interest in food. The *extremely uninvolved food consumers* are the least involved in food of all the segments. To these consumers food is not at all a means to achieve important life values. The *uninvolved food consumers* are also not very interested in either shopping for food or cooking. However, they do take an interest in the price and in quick and easy cooking, and food partly serves as a means of security. The *careless food consumers* resemble the uninvolved food consumer but take a remarkable interest in new products and new ways of cooking, given that they are still easy. They attach less weight to price and, unlike the uninvolved food consumers, they do not see food as a means of creating stability in life. Organic foods are sought neither by the extremely uninvolved food consumers, the uninvolved food consumers nor the careless food consumers.

The *snacking food consumers* constitute a particularly convenience-seeking segment; they want cooking to be easy and quickly over and done with, and they tend to snack instead of having fixed meals. They enjoy shopping, however, willingly in speciality shops, and look favourably towards organic products while attaching little weight to other quality aspects of foods such as taste, freshness or nutritional value.

The hedonistic food consumers, the impulsive food consumers and the eco-healthy food consumers are, taken overall, averagely interested in food. The *hedonistic food consumers* are guided by a search for pleasure and hedonism with regard to food. They enjoy shopping, have a predilection towards speciality shops, and have novelty as a guiding principle. Snacking and eating out with friends are common activities. The *impulsive food consumers* resemble the hedonistic food consumers in many ways, but attach relatively high importance to meal preparation which they consider an important social activity. Self-fulfilment and social recognition are important general purchasing motives to these consumers. Neither the hedonistic nor the impulsive food consumers hold particularly favourable or unfavourable attitudes towards organic foods. The *eco-healthy food consumers* first and foremost consider foods a means to securing a long and healthy life. They find product information very important, favour speciality shops, and attach great importance to organic and natural products and quality aspects such as nutritional value and freshness.

The rational food consumers, the conservative food consumers, the adventurous food consumers and the enthusiastic food consumers are highly involved food consumers. The *rational food consumers* are interested, but critical consumers that seek both self-fulfilment, social recognition, security, and social relations through food. These consumers plan both shopping and meal preparation in advance, they are concerned about product quality in all respects and they go for good value-for- money special offers. The *conservative food consumers* have security and stability as their basic guiding principles in relation to both shopping for food, cooking and eating. They stick to familiar products and recipes, cooking is considered a woman's task, and they have very traditional eating patterns overall, with low purchasing power. The *adventurous food consumers* are involved in a completely different way. They look for social relationships and self-fulfilment in food, are highly interested in quality products in all respects, consider organic produce a crucial quality characteristic, and attach relatively little importance to price. Cooking is a social event for the whole family. These consumers are the most

well-educated of all the segments. The *enthusiastic food consumers*, finally, are the most highly involved consumers of all segments. They enjoy both shopping and cooking, plan both activities in advance, are extremely interested in production information and attach importance to most food quality aspects, including organic produce.

## **MATERIALS AND METHODS**

### **Stimuli**

Pizza was used as stimuli, with altogether four pizza alternatives developed for use across countries. The stimuli varied with regard to production method (organic - conventional), degree of industrial processing, and convenience as follows:

- Home-made pizza; to be prepared from scratch by the respondent out of ingredients of own choice (choice option H)
- Frozen, organic pizza; to be baked in the oven by the respondent (choice option F)
- Chilled, conventional pizza; to be baked in the oven by the respondent (choice option C)
- Ready-to-eat, organic pizza; supplied by a pizza delivery service (choice option R)

The stimuli were presented to respondents on cards with photos of the choice alternatives along with a brief text outlining any preparatory activity requested by the consumer before consumption. The stimuli are enclosed in Annex A. The exact pictures were developed by the partner in each country to allow cultural differences to be taken into account. In order to take individual taste preferences into account as well, respondents were instructed to imagine a topping that they liked when evaluating the choice options and to keep this the same across products.

Real organic products were selected when those existed. In all other cases, conventional alternatives were artificially presented as organic by the addition of existing organic certification labels that were regarded as both widely known and highly trusted in each country.

### **Samples**

Samples of 100 respondents were drawn among consumers in each of the countries Germany, Great Britain, Denmark and Spain, with quotas put on FRL segment membership. All respondents had to be responsible or co-responsible for food purchases and cooking in their household and maximum 65 years old. At least 33% of those recruited had to purchase one or more food items labelled as organic at least once a month, and all had to consume pizza at least a couple of times a year.

It was decided that the sample in each country should be composed equally of respondents belonging to three pre-selected FRL segments. A subset of segments were chosen for two reasons. First, with the pre-specification of a total of 100 laddering interviews per country, full coverage of all FRL segments in the four countries was perceived to yield too few respondents per segment to produce meaningful results. Second, a number of segments were perceived to be irrelevant to the study because they were unlikely to be potential buyers of either fresh or processed organic foods, either because of inherently negative attitudes towards organic foods (extremely uninvolved, uninvolved and careless food consumers), or because of substantially low purchasing power and food patterns that were perceived to generally be unlikely to change (conservative food consumers). Excluding these immediately irrelevant segments, segments retained for inclusion in the study were: Germany: hedonistic, adventurous, and enthusiastic food consumers; Great Britain: snacking, rational, and adventurous food consumers; Denmark: eco-healthy, rational, and adventurous food consumers; Spain: rational, adventurous, and enthusiastic food consumers. Notably, the procedure resulted in at least two cross-national segments per country.

Major demographic characteristics of the final samples in each country are shown in table 2. Generally, the British sample contains less male respondents than in the other countries, and more single person households are found in the German and Danish samples. Given that similar, not to speak of identical, demographic profiles of the samples cannot be expected due to the quota sampling procedure applied, sample compositions are considered to be within reasonable boundaries of what could be expected based on the design of the study.

Table 2. Country-wise demographic sample profiles

|  | <b>Germany</b><br>(n=100) | <b>Great Britain</b><br>(n=100) | <b>Spain</b><br>(n=100) | <b>Denmark</b><br>(n=100) |
|--|---------------------------|---------------------------------|-------------------------|---------------------------|
| <b>Gender***</b>   |                           |                                 |                         |                           |
| - male   | 47%                       | 9%                              | 35%                     | 27%                       |
| - female   | 53%                       | 91%                             | 65%                     | 73%                       |
| <b>Mean age, years (st.d.)</b>                           | 41.7 (11.7)               | 39.5 (9.8)                      | 38.6 (10.7)             | 40.1 (12.3)               |
| - min.   | 20                        | 18                              | 22                      | 21                        |
| - max.   | 69                        | 64                              | 65                      | 67                        |
| <b>Marital status***</b>                                 |                           |                                 |                         |                           |
| - married/cohabiting                                     | 60%                       | 84%                             | 70%                     | 85%                       |
| - single/widowed   | 40%                       | 16%                             | 30%                     | 15%                       |
| <b>Household size***</b>                                 |                           |                                 |                         |                           |
| - 1 person   | 25%                       | 6%                              | 9%                      | 25%                       |
| - 2 people   | 28%                       | 20%                             | 29%                     | 37%                       |
| - 3 or more  | 47%                       | 74%                             | 62%                     | 38%                       |
| <b>Average household size, no. of persons (st.d.)***</b> | 2.5 (1.1)                 | 3.6 (1.5)                       | 3.0 (1.2)               | 2.5 (1.3)                 |
| - min.   | 1                         | 1                               | 1                       | 1                         |
| - max.   | 6                         | 8                               | 5                       | 6                         |
| <b>Children living at home***</b>                        |                           |                                 |                         |                           |
| - yes  | 52%                       | 69%                             | 38%                     | 56%                       |
| - no   | 48%                       | 31%                             | 62%                     | 44%                       |

\*\*\*: p<.000

Frequency of organic food purchases in the four samples is shown in table 3. As can be seen, Danish respondents generally report much higher purchase frequencies, with 91% claiming to purchase one or more organic food items at least once a month as opposed to 54% in Germany, 53% in Great Britain and 45% in Spain.

Table 3. Country-wise sample profiles with regard to frequency of organic food purchases

|   | <b>Germany</b><br>(n=100) | <b>Great Britain</b><br>(n=100) | <b>Spain</b><br>(n=100) | <b>Denmark</b><br>(n=100) |
|---|---------------------------|---------------------------------|-------------------------|---------------------------|
| Every day or almost every day             | 1%                        | 0%                              | 0%                      | 25%                       |
| Several times a week, but not every day   | 13%                       | 3%                              | 4%                      | 40%                       |
| Once a week                               | 20%                       | 22%                             | 19%                     | 13%                       |
| Several times a month, but not every week | 15%                       | 7%                              | 14%                     | 4%                        |
| Once a month                              | 5%                        | 21%                             | 8%                      | 8%                        |
| Less than once a month or never           | 46%                       | 47%                             | 55%                     | 9%                        |

(Pearson chi-square 188.603; p<.000)

An overview of the final distribution of respondents on the selected FRL segments is shown in table 4. Notably, recruiting Danish rational food consumers that were also consumers of pizza (at least a couple of times a year, cf. above) proved immensely difficult. Because of this the quota of one third rational food consumers in the Danish sample was split into one half impulsive food consumers and one half rational food consumers. Results for the two segments were analysed separately. Recruitment of Spanish rational food consumers also proved very difficult, primarily because the neighbourhoods used for establishing the Spanish sample unexpectedly turned out to be short of this type of consumer. As a consequence, Spanish adventurous food consumers were over-recruited. Notably, the small sample sizes finally obtained for Danish impulsive, Danish rational and Spanish rational food consumers mean that results pertaining to these segments should be interpreted with caution.

Table 4. Representation of food-related lifestyle segments

| Type of food consumer | Number of interviews |               |       |         |
|-----------------------|----------------------|---------------|-------|---------|
|                       | Germany              | Great Britain | Spain | Denmark |
| Snacking              |                      | 32            |       |         |
| Hedonistic            | 32                   |               |       |         |
| Impulsive             |                      |               |       | 16      |
| Eco-healthy           |                      |               |       | 33      |
| Rational              |                      | 35            | 8     | 15      |
| Adventurous           | 35                   | 33            | 64    | 36      |
| Enthusiastic          | 33                   |               | 28    |         |

## Data collection method

In Germany, Great Britain and Denmark respondents were recruited by telephone. This was not eligible in Spain if the quota on organic food consumers were to be fulfilled (due to generally low organic food consumption levels in Spain, cf. Soler, Gil, & Sánchez, 2002). Instead, Spanish respondents were recruited from the street, with organic consumers being recruited in organic shops. In all countries, the actual interviews were conducted as face-to-face in-home interviews by trained interviewers.

All interviews were conducted in metropolitan areas to ensure that the quota on organic consumers could be fulfilled. In Germany selected sample points were Frankfurt and Mannheim, in Great Britain sample points were Kent, Surrey and Sussex, in Spain sample points were Murcia, Cartagena, Madrid, Cehegín and Lorca and, finally, in Denmark sample points were Aalborg and Copenhagen.

Screening according to FRL segments was done using adaptive Bayesian computer-assisted interviewing, using the Sophi@ABC<sup>®</sup> software, developed by Jysk Analyseinstitut.

Data were collected in May and June 2004.

## Interview sequence

Each interview was undertaken in the following sequence:

1) *Introduction*. The interview was initiated by a brief introduction to the subject ('study about food habits') and main parts of the interview. All respondents were assured full confidentiality.

2) *Elicitation of attributes*. The four stimuli were presented on cards in front of each respondent. Salient attributes were then elicited by a ranking procedure where respondents were requested to arrange the stimuli presented according to their likelihood of choice (1<sup>st</sup>, 2<sup>nd</sup>, 4<sup>th</sup> and 3<sup>rd</sup> choice). After the ranking, the interviewer requested each respondent to give his/her reasons for the ranking of each stimuli. Each concept mentioned was registered in a separate form.

3) *Laddering*. For each concept registered in the attribute elicitation task the interviewer pursued reasons for its elicitation by asking 'why is this important to you?'-type questions until the respondent could give no more reasons or was beginning to repeat him-/herself. In cases where the concept elicited was not a concrete attribute, backward laddering was first applied.

4) *Self-completion section*. A brief questionnaire on demographic issues and purchase of organic foods was handed out for self-completion. The questionnaire was filled in in presence of the interviewer.

5) *De-briefing*. At the end of the interview all respondents were informed that the study was purely for scientific use and that all materials presented were purely experimental.

6) *Interviewer report*. A small section with questions for the interviewer was added at the end of the interview guide. The questions asked for the interviewer's overall impression of the interview and requested the interviewer to briefly report on issues perceived to be crucial to the execution of the interview.

The interview guide that was used as a master version for local translations in all countries is enclosed in Annex B.

All interviews were tape recorded for future reference.

The initial ranking of the stimuli showed stimuli F (frozen, organic pizza) as the most preferred choice across German FRL segments (ranked first by 41%-58% in the segments) and stimuli C (chilled pizza) as the most preferred choice among British FRL segments (ranked first by 52%-66% in the segments). Throughout Spanish FRL segments and among Danish adventurous, Danish eco-healthy and Danish impulsive food consumers stimuli H (home-made pizza) was the most preferred (ranked first by 50%-71% in the Spanish segments, and by 52%-67% among Danish adventurous, Danish eco-healthy and Danish impulsive food consumers). Stimuli R (ready to eat, organic pizza), finally, was the first choice among Danish rational food consumers (ranked first by 87% in the segment). In both Spain and Denmark, the frozen, organic pizza was strongly

rejected by all FRL segments (in Denmark the frozen, organic pizza was typically the fourth choice, while, in Spain, the frozen, organic pizza was either third or fourth choice). An overview of the first and last choices among segments is shown in table 5.

## **Translations**

All materials (text on cards, interview guide, laddering forms) were translated into local languages and cross-checked by groups of local bilingual researchers.

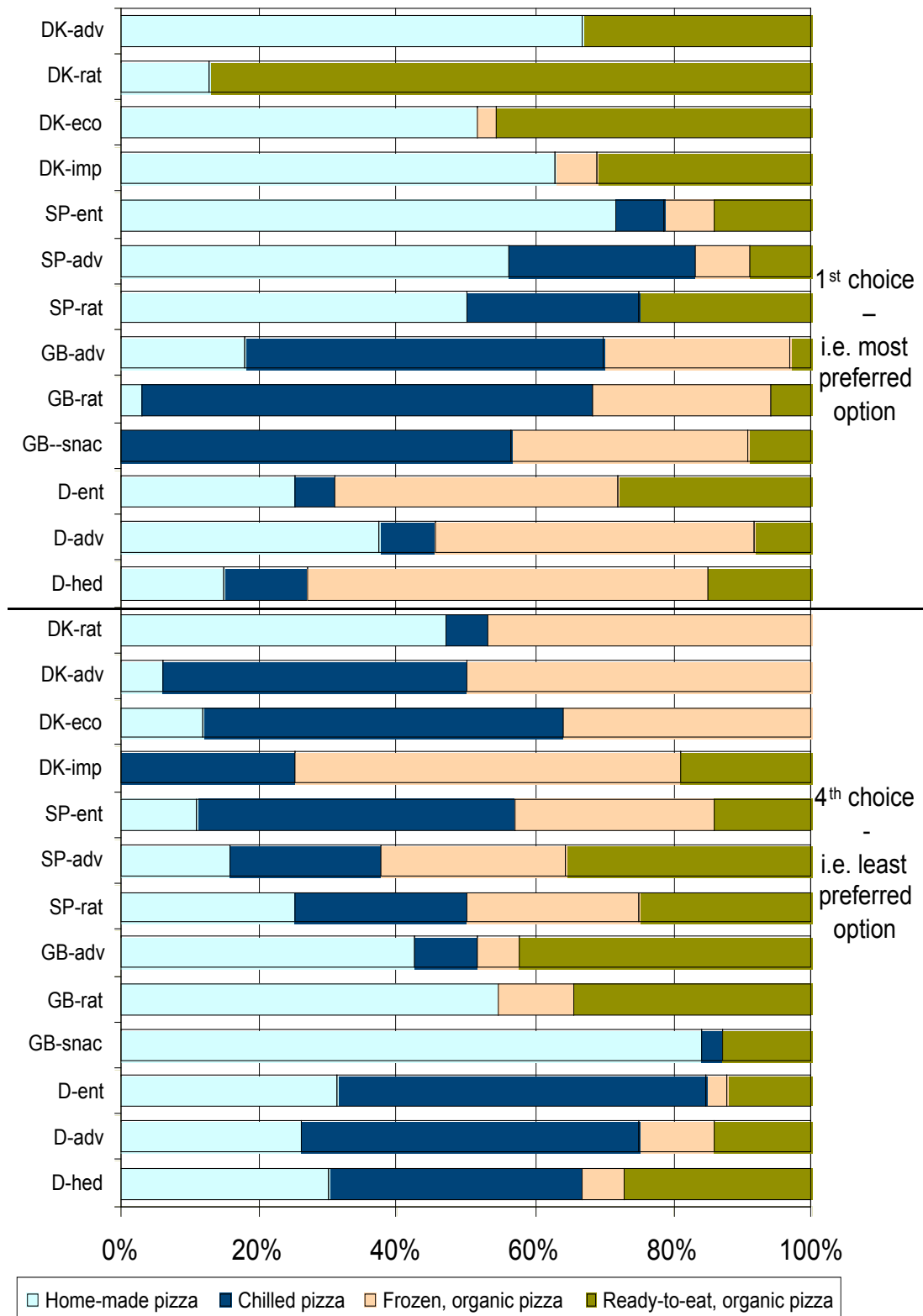
## **Analysis of results – categorisation and coding**

After completion of the field work the raw laddering data were typed into electronic text files by each partner. In a first analytical step, the data were categorised into attributes, consequences and values and were then coded by each partner based on a code book that had been developed by MAPP based on categorisation and coding of the first 30 Danish interviews by two separate coders. The code book contained 48 attributes, 39 consequences and 19 values. Each partner was allowed to add additional codes in a limited number based on the coding work in each country.

All coded ladders (key concepts and codes allocated) were forwarded to MAPP, along with a list of any additional codes applied. German, British and Danish key concepts were listed in original language, while Spanish key concepts were first translated into English. The procedure resulted in a final coding list of 136 individual codes. To ensure the highest possible accordance in code allocations and to allow final updating with the additional codes suggested by individual partners, the coded data from all countries were cross-checked by a single researcher as a final step.



Table 5. First and last choices among FRL segments



## Analysis of results – investigation of knowledge structures and discriminating means-end chains

Laddering data are normally analysed at the aggregate level through graphical representations in hierarchical value maps of data summarized across a group of respondents. This is always done following the specification of a minimum number of times a given link has to have been mentioned in order to be included in the map (the so-called cut-off level; Gutman, 1991; Reynolds & Gutman, 1988). Here, hierarchical value maps were developed at both product level and at the general level, i.e. across stimuli. For both levels of analysis the original codes were collapsed into a smaller set of categories based on inspections of the implication matrices produced by the data processing software as a basis for the development of hierarchical value maps. For product level analyses the uni-polar nature of the original codes was retained (e.g. ‘Fresh’ and ‘Not fresh’ in separate categories), whereas bipolar categories (e.g. ‘Freshness’) were established for analyses at the general level. Analyses at product level can generally be used to explain consumer preference structures while analyses across products are particularly suitable for gaining an overview of associations among beliefs at the conceptual level, such as the one we are striving for in this report. For this reason, we focus here on presenting results of the general analyses.

The final list of collapsed bipolar categories is shown in table 6. An overview of the original codes that were assigned to the categories can be seen in Annex C. For the interested reader, Annex D shows product-specific hierarchical value maps generated for stimuli F, the frozen, organic pizza, for all FRL segments, based on uni-polar categories (cut-off levels were in all cases set relative to number of respondents in each segment (1:8)).

