



Towards integrated sustainable food consumption strategies: a Q Methodology study

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1 Introduction

Q methodology was invented in 1935 by the physician and psychologist William Stephenson. Since then, it has been considerably enriched by the political scientist Steven Brown and has been the subject of many applications in political science, marketing, sociology, etc. It has more recently been applied to the environmental field (Addams & Proops, 2000) and sustainable development issues (Swedeen, 2005).

The method consists in having a set of proposals (i.e. sentences, statements, pictures...) called the Q sample, sorted by a small sample of subjects, called the P sample. The subjects are asked to rank the propositions of the Q sample, usually from those with which they most

disagree to those with which they most agree, taking care to reproduce an almost normal distribution. Once this sorting obtained, an analysis reveals the correlations between the different subjects' sortings, and a factorial analysis reveals factors which are in common to the different sortings. Both analysis are combined and make it possible to reveal standard sortings of the proposals

The idea of using *Q* methodology arose as we were trying to find a way of combining elements from the three scenarios in order to build one (or more) common vision(s) of a desirable sustainable future of food consumption in Belgium. This "ideal" integrated scenario would play out a range of principles, logics, aspects and interrelations coming from the 3 strategy-images and illustrate one possible sustainable world in terms of food consumption. *Q* methodology, which is said to be "particularly well suited to situations in which a single "issue" is made out of subdimensions, and in which you are not necessarily sure how all these sub-dimensions will fit together" (Donner...) seemed, at first sight, to be a perfect tool to solve the problem of the possible arbitrary character of the selection and combination task. During the process, though, our aim slightly changed. Our first objective turned out to be too ambitious. *Q* methodology wouldn't offer elements of an integrated scenario as such, but, rather, three kinds of outputs that could be of rich interest for us:

1. First *Q* methodology highlights *the distinct groups, or different shared perspectives that appear in the sample*. Indeed, thanks to a factor analysis, the participants who completed the sort are "compressed" into a few subgroups, each reflecting a common pattern of responses. Each of these subgroups can be portrayed with a "snapshot", summarizing the average sort of the participants in that subgroup.

This first kind of output could enable us to determine whether and in which measure the three strategies/scenarios were well operant in the mind of a larger group of people. Indeed, we could easily and quickly check if the factors extracted during the analyses would correspond, more or less, to our three strategies.

2. A second kind of output brought by the *Q* methodology analysis is the *contention elements*, i.e. elements that garner a real split decision, meaning that they are considered as highly desirable for some participants and disagreeable to others. Those elements, that distinguish a subgroup from another, are particularly prone to feed discussions. They could be seen, in our case, as elements to discuss and themes about which to spark off debates when coming to proposition for policy.

3. Eventually, *Q* can reveal *consensus elements*, i.e. proposals that were rated at roughly the same level (either high, low, or neutral) by most participants. These statements can serve as a point of departure for consensus building among groups represented by the different factors. Again, those elements are precious in order to discover themes that could serve as a point of departure for policy makers: which are the ideas rejected by, or, on the contrary, shared amongst the different representations of what could be a sustainable food consumption?

Practically speaking, a *Q* study involves six steps: (1) identification of a discourse area of interest; (2) collection of statements by the full range of people with some interest in the topic; (3) selection of a representative set of statements from the full concourse; (4) selection of participants and execution of *Q* sort; (5) statistical analysis; and (6) interpretation of discourses.

2 Selection of discourse topic: “epistemological” considerations

Since *Q* methodology is nothing much than “a basis for a science of subjectivity” (Brown 1980), and since subjective viewpoints can be expressed and communicated around any theme, *Q* can fit any topic that concerns tastes, preferences, sentiments, motives and goals. Yet, some of its characteristics make it particularly well suited for certain situations.

A first characteristic of *Q* is that “questions pertaining to one and the same domain are not analysed in separate items of information but rather in their mutual coherence for the respondent.” (Van Exel 2005:3). According to Donner (2001), this makes it especially good for cases in which a single « issue » is made out of subdimensions, and in which it is not necessarily sure how all these subdimensions fit together.

This is exactly the situation we were facing in Consensus, knowing that Sustainable Development policy could benefit from elements from the three strategies/scenarios developed, but ignoring how those elements could be selected and assembled together. Moreover, aware of the inevitable subjective and normative aspects involved in the selection task, we were looking for a method that would be in the line of the participative scenario exercises, and would prevent the researchers to make their own selection, according to their own criteria. Here again, *Q* appeared to be a precious tool.

Indeed, a second specificity of *Q* methodology is that it considers the subjects as self-referent, and thus allows them to define the discourses and categories themselves rather than having the researcher define them for analysis. Instead of hypothesizing relationships between items in advance and testing that structure, the researcher gleans the relationship between the items only once the sort has been complemented. (Swedeen 2005; Donner 2001; McKeown and Thomas 1988). The factors “obtained” are not “analytically distinct traits synthesized within the researcher’s frame of reference, but, rather, “operant representations of whole perspectives” (McKeown and Thomas 1988 : 24). According to Swedeen (2005, inspired by Dryzek 1990), what follows is that the researcher himself or herself can be considered as a subject by participating in a *Q* study, along with the respondents, and that there is thus not the structural power imbalance inherent in the subject/object duality of survey research. “*Q* methodology is therefore epistemologically consistent with the intent for researchers to contribute to high quality decision processes with fair outcomes [...] and with the role of scientists as participants in public discussion.” (Swedeen 2005: 192).

3 Construction of communication concourse

In *Q*, the flow of communicability surrounding any topic is referred to as a “concourse”, and it is from this concourse that a sample of statements is subsequently drawn for administration in a *Q* sort. Concourses are not restricted to words, but can incorporate virtually all manifestations of human life, all means of expression (paintings, pictures, videos, music, objects ...). They can be obtained in a number of ways: a verbal concourse, for example, may be obtained through interviews, participant observation, popular literature (e.g. media reports, newspapers, magazines, novels) and scientific literature (papers, essays, books...).

In Consensus, the discourse was composed of all the possible discourses existing around the three strategies. A part of this discourse had already been gathered during the scenario workshops, and was thus available through the minutes of those meetings, as well as through the scenarios themselves. However, since we knew this material, because of its form (either too 'sketchy' or too 'narrative') would not necessarily be easily usable for the constitution of the *Q* sample, we also gathered some material from internet, from websites we knew would be close to each strategy (e.g. Slow food movement, voluntary simplicity, local supported agriculture, bio-engineering, ...)

4 Selection of the *Q* sample

Once the discourse has been gathered, the task becomes one of selection, organization, and analysis, so as to draw a subset of statements, the *Q* sample (usually 20 to 60 items), which is eventually presented to participants in the form of a *Q* sort.