Table 6. List of bipolar categories

|               |   |   |
|---------------|---|---|
| Attributes:   | Additives<br>Degree of processing<br>Freshness<br>Taste and quality<br>Organic/ not organic<br>Pesticides<br>Quality control<br>Ease of solution<br>Price             | Informative packaging<br>Product appearance<br>Naturalness and wholesomeness<br>Familiar product<br>Storable<br>Protective packaging<br>Temperature<br>Italian style<br>Reliability of claim          |
| Consequences: | Resources for other things<br>Trust<br>Healthiness<br>Control of consumption<br>Decide on the ingredients<br>Preservation of nature<br>Try something new<br>Enjoyment | Value for money<br>Give others good experiences<br>Children assist in cooking<br>Enjoyment in the family<br>Good for the children<br>Children learn something<br>Moral concerns<br>Can indulge myself |
| Values:       | Responsibility for nature<br>Long, healthy life<br>Security<br>Excitement<br>Social togetherness<br>Happiness and inner harmony                                       | Family welfare<br>Independence and achievement<br>Benevolence<br>Socialisation of children<br>Hedonism  |

All analyses in hierarchical value maps were carried out using MecAnalyst® (version 1.0.18). Notably, the software only allowed distinctions among stimuli at respondent level when data for each stimuli were entered for a separate subject. Hence, the data file applied for the general analyses effectively consisted of 4x400 subjects.

While hierarchical value maps are a feasible and established way of analysing means-end data, their production and interpretation are not entirely unproblematic. Among the problems that have been pointed out is how to deal with the question of redundancy since hierarchical value maps may disclose slightly different information when both direct and indirect links are displayed as opposed to when only direct links are represented in the map (Grunert & Grunert, 1995). Furthermore, the traditional analytical procedure suffers from lack of clarity regarding which cut-off level that should be chosen (Pieters, Baumgartner & Allen, 1995). In the present research we are faced with unequal sizes of sub-groups (the FRL segments are represented in sub-samples varying in size from n=8 to n=64; organic and non-organic consumers in sub-samples ranging in size from n=35 to n=65). This reinforces the need of strictly comparative cut-off levels. In order to deal with these topics and convey as much information as possible in a way that also allowed meaningful sub-group comparisons, both direct and indirect links were included in the analyses, and effects of unequal group sizes were levelled out by setting cut-off levels as a predetermined fraction relative to the number of respondents in each group (in all cases 1:3).

To enhance the identification of means-end chains that substantially discriminate among different segments of consumers, the analysis was complemented with country-wise correspondence analyses based on contingency table information relating the FRL segments to the mentioning of particular attributes, consequences, values and their interrelations (links). Correspondence analysis may be utilised to represent categorical variables based on joint-space comparisons in perceptual maps that allow comparisons between row and column points (Carroll, Green & Schaffer, 1986). The method has been strongly advocated as a complementary technique for analysing means-end data (Valette-Florence & Rapacchi, 1991) because the traditional way of analysing means-end data in hierarchical value maps does not distinguish between different frequencies of categories beyond the admission limit introduced by the cut-off level.

## **RESULTS**

Results are presented in four parts. First, an overview of substantial results by FRL segment in the four countries is provided through the presentation of basic general hierarchical value maps. Second, general hierarchical value maps covering associations to the attribute 'organic/ not organic' only are presented for all FRL segments. Third, general hierarchical value maps for the 'organic/ not organic' attribute are presented, controlling for level of experience with organic foods. Fourth, results of the country-wise correspondence analyses on prevalent categories and links are presented.

## Hierarchical value maps for FRL segments

General hierarchical value maps were developed for all thirteen segments. Across segments 'enjoyment' appears as the most centrally perceived consequence, whereas additional consequences and the attributes which they are inferred from differ in nature. Results point to generally more elaborate knowledge structures among German and Danish consumers since hierarchical value maps for consumer segments in these countries generally display a larger number of categories and more links than in Spain and Great Britain. Moreover, substantially more values are expressed among the Danish segments.

In order to conserve space we only show the hierarchical value maps for the adventurous food consumers (Figures 1-4).<sup>1</sup> In all four countries, this segment represents consumers who are generally highly involved with food and who are positive towards organic foods. These general characteristics are clearly reflected in the results; compared to the other segments, hierarchical value maps for the adventurous food consumers generally show less concern with convenience attributes such as whether the stimuli is perceived to be storable, time-consuming or easy to prepare and consequences such as saving time and money for other things, while organic origin appears as a central attribute with multiple higher-order categories associated. On the values level, differences to the other segments occur as well, with individualistic values such as independence and achievement generally appearing less important for adventurous food consumers (instead, these values are generally more often expressed by the less involved food consumer segments, such as the German hedonistic food consumers, the British snacking food consumers and the Danish impulsive food consumers).

Differences exist among the adventurous food consumers segments as well, however, the most notable being the lack of values expressed by the British adventurous food consumers. Since the FRL instrument has verified the centrality of foods to adventurous food consumers, also in Great Britain, the relatively lower abstractedness in reasoning by the British adventurous food consumers in the study seem to express that pizza is less seen as a product that can fulfil general purchase motives in relation to food and, hence, does not activate important personal values among these consumers.

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<sup>1</sup> Hierarchical values maps which we refer to, but have chosen not to show in the report, can be obtained from the first author.

Figure 1. Hierarchical value map for German adventurous food consumers (cut-off: 12).

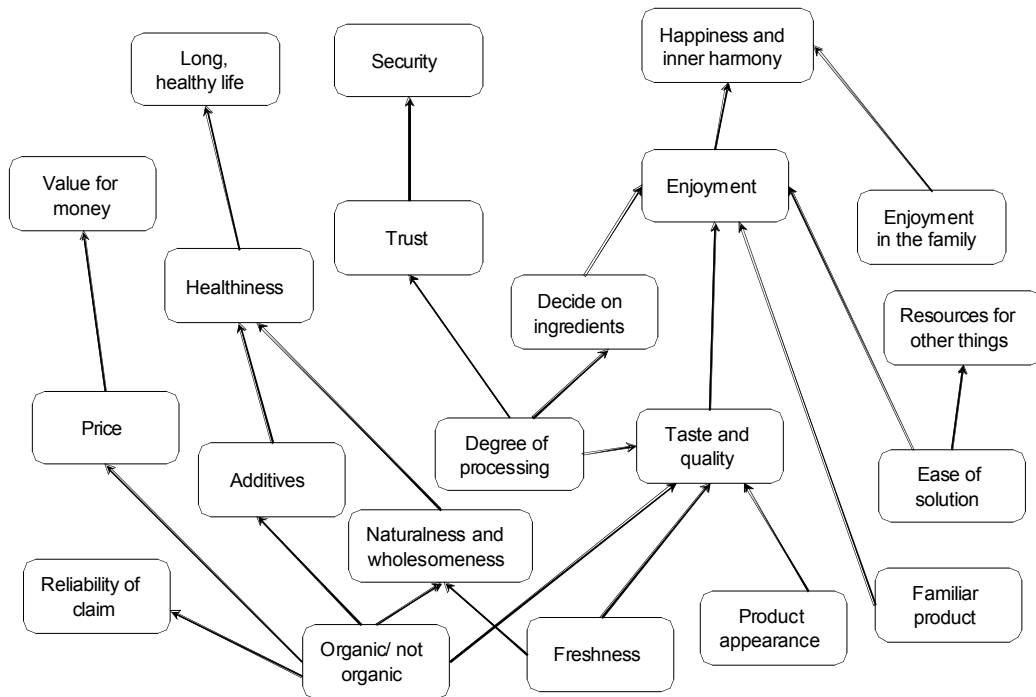


Figure 2. Hierarchical value map for British adventurous food consumers (cut-off: 11).

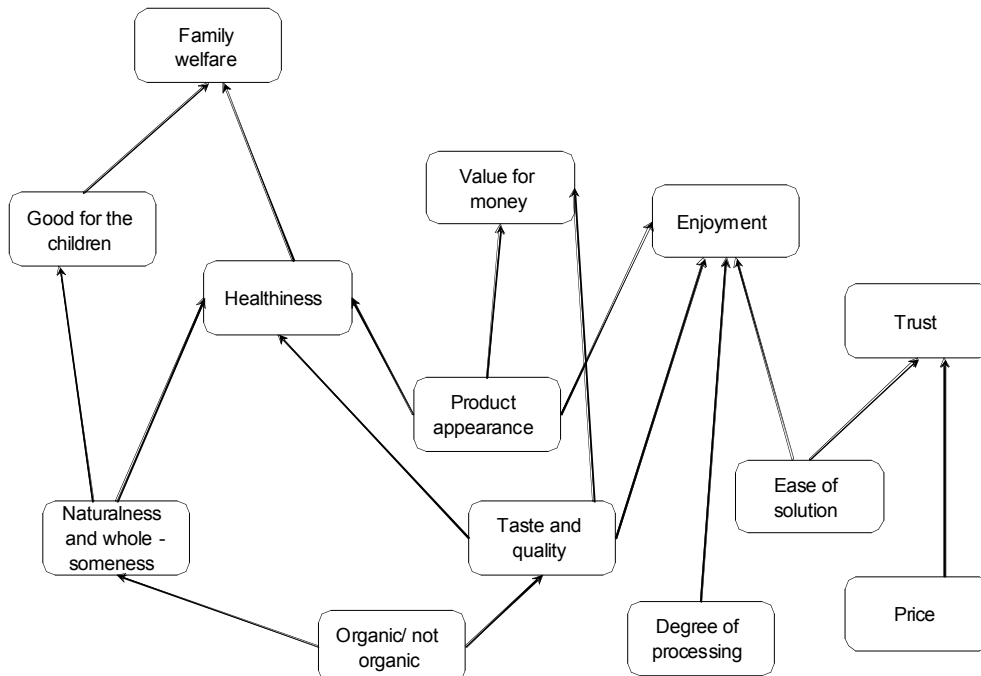


Figure 3. Hierarchical value map for Spanish adventurous food consumers (cut-off: 21).

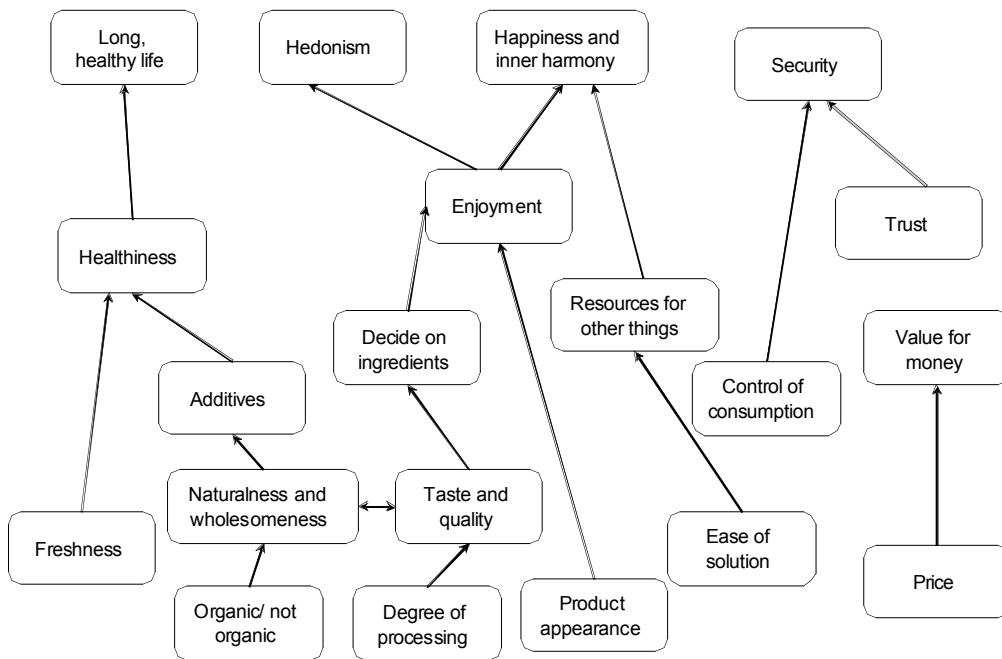
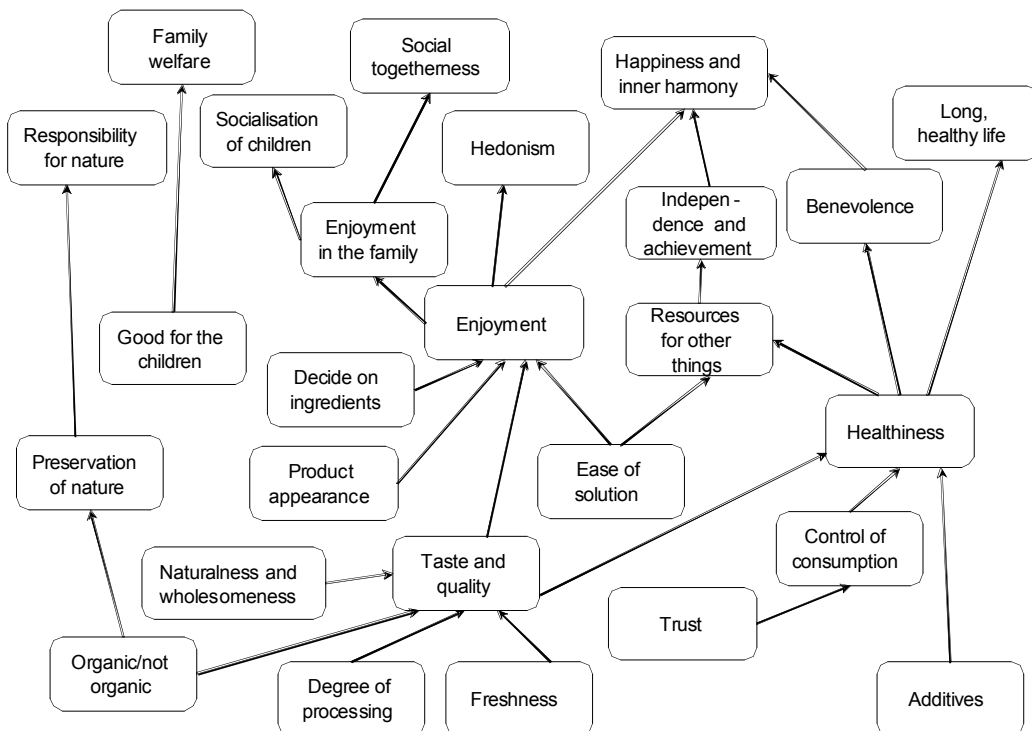


Figure 4. Hierarchical value map for Danish adventurous food consumers (cut-off: 12).



## **Hierarchical value maps for FRL segments, concerning the ‘Organic/ not organic’ attribute**

Figures 5-15 show hierarchical value maps for all segments solely for means-end chains related to the attribute ‘Organic/ not organic’. Notably, no maps are presented for the British snacking food consumers and the Danish impulsive food consumers as these consumers had no cognitions to ‘organic/ not organic’ that met the cut-off level.

The hierarchical value maps depicted generally suggest more elaborate knowledge structures with regard to the ‘organic/ not organic’ attribute among the German FRL segments, and among Spanish enthusiastic, Danish adventurous and Danish eco-healthy food consumers. It should be noted, however, that the fairly simple hierarchical value maps for the British segments may also be a consequence of the relatively larger heterogeneity that could be observed in responses among these respondents (at the pre-determined cut-off levels obtained shares of active links represented in the maps were: Germany: 37%-47%; Great Britain: 18%-21%; Spain: 37-43%, and Denmark: 54%-69%).

Overall, results show organic/ not organic origin to be associated with the attributes ‘Reliability of claim’, ‘Additives’, ‘Naturalness and wholesomeness’, ‘Taste and quality’ and ‘Pesticides’. Links between these and higher-order categories, i.e. perceived consequences within the product knowledge domain, are discussed below:

*Taste and quality – enjoyment.* All segments depicted except the Danish and Spanish rational food consumers associate organic/ not organic origin with taste and quality and enjoyment of the meal.

*Additives – naturalness and wholesomeness – healthiness.* Most segments associate organic/ not organic origin with personal health consequences, either through associating organic origin with absence of artificial additives, through associating organic origin with more natural and wholesome products, or through a combination of the two (i.e. inferring ‘Naturalness and wholesomeness’ from ‘Additives’). Of those depicted in the maps, only the British and Danish rational food consumers do not exhibit these links, whereas the Danish adventurous food consumers associate ‘Organic/ not organic’ directly with healthiness.

*Price – value for money – resources for other things.* A majority of segments show variations of this chain. Notably, German adventurous and German enthusiastic food consumers associate organic/ not organic origin with price, perceived to affect value for money. Similarly, British adventurous and British rational food consumers associate organic/ not organic origin with value for money, and the Danish eco-healthy food consumers perceive organic/ not organic to affect the value for money aspect and as a consequence of this perceived amount of resources (in terms of time and money) for other activities/ food purchases. The Danish rational food consumers, finally, associate the organic/ not organic attribute, as their only cognition, with value for money. Contrary to this, price seems insignificant to German hedonistic food consumers, all Spanish segments, and Danish adventurous food consumers.

*Preservation of nature.* Somewhat unexpectedly, only few segments associate ‘Organic/ not organic’ with environmental consequences. Thus, linking organic origin with environmental benefits is only found among Spanish enthusiastic, Danish adventurous and Danish eco-healthy food consumers.

*Trust.* Trust is found to be a significant link made among a number of Spanish and German FRL segments, but not among Danish and British segments. Both German adventurous and German hedonistic food consumers infer trust in the product and the preceding production process through the taste and quality associated with organic/ not organic origin. Spanish enthusiastic and Spanish rational food consumers apparently evaluate whether they can trust the product and production process more directly from the organic/ not organic attribute.

In addition to these links that occur both across countries and across FRL segments, a number of country-specific links occur:

*Reliability of claim.* Throughout the German sample, respondents are pre-occupied with the reliability of claiming organic origin of the stimuli. Generally, all German segments are fundamentally sceptical that stimuli labelled as organic are really organic. The scepticism appears universal and seems only to a very limited extent a consequence of having combined organic origin with pizza as stimuli in the study.

*Taste and quality – enjoyment – enjoyment in the family.* Both Danish adventurous and Danish eco-healthy food consumers associate organic origin with consequences at family level; for both segments the personal enjoyment expected from the perceived quality and taste is expected to influence the family atmosphere during the meal.

*Good for the children.* Similar to the above Danish links to family enjoyment, British adventurous and British rational food consumers also take family-level consequences into account when evaluating the stimuli. Here, however, the concern is with the perceived health-related consequences, such as whether the stimuli are perceived to be good and healthy for the children or partner.

*Taste and quality – decide on the ingredients.* Both Spanish enthusiastic and Spanish adventurous food consumers perceive that the taste and quality associated with organic/ not organic origin affects their ability to influence the contents of the meal.

Finally, a small number of links are mentioned by only one particular segment. This goes for ‘Quality control’ which is apparently only distinctively associated with ‘Organic/ not organic’ by German enthusiastic food consumers, and ‘Pesticides’ which is only linked to ‘Organic/ not organic’ by Danish eco-healthy food consumers. The infrequent link between organic/ not organic origin and pesticides is particularly interesting. While other research on consumer knowledge structures with regard to organic foods has shown perceived absence of pesticides to play an important role for consumer perception of organic produce (Baker, Thompson & Engelken, 2002; Makatouni, 2002), this is clearly not the case here. At the same time, our research shows additives as a crucial cognitive category in relation with organic/ not organic origin. The reason for these patterns are not clear, but it may be owed to the use of processed foods as stimuli.



Figure 5. Hierarchical value map for 'organic/ not organic' links, German adventurous food consumers (cut-off: 12)

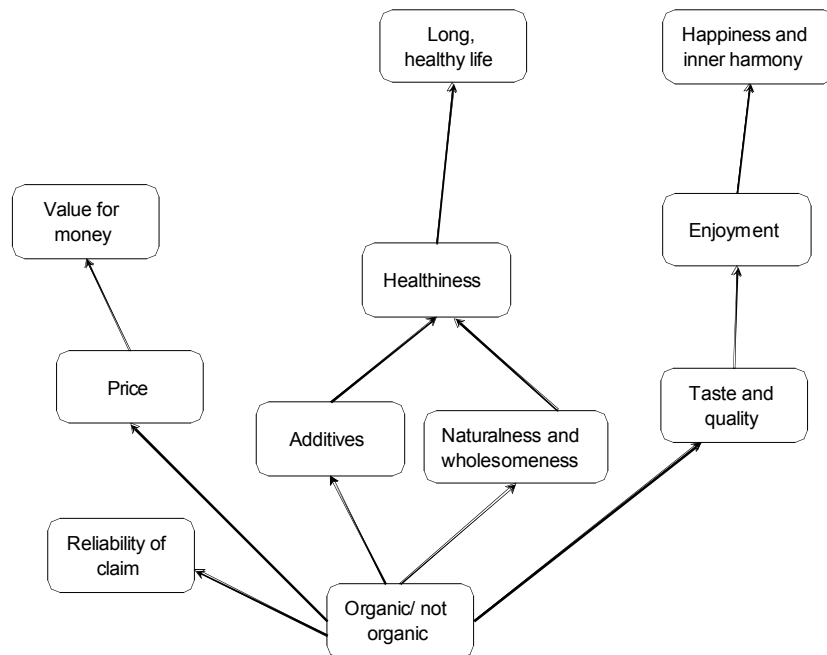


Figure 6. Hierarchical value map for 'organic/ not organic' links, German enthusiastic food consumers (cut-off: 11)

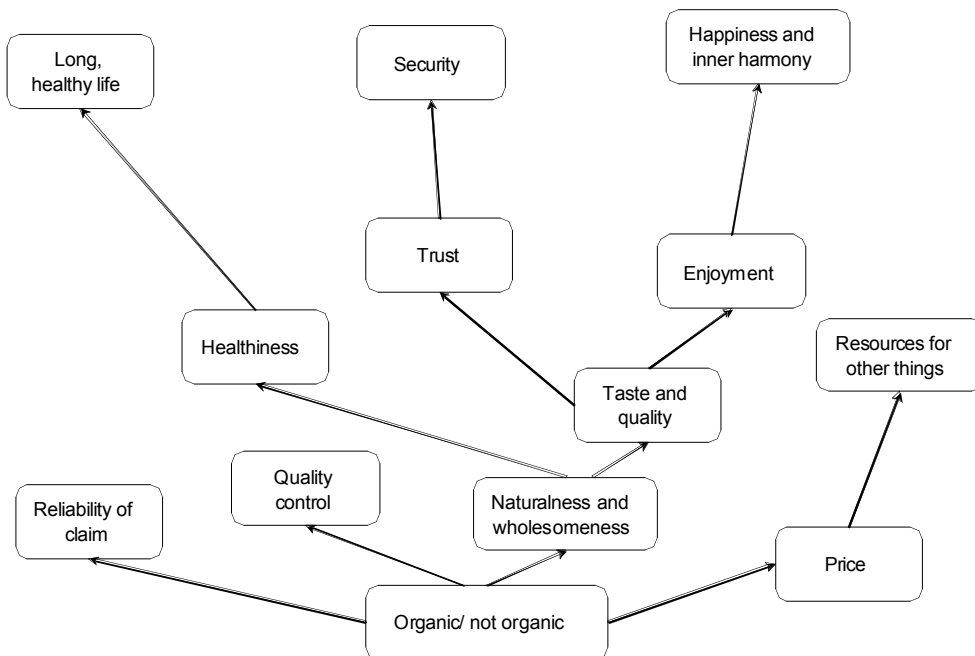


Figure 7. Hierarchical value map for 'organic/ not organic' links, German hedonistic food consumers (cut-off: 11)

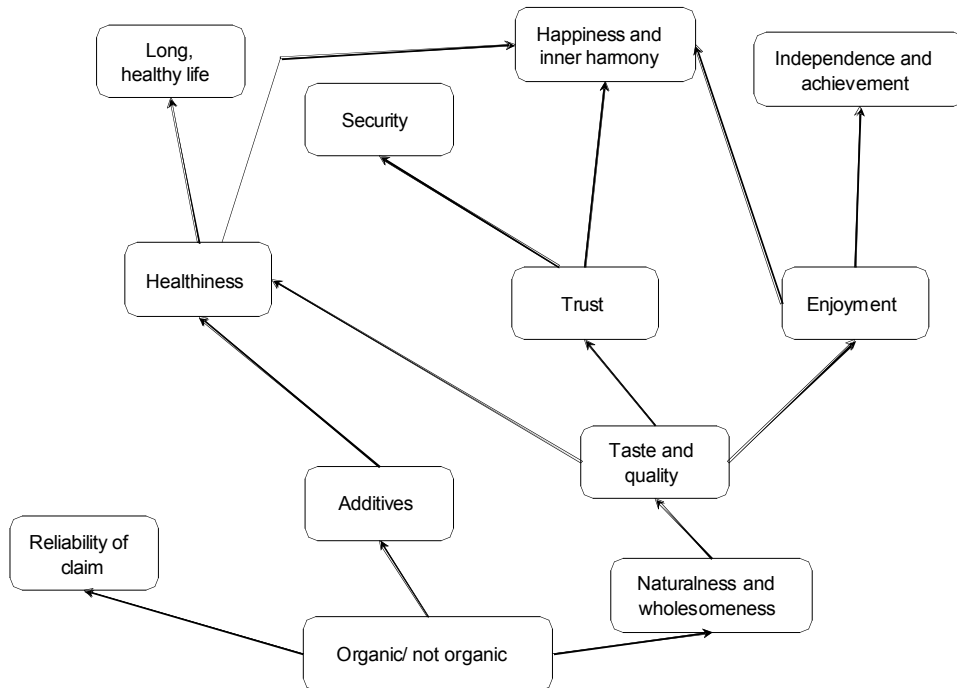


Figure 8. Hierarchical value map for 'organic/ not organic' links, British adventurous food consumers (cut-off: 11)

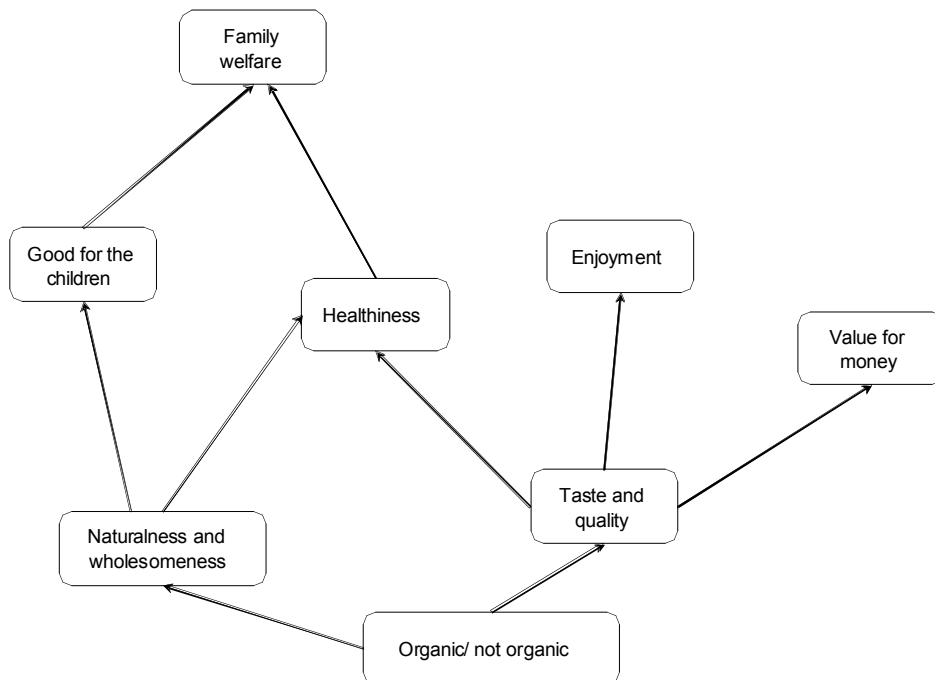


Figure 9. Hierarchical value map for ‘organic/ not organic’ links, British rational food consumers (cut-off: 12)

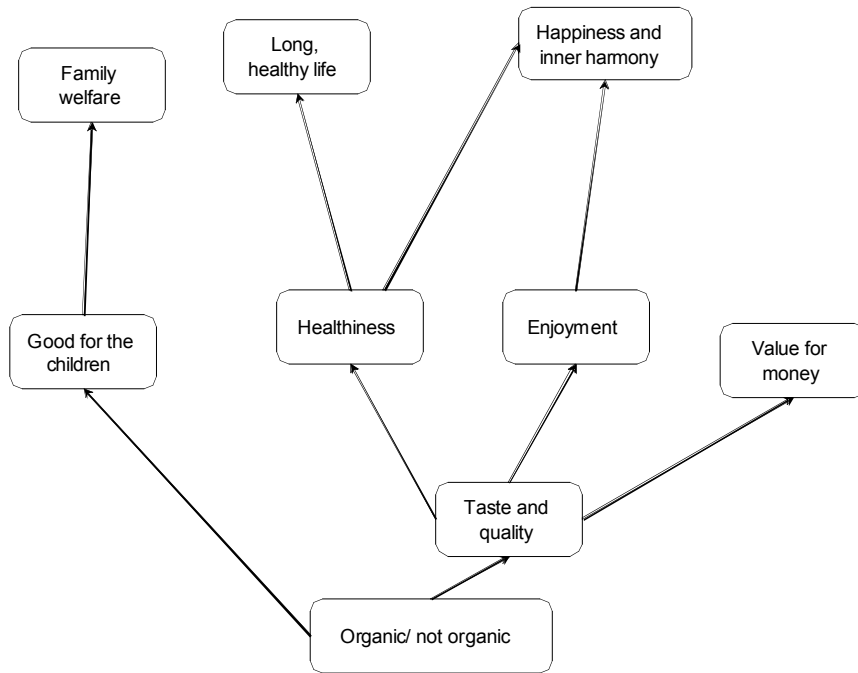


Figure 10. Hierarchical value map for ‘organic/ not organic’, Spanish adventurous food consumers (cut-off: 21)

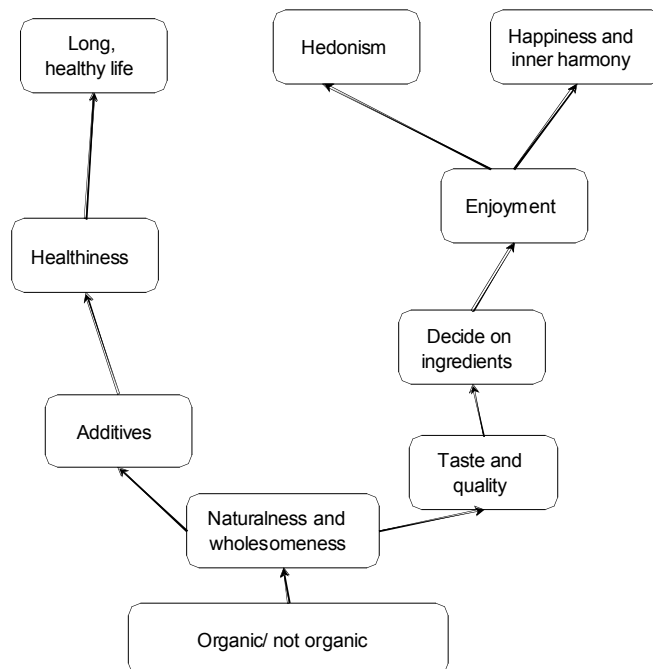


Figure 11. Hierarchical value map for 'organic/ not organic' links, Spanish enthusiastic food consumers (cut-off: 9)

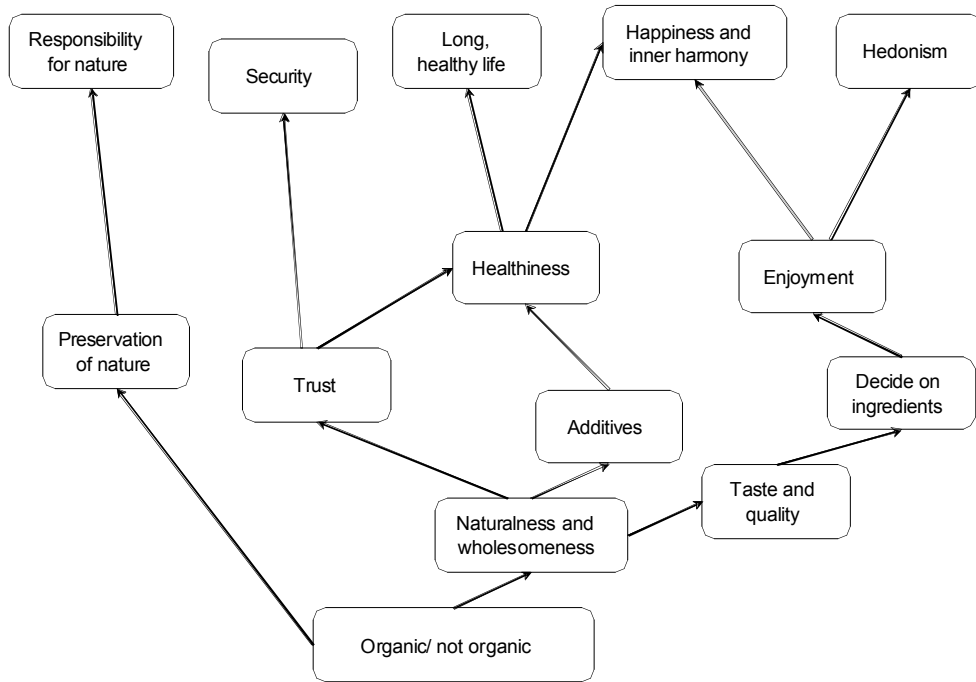


Figure 12. Hierarchical value map for 'organic/ not organic' links, Spanish rational food consumers (cut-off: 3)

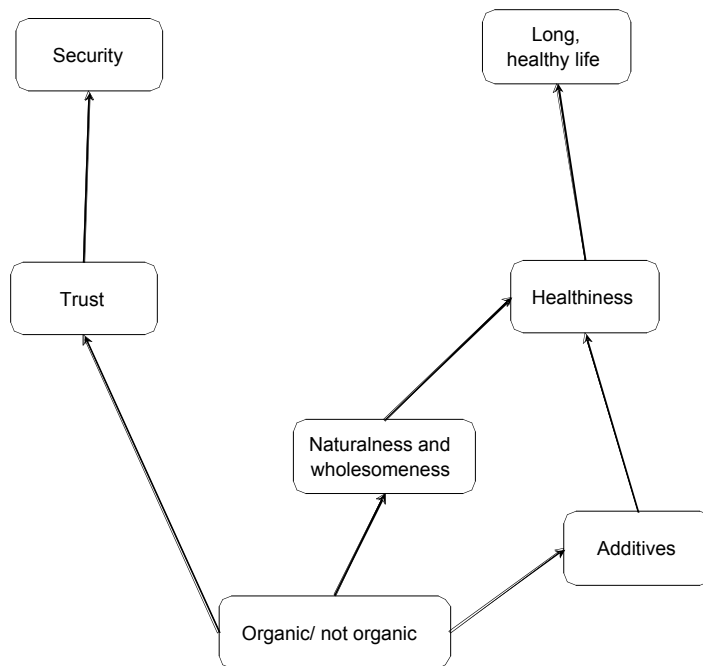


Figure 13. Hierarchical value map for 'organic/ not organic' links, Danish adventurous food consumers (cut-off: 12)

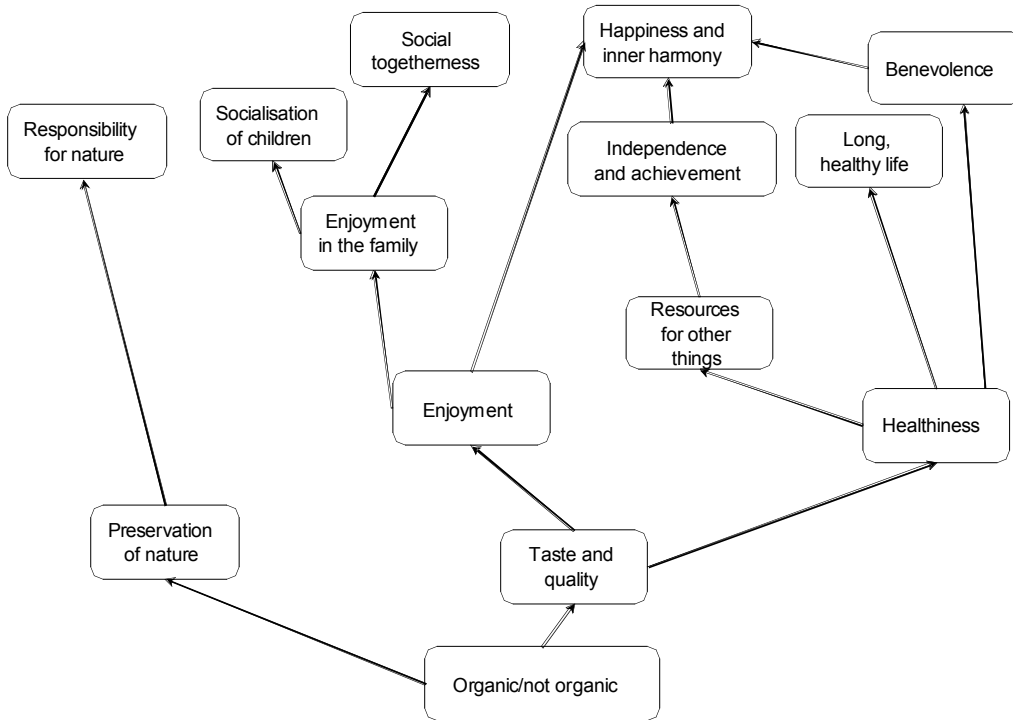


Figure 14. Hierarchical value map for 'organic/ not organic' links, Danish eco-healthy food consumers (cut-off: 11)

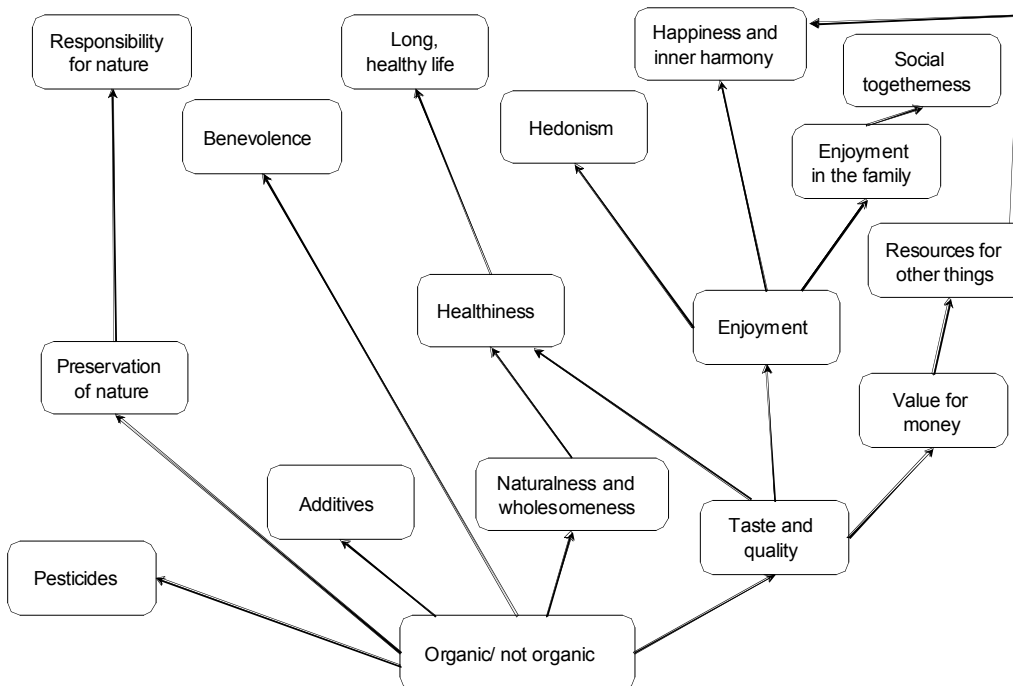
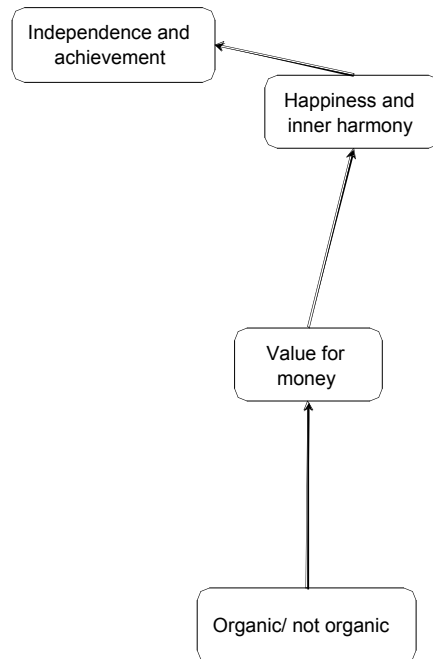


Figure 15. Hierarchical value map for ‘organic/ not organic’ links, Danish rational food consumers (cut-off: 5)



In the self-knowledge domain, perceived self-relevant consequences are related to personal values. Results show the following value categories to be expressed in relation to ‘Organic/ not organic’: ‘Long, healthy life’, ‘Security’, ‘Happiness and inner harmony’, ‘Independence and achievement’, ‘Family welfare’, ‘Responsibility for nature’, ‘Hedonism’, ‘Benevolence’ and ‘Social togetherness’. Below, perceived means to reach these values are presented in further detail based on prevalent links in the self-knowledge domain.