The main goal of selecting a *Q* sample, is to provide "a miniature which, in major respects, contains the comprehensiveness of the larger process being modelled" (Brown 1980), i.e. a set that is representative of the wide range of existing opinions about the topic. Usually, a structure (called "design principle") is used in order to avoid the under- or over-sampling of certain components, and, consequently, the incorporation of a bias into the final *Q* sample. Such a structure may be imposed on the discourse, based on *a priori* hypothetical or theoretical considerations (deductive structure) or may emerge from patterns that are observed thanks to further examination and analysis of the discourse (inductive structure). Be it "emergent or imposed", however, this artificial categorization of statements has to be considered as a mere way for the observer to organize the discourse from the standpoint of what appears to him the most useful way of thinking, in order to facilitate the selection of items for the *Q* sample. It is much less important than how the subjects themselves will later perceive and react to the statements in the set: "Ultimately, this artificiality is replaced by categories that are operant, i.e., that represent functional as opposed to merely logical distinctions" (Brown 1980: 189)

Usually, to make it easier, the researcher builds his design as a two dimensions matrix, distributing the discourse between the different cells, and then selecting a number of statements for each cell.

Here, the *Q* sample was drawn according to the following design principle¹:

The columns obviously represent the three strategies: Eco-efficiency, Decomodification and Sufficiency (with a subdivision for this latter: "health-oriented" or "hedonistic"). For the categories in rows, we selected the three actions from the POPED structure the most directly associated to the consumption practices, i.e. obtain, prepare and eat.

¹ Please refer to the annexes (*Q* sample FR and *Q* sample NL) or to Table 3 to have the full statements corresponding to the numbers displayed in this table.

Table 1. *Q* sample design principle

	EE	DC	S		Total
Obtain	1; 2; 3; 4; 5	6;7;8;9;10	(health) 11;12;13	(hedonistic) 14	14
	<i>5 statements</i>	<i>5 statements</i>	<i>4 statements</i>		
Prepare	15;16;17	18;19;20	21;22	23;24	10
	<i>3 statements</i>	<i>3 statements</i>	<i>4 statements</i>		
Eat	25;26;27;28	29;30;31;32	33;34;35;36	37	13
	<i>4 statements</i>	<i>4 statements</i>	<i>5 statements</i>		
Total	12	12	13		37 <i>statements</i>

5 Participants selection (P sample)

A *Q* methodological study needs only a limited number of respondents, since “(...) all that is required are enough subjects to establish the existence of a factor for purposes of comparing one factor with another (...).” (Brown 1980: 192). What really matters is not the number of respondents, nor the statistical representativeness of the sample: the results of a *Q* methodological study are the distinct subjectivities about a topic that are operant, not the percentage of the sample (or the general population) that adheres to any of them. The important thing is thus to select people who are theoretically relevant to the problem under consideration. Therefore, as in the theoretical structuring of a set of *Q* statements, experimental design principles can be drawn upon for purpose of composing a *P* set that is thus more theoretical or dimensional than random or accidental.

In the case of the Consensus *Q* exercise, aiming at discovering different ways of combining elements of three distinctive strategies for sustainable consumption, we thought that inviting mainly “sustainability experts” would be the most “economic” solution. Indeed, it was easier to address our question to people already used to think in terms of long term issues and sustainability, and who were, moreover, consumers themselves. We knew from the beginning that, anyway, the most interesting results of the *Q* for us would be groups of statements (i.e. discourses around sustainable food consumption) rather than groups of people.

Invitations were thus sent to three groups of people: people appearing on the participants’ list of the “Forum Energy 2050” organized by CFDD/FRDO (on the 13th of November 2008); the members of the CFDD/FRDO themselves; and the experts having participated in our scenario workshops.

Finally, our P-sample was composed of 45 participants distributed as follows :

- Linguistic group :
 - 24 French speaking (53%)
 - 21 Flemish speaking (47%)
- Gender
 - 19 women (42%)
 - 22 men (48%)
 - 4 undefined (10%)
- Age :
 - 13 aged between 19 and 29 years old (29%)
 - 21 aged between 30 and 49 years old (46%)
 - 7 aged between 50 and 64 years old (15%)
 - 4 undefined (10%)
- 30 persons working in the sustainable development field (67%)
- 12 persons working about or within the food sector (27%), amongst whom 5 persons also working in the sustainable development field (11%) (2 for the industry, 2 in the administration and 1 in a NGO). Amongst the 7 remaining persons, 3 are working for the industry, 1 in the distribution sector, 1 in research (human sciences) and 1 in another field.

6 Execution of the *Q* sort

The execution of the *Q* sort by the participants was made possible and easy thanks to a free software, Flash*Q*, a user friendly Flash application for performing *Q* sorts online, developed by Christian Hackert and Gernot Braehler (2007).² In a first step, the participants were asked to read carefully all the statements and to split them up into three piles: a pile for statements they tended to disagree with, a pile for those they tended to agree with, and, in the middle, a pile for those about which they were either neutral, ambivalent, or uncertain.

In a second step, they were asked to take the cards from the "agree"-pile, to read them again and, in conformity with the distribution³ (see table 2), to select the two statements they most agreed with and to drag and drop them on the "score scale", below the "+4" header. They did the same for the statements they most disagreed with, under the "-4" header. Next, they selected those they second most agreed/disagreed with and placed them under "+3"/"-3"... They followed this procedure, back and forth, for all cards alternatively in the "agree"- and "disagree"-pile. Finally, reading the "neutral"-cards again, they arranged them in the remaining open boxes of the score sheet.

Table 2. *Q* study sorting scheme

Statement rank	-4	-3	-2	-1	0	+1	+2	+3	+4
Number of statements	2	3	4	6	7	6	4	3	2

² <http://www.hackert.biz/flashq/>

We would also like to warmly thank Stephanie Burns, doctoral student at Kent State University, for having created and sent us a precious file in order to make the program compatible with the latest version of Flash Player.

³ "In mathematical terms, a forced distribution is used to produce sorts that have equal means and variance, thereby conforming the assumptions underpinning the factor analysis [...]. Additionnally (at least attempting), a forced distribution improves the quality of the data [...] because participants are required to consider the relative merit of statements in order to form their positions" (Niemeyer, Petts and Hobson 2005, 1448)

In a next step, they were asked to explain why they agreed most or disagreed most with the statements they had placed in the "+4" and "-4" columns.

Finally, they were enjoined to answer certain questions regarding their personal characteristics: sex; age; whether they were working in the sustainable development field or not; in/about the food sector or not and if yes, in which domain in particular.

7 Statistical analysis⁴

There is nothing special in the way *Q* methodology uses statistical analysis. The only and very specificity of *Q* methodology lies in the nature of the data matrix on which the analysis is applied. Whereas “traditional” statistical analysis (called *R* analysis by *Q* methodologists) extracts factors from the correlation between variables, *Q* methodology starts from the correlation between individuals. In other words, whereas in the *R* analysis, “attention focuses on the relationship between traits, with scores being expressions of individual differences for the various traits in a sample of persons” (Brown 1980: 12), in *Q*, the variables under consideration are the persons having performed the *Q* sort, and not the *Q* sample statements. *Q* methodology calls thus for the correlation and factoring of persons (and not of traits, tests, etc.) as statistical means to observe how they are grouped (or, more accurately, how they group themselves) through the process of *Q* sorting.