*Healthiness – long, healthy life.* Perceiving healthiness to enable a long and healthy life is significant among all segments, except for Danish rational and British adventurous food consumers.

*Trust – security.* Trust is generally perceived to enable the fulfilment of security as a personal value. Hence, the German and Spanish FRL segments that inferred trust from organic/ not organic origin all associate trust with security, thus employing perceptions of organic origin as a means to obtain security in life.

*Enjoyment – happiness and inner harmony.* Enjoyment is generally strongly associated with the personal values happiness and inner harmony. With the exception of the British adventurous food consumers, all segments that inferred enjoyment from organic origin employ perceptions of the organic/ not organic attribute as a means to obtain happiness and inner harmony.

*Enjoyment – Hedonism.* In addition to being associated with happiness and inner harmony, enjoyment is regarded a means of hedonism among Spanish adventurous, Spanish enthusiastic and Danish eco-healthy food consumers.

*Preservation of nature – Responsibility for nature.* The three segments that associate organic origin with environmental consequences all significantly employ the organic/ not organic attribute as a means to fulfil their perceived responsibilities towards nature and the environment.

*Good for the children – family welfare.* The British adventurous and the British rational food consumers both perceive organic/ not organic origin to affect family welfare, for both segments through perceiving the attribute organic/ not organic origin to influence the healthiness of children and partner.

*Enjoyment in the family – Social togetherness.* Both the Danish adventurous and Danish eco-healthy food consumers emphasize organic/ not organic origin as a means to reinforce the value social togetherness, through its perceived consequences on family tensions and enjoyment during the meal.

In addition to these links, organic/ not organic origin is associated with the value categories ‘Independence and achievement’ among German hedonistic, Danish adventurous and Danish rational food consumers and with ‘Benevolence’ among Danish adventurous and Danish eco-healthy food consumers, and with ‘Socialisation of children’ among Danish adventurous food consumers.

As mentioned, British snacking and Danish impulsive food consumers inferred no significant self-relevant consequences or values from the organic/ not organic attribute. Setting the cut-off values significantly lower than originally determined (for British snacking food consumers 9 instead of 11; for Danish impulsive food consumers 3 instead of 5), the hierarchical value maps reveal the first primary associations to the organic attribute among these consumers. Results show the British snacking food consumers to associate organic/ not organic origin with price, affecting perceived value for money and resources for other activities, affecting, on a still higher level, fulfilment of the value categories ‘Independence and achievement’ and ‘Social togetherness’. Somewhat surprising, results for Danish impulsive food consumers show organic/ not organic to first be associated with preservation of nature, affecting fulfilment of the value categories ‘Responsibility for nature’, ‘Benevolence’ and ‘Happiness and inner harmony’.

### **Hierarchical value maps for organic and non-organic consumers, concerning the ‘Organic/ not organic’ attribute**

Similarly to the analyses based on FRL segments, general hierarchical value maps were prepared for organic consumers and non-organic consumers in each country to allow further inter-groups comparisons. In Germany, Great Britain and Spain respondents that had reported to purchase one or more organic foods at least once a month were classified as organic consumers, while respondents that claimed to purchase organic foods less than once a month were regarded non-organic consumers. Since purchase frequencies of

organic foods were considerably higher in the Danish sample (reflecting the fact that consumption levels are indeed higher in Denmark than in the other countries, cf. Willer & Youssefi, 2004), respondents that claimed to purchase one or more type of organic foods at least several times a week were here classified as organic consumers, while respondents that reported to purchase organic foods less than several times a week were defined as non-organic consumers.

Again, hierarchical value maps were prepared based on the 1:3 heuristic for cut-off levels. Hierarchical value maps on the 'organic/ non-organic' attribute for the resulting groups are shown in figures 16-22. Notably, no prevalent links to 'Organic/ not organic' was found among the Danish group of non-organic consumers. This indicates that even though most of these consumers do purchase organic food items occasionally, they neither use organic origin as a choice criteria nor do they perceive organic origin as an important means to achieve personal life values.

As expected, results generally show the groups of organic consumers to have more complicated knowledge structures with regard to the 'Organic/ not organic' attribute. The groups of organic consumers all emphasize *taste and quality – enjoyment* and *naturalness and wholesomeness – healthiness* links, and do so more than the groups of non-organic consumers. As expected, inspections of links at self-knowledge level reveal much the same values to be associated with these attribute-consequence links as was found among the FRL segments; among the groups of organic consumers 'Healthiness' is generally associated with 'Long, healthy life' and 'Enjoyment' is associated with 'Happiness and inner harmony', along with 'Independence and achievement' among German organic consumers, 'Hedonism' among Spanish and Danish organic consumers, and 'Social togetherness' among Danish organic consumers. The major difference among the groups of organic consumers seems to be that organic/ not organic is linked to environmental consequences and the fulfilment of the 'Responsibility for nature' value domain among Spanish and Danish organic consumers, but not among German and British organic consumers.

Whereas similarities prevail across the four groups of organic consumers, knowledge structures appear more diverse among the groups of non-organic consumers. In Germany, 'Organic/ not organic' is related to much the same categories among non-organic consumers as in the group of organic consumers. Hence, perceived unreliability of claiming organic origin is found to be characteristic across German sub-groups as are perceptions regarding price. In addition, levels of trust in the product is found to be affected by whether the product is perceived to be of organic origin or not in both German sub-groups (the direction of the association is not clear, though; across German sub-groups organic origin is both associated with something that can be trusted and something that cannot be trusted). Among British non-organic consumers 'Price' is the only prevalent association to 'Organic/ non-organic', and on the self-knowledge level is perceived to affect fulfilment of the values 'Social togetherness' and 'Independence and achievement'. Generally, organic origin is associated with higher costs, hence, no benefits are associated with organic origin among the group of British non-organic consumers. Among Spanish non-organic consumers, associations to 'Organic/ not organic' resemble cognitions among the group of Spanish organic consumers, but omit the consideration of



environmental consequences and omit links to values pertaining to responsibility for nature.

In Denmark, no prevalent links are derived from the organic/ not organic attribute among non-organic consumers. Reducing the cut-off level among the group of Danish non-organic consumers to the first lower level that includes associations to ‘Organic/ not organic’ (from a cut-off value of 15 to a cut-off value of 11) shows Danish non-organic consumers to associate organic origin with healthiness. The much lower cut-off level required to show this emphasizes, however, that the association is not strong.

Figure 16. Hierarchical value map for ‘organic/ not organic’ links, German organic consumers (cut-off: 18)

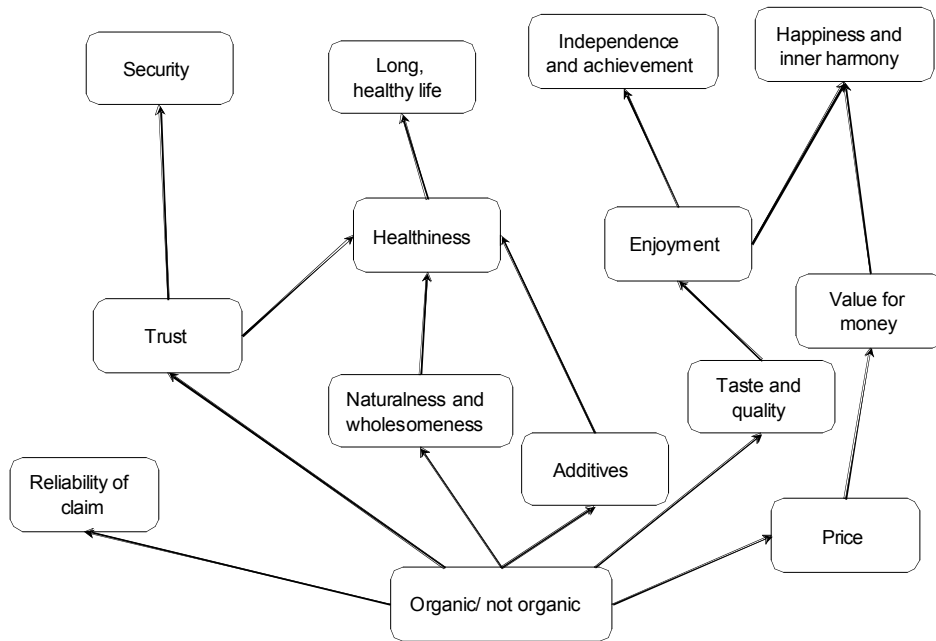


Figure 17. Hierarchical value map for ‘organic/ not organic’ links, German non-organic consumers (cut-off: 15)

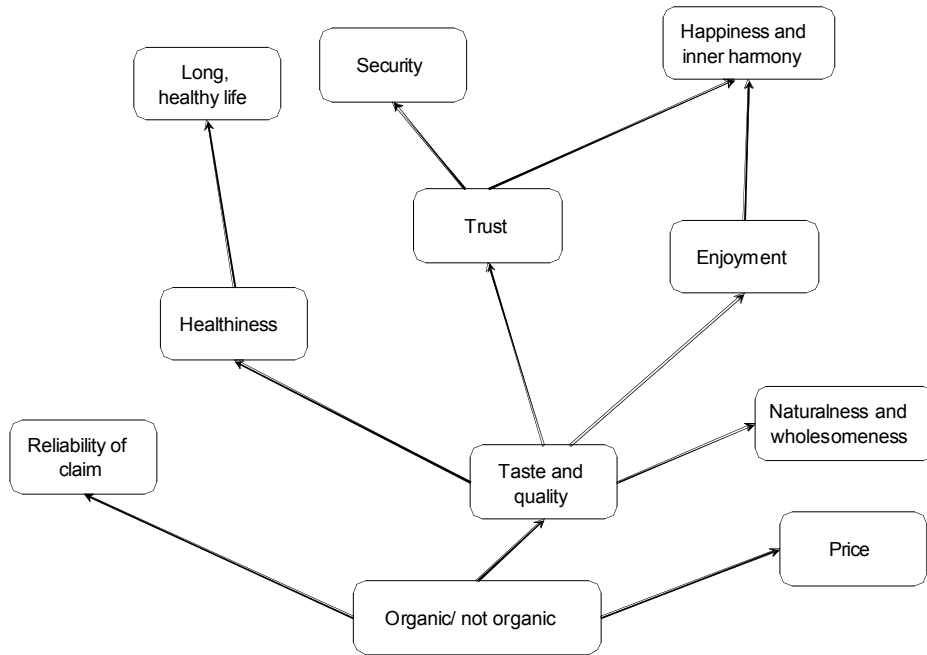


Figure 18. Hierarchical value map for ‘organic/ not organic’ links, British organic consumers (cut-off: 18)

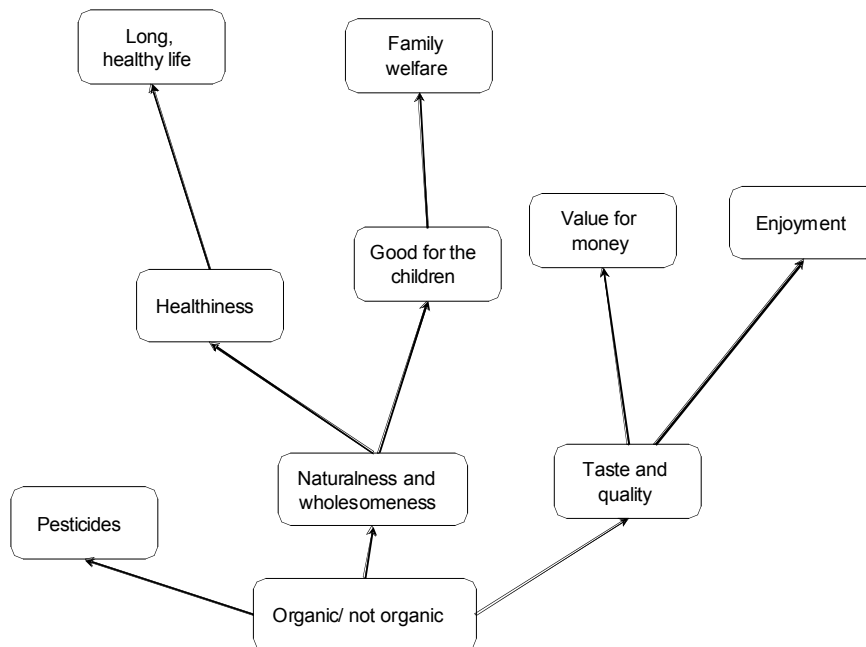


Figure 19. Hierarchical value map for ‘organic/ not organic’ links, British non-organic consumers (cut-off: 16)

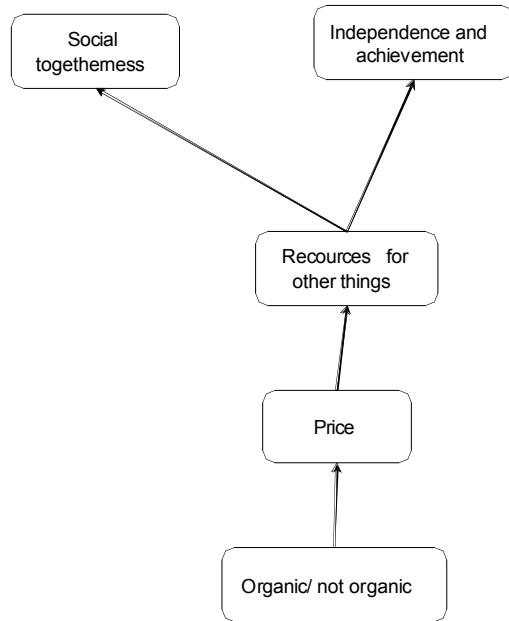


Figure 20. Hierarchical value map for ‘organic/ not organic’ links, Spanish organic consumers (cut-off: 15)

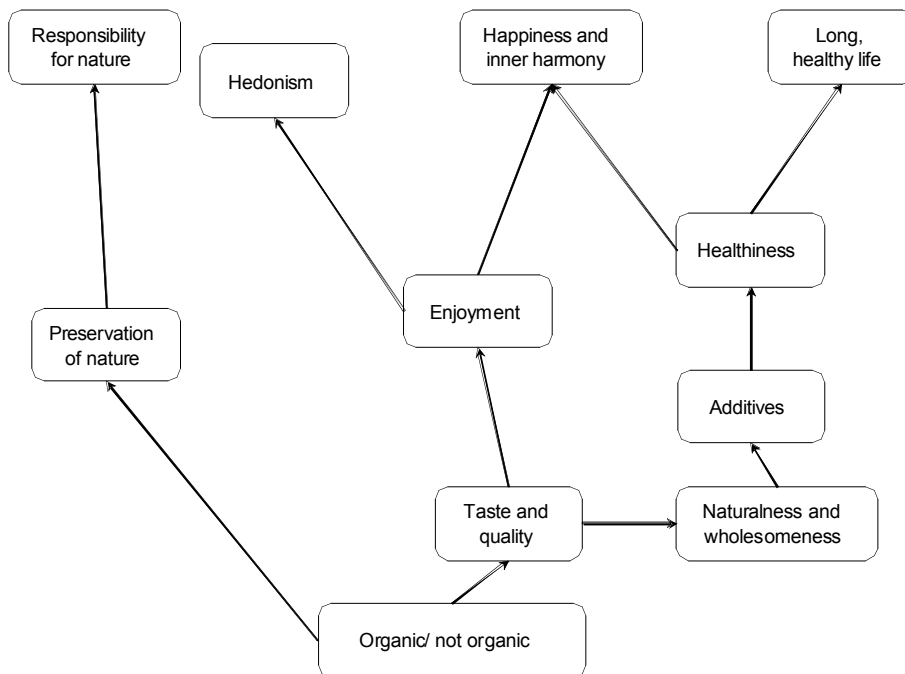


Figure 21. Hierarchical value map for ‘organic/ not organic’ links, Spanish non-organic consumers (cut-off: 18)