The analysis of the data from *Q* sorts involves the sequential application of several statistical procedures:

First, correlations among *Q* Sorts are computed, which are then factor-analysed, with the objective to identify a number of significant natural groupings of *Q* sorts, each one shared by groups of people with similar points of view. This set of factors is then submitted to one or several rotations (either atheroretical, usually using the Varimax method, or judgmental) thanks to which a set of factors is selected. The final step of the data treatment as such, before describing and interpreting the factors, is the calculation of factor scores, i.e. the normalised weighted average statement score of respondents that define each factor.

8 *Q* Methodology analysis of the “Consensus” *Q* Sorts

Before coming to the real *Q* analysis of the sortings, it is important to recall what were our main objectives, or the kind of results we expected to raise from the analysis.

If we were aware that looking for elements that could help us to build integrated scenarios would be too ambitious, still, what we expected to find were elements, “themes” that garnered either contention or consensus amongst the participants. Those would be the important themes to highlight when working on the future of food.

⁴ The statistical analysis was made thanks to “PQmethod”, a free statistical program designed by Peter Schmolck to fit specifically the requirements of *Q* studies see <http://www.lrz-muenchen.de/~schmolck/qmethod/>

a. Varimax rotation

Looking at the correlation matrix between sorts, at first sight, we could expect rather good results from factor analysis. Of course, we knew it was hopeless to analyze in detail a 45*45 matrix, but a rapid overview showed that a sufficient amount of correlations between the sorts were quite high (around 0,60). Yet, the higher the correlations between the variables (here the *Q* Sorts), the more common dimensions they share and the less factors are necessary to account for the variations in the data.

A principal components analysis confirmed this impression. In order to find the simplest structure in the data set that could explain the greatest amount of variability, i.e. to maximize the purity of saturation of as many *Q* sorts as possible on one or the other of the factors extracted, we started by applying the Varimax method of orthogonal rotations. Rotations do not affect the relationship among the facts (i.e. the data points are not moved around) but only the vantage point from which the relationships are observed. We then decided to take only the three first factors into consideration.

Eventually, the three factors identified enabled us to classify 51% of our P sample. After rotation, they accounted respectively for 23%, 11% and 9% of the variance, hence for 43% of total variation with 14 sortings allocated to the first one, 11 to the second one and 9 to the third one.

Once we had identified those three significant factors, we then gave the original statements a “model” factor score in order to examine the sort predicted by the factor model for each factor.

The “factor arrays”, or “model *Q* sorts” for each factor are calculated by computing the *Q* sorts that have been allocated to them according to their different loadings. However, all allocated *Q* sorts are not associated with the same strength to their factor. Some are closer than others to it because their loading is higher. Therefore, the contribution of the allocated *Q* sorts to the definition of the model or ideal *Q* sort (factor array) was weighted according to their closeness to the factor. The weight (*w*) is calculated as follow: $w = f / 1-f^2$, where *f* is the factor loading. The higher the weight, the more the associated *Q* score contributes to the factor array. The weighted scores for each statement are summed and, for purposes of comparability, each item total is converted to a normalized score. This removes the arbitrary effect if the number of subjects associated with each factor and makes possible direct comparisons with the scores for the same statements in all factors.

Finally, those normalized factor scores are rounded and assigned a score so as to conform the form in which the data were originally collected: here, the two items with the highest scores were selected and given the value +4, the three next-highest items the value +3, etc ... (cf. Table 2)

Table 3 shows the rounded factor arrays for the 3 selected factors. For each factor, we underlined, with a bold line, the highest and, with a dotted line, the lowest factor arrays, indicating, on one hand the statements with which the persons respectively loaded on factor A, B and C would disagree the most (i.e. the lowest scores), and on the other hand, the statements with which they would agree the most (i.e. the highest scores).

Table 3. Factors scores of three factors extracted after Varimax rotation

No	Statement	Factor Scores		
		A	B	C
1	A well functioning market suffices to guarantee sustainable food consumption, provided that the right incentives are ensured (product norms, labels, tax incentives).	-2	<u>4</u>	2
2	Technological innovation (for example a smart fridge that automatically manages its contents thus preventing any waste) is an important element for sustainable food consumption.	-2	<u>3</u>	1
3	The consumer must be able to obtain his food through the easiest, the most anonymous, and the least time-consuming way possible.	<u>4</u>	-1	0
4	It is possible to enjoy as much freedom of choice in the context of sustainable food consumption as in the context of non sustainable food consumption.	-1	2	1
5	In the context of a sustainable consumption, the heaviest impact food has on the environment, the most expensive it must be.	<u>3</u>	1	<u>4</u>
6	In 2050, the distinction between consumers and producers will have disappeared: everyone will be participating somewhat in the production of his food.	-1	<u>3</u>	-1
7	Sustainable food consumption can be achieved through direct relationships between producers and consumers.	2	<u>3</u>	1
8	Food cannot be compared to any other good. It has a particular character, even a sacred one.	<u>3</u>	0	0
9	Both the production and the consumption of meat should be entrusted to the State.	-1	<u>3</u>	<u>4</u>
10	I would find it normal to have rationing tickets for products which are too harmful for the environment.	0	-2	-2
11	The way I get my food is of little importance, as long as I can be sure the food is healthy.	-2	0	-1
12	It is normal, in the context of a sustainable food consumption, to pay more attention to food expenses, to make sure to buy only what is strictly necessary.	1	0	-1
13	The best place to get one's food should be the small local market, where the seller knows his products.	1	<u>4</u>	1
14	Sustainable food consumption can be achieved through the promotion of gastronomic-quality food and the safeguard of traditional food.	2	-1	1
15	Pre-prepared meals are environmentally more efficient, for instance because they allow economies of scale.	<u>3</u>	<u>3</u>	<u>3</u>
16	In 2050, my kitchen will be minimally equipped; I will use it only to defreeze and warm up already prepared meals.	<u>4</u>	-2	0
17	A sustainable consumption doesn't necessarily imply a deeper knowledge of food and the way it can be prepared.	-1	-1	-1
18	Children should acquire knowledge and skills about food (kitchen garden, preparation, cooking) since primary school.	<u>4</u>	2	4
19	In the context of a sustainable food consumption, it is normal that households should devote more time to preparing and cooking their food.	1	-1	<u>3</u>
20	To be more environmentally efficient, meals should be prepared collectively, for instance in neighbourhood kitchens.	0	1	<u>4</u>
21	What really matters in food preparation methods is their impact on health.	0	2	-1
22	In 2050, there will hardly remain any case of mismanagement of food through overconsuming or wasting.	0	0	<u>3</u>
23	It is a pity to spoil good products by through inadequate preparation.	1	1	0
24	Carefully preparing a meal is already enjoying it.	1	2	0
25	In 2050, GMO's will be present in my everyday food, as long as their production is motivated by less heavy environmental impacts (less fertilizers, pesticides and water consumption).	<u>3</u>	1	0
26	I would eat out more often (restaurants, snacks, fast food, ...) if I knew the ecological footprint of my meal was lesser there than when I'm eating at home.	0	-1	0
27	According to me, food safety and food traceability are fundamental.	1	<u>4</u>	2
28	It is very likely that the food from tomorrow's sustainable consumption will be completely different from today's products.	0	-2	2
29	In 2050, I'll mainly eat local products.	2	-1	<u>3</u>

30	Diversity is to be seen as rediscovering “forgotten” local products rather than as being offered exotic products.	<u>3</u>	0	1
31	In 2050, the main daily meal will be taken in canteens (at work, at schools, ...) in order to reduce wastes as well as energy and water consumption.	-1	1	-2
32	In 2050, the food-processing industry will almost have entirely disappeared: people will mainly eat fresh and artisanal products.	0	..4	<u>3</u>
33	Sustainable food consumption implies that every individual should make a personal effort in order to watch his/her consumption.	<u>4</u>	<u>3</u>	2
34	One should only eat what is strictly necessary to a healthy diet (concerning quantities and nutrients)	-1	-2	..3
35	It would be useful to have a device that would help to manage the food intake by controlling the nutritional supply, regarding to objective individual needs according to age, sex, health status, activities, etc.	-2	0	-2
36	In 2050, the distinction between food and medicines will almost have disappeared: I will eat in order not to be ill, and I’ll heal myself through eating.	..3	0	-2
37	In order to fully enjoy our food, it really matters to create a good atmosphere around eating moments (company, location, meals presentation ...)	2	1	-1

The most interesting fact to notice here is that the two first factors, i.e. the two main types of discourses about possible future sustainable food consumption among the sample, are respectively composed of elements that we had previously classified as being part either of the Decommodification strategy (factor A) or of the Eco-efficiency strategy (factor B). This already means that those two strategies are really operant in people’s mind: they are well two different ways of conceiving the future of food consumption. Factor C won’t be looked at into more details here, in this first step of the analysis. It doesn’t correspond to the sufficiency strategy but is rather a mix between the three strategies.

After this first step, giving us first insights about the results, the analysis focused on what would happen if the three first factors were corresponding, in the ‘purest’ way possible, to the three strategies. What would be the consensus elements? The contention elements? In order to discover it, a first graphical (or judgemental) rotation has been applied.

b. Judgmental rotation (1) : the “extreme” positions

The aim here was first to find in the sample the persons who seemed to be the most linked respectively to the Eco-Efficiency, Decommodification and Sufficiency strategies, in order to maximise their respective loadings with one of the 3 selected factors and to end up with one DC factor, one EE factor, and one S factor.

Here is the way we proceeded concretely:

First, we looked at the mean of the scores given by each respondent to the statements respectively coming from the EE, DC or S strategy (according to the initial design, cf Table 1). We then selected the persons with the highest means respectively for each group of statements, and ended up with three (surprisingly equilibrate) clusters: 11 persons (24% of the P sample) had given the “DC” statements particularly high scores, 10 (22% of the sample) had ranked particularly highly the “EE” statements and 8 (17% of the sample) had shown a similar preference for the “S” statements. This could already enable us to note that, among the whole sample, 29 persons in total (i.e. 64% of the sample) seemed to show a particular preference for either one or another strategy.

Thanks to a graphical rotation, we tried to associate each of these groups with a specific factor, Factor A’ for DC, Factor B’ for EE and Factor C’ for S. Last but not least, we flagged

the persons of each group on their respective factor, in order to give them a specific weight for the calculation of the factors' rankings.

Here are the results:

Table 4. Factor scores for three factors extracted after a first judgmental rotation

No	Statement	Factor Scores		
		A'	B'	C'
1	A well functioning market suffices to guarantee sustainable food consumption, provided that the right incentives are ensured (product norms, labels, tax incentives).	<u>-.3</u>	2	-1
2	Technological innovation (for example a smart fridge that automatically manages its contents thus preventing any waste) is an important element for sustainable food consumption.	-1	2	1
3	The consumer must be able to obtain his food through the easiest, the most anonymous, and the least time-consuming way possible.	-2	2	<u>-.4</u>
4	It is possible to enjoy as much freedom of choice in the context of sustainable food consumption as in the context of non sustainable food consumption.	0	<u>4</u>	<u>-.3</u>
5	In the context of a sustainable consumption, the heaviest impact food has on the environment, the most expensive it must be.	<u>4</u>	<u>3</u>	<u>4</u>
6	In 2050, the distinction between consumers and producers will have disappeared: everyone will be participating somewhat in the production of his food.	-1	<u>-.3</u>	<u>-.3</u>
7	Sustainable food consumption can be achieved through direct relationships between producers and consumers.	2	-2	0
8	Food cannot be compared to any other good. It has a particular character, even a sacred one.	2	-1	0
9	Both the production and the consumption of meat should be entrusted to the State.	-1	<u>-.4</u>	<u>-.4</u>
10	I would find it normal to have rationing tickets for products which are too harmful for the environment.	0	<u>-.4</u>	2
11	The way I get my food is of little importance, as long as I can be sure the food is healthy.	-2	-1	<u>-.3</u>
12	It is normal, in the context of a sustainable food consumption, to pay more attention to food expenses, to make sure to buy only what is strictly necessary.	1	1	<u>3</u>
13	The best place to get one's food should be the small local market, where the seller knows his products.	2	-2	2
14	Sustainable food consumption can be achieved through the promotion of gastronomic-quality food and the safeguard of traditional food.	<u>3</u>	0	0
15	Pre-prepared meals are environmentally more efficient, for instance because they allow economies of scale.	-2	1	-2
16	In 2050, my kitchen will be minimally equipped; I will use it only to defreeze and warm up already prepared meals.	<u>-.4</u>	-1	-1
17	A sustainable consumption doesn't necessarily imply a deeper knowledge of food and the way it can be prepared.	-1	1	-2
18	Children should acquire knowledge and skills about food (kitchen garden, preparation, cooking) since primary school.	<u>3</u>	<u>3</u>	<u>3</u>
19	In the context of a sustainable food consumption, it is normal that households should devote more time to preparing and cooking their food.	1	-2	0
20	To be more environmentally efficient, meals should be prepared collectively, for instance in neighbourhood kitchens.	0	0	-1
21	What really matters in food preparation methods is their impact on health.	0	0	1
22	In 2050, there will hardly remain any case of mismanagement of food through overconsuming or wasting.	0	1	0
23	It is a pity to spoil good products by through inadequate preparation.	0	0	2
24	Carefully preparing a meal is already enjoying it.	1	2	<u>3</u>
25	In 2050, GMO's will be present in my everyday food, as long as their production is motivated by less heavy environmental impacts (less fertilizers, pesticides and water consumption).	<u>-.3</u>	0	-2
26	I would eat out more often (restaurants, snacks, fast food, ...) if I knew the ecological	-1	-1	0