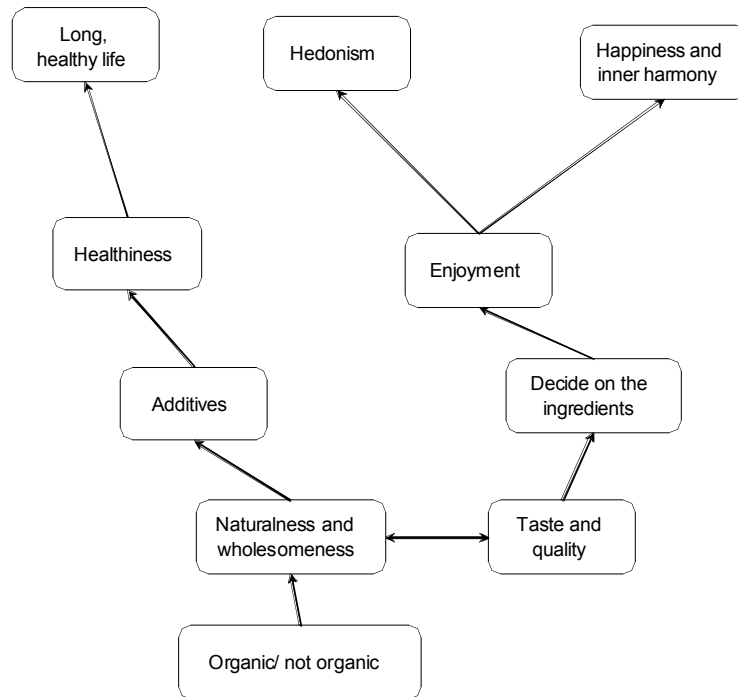
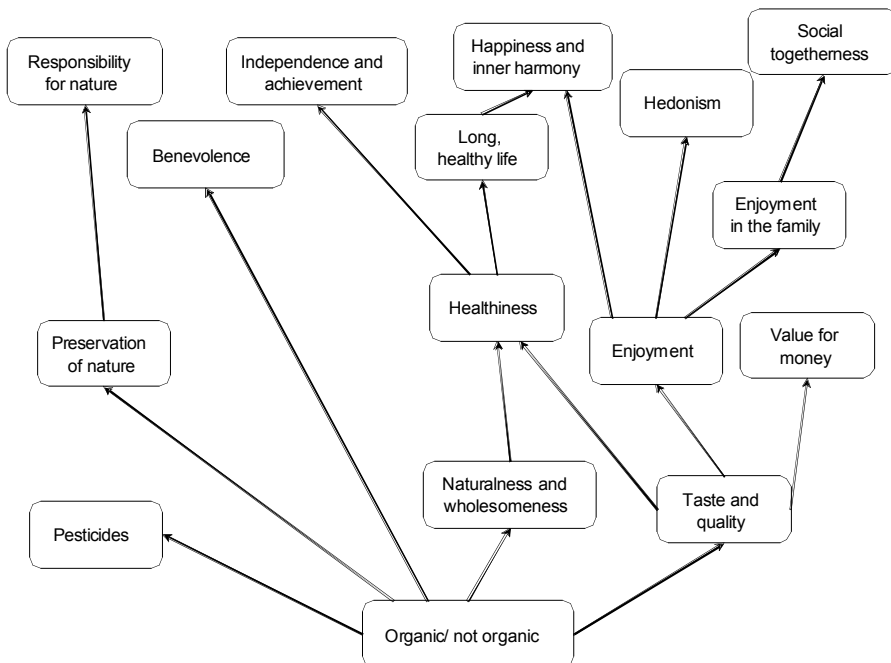


Figure 22. Hierarchical value map for ‘organic/ not organic’ links, Danish organic consumers (cut-off: 22)



## Results of correspondence analyses

The hierarchical value maps give a vivid impression of the most important arguments used when choosing among the four alternative pizza options, some of which were produced with organic ingredients, on a FRL segment-by-country basis. The maps yield a clear impression that consumers in the four countries and in different segments tend to use different choice criteria, but it is not very clear what the most important differences are. In order to get a clearer grasp of which arguments that are particularly typical for and, hence, best discriminate among particular segments and countries, the hierarchical value mapping is supplemented by correspondence analysis. Correspondence analyses are carried out country-wise at two levels. First, the frequency with which categories (i.e., “arguments”) are mentioned is related to FRL segments. Second, the frequency of mentioning categories which are linked, directly or indirectly, to ‘Organic/ not organic’ (i.e., that are part of means-end chains involving this attribute), is related to FRL segments. In all cases, only categories mentioned by at least 20% of the respondents in at least one segment in the country were included in the analysis. In all analyses, results show dimension 1 (the x axis) to generally capture twice as much of the variance accounted for as dimension 2 (the y axis).

Perceptual mappings of the results of correspondence analyses based on all mentioned categories are shown in figures 23-26 and the arguments (i.e., categories) used when choosing among the products that are most characteristic of individual segments are summarized in table 7. In the analysis of the Spanish data, ‘Preservation of nature’ and ‘Price’ were detected as outliers while ‘Benevolence’ was an outlier in the analysis of the Danish data. Hence, these variables were omitted from the final analysis. However, their positions in the plots are indicated by arrows in figures 25 and 26.

Results position the organic/ not organic attribute as practically equally important to all German FRL segments. While most other categories also fall in the joint space among the three segments, the categories ‘Value for money’ and ‘Naturalness and wholesomeness’, and to a little lesser extent ‘Security’, ‘Reliability of claim’, and ‘Degree of processing’, are more characteristic of the *enthusiastic food consumers*, hedonistic categories such as ‘Decide on ingredients’, ‘Taste and quality’, ‘Freshness’ and ‘Enjoyment’ are more characteristic of the *adventurous food consumers*, and convenience-related categories such as ‘Ease of solution’, ‘Resources for other things’, but also ‘Control of consumption’ are more expressive of the *hedonistic food consumers*. The *hedonistic food consumers* are more likely than the other German segments to use the value categories ‘Independence and achievement’ and ‘Long and healthy life’ to justify their choices.

Among the British FRL segments, the picture is less homogeneous. Here, ‘Organic/ not organic’ is more characteristic of the *rational food consumers* than of the *snacking* and *adventurous food consumers*. This indicates that even though the British *adventurous food consumers* have a knowledge structure similar in size to that of the British *rational food consumers* (cf. figures 8 and 9), the organic/ not organic attribute is more relevant as a choice criterion to the latter segment. This segment also especially emphasizes ‘Good for the children’ and at the values level they refer more than the other segments to ‘Benevolence’ and ‘Happiness and inner harmony’ as a final justification for their choices. As with the German FRL segments, convenience-related categories such as

'Ease of solution are here also more characteristic of the segment that is relatively less involved in food, the *snacking food consumers*. Also characteristic of this segment is 'Price', 'Value for money' and 'Resources for other things'. At the value level the *snacking food consumers* are particularly likely to refer to 'Independence and achievement' as their final goal. 'Degree of processing', 'Trust' and 'Naturalness and wholesomeness' are especially emphasized by *adventurous food consumers*, and so are, to a little lesser extent 'Enjoyment' and 'Healthiness'. 'Family welfare' is the characteristic final justification of choices by this segment.

In Spain, 'Organic/ not organic' is the most characteristic choice criterion of *enthusiastic food consumers*. This segment also puts more emphasis on 'Naturalness and wholesomeness' and 'Additives' and at the values level this segment refers much more than others to 'Preservation of nature'. Again, the *adventurous food consumers* mention hedonistic categories, such as 'Taste and quality' and 'Enjoyment' most often. Somewhat surprising, 'Price' and 'Security' are also emphasized more by the *adventurous food consumers* than by the other Spanish FRL segments. The value that this segment is especially likely to refer to as justification of its choices is 'Happiness and inner harmony'. The *rational food consumers*, on the contrary, have no categories that are explicitly characteristic of their knowledge structures. Importantly, this picture, shown in figure 25, may well be owed to the fact that the sub-sample of Spanish *rational food consumers* comprises only 8 respondents.

As expected, in Denmark 'Organic/ not organic' is more often mentioned as a choice criterion by *adventurous* and *eco-healthy food consumers* than by the other two segments. Apart from this, most categories are located relatively close to each other in the centre of the map, though not as close as in the German map. 'Preservation of nature', 'Hedonism' and 'Naturalness and wholesomeness' are emphasized especially by *adventurous food consumers*, who are also especially likely to justify their choices with reference to 'Benevolence' and 'Family welfare'. 'Value for money' and 'Excitement' are particularly characteristic of *rational food consumers*. *Impulsive food consumers* are particularly likely to refer to a 'Long healthy life' and 'Happiness and inner harmony' at the values level. Finally, *eco-healthy food consumers* refer more than others to 'Enjoyment in the family'.

Figure 23. Perceptual map of German prevalent categories and FRL segments

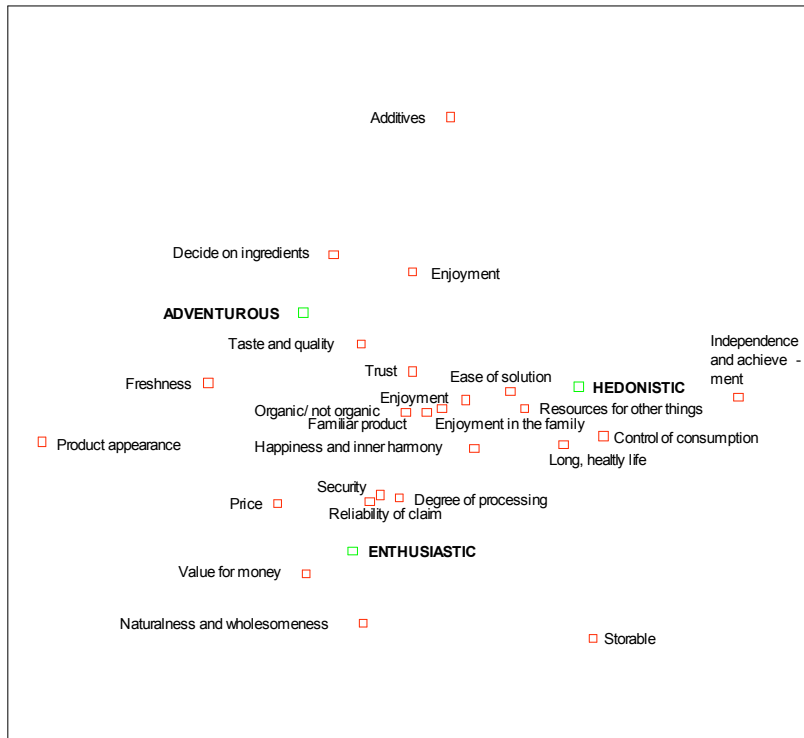


Figure 24. Perceptual map of British prevalent categories and FRL segments



Figure 25. Perceptual map of Spanish prevalent categories and FRL segments

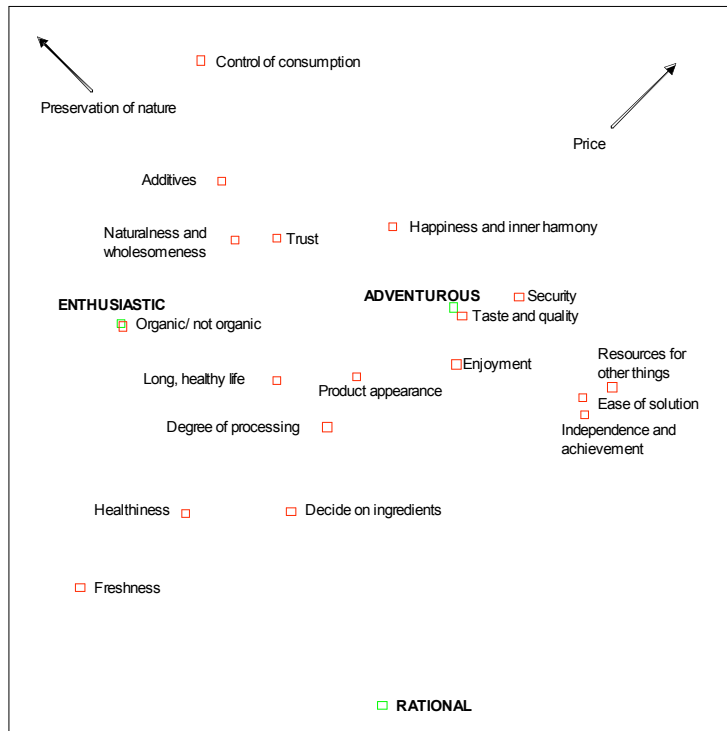


Figure 26. Perceptual map of Danish prevalent categories and FRL segments

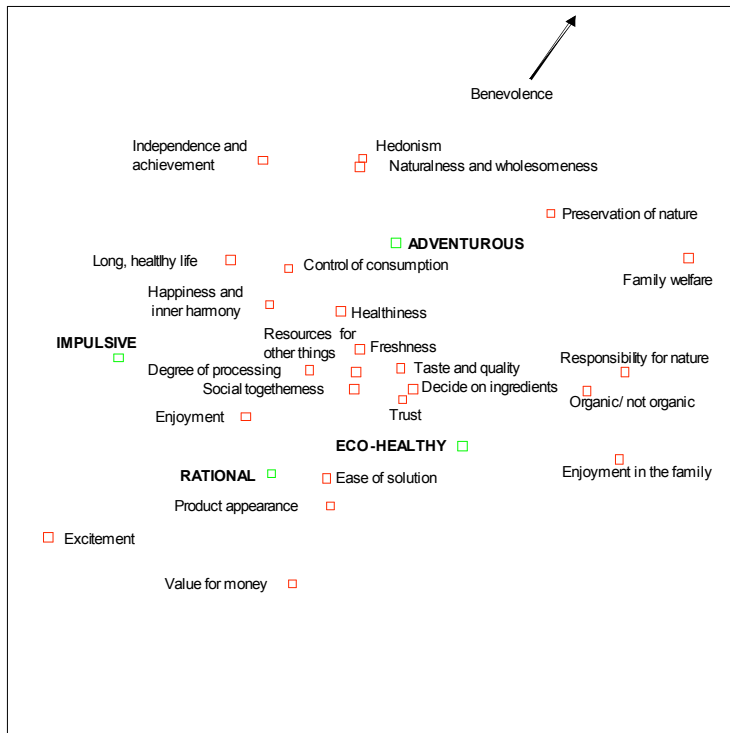




Table 7. Most important discriminating constructs in Figures 23-26

|                      |                     | Type of food consumer  |  |  |   |  |                         |   |
|----------------------|---------------------|--|--|--|---|--|-------------------------|---|
|                      |                     | Enthusiastic   | Adventurous  | Hedonistic   | Rational                                      | Snacking   | Eco-healthy             | Impulsive   |
| <b>Germany</b>       | <i>Consequences</i> | Value for money<br>Naturalness and wholesomeness<br>Security<br>Reliability of claim<br>Degree of processing | Decide on ingredients<br>Taste and quality<br>Freshness<br>Enjoyment                       | Ease of solution<br>Resources for other things<br>Control of consumption |   |  |                         |   |
|                      | <i>Values</i>       |  |  | Independence and achievement<br>Long, healthy life                       |   |  |                         |   |
| <b>Great Britain</b> | <i>Consequences</i> |  | Degree of processing<br>Trust<br>Naturalness and wholesomeness<br>Enjoyment<br>Healthiness |  | Organic/ not organic<br>Good for the children | Ease of solution<br>Price<br>Value for money<br>Resources for other things |                         |   |
|                      | <i>Values</i>       |  | Family welfare   |  | Benevolence<br>Happiness and inner harmony    | Independence and achievement   |                         |   |
| <b>Spain</b>         | <i>Consequences</i> | Organic/ not organic<br>Naturalness and wholesomeness<br>Additives   | Taste and quality<br>Enjoyment<br>Price<br>Security  |  |   |  |                         |   |
|                      | <i>Values</i>       | Preservation of nature   | Happiness and inner harmony  |  |   |  |                         |   |
| <b>Denmark</b>       | <i>Consequences</i> |  | Organic/ not organic<br>Naturalness and wholesomeness                                      |  | Value for money<br>Excitement                 |  | Organic/ not organic    |   |
|                      | <i>Values</i>       |  | Preserv. of nature<br>Hedonism<br>Benevolence<br>Family welfare                            |  |   |  | Enjoyment in the family | Long, healthy life<br>Happiness and inner harmony |

Perceptual mappings based on correspondence analyses of only categories that are directly or indirectly linked to the ‘organic/ not organic’ attribute are shown in figures 27-30 and the reasons for choosing or not choosing an organic product that are most characteristic of individual segments are summarized in table 8.

Inferring ‘Freshness’ from ‘Organic/ not organic’ is most characteristic of German *adventurous food consumers*, while relating ‘Organic/ not organic’ to the attributes ‘Naturalness and wholesomeness’ and ‘Quality control’ is most typical of German *enthusiastic food consumers*. On the values level, strong links are only made to ‘Long, healthy life’, ‘Security’ and ‘Happiness and inner harmony’, with the former two being fairly equally characteristic of all German FRL segments and the latter more characteristic of German *hedonistic food consumers*.

As can be seen in the maps, the pattern among German FRL segments is not directly transferable to the three other countries. This is believed to be partly due to the exact constellation of segments in each country (the FRL segments included vary among countries), partly to other cross-national differences.

In Great Britain, *snacking food consumers* are more likely than other segments to associate ‘Organic/ not-organic’ with ‘Price’, while *adventurous food consumers* are particularly likely to associate ‘Organic/ not-organic’ with ‘Naturalness and wholesomeness’. The attribute-level association most characteristic of *rational food consumers* is ‘Pesticides’. Validating the results found in the analyses of hierarchical value maps, only two significant associations are found at the values level, ‘Family welfare’ and ‘Happiness and inner harmony’, the former appearing to be equally important to all British FRL segments, while the association to ‘Happiness and inner harmony’ is particularly characteristic of British *rational food consumers*.

In Spain, we find the highest number of associations to ‘Organic/ not organic’ in any of the countries. Relating organic/ not organic origin to the ‘Perceived familiarity’ of the product is particularly characteristic of Spanish *rational food consumers*. Remaining links are almost equally characteristic of the *adventurous* and *enthusiastic food consumers*. However, *adventurous food consumers* are particularly likely to associate ‘Organic/ not-organic’ with ‘Taste and quality’, ‘Price’, ‘Additives’ and ‘Trust’. At the values level, Spanish consumers associate ‘Organic/ not organic’ to ‘Responsibility for nature’, ‘Long, healthy life’, ‘Security’, ‘Benevolence’, ‘Happiness and inner harmony’, and ‘Family welfare’, with associations to ‘Responsibility for nature’ being more characteristic of Spanish *enthusiastic* and *adventurous food consumers*, to ‘Happiness and inner harmony’ more indicative of Spanish *enthusiastic* and *rational food consumers*, to ‘Long, healthy life’ more characteristic of Spanish *adventurous food consumers*, to ‘Security’ more characteristic of Spanish *rational food consumers* and to ‘Benevolence’ more characteristic of Spanish *enthusiastic food consumers*.

In Denmark, finally, a high number of associations to ‘Organic/ not organic’ are also found. Here, *rational food consumers* are particularly likely to associate value for money with ‘Organic/ not organic’, while remaining lower level associations are more characteristic of the other three segments. *Eco-healthy food consumers* are particularly likely to associate ‘Organic/ not organic’ with ‘Additives’ and ‘Trust’ and *impulsive food*

*consumers* are particularly likely to associate ‘Organic/ not organic’ with ‘Healthiness’, ‘Taste and quality’ and ‘Preservation of nature’. As regards associations at the values level, ‘Responsibility for nature’ is more characteristic of *eco-healthy food consumers*, and ‘Family welfare’ and ‘Benevolence’, are more characteristic of *adventurous food consumers*. Associations between ‘Organic/ not organic’ and ‘Long, healthy life’ as well as ‘Happiness and inner harmony’ are especially made by *adventurous* and *impulsive food consumers*.