	footprint of my meal was lesser there than when I'm eating at home.			
27	According to me, food safety and food traceability are fundamental.	1	<u>4</u>	1
28	It is very likely that the food from tomorrow's sustainable consumption will be completely different from today's products.	0	1	0
29	In 2050, I'll mainly eat local products.	<u>3</u>	-1	1
30	Diversity is to be seen as rediscovering "forgotten" local products rather than as being offered exotic products.	<u>4</u>	1	1
31	In 2050, the main daily meal will be taken in canteens (at work, at schools, ...) in order to reduce wastes as well as energy and water consumption.	-1	0	-1
32	In 2050, the food-processing industry will almost have entirely disappeared: people will mainly eat fresh and artisanal products.	1	<u>3</u>	-2
33	Sustainable food consumption implies that every individual should make a personal effort in order to watch his/her consumption.	2	<u>3</u>	<u>4</u>
34	One should only eat what is strictly necessary to a healthy diet (concerning quantities and nutrients)	-2	-2	-1
35	It would be useful to have a device that would help to manage the food intake by controlling the nutritional supply, regarding to objective individual needs according to age, sex, health status, activities, etc.	<u>4</u>	-1	1
36	In 2050, the distinction between food and medicines will almost have disappeared: I will eat in order not to be ill, and I'll heal myself through eating.	<u>3</u>	<u>3</u>	-1
37	In order to fully enjoy our food, it really matters to create a good atmosphere around eating moments (company, location, meals presentation ...)	1	0	2

Looking at the statements in the highest and lowest positions for each factor, we can easily see how the factors are well representing one of the strategies.

What characterizes Factor A' is the importance given to the local aspect, and to short food circuit: people loading on factor A' agree with the fact that forgotten species should be rediscovered, as well as local and traditional food. They see the local market as the best place to obtain food, and they give an importance to the direct relationship between the producers and the consumers. For them, food has a sacred character, and it is important to devote time, skills and energy to obtaining and preparing it. It is unconceivable to imagine not having the possibility to cook anymore (by eating more pre-prepared meals or eating out more often). Amongst the statements which were ranked with the highest scores, one can also find some elements of the sufficiency strategy, in his 'hedonistic' side, through the importance given to the atmosphere around the food intake, the gastronomic aspect of the food and the enjoyment of the preparation. On the other hand, the factor A' seems to reject the 'health' side of the sufficiency strategy: the ideas of the food as a medicine or of a controlling device appear as two of the statements with the highest negative scores. It is also interesting to note that the sentences referring to the intervention of the State (through rationing tickets or control of meat production and distribution), even if belonging to the DC strategy, are ranked quite low in the list.

Not surprisingly, what characterizes factor B' is the confidence in the market and the technological innovation. The market itself can ensure a sustainable consumption, through the system of prices, without reducing the freedom of choice. A shorter food chain is not needed for sustainable food consumption. The pre-prepared meals are considered as being more efficient and they are quite welcomed since it's not so important to spend time in the preparation of food. There is no real reluctance towards GMO's (contrarily to factor A'!). Nonetheless, it is interesting to notice that factor B' has some characteristics in common with factor A': it reckons, for example, the importance of an individual effort in order to come to sustainable consumption, as well as the importance of the education about food since the

primary school. It also shares with factor A' a repulsion for the intervention of the State and for food seen as medicine.

Finally, Factor C' is well characterized by a 'sufficiency' perspective, even if it is not really pure. Indeed, it also encloses, in a moderate way, some elements from the Decommodification strategy (the importance given to the local dimension for example) even if there is not a strong refutation of the market, as well as from the Eco-Efficiency strategy (the importance given to technologies). What specifically characterizes Factor C' is the idea of checking and/or controlling the food intake, either by paying attention to the food expenses, or thanks to rationing tickets, or even through the means of technological devices (be it an intelligent fridge or a 'chip in the belly'). On the other hand, the food has to be enjoyed, carefully prepared, and eaten in a convivial atmosphere.

Even more interesting than describing the three factors separately is to look at the elements of consensus and the elements of contention between the 3 factors.

Table 5 shows the statements that garnered real split decision amongst the respondents respectively loaded either on Factor A', B', or C'.

Table 5. Elements of disagreement

No.	Statement	Factor Scores		
		A' (DC)	B' (EE)	C' (S)
4	It is possible to enjoy as much freedom of choice in the context of a sustainable food consumption as in the context of a non sustainable food consumption.	0	4	-3
10	I would find it normal to have rationing tickets for products which are too harmful for the environment.	0	-4	2
3	The consumer must be able to obtain his food through the easiest, the most anonymous, and the least time-consuming way possible.	-3	2	-4
1	A well functioning market suffices to guarantee sustainable food consumption, provided that the right incentives are ensured (product norms, labels, tax incentives).	-3	2	-1
13	The best place to get one's food should be the small local market, where the seller knows his products.	2	-2	2
35	It would be useful to have a device that would help to manage the food intake by controlling the nutritional supply, regarding to objective individual needs according to age, sex, health status, activities, etc.	-4	-1	1

First of all, it is important to notice that the way the factor scores are distributed amongst the three factors is completely logical and consistent, and tells us something about each strategy.

Next, it is interesting to have a closer look to each of the statements that garnered contention among the P sample.

- About the possibility of freedom of choice (4)

Factor B' (EE) strongly agrees with the possibility of maintaining the freedom of choice in the context of sustainable food consumption, contrarily to Factor C' (S) which shows a strong disagreement, and Factor A' (DC) which seems neutral on the question. This can be illustrated by the justifications some respondents gave while writing comments on the statements they disagreed or agreed the most with:

An example of EE (+) justification⁵ : “ *le choix que fait un individu est étroitement lié aux valeurs qu'il porte, la consommation durable n'enlève rien à la liberté de choix, n'entraîne*

⁵ NB : All the comments quoted here are considered as being only illustrative. They just give an example of possible kinds of justifications!

aucune frustration ou limitation, mais au contraire, permet à l'individu d'entrer en accord avec lui-même dans ses choix alimentaires aussi. ”

An example of S(-) justification : “ *Pouvoir profiter de tout en toute saison est un luxe que la planète ne peut s'offrir ”.*

One hypothesis concerning the ‘neutral’ position of the ‘advocates’ of DC concerning the freedom of choice may be that they can have a radically different idea on the question, depending on whether they see the diversity as the one which is proposed today, as stated in this comment: “*Ce choix pléthorique de biens d'alimentation est élargi en dépit de l'impact écologique. Le monde entier cultive et élève en fonction des exigences des distributeurs et consommateurs occidentaux. Un tel mode de raisonnement n'est pas extensible à l'ensemble de la planète*”, or as it could be in the future “*Les choix sont tout aussi nombreux même s'ils ne sont pas les mêmes... la diversité des légumes par exemple est en fait plus grande quand on mange 'bio' car on prend aussi en compte toute une série de légumes oubliés.. donc la liberté de choix est là. Par contre, les choix ne sont pas les mêmes, il est clair qu'il ne sera pas possible de choisir certains aliments dans certaines saisons ”.*

- About rationing tickets (10)

Again, we can observe the same pattern: Factor EE shows a strong disagreement about the idea of the possible existence of rationing tickets (“*C'est contraire aux libertés individuelles*”, “*Het is aan de consument om uit te maken waar zijn/haar prioriteiten liggen. Duidelijke (maar correcte !) informatie over milieu-impact moet beschikbaar zijn, zodat de consument een geïnformeerde keuze kan maken.*”), although Factor S shows a strong agreement (“*om te vermijden dat consumptie van bepaalde producten enkel voor rijkere zou zijn weggelegd, zouden coupons een sociale maatregel kunnen zijn*”), and Factor DC remains neutral about it.