Figure 27. Perceptual map of prevalent German links to ‘Organic/ not organic’ and FRL segments

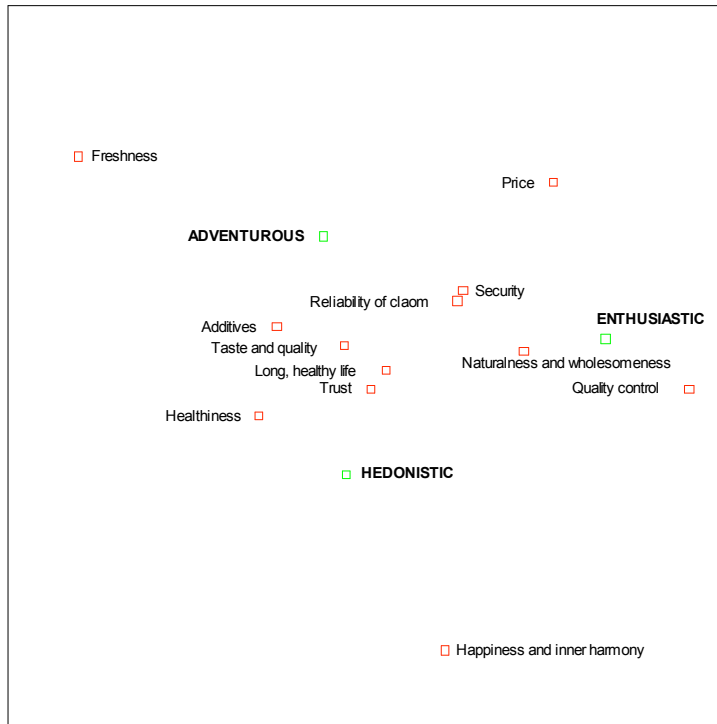


Figure 28. Perceptual map of prevalent British links to ‘Organic/ not organic’ and FRL segments

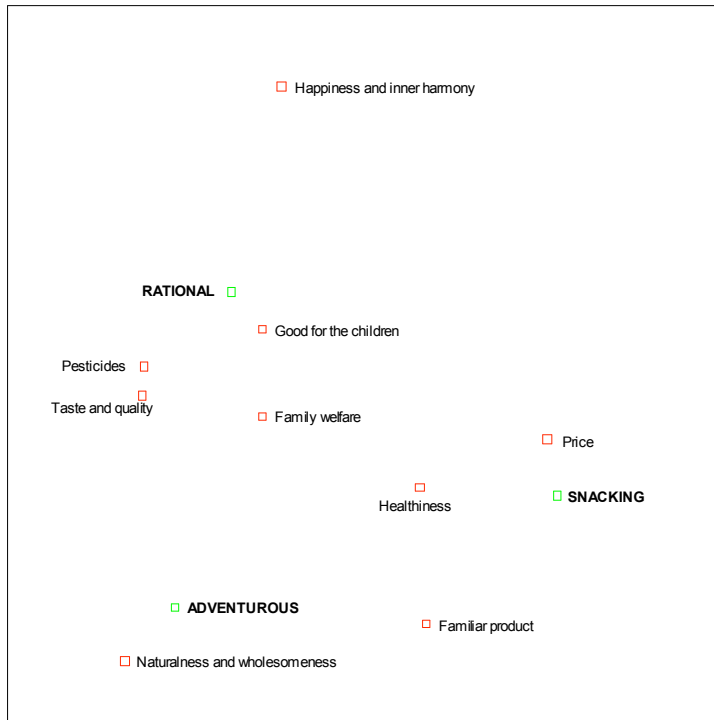


Figure 29. Perceptual map of prevalent Spanish links to ‘Organic/ not organic’ and FRL segments

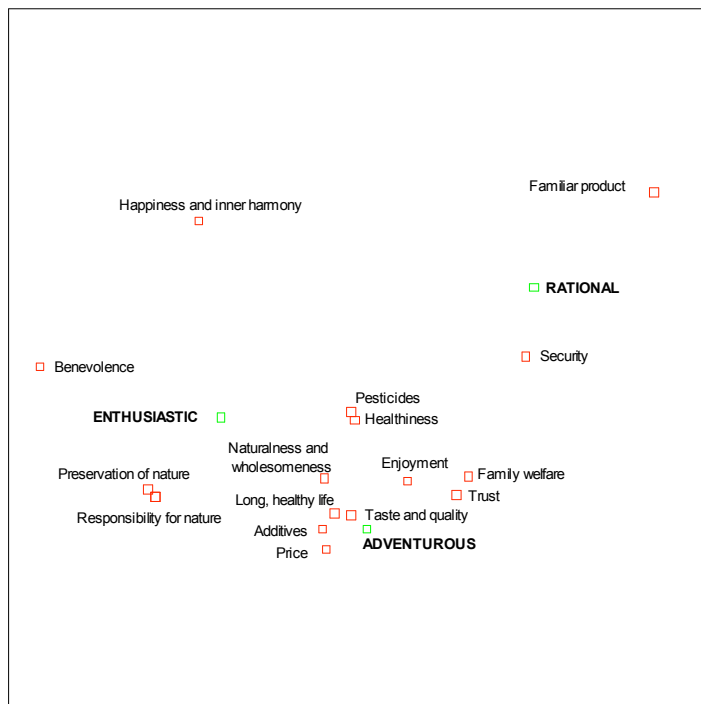


Figure 30. Perceptual map of prevalent Danish links to 'Organic/ not organic' and FRL segments

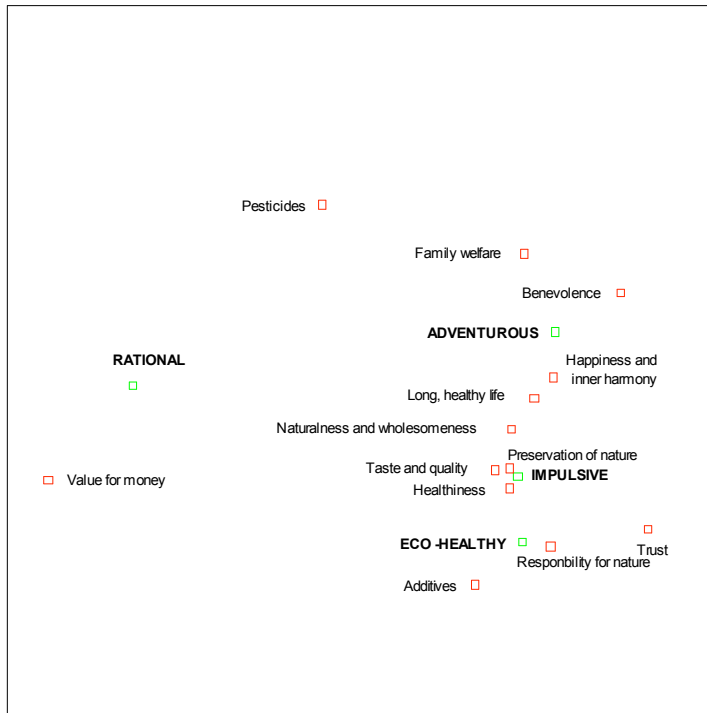


Table 8. Most important discriminating constructs in Figures 23-26

|                          |                     | Type of food consumer                               |   |   |  |          |                              |  |
|--------------------------|---------------------|---|---|---|--|----------|------------------------------|--|
|                          |                     | Enthusiastic  | Adventurous   | Hedonistic                                    | Rational   | Snacking | Eco-healthy                  | Impulsive  |
| <b>Germany</b>           | <i>Consequences</i> | Quality control<br>Naturalness and<br>wholesomeness | Freshness   |   |  |          |                              |  |
|                          | <i>Values</i>       |   | (- Happiness and inner<br>harmony)                              | Happiness and<br>inner harmony<br>(-Security) |  |          |                              |  |
| <b>Great<br/>Britain</b> | <i>Consequences</i> |   | Naturalness and<br>wholesomeness                                |   | Good for the<br>children   | Price    |                              |  |
|                          | <i>Values</i>       |   | (- Happiness and inner<br>harmony)                              |   | Happiness and<br>inner harmony   |          |                              |  |
| <b>Spain</b>             | <i>Consequences</i> |   | Taste and quality<br>Additives<br>Price<br>Trust                |   | Familiar<br>product  |          |                              |  |
|                          | <i>Values</i>       | Benevolence   | Long, healthy life  |   | (-Long, healthy<br>life<br>-Responsibility<br>for nature)  |          |                              |  |
| <b>Denmark</b>           | <i>Consequences</i> |   |   |   | Value for<br>money   |          | Additives<br>Trust           | Preservation<br>of nature<br>Taste and<br>quality<br>Healthiness |
|                          | <i>Values</i>       |   | Happiness and inner<br>harmony<br>Benevolence<br>Family welfare |   | (-Long, healthy<br>life<br>-Responsibility<br>for nature<br>- Happiness<br>and inner<br>harmony) |          | Responsibility<br>for nature |  |

Note: Values mentioned in parentheses and preceded by a “-“ are particularly unlikely to be mentioned by the segment in question.

## CONCLUDING REMARKS AND DIRECTIONS FOR FURTHER RESEARCH

The paper has reported results of a laddering study conducted in four European countries to explore consumer knowledge structures with regard to organic foods and to identify the beliefs and the attribute-to-value chains that discriminate best among different consumer segments.

While hierarchical value maps were used to gain insight into dominant cognitions within segments, correspondence analysis was used specifically with the aim of identifying concepts that discriminate among segments. Hence, the two analytical approaches complement each other and yield consistent, but not identical insights.

Results point to marked differences in knowledge structures concerning organic foods both among countries and among segments within countries. Cognitive differences seem to exist both at product-knowledge level and at self-knowledge level. Thus, differences have been found both in how organic/ not organic origin is related to self-relevant consequences, and in the extent to which associated self-relevant consequences are expected to lead to the fulfilment of personal values. The exact values associated with particular self-relevant consequences do not appear to discriminate clearly among segments, however.

The typologies controlled for are food-related lifestyle and levels of experience with organic foods, along with inspections of country effects. The organic/ non-organic attribute seems particularly strongly associated with personal values among segments of adventurous, enthusiastic, hedonistic and eco-healthy food consumers, while it appears a rather dysfunctional means of achieving important personal values among snacking, impulsive and, partly also, rational food consumers. Similarly, consumers that are regular consumers of organic foods have more complex knowledge structures than non-organic consumers.

While FRL segments differ inherently in the degree to which food is employed overall as a means to achieve personal goals (values), results reveal associative patterns with regard to organic/ not organic origin and the stimulus category, pizza, that clearly go beyond the general significance of foods as such to the segments. For instance, all British FRL segments exhibit few links at value level, even in the FRL segment that is generally highly involved with foods (adventurous food consumers). Inspection of the preference structure among British segments suggests that the infrequent formulation of value links among British respondents is a consequence of low product involvement across segments rather than a consequence of low importance of organic origin as a product attribute.

In sum, results point to the following attribute-to-value chains as discriminating among the segments investigated:

- Organic/ not organic \_ Taste and quality \_ Enjoyment \_ Happiness and inner harmony
- Organic/ not organic \_ Taste and quality \_ Enjoyment \_ Hedonism

- Organic/ not organic \_ Taste and quality \_ Enjoyment in the family \_ Social togetherness
- Organic/ not organic \_ Naturalness and wholesomeness \_ Healthiness \_ Long, healthy life
- Organic/ not organic \_ Naturalness and wholesomeness \_ Good for the children \_ Family welfare
- Organic/ not organic \_ Value for money \_ Resources for other things \_ Independence and achievement
- Organic/ not organic \_ Preservation of nature \_ Responsibility for nature
- Organic/ not organic \_ Trust (both in the product and in the underlying production process) \_ Security
- Organic/ not organic \_ Reliability of claim

Furthermore, through more fuzzy links and to a more limited extent, the following indirect value links differ in prevalence among segments:

- Organic/ not organic \_ ... \_ Benevolence
- Organic/ not organic \_ ... \_ Socialisation of children

Table 9 summarizes which of the above chains are characteristic of the FRL segments investigated and of the groups of organic and non-organic consumers. As shown in the table, the research suggests that consumer knowledge structures with regard to organic foods are affected both by the underlying food-related lifestyle of the individual and by the general level of experience with organic foods. In addition, other factors both external and internal to the individual may well influence knowledge structures. Hence, despite the identification of similar food-related lifestyles across countries, the beliefs and attribute-to-value chains associated with organic foods differ substantially among cross-national segments.

For further insight into these issues, the elicited attribute-to-value chains may be utilised in value-based segmentation in quantitative studies among European consumers. One way of doing this is to measure values and associated cognitions (at the attribute and consequence levels) separately. Values should then be measured by means of an established and cross-culturally validated value instrument such as Schwartz' value inventory (Schwartz, 1992; Schwartz, Melech, Lehmann, Burgess, Harris & Owens, 2001). Notably, underlying personal value categories comprised in the broader, coded categories will then have to be measured individually (see Annex C). Specific higher-order attributes and consequences inferred from organic origin will, on the other hand, have to be measured through the formulation of new belief items. Using such values and belief items as input, segments may be derived using standard statistical procedures.



Table 9. Summary of prevalent attribute-to-value chains among FRL segments and between groups of organic and non-organic consumers

|  | Germany |      |      | Great Britain |      |       | Spain |      |      | Denmark |                |      |      |
|--|---------|------|------|---------------|------|-------|-------|------|------|---------|----------------|------|------|
|  | Adv.    | Ent. | Hed. | Adv.          | Rat. | Snac. | Adv   | Ent. | Rat. | Adv.    | Ecoh.          | Rat. | Imp. |
| Organic/ not organic _ Taste and quality _<br>Enjoyment _ Happiness and inner harmony                        | (✓)     | ✓    | ✓    | (✓)           | ✓    |       | ✓     | ✓    |      | ✓       |                |      |      |
| Organic/ not organic _ Taste and quality _<br>Enjoyment _ Hedonism   |         |      |      |               |      |       | ✓     | ✓    |      |         | ✓              |      |      |
| Organic/ not organic _ Taste and quality _<br>Enjoyment in the family _ Social togetherness                  |         |      |      |               |      |       |       |      |      | ✓       | ✓              |      |      |
| Organic/ not organic _ Naturalness and<br>wholesomeness _ Healthiness _ Long, healthy<br>life                | ✓       | ✓    | ✓    | (✓)           | ✓    |       | ✓     | ✓    | (✓)  | ✓       | ✓              |      |      |
| Organic/ not organic _ Naturalness and<br>wholesomeness _ Good for the children _<br>Family welfare          |         |      |      | ✓             | ✓    |       |       |      |      |         |                |      |      |
| Organic/ not organic _ Preservation of nature _<br>Responsibility for nature                                 |         |      |      |               |      |       |       | ✓    |      | ✓       | ✓              |      |      |
| Organic/ not organic _ Trust (both in the product<br>and in the underlying production process) _<br>Security |         | ✓    | (✓)  |               |      |       |       | ✓    | ✓    |         |                |      |      |
| Organic/ not organic _ Value for money _<br>Resources for other things _ Independence and<br>achievement     | (✓)     | (✓)  |      | (✓)           | (✓)  |       |       |      |      |         | ✓ <sup>1</sup> | ✓    |      |
| Organic/ not organic _ Reliability of claim  | ✓       | ✓    | ✓    |               |      |       |       |      |      |         |                |      |      |
| Organic/ not organic _ ... _ Benevolence   |         |      |      |               |      |       |       |      |      | ✓       | ✓              |      |      |
| Organic/ not organic _ ... _ Socialisation of<br>children  |         |      |      |               |      |       |       |      |      | ✓       |                |      |      |

✓: chain present

(✓): chain present, but not reaching value level

<sup>1</sup>: values expressed are happiness and inner harmony

|  | Germany        |          | Great Britain |          | Spain |          | Denmark |          |
|--|----------------|----------|---------------|----------|-------|----------|---------|----------|
|  | Org.           | Non-org. | Org.          | Non-org. | Org.  | Non-org. | Org.    | Non-org. |
| Organic/ not organic _ Taste and quality _<br>Enjoyment _ Happiness and inner harmony                        | ✓              | ✓        | (✓)           |          | ✓     | ✓        | ✓       |          |
| Organic/ not organic _ Taste and quality _<br>Enjoyment _ Hedonism   |                |          |               |          | ✓     | ✓        | ✓       |          |
| Organic/ not organic _ Taste and quality _<br>Enjoyment in the family _ Social togetherness                  |                |          |               |          |       |          | ✓       |          |
| Organic/ not organic _ Naturalness and<br>wholesomeness _ Healthiness _ Long, healthy<br>life                | ✓              | ✓        | ✓             |          | ✓     | ✓        | ✓       |          |
| Organic/ not organic _ Naturalness and<br>wholesomeness _ Good for the children _<br>Family welfare          |                |          | ✓             |          |       |          |         |          |
| Organic/ not organic _ Preservation of nature _<br>Responsibility for nature                                 |                |          |               |          | ✓     |          | ✓       |          |
| Organic/ not organic _ Trust (both in the product<br>and in the underlying production process) _<br>Security | ✓              | ✓        |               |          |       |          |         |          |
| Organic/ not organic _ Value for money _<br>Resources for other things _ Independence and<br>achievement     | ✓ <sup>1</sup> |          | (✓)           | ✓        |       |          | (✓)     |          |
| Organic/ not organic _ Reliability of claim  | ✓              | ✓        |               |          |       |          |         |          |
| Organic/ not organic _ ... _ Benevolence   |                |          |               |          |       |          | ✓       |          |

✓: chain present

(✓): chain present, but not reaching value level

<sup>1</sup>: values expressed are happiness and inner harmony

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## ANNEX A. STIMULI

### Germany

Option H



Ich würde die Pizza von Grund auf selbst zubereiten.

Option F



Ich würde diese Tiefkühl-Pizza kaufen.  
Die Pizza muss im Ofen gebacken werden.

Option C



Ich würde diese Pizza aus dem Kühlregal kaufen.  
Die Pizza muss im Ofen gebacken werden.


Option R



Ich würde diese Pizza von einem Pizza-Service bestellen.  
Die Pizza kann sofort gegessen werden.


### Great Britain

Option H




I would prepare the pizza myself from scratch.

Option F




I would buy this frozen pizza.  
The pizza needs to be baked in the oven.

Option C



I would buy this chilled pizza.  
The pizza needs to be baked in the oven.


Option R



I order this pizza from a pizza delivery service. The pizza is ready to eat.

Spain

H



Voy a preparar la pizza yo mismo.

F



Compraré esta pizza congelada. Esta pizza necesita meterse el horno antes de servir.

C



Compraré esta pizza fría. Esta pizza necesita meterse el horno antes de servir.


R



Pediré esta pizza para que me la traigan a casa. Esta pizza está lista para comer.

Denmark

H



Jeg bager pizzaen selv, fra bunden.

F



Jeg køber denne frosne pizza. Pizzaen skal bages i ovnen inden servering.

C



Jeg køber denne friske, kølede pizza. Pizzaen skal bages i ovnen inden servering.

R



Jeg bestiller denne pizza fra et pizzeria. Pizzaen er klar til at blive serveret.

## ANNEX B. INTERVIEW GUIDE

Respondent no.: \_\_\_\_\_

FRL segment: \_\_\_\_\_

Interviewer: \_\_\_\_\_

PLEASE READ ALOUD ALL TEXT IN *ITALICS*

### 1. Introduction

=> *Good... Thank you for agreeing to participate in this interview. The interview is part of a study that we are conducting about eating and shopping for food. Your participation in the study is completely anonymous.*

*In the study we are, among other things, interested in learning what people think about different kinds of meals and what are the reasons for their thoughts.*

*If you are interested, I would be glad to give you more information about the purpose of the study and who is behind it - but not until after the interview.*

*In the interview I will first show you four different pizzas which I will ask you to compare and give your thoughts about. But before this I have a few more general questions.*

(warm-up)

*How often are you in charge of the hot meals to be served in your household?*

- |   |   |
|---|---|
| 1 | Every day or almost every day             |
| 2 | Several times a week, but not every day   |
| 3 | Once a week                               |
| 4 | Several times a month, but not every week |
| 5 | Once a month                              |
| 6 | Less than once a month or never           |

### 2. Elicitation of attributes

Place the four cards in a row on a table in front of the respondent.

=> *Imagine that you are in charge of the next hot meal to be eaten in your home on an ordinary weekday. Imagine that you have decided to serve pizza. Which of the following possibilities is it most likely that you will choose, given that there are only these four options to choose from and given that they all come with a topping that you like in your household and that this topping is basically the same for all products?*

Write in first choice: (1) \_\_\_\_\_



=> *Why do you select exactly this pizza instead of the others? Are there other reasons why you would choose this pizza?*

Repeat the questions until the respondent cannot mention any more differences. Use different formulations. List all mentioned attributes in **form 1**.

NB! If the choice is the home-made pizza (option H), and 'organic ingredients' has not been mentioned, ask as well:

*Would any of the ingredients in this pizza that you would make yourself be organic?*

If YES, write 'organic ingredients' as a concept in the laddering form.

=> *If you cannot have the pizza you selected first, which pizza is it then most likely that you will choose?*

(remove card with first choice from table)

Write in second choice: (2) \_\_\_\_\_

=> *Why do you select this pizza rather than one of the other two remaining pizzas? Are there other reasons why you would choose this pizza?*

Repeat the questions until the respondent cannot mention any more differences. Use different formulations. List all mentioned attributes in **form 2**.

NB! If the choice is the home-made pizza (option H), and 'organic ingredients' has not been mentioned, ask as well:

*Would any of the ingredients in this pizza that you would make yourself be organic?*

If YES, write 'organic ingredients' as a concept in the laddering form.

=> *Which of the four pizzas is it most unlikely that you would choose?*

(put back first choice onto the table)

Write in most unlikely choice: (4) \_\_\_\_\_

=> *Why is this pizza less attractive to you than the other alternatives? Are there other reasons why you wouldn't choose this pizza?*

Repeat the questions until the respondent cannot mention any more differences. Use different formulations. List all mentioned attributes in **form 4**.

NB! If the choice is the home-made pizza (option H), and 'organic ingredients' has not been mentioned, ask as well:

*Would any of the ingredients in this pizza that you would make yourself be organic?*

If YES, write 'organic ingredients' as a concept in the laddering form.

Write in last pizza, ie. the third choice: (3) \_\_\_\_\_

=> *Why is this pizza less attractive to you than the two pizzas you selected as your first and second choices? Are there any other reasons why you are less likely to choose this pizza? Why do you still prefer this pizza to the one you stated you were most unlikely to choose?*

Repeat the questions until the respondent cannot mention any more differences. Use different formulations. List all mentioned attributes in **form 3**.

NB! If the choice is the home-made pizza (option H), and 'organic ingredients' has not been mentioned, ask as well:

*Would any of the ingredients in this pizza that you would make yourself be organic?*

If YES, write 'organic ingredients' as a concept in the laddering form.

### **3. Laddering**

=> *Now, I am going to ask you some more questions about why you were more likely to choose some of the pizzas than others. I am going to keep asking questions until you think there is nothing more to say. And some of the questions are going to be quite similar.*

*You are not meant to think long about my questions. There are no right or wrong answers. I just want you to answer as spontaneously and honestly as possible.*

*You may not like the way of interviewing but if you feel like it we can talk about how you liked it at the end of the interview.*

*If you think some questions are too stupid or if you think you are beginning to repeat yourself just say so.*

Laddering is then to be carried out from the attributes that have been listed in the laddering forms. If more abstract characteristics were mentioned instead of concrete product attributes during the ranking (e.g. "it tastes good", "good quality" or "it looks nice"), the respondent is first asked to concretize the answer by asking e.g. "What is it that makes you say that this pizza will taste good?" or "What is it about this product that makes it look nice?" (backward laddering).

Then you ask "Why is 'the elicited attribute' important to you?" with the elicited attributes as starting points until nothing more comes up (forward laddering). Use different formulations, when possible.

Backward laddering should be carried out for all elicited concepts other than concrete attributes, also when they were mentioned for more than one product in the ranking procedure. Forward laddering should only be carried out on elicited concepts the first time they occur in the forms.

In cases of multiple answers to the same question (forked ladders), pursue each answer separately.

IF 'ORGANIC' WAS NOT ELICITED AND IS NOT MENTIONED ANYWHERE IN THE LADDERING SEQUENCE, POINT TO THE ORGANIC LABEL ON TWO OF THE PIZZAS AND ASK:

*Now, two of the pizzas are organic. If we first take this pizza (point to one of the pizzas) can you then tell me, is it important to you that this pizza is organic?*

YES => laddering, i.e. 'Why is it important to you that the pizza is organic?' etc. (write responses into the laddering form for the product)

NO => What do you associate with organic foods? (write in below)

---

*If we then take this pizza (point to the second organic pizza), can you then tell me, is it important to you that this pizza is organic?*

YES => laddering, i.e. 'Why is it important to you that the pizza is organic?' etc. (write responses into the laddering form for the product) (however, only conduct laddering on the attribute if this was not done for the first organic product shown)

NO => What do you associate with organic foods? (write in below) (however, only ask this if this was not asked for the first organic product shown)

---

WHEN THE LADDERING PART IS COMPLETED, HAND OUT THE NEXT PAGE FOR SELF-COMPLETION BY THE RESPONDENT AND DE-BRIEFING.



## **5. De-briefing**

The study is part of a research project on consumer attitudes and decision-making with regard to organic foods. So far, most organic foods that are offered for sale are very basic foods such as milk, cereals, vegetables and fruit. The project investigates consumers' attitudes towards more processed organic foods.

The project has a time span of three years and is run by universities and research institutions in eight European countries.

Any products that have been shown to you in this interview are purely experimental.

If you want to know more you are also welcome to contact ... FILL IN... . You may also take a look at the project website <http://www.surrey.ac.uk/SHS/condor.html>.

PLEASE RETURN THE QUESTIONNAIRE TO THE INTERVIEWER

=> *Thanks a lot for participating in this interview. Can I just ask you, how did you like the part of the interview where you had to answer all these why-questions?*

---

---

---

*Do you have any other comments?* \_\_\_\_\_

---

---

---

**6) Interviewer report**

How was the atmosphere? \_\_\_\_\_

---

---

How did the respondent react to the laddering interview? \_\_\_\_\_

---

---

Was the respondent atypical in any way? How? \_\_\_\_\_

---

---

Other comments? \_\_\_\_\_

---

---

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## ANNEX C. ASSIGNMENT OF CODES TO FINAL BIPOLAR CATEGORIES

### ATTRIBUTES

|                              |   |
|------------------------------|---|
| <i>Degree of processing</i>  | Frozen product (a5)<br>Chilled product, not frozen (a6)<br>(To be) home-baked, to be baked from scratch (a7)<br>Ready prepared, ready to eat (a45)  |
| <i>Product appearance</i>    | Looks delicious, looks/smells appetizing (a40)<br>Looks disgusting, does not look/smell delicious (a41)<br>Nice and crispy crust, generous crust (a21)<br>Unpleasant, non-crispy crust, hard crust, pasty crust (a22)<br>Delicious toppings (a25)<br>Disgusting, unappetizing toppings (a1)<br>Sufficient toppings (a63)<br>Sparse toppings (a2)<br>Right size (a49)<br>Too big, big size (a42)<br>Thin crust (a23)<br>Too thick, thick crust (a24) |
| <i>Italian style</i>         | Italian style (a64)<br>Stone-baked (a50)  |
| <i>Ease of solution</i>      | Easy solution, takes little time, convenient, no planning needed (a28)<br>Difficult solution, not easy, time-consuming, needs planning (a29)<br>Easy to get, independence from opening hours, high availability (a68)<br>Difficult to get, low availability (a67)   |
| <i>Organic/ not organic</i>  | Organic (a14)<br>Not organic (a13)  |
| <i>Informative packaging</i> | Informative packaging, transparent packaging, pleasant packaging (a37)<br>Non-informative packaging, boring packaging (a38)   |
| <i>Protective packaging</i>  | Protective packaging, little packaging (a57)<br>Non-protective packaging, much packaging (a69)<br>Low consumption of energy/electricity (a52)<br>High consumption of energy/electricity (a73)   |
| <i>Additives</i>             | Additives, preservatives added, chemicals, artificial colours, (a3)<br>No use of additives, no preservatives, no artificial colours added, no chemicals (a15)<br>No medical residues (a18)  |
| <i>Quality control</i>       | Quality control, quality is controlled, regulated, tested (a20)<br>No quality control (a65)   |



|                                      |  |
|--------------------------------------|--|
| <i>Pesticides</i>                    | No pesticides, no artificial fertilisers (a16)<br>No straw shortening chemicals (a39)  |
| <i>Freshness</i>                     | Fresh, fresh ingredients, fresh from the pizzeria (a8)<br>Not fresh, stale/putrid ingredients, not made here and now (a9)  |
| <i>Naturalness and wholesomeness</i> | Non-industrial product, good workmanship, natural (a44)<br>Industrial product, unnatural (a4)<br>Wholesome product, nutritious (a33)<br>Unwholesome product (a34)<br>Low fat content (a35)<br>High fat content (a36)<br>Not genetically modified (a72)<br>Genetically modified (a17)   |
| <i>Taste and quality</i>             | Good taste, tastes better, delicious taste, better pizza taste (a10)<br>Bad taste, boring taste, artificial taste, industrial taste (a11)<br>Good quality, good quality ingredients, proper meal (a26)<br>Bad quality, poor quality ingredients, not a proper meal (a27)   |
| <i>Familiarity of product</i>        | Know what it is, know how to deal with it (a48)<br>Unclear what it is, do not know what it is, do not know how to cook (a19)<br>Everyday meal, not a treat (a53)<br>Something different, variation, not usual, a treat (a30)<br>No difference in taste or quality (a51)<br>Different taste, ethnic taste (a12)<br>How it used to be, traditional product (a54)<br>Well-known brand, comes from a large/well-known enterprise (a59)<br>No-name/unbranded product, comes from a small/unknown enterprise (a60) |
| <i>Reliability of claim</i>          | Reliable claim (a70)<br>Unreliable claim (a58)   |
| <i>Temperature</i>                   | Hot (a61)<br>Cold, lukewarm (a62)  |
| <i>Price</i>                         | High price, expensive (a32)<br>Low price, inexpensive (a31)  |
| <i>Storable</i>                      | Long-term storable, to buy ahead (a56)<br>Cannot be stored, perishable, short shelf-life (a55)   |

## CONSEQUENCES

|                                   |  |
|-----------------------------------|--|
| <i>Resources for other things</i> | Save time for other activities, can do something which is more important, can do something else I want to do, more money for other things (c1)<br>Less time for other things, cannot do something else I want, cannot do more important things, less money for other things (c3)<br>Can cope with the challenges of the day, can attend to my work |
|-----------------------------------|--|

|                                  |   |
|----------------------------------|---|
|                                  | (c9)<br>Cannot cope with/meet the challenges of the day, cannot attend to my work (c32)<br>Clean and tidy kitchen, no washing up (c39)<br>Messy kitchen (c38)   |
| <i>Trust</i>                     | Trust the product, know what it contains, know what is added (c6)<br>Cannot trust the product, does not know what it contains, does not know what has been added, does not understand the declaration of contents (c2)<br>Trust in the production process, know how the pizza has been made, know how the pizza has been stored, hygienic pizzeria (c4)<br>Does not trust the production process, does not know how the pizza was made and stored, unhygienic pizzeria (c5) |
| <i>Decide on the ingredients</i> | Can decide on the ingredients, can select/add extra toppings, large choice (c12)<br>Cannot decide on the ingredients, cannot select/add extra toppings, small choice (c30)  |
| <i>Get healthier</i>             | Get healthier, avoid allergy, avoid illness, not throw up, not get fat (c8)<br>Get less healthy, fall ill, become allergic, throw up, gain too much weight (c31)  |
| <i>Control of consumption</i>    | Control what I eat, know what I eat, control when to eat, can be prepared for spontaneous guests, flexible solution (c11)<br>Does not know what I eat, no control over what I eat, no control of when to eat, inflexible solution (c34)   |
| <i>Enjoyment</i>                 | Enjoyment, good experience (c18)<br>Less enjoyment, bad experience (c19)<br>Have a good time, no stress, relax, does not have to watch the time (c20)<br>Stressful, increases my feeling of stress (c7)   |
| <i>Can indulge myself</i>        | Can indulge myself, give myself what I deserve, feeling of luxury (c48)   |
| <i>Preservation of nature</i>    | Preserves nature, good for nature, good for the environment (c35)<br>Harms nature, undesirable environmental effect (c13)<br>Better animal welfare (c14)<br>Poor animal welfare, harms animals (c21)  |
| <i>Try something new</i>         | Can try something new and exciting, can experiment (c17)<br>Cannot try something new and exciting, cannot experiment (c51)  |
| <i>Value for money</i>           | Get something for my money, quality for my money, value for money, does not feel cheated (c22)<br>Poor value for money, no value for money, feel cheated, no relation between quality and price, wasted (c23)<br>Get satisfied, get enough to eat (c16)   |

|   |  |
|---|--|
|   | Does not get satisfied, is still hungry (c15)<br>Will start to snack (c41)   |
| <i>Give others good experiences</i>           | Can give others/ friends good experiences (c24)<br>Cannot give others/ friends good experiences (c50)<br>Help local farmer/ producer (c40)<br>Meet other people (c46)  |
| <i>Children assisting in meal preparation</i> | Children can assist in meal preparation, involves other members of the family, requests some activity from others, children can do it themselves (c27)   |
| <i>Enjoyment in the family</i>                | Enjoyment in the family, cosy time at the dinner table with the family, having a good time with the children, more time for the kids (c28)<br>Less enjoyment in the family, tensions at the dinner table, quarrels with the children, less time for the kids (c29)<br>Others/other members of the family like it, children will eat it, meets family's requests (c25)<br>The family does not like it, children will not eat it (c26) |
| <i>Good for the children</i>                  | Good for the children, healthy /better for children/ partner (c36)<br>Bad for the children, unhealthy/not good for the children/partner (c37)  |
| <i>Children learn something</i>               | Children learn something (c42)<br>Children do not learn anything, children do not learn the right thing (c43)  |
| <i>Moral concerns</i>                         | Morally right, right thing to do (c44)<br>Morally wrong (c45)<br>Avoid bad conscience (c10)<br>Bad conscience (c33)  |

## VALUES

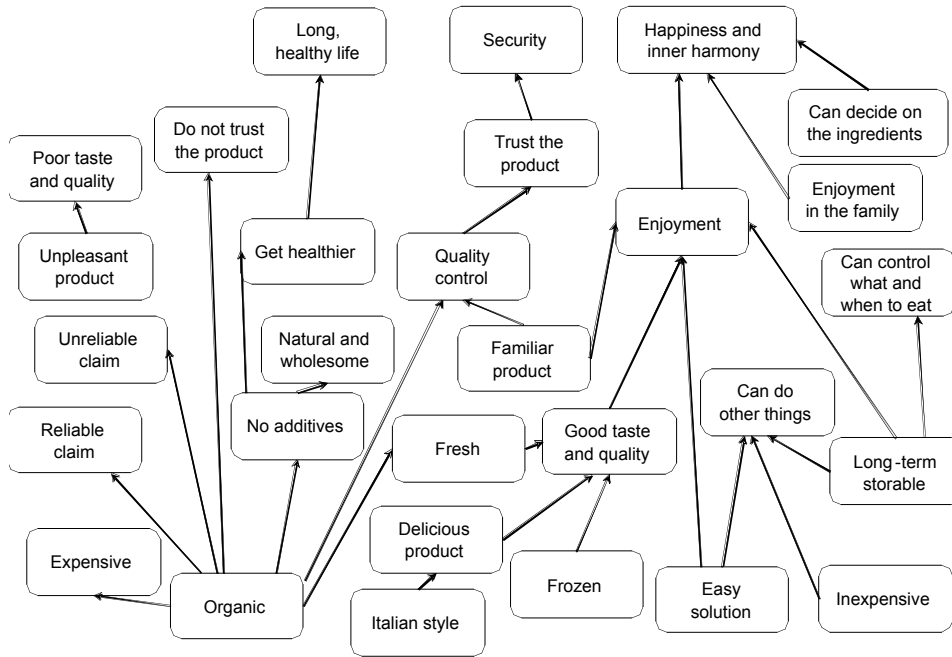
|                                    |  |
|------------------------------------|--|
| <i>Healthiness and a long life</i> | Healthiness, preserve a good health, live longer (v2)  |
| <i>Happiness and inner harmony</i> | Happiness, pleasure, satisfaction, content (v7)<br>Feel good about oneself, inner balance, inner harmony, relaxation (v6)<br>Quality of life (v18)   |
| <i>Family welfare</i>              | Responsibility for the health and future of children/ family/ partner (v8)   |
| <i>Benevolence</i>                 | Benevolent to others, make others feel good, altruism, do something good for the children/ partner (v15)<br>Social justice, avoid inequality (v13)<br>Responsibility for future generations, evolution (v19) |
| <i>Responsibility for nature</i>   | Responsibility for nature and environment, treating animals decently, unity with nature, protecting the environment (v1)   |

|                                     |  |
|-------------------------------------|--|
| <i>Excitement</i>                   | Excitement, an exciting life, an eventful life, a varied life (v4)   |
| <i>Independence and achievement</i> | Independence, freedom, self reliance, individuality, in control (v12)<br>Achievement, wisdom, learning things, ambition (v10)<br>Self-confidence, self respect, self efficacy (v9) |
| <i>Hedonism</i>                     | Hedonism, food as sensory experience (v17)   |
| <i>Security</i>                     | Security, feeling of safety, certainty (v3)<br>Respect for traditions, the way I was brought up (v14)  |
| <i>Social togetherness</i>          | Social togetherness, not lonely, a good social life, family togetherness (v5)<br>Social recognition, liked by others (v11)   |
| <i>Socialisation of children</i>    | Socialisation of children, transfer good values to children (v16)  |

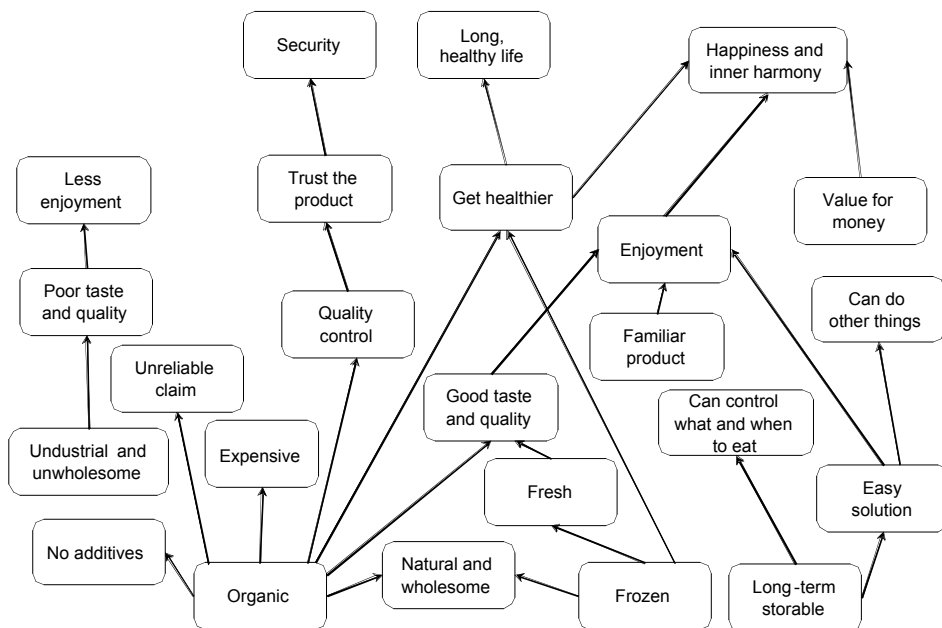
# ANNEX D. HIERARCHICAL VALUE MAPS FOR FROZEN, ORGANIC PIZZA FOR ALL FRL SEGMENTS