- About an anonymous, easy, and ‘non time-consuming’ way of obtaining food (3)

Here, Factor DC (“*le côté anonyme est une très mauvaise idée, il ne permet pas de responsabiliser le consommateur*”) and S (“*als voeding zo belangrijk is, dan moet ik tijd voor maken*”) disagree strongly with the idea, although, not surprisingly, EE strongly agrees with it.

- About the market as being able to ensure sustainable consumption (1)

Again, it is not surprising at all to notice that both Factor A’ and C’ disagree with the statement; Factor A’ to a higher extent than Factor C’ (“*Duurzame consumptie heeft mijns inziens niet te maken met de ‘markt’.. In de eerste plaats omdat voedsel niet mag gezien worden als een koopbaar, maar als een basisrecht*”). On the other hand, Factor B’ obviously shows a great agreement with it. (“*Si on donne de bons signaux aux consommateurs, ceux-ci influenceront les producteurs pour une consommation durable et diversifiée*”)

- About the local market as the best place to get one’s food (13)

One can observe the same pattern again: agreement from Factors DC and S, and disagreement from Factor EE (“*geloof in technologie and schaalvoordelen*”)

- About the idea of a technological device that would control the food intake (35)

This statement garners a strong disagreement from the factors DC,, a moderate disagreement from the factor EE, and a moderate agreement from the Factor S .

Finally, the most interesting element to note here about those disagreements statements is probably the contested place of, and relationship to the market. This will be discussed further in the following part.

Table 6. Elements of consensus

No.	Statement	Factor Scores		
		A' (EE)	B' (DC)	C' (S)
18	Children should acquire knowledge and skills about food (kitchen garden, preparation, cooking) since primary school.	3	3	3
21	What really matters in food preparation methods is their impact on health	0	0	1
22	In 2050, there will hardly remain any case of mismanagement of food through overconsuming or wasting.	0	1	0
24	Carefully preparing a meal is already enjoying it.	1	2	3
26	I would eat out more often (restaurants, snacks, fast food, ...) if I knew the ecological footprint of my meal was lesser there than when I'm eating at home.	-1	-1	0
31	In 2050, the main daily meal will be taken in canteens (at work, at schools, ...) in order to reduce wastes as well as energy and water consumption.	-1	0	-1

The consensus statements give us an idea of the themes that should surely be taken into account by policy makers. Unfortunately, this only table gives a very limited idea of elements on which the advocates of the three strategies would, altogether, strongly disagree or strongly agree. Indeed, most of the statements in the table (s21, s22, s26 and s31) appear well as being ranked more or less the same by the three factors, but in a neutral way (with scores as -1, +1 or 0). Surprisingly, none of the statements garner disagreement amongst all three of factors. Statement 24 doesn't bring a lot in terms of policy. Finally, only one statement can give us an insight about a positive attitude from the three groups, since all recognize the fundamental aspect of the education.

Another way to analyse the three positions and how they relate to each other, is to highlight potential integrated mixes of statements stemming from the three discourses. This has been analysed with the second judgmental rotation.

c. Judgmental rotation (2): the “mixed” positions

Having extracted three “pure” factors was interesting, on one hand, in order to confirm the existence of three types of discourses corresponding more or less to the three strategies, EE, DC and S, and on the other hand, in order to highlight, through the consensus and contention elements, interesting themes to work on in a policy perspective.

Nonetheless, we decided to go a little bit further by trying another kind of judgmental rotation: instead of selecting in the sample the persons who were the most “extreme”, being mostly “associated” with only one strategy, we rather decided to select the most “mixed”, “nuanced” sortings in order to analyse the factor(s) they would compose, after rotation.

Just as during the previous step, we selected some respondents in the sample, according to the mean of their sortings for each group of statements (EE, DC, or S). Nonetheless, this time, rather to select people whose rankings' mean was very high for only one kind of statements, we selected people who had an “average” mean, for the three groups, i.e., who didn't seem to show a true preference for either one or another strategy. Again, thanks to a graphical rotation, we tried to associate those people and their sorts to one factor (we called it A''), which turned out to be the only significant one.

Table 8 shows the result of this last rotation:

Table 8: Factor scores the factor extracted after a second judgmental rotation

No.	Statement	Factor A'' Scores	
		unrounded	rounded
5	In the context of a sustainable consumption, the heaviest impact food has on the environment, the most expensive it must be.	2.094	+4
33	Sustainable food consumption implies that every individual should make a personal effort in order to watch his/her consumption.	1.816	+4
30	Diversity is to be seen as rediscovering "forgotten" local products rather than as being offered exotic products.	1.719	+3
7	Sustainable food consumption can be achieved through direct relationships between producers and consumers.	1.029	+3
8	Food cannot be compared to any other good. It has a particular character, even a sacred one.	1.022	+3
29	In 2050, I'll mainly eat local products.	0.904	+2
18	Children should acquire knowledge and skills about food (kitchen garden, preparation, cooking) since primary school.	0.902	+2
27	According to me, food safety and food traceability are fundamental.	0.880	+2
24	Carefully preparing a meal is already enjoying it.	0.728	+2
12	It is normal, in the context of a sustainable food consumption, to pay more attention to food expenses, to make sure to buy only what is strictly necessary.	0.719	+1
23	It is a pity to spoil good products by through inadequate preparation.	0.710	+1
1	A well functioning market suffices to guarantee sustainable food consumption, provided that the right incentives are ensured (product norms, labels, tax incentives)	0.602	+1
13	The best place to get one's food should be the small local market, where the seller knows his products.	0.541	+1
37	In order to fully enjoy our food, it really matters to create a good atmosphere around eating moments (company, location, meals presentation ...)	0.529	+1
21	What really matters in food preparation methods is their impact on health.	0.519	+1
28	It is very likely that the food from tomorrow's sustainable consumption will be completely different from today's products.	0.317	0
19	In the context of a sustainable food consumption, it is normal that households should devote more time to preparing and cooking their food.	0.060	0
4	It is possible to enjoy as much freedom of choice in the context of a sustainable food consumption as in the context of a non sustainable food consumption.	0.037	0
14	Sustainable food consumption can be achieved through the promotion of gastronomic-quality food and the safeguard of traditional food.	-0.013	0
20	To be more environmentally efficient, meals should be prepared collectively, for instance in neighbourhood kitchens.	-0.088	0
22	In 2050, there will hardly remain any case of mismanagement of food through overconsuming or wasting.	-0.105	0
26	I would eat out more often (restaurants, snacks, fast food, ...) if I knew the ecological footprint of my meal was lesser there than when I'm eating at home.	-0.170	0
32	In 2050, the food-processing industry will almost have entirely disappeared: people will mainly eat fresh and artisanal products.	-0.268	-1
17	A sustainable consumption doesn't necessarily imply a deeper knowledge of food and the way it can be prepared.	-0.324	-1
10	I would find it normal to have rationing tickets for products which are too harmful for the environment.	-0.422	-1
25	In 2050, GMO's will be will be present in my everyday food, as long as their production is motivated by less heavy environmental impacts (less fertilizers, pesticides and water consumption)	-0.539	-1

2	Technological innovation (for example a smart fridge that automatically manages its contents thus preventing any waste) is an important element for a sustainable food consumption.	-0.683	-1
11	The way I get my food is of little importance, as long as I can be sure the food is healthy.	-0.764	-1
3	The consumer must be able to obtain his food through the easiest, the most anonymous, and the least time-consuming way possible.	-0.864	-2
9	Both the production and the consumption of meat should be entrusted to the State.	-0.984	-2
31	In 2050, the main daily meal will be taken in canteens (at work, at schools, ...) in order to reduce wastes as well as energy and water consumption.	-1.073	-2
34	One should only eat what is strictly necessary to a healthy diet (concerning quantities and nutrients)	-1.112	-2
6	In 2050, the distinction between consumers and producers will have disappeared: everyone will be participating somewhat in the production of his food.	-1.138	-3
35	It would be useful to have a device that would help to manage the food intake by controlling the nutritional supply, regarding to objective individual needs according to age, sex, health status, activities, etc.	-1.577	-3
16	In 2050, my kitchen will be minimally equipped; I will use it only to defreeze and warm up already prepared meals.	-1.597	-3
15	Pre-prepared meals are environmentally more efficient, for instance because they allow economies of scale.	-1.647	-4
36	In 2050, the distinction between food and medicines will almost have disappeared: I will eat in order not to be ill, and I'll heal myself through eating.	-1.762	-4

Looking, in the table, at the nine first statements (with a rounded factor score between +4 and +2) and the nine last statements (factor scores between -4 and -2) and enlightening those elements thanks to the comments made by some respondents enables us to make interesting comments about this “mixed factors”.

At first sight, amongst the highly ranked statements, a majority seems to come from the Decommodification strategy. But, looking a little bit closer, one can notice that the place given to the market in Factor A” is not so clear. Indeed, the most highly ranked statement comes from the EE strategy and proposes a regulation through the price system (statement 5, +4). Moreover, the sentence stating that a well-functioning market is able to ensure a sustainable consumption comes in a rather high place, on the middle-top part of the list (s1, +1). On the other hand, what is clearly rejected from the EE strategy (together with the use of technologies (s2, -1) and the efficiency of pre-prepared meals (s16, -3 and s15, -4), seen as cancelling the pleasure of preparing and cooking (s24, +2), cf. infra.) is the idea that the consumer should be able to obtain his food through the easiest, the most anonymous, and the least time-consuming way possible (s3, -2).

This reflexion about the market leads to have a closer look to the decommodification elements, as Factor A” strongly agrees with the idea that food is not a mere commodity, but has even a sacred character (s8, +3). Yet, in some respondent’s comments about this statement, this means that : “*L’alimentation est un droit, et, à la limite, ne devrait pas relever du secteur marchand*” or “*Voedsel heeft direct te maken met het instandhouden van het leven en het mag net als water geen puur koopwaar zijn.*”

Looking at other decommodification elements, one can notice that what is clearly «kept» from this strategy is the importance given to the local dimension (s30, +3), the rediscovery of forgotten species, the knowledge and the education about food (s30, +3 and s18, +2) but

certainly not a possible intervention from the State (s9, -2 and, to a lesser extent -s10,-1) “*Nog meer Staat? Helemaal niet akkoord. Reguleren kan door prikkels of zware incentives te geven*”, a too active participation from the consumer in the production task (s6, -3) or the idea, maybe too ‘collective’ of eating the main meal at work or school (s31,-2): “*Le noyau familial et par conséquent les repas de famille constitueront toujours un des socles de la vie en communauté*”

Some respondents’ comments appeared to be very enlightening in order to discover what can make the link between the eco-efficiency elements and the decommodification elements, and could be synthesized as follows: as far as sustainable consumption is concerned, every individual, thanks to the education he received (s18, +2), and guided by ‘real prices’ reflecting the external impacts of each product (s5, +4), has to make the choices of a responsible citizen-consumer.

About (s33, +4): “*Chacun doit agir à tous les niveaux de la chaîne alimentaire, mais les consommateurs doivent aussi changer leur comportement... avec des outils d’aide à la décision comme le prix vérité !*” ; “*Duurzaamheid begint met eigen verantwoordelijkheid.*” ; «*Il faut avant tout que la consommation passe par des choix conscients d’individus éduqués*”

About (s3, -2): “*Le côté anonyme est une très mauvaise idée, il ne permet pas une responsabilisation du consommateur. De plus, le fait d’obtenir sa nourriture le plus rapidement possible empêche le consommateur de s’interroger sur ses choix et surtout de prendre du plaisir à faire son choix et finalement en toute connaissance de cause. Et pour cela, la facilité est un point important, le consommateur doit facilement repérer les impacts environnementaux de son achat (origine, mode de production, ...)*”

Finally, as far as Sufficiency elements are concerned, one can easily notice that what is kept in the first instance is the ‘hedonistic’ dimension of the strategy. This appears as such in the high position of sentences such as “Carefully preparing a meal is already enjoying it” (s24, +2) or “In order to fully enjoy our food, it really matters to create a good atmosphere around eating moments (company, location, meals presentation ...)” (s37, +1), but also indirectly in the reject of elements (technological device (s35, -3), food as medicine (s36, -4), health as an absolute priority (s34, -2), eating mostly pre-prepared meals (s16, -3 and s15, -4)) that could annihilate the pleasure in the acts of cooking and eating. This appears particularly when reading the comments of the respondents.

About (s34, -2): “*Eten moet ook lekker and plezierig zijn*” or “*Limiter le discours alimentaire à sa seule fonction nutritive et scientifique est un écueil à éviter. L’assiette est éminemment culturelle et sociale et est le reflet du fonctionnement de notre société. En outre, le goût et le plaisir sont nécessaires à l’appétit et à la fonction humaine et relationnelle ! La santé est un facteur essentiel, mais à considérer de manière holistique et non nutritionnelle pure*”.