## Germany

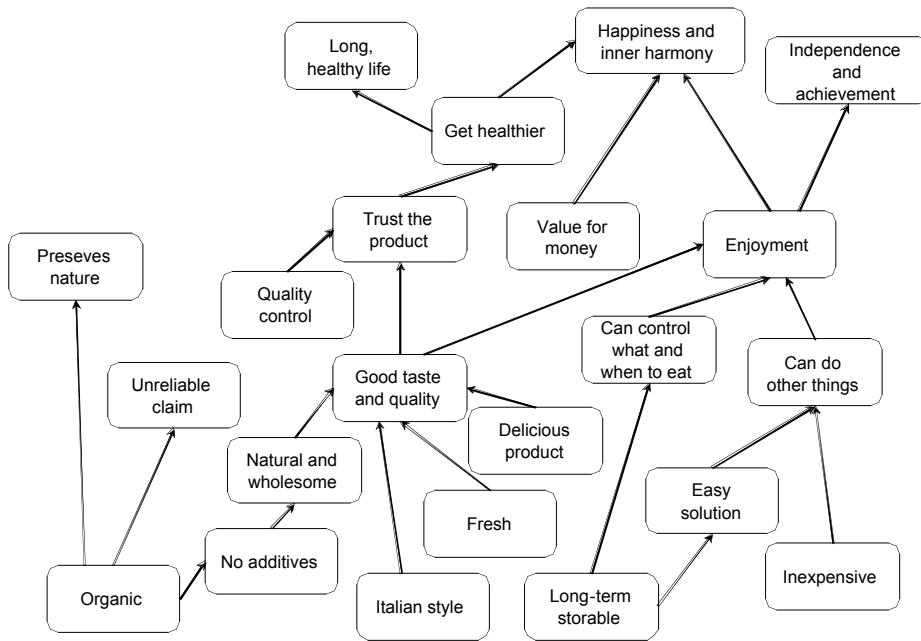
*German adventurous food consumers (cut-off: 4)*



*German enthusiastic food consumers (cut-off: 4)*

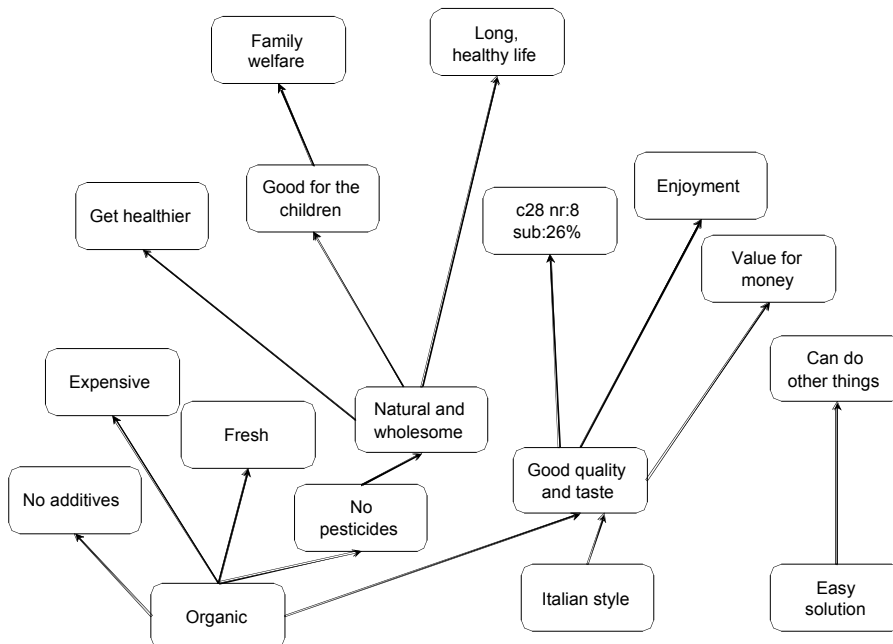


*German hedonistic food consumers (cut-off: 4)*

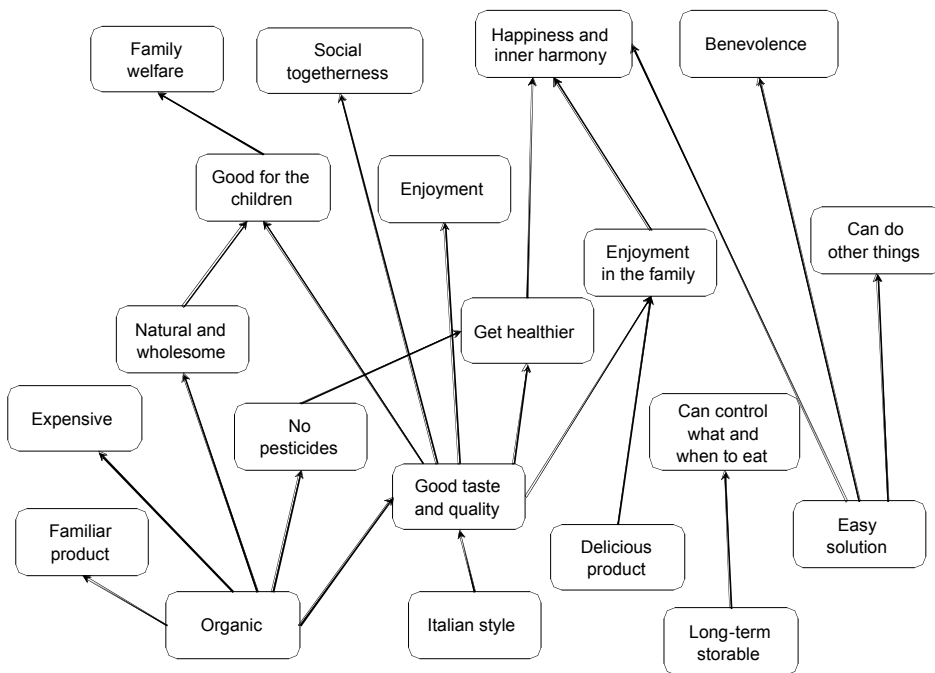


**Great Britain**

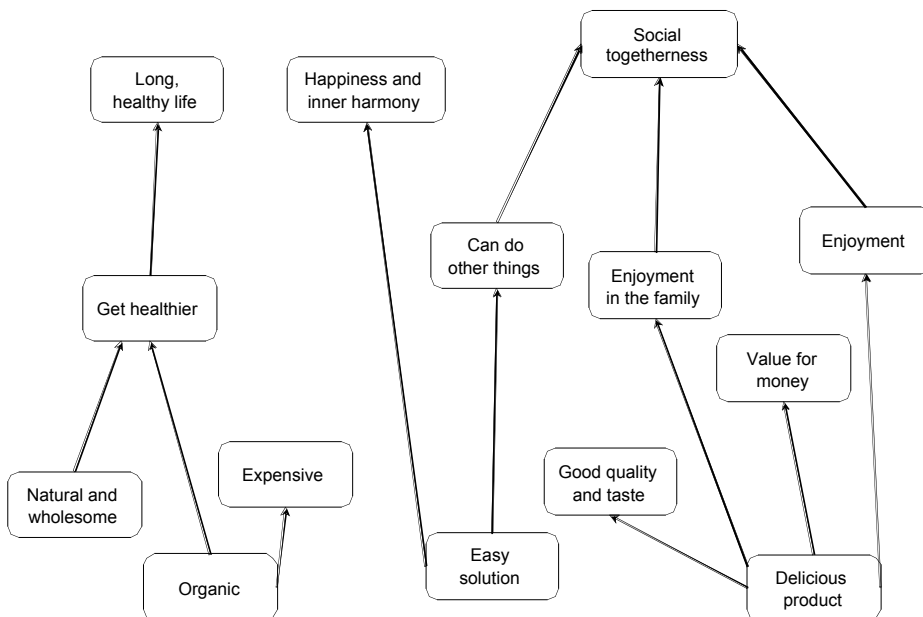
*British adventurous food consumers (cut-off: 4)*



*British rational food consumers (cut-off: 4)*

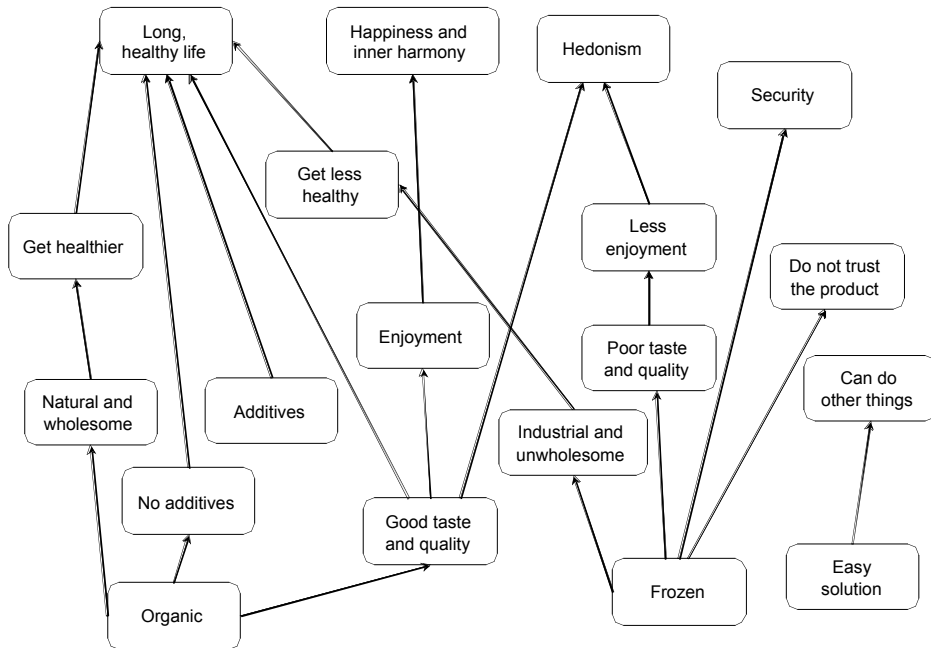


*British snacking food consumers (cut-off: 4)*

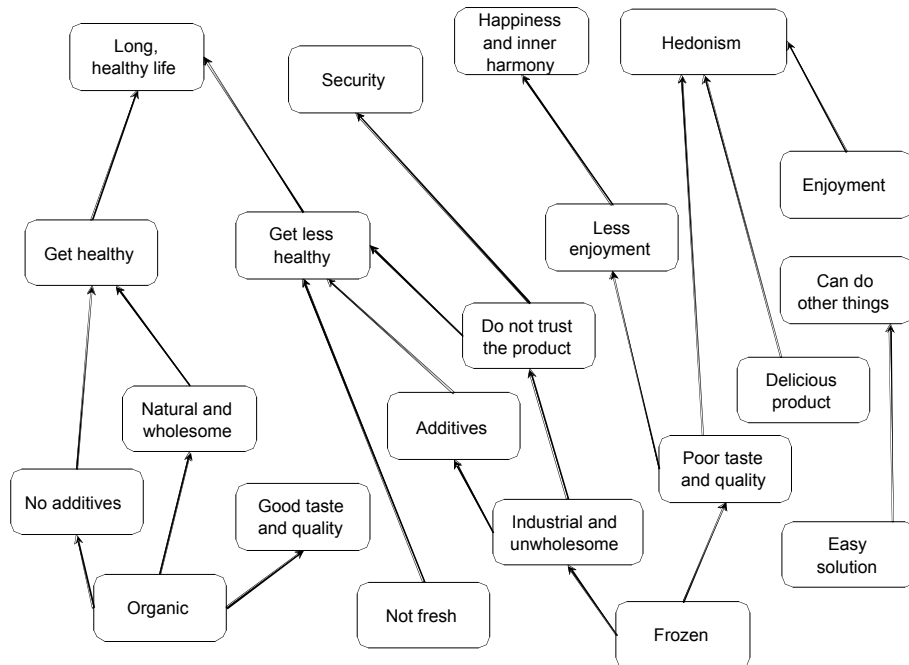


# Spain

*Spanish adventurous food consumers (cut-off: 8)*

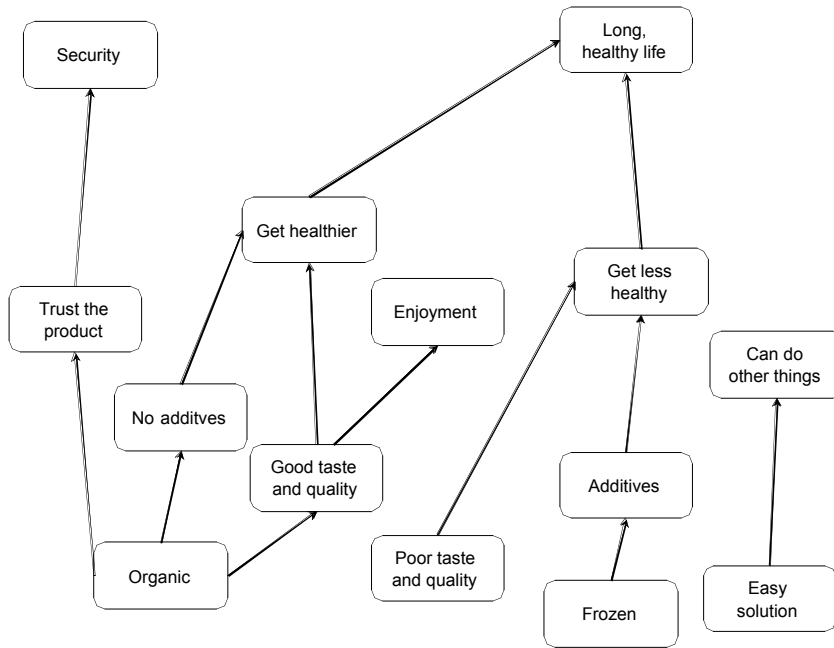


*Spanish enthusiastic food consumers (cut-off: 3)*



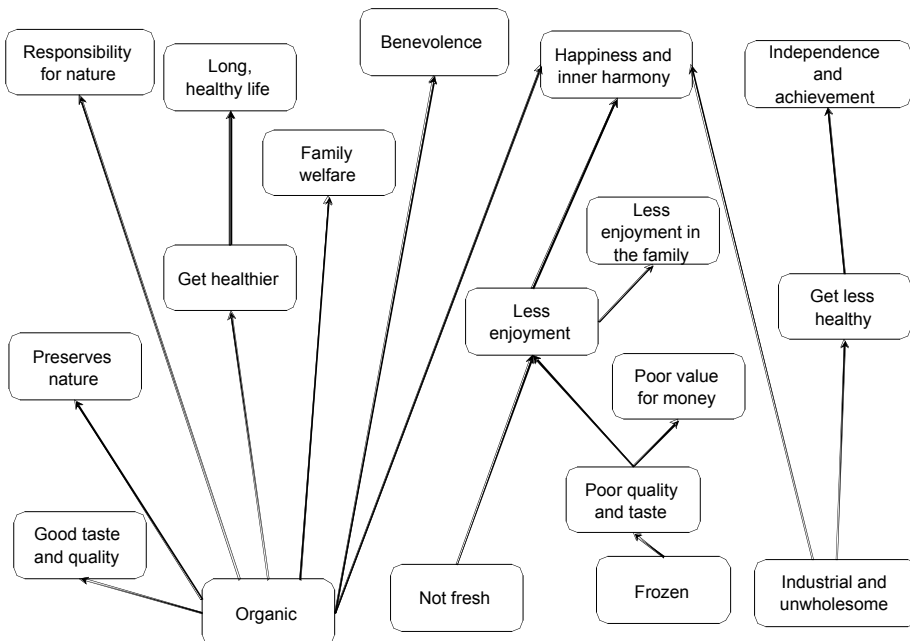


*Spanish rational food consumers (cut-off: 2)*

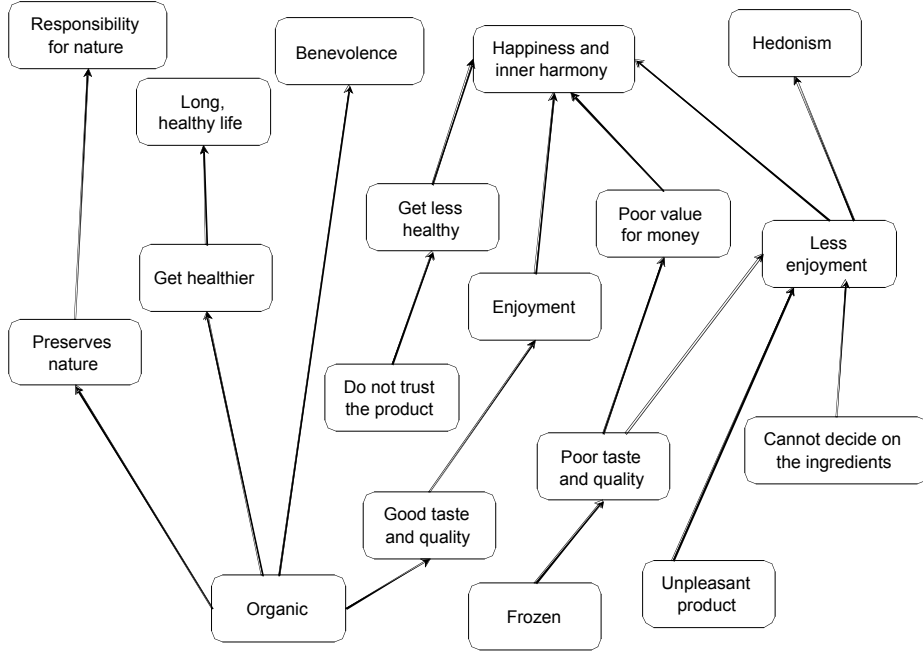


**Denmark**

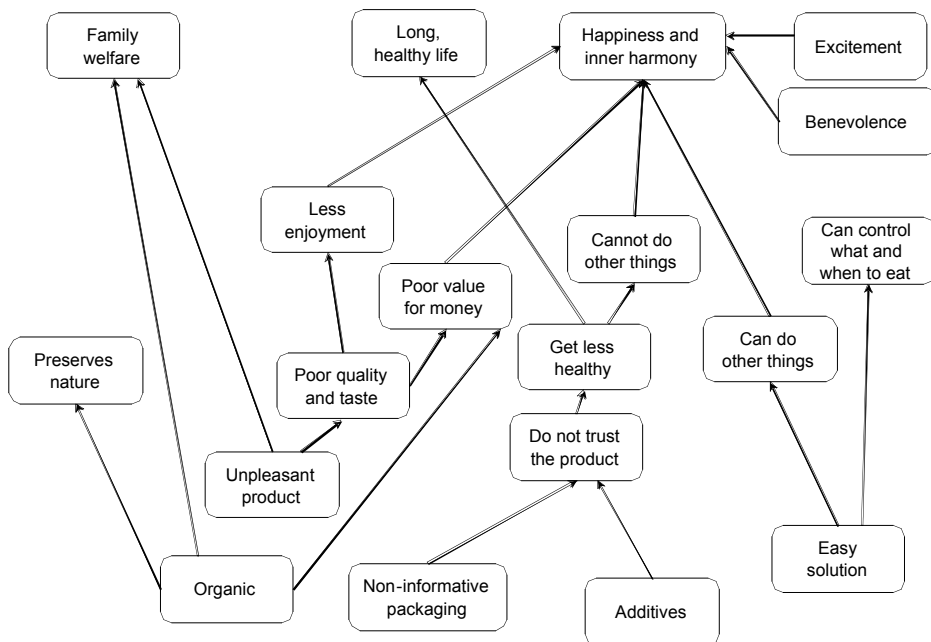
*Danish adventurous food consumers (cut-off: 5)*



*Danish eco-healthy food consumers (cut-off: 4)*



*Danish rational food consumers (cut-off: 2)*



*Danish impulsive food consumers (cut-off: 2)*