About (s35, -3): “*Et que fait-on de la qualité de vie, du plaisir gustatif, de la joie de goûter des saveurs variées ?*” or “*Les problèmes de santé devraient pouvoir se résoudre par une politique d’éducation mieux pensée, qui permet notamment aux êtres humains de mieux évaluer leurs besoins et de savoir comment y répondre en alliant par exemple plaisir et diététique.*”

About (s36, -4): “*L’alimentation n’est pas un médicament mais doit rester un plaisir*”, “*Manger est et doit rester un plaisir*”, “*Voeding moet een plezier blijven*”.

9 Conclusions

Three main conclusions can be drawn from the whole *Q* exercise and analysis.

1. From the results, it is clear that the three strategies identified and developed through the scenarios (namely Eco-efficiency, Decommodification and Sufficiency) are obviously existing and operant in the representations of sustainable food consumption. Amongst our P-sample, groups of people that really 'think' one should follow either an EE, DC or S strategy in order to lead the future of food consumption towards more sustainability could be identified. This analysis therefore confirms that the performed scenario exercise is not pure fantasizing, but definitely has an anchorage into reality.
2. The first judgmental rotation enabled to highlight themes which garner either consensus or disagreement among the 3 strategies. Those can be potentially relevant to inform policy makers. Moreover, they will be precious tools to spark off debates and discussions on the occasion of the dissemination process. Finally, those themes and the discussions they raised will for sure be taken along in the development of the second phase.
3. Finally, the second judgmental rotation highlighted how the three strategies could possibly combine, i.e. on which elements people «belonging» to the three pure factors would probably agree if they had to find a common way of seeing the future of food consumption.

This statistical analysis highlights thus how the three strategies are actually a relevant way to classify the options towards sustainable food consumption. However, it also highlights the specificity of the sufficiency strategy, which is maybe less operant in people's mind. Further, sufficiency has been structured in the *Q* analysis (based on the results of the scenario workshops) as a combination of hedonistic and rational (health-oriented) perspective on food: it turned out that the first aspect is also quite significantly associated to the DC discourse (and the second, in a limited extent to the EE discourse). The specificity of the sufficiency, as it surfaces in this analysis, is a bigger acceptance of the finitude of the resources and of the necessity of limits, whatever through self-imposed or through external mechanisms of limitations. This position is clearly rejected in the EE discourse, and more or less not addressed (neutral) in the DC discourse. In this latter, the issue is not defined in terms of limitation, but rather in terms of responsibility, whether individual or collective; this can provide an explanation of the neutral position of the DC discourse with regard to state intervention considered as one answer among other levels of action (individual and community).

This supports the idea that, if, at first sight, one could think the three strategies could be associated to specific ideological trends, it appears from the ranking of the statements that the three strategies' discourses as outlined here cross transversally across ideological demarcation lines with e.g. the role of the individual quite spread across the three discourses, nevertheless coloured in different ways and associated to different elements; or radical state intervention being clearly rejected in the EE discourse as expected, but neutral in the DC discourse, where one could have expected a high score.

The clearest point of agreement is the recognition by all of education as a fundamental aspect for sustainable consumption (giving statement 18 a high score: +3). Apart from this latter, it is interesting to note that the three groups only agree on issues with neutral scores, i.e. low stakes. Unlike the elements of disagreement which gather more 'extreme' scores. Thus one

conclusion can be that, striving towards one integrated strategy will result in a supported but rather limited consensus. The integrated strategy resulting from the last statistical rotation can illustrate such a minimum consensus stating that individual, based on a robust and relevant education and guided by 'real prices' reflecting the external impacts of each product will have to make choices and behave as responsible citizen-consumers. Beyond this rather mainstream statement, deciders, on the one hand, will inevitably have to make political choices among contrasting options, but on the other hand, as promoted by system innovation theory, this results argue for the parallel development of various options stemming from diverging, but not antithetic, discourses, at least from the sustainable (food) consumption perspective.

Finally, beyond those thrilling findings, we would like to recall, with Donner, that *Q* methodology is, after all, "more explorative than confirmatory, more of an opener than a conclusion" (Donner 2001, 26). Therefore, the conclusions we drawn here can certainly not be considered as definitive conclusions, but only as supporting some hypotheses and opening the way towards further investigations and discussions.

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ANNEX I : Q SAMPLE FRENCH

1. Un marché qui fonctionne normalement est capable d'assurer à lui seul une consommation alimentaire durable si on lui injecte les bons « signaux » (normes de produits, labels, incitants fiscaux,...)
2. L'innovation technologique (par exemple un frigo intelligent qui gère automatiquement son contenu et évite le gaspillage) est un élément important d'une consommation alimentaire durable.
3. Le consommateur doit pouvoir obtenir sa nourriture de la manière la plus facile, anonyme qui soit, en y consacrant le moins de temps possible.
4. Il est possible de jouir de la même liberté de choix dans le cadre d'une consommation alimentaire durable que dans le cadre d'une consommation alimentaire non durable.
5. Dans le cadre d'une consommation durable, plus un aliment a un impact sur l'environnement, plus il doit être cher.
6. En 2050, la distinction entre consommateurs et producteurs aura disparu: tout le monde participera peu ou prou à la production de sa nourriture.
7. Une consommation alimentaire durable passe par des relations directes entre producteurs et consommateurs.
8. La nourriture n'est pas un bien comme un autre, elle a un caractère particulier, voire sacré.
9. La production et la distribution de viande devraient être confiées à l'état.
10. Je trouverais normal qu'il existe des tickets de rationnement pour les produits trop nuisibles à l'environnement.
11. La façon dont je m'approvisionne en nourriture a peu d'importance, du moment que j'aie l'assurance que celle-ci soit saine.
12. Il est normal, dans le cadre d'une consommation durable, de faire plus attention aux dépenses alimentaires, de veiller à n'acheter que le strict nécessaire.
13. La voie privilégiée d'approvisionnement en nourriture devrait être le petit marché local où le vendeur connaît ses produits.
14. Une consommation alimentaire durable passe par la promotion d'aliments de qualité gastronomique et la sauvegarde d'aliments traditionnels.
15. Les aliments pré-préparés sont plus efficaces sur un plan environnemental, par exemple parce qu'ils permettent des économies d'échelle.
16. En 2050, ma cuisine sera minimalement équipée, je ne ferai plus qu'y décongeler et réchauffer des produits préparés.
17. Une consommation durable ne passe pas nécessairement par une connaissance plus approfondie des aliments et de la façon dont on les prépare.
18. Dès l'école primaire, les enfants devraient acquérir des connaissances et des compétences liées à l'alimentation (potager, préparation, cuisine,...).
19. Il est normal, dans le cadre d'une alimentation durable, que les ménages consacrent plus de temps à la préparation des repas.
20. Il est plus efficace d'un point de vue environnemental que les repas soient préparés collectivement, par exemple dans des cuisines de quartier.

21. Ce qui compte dans les méthodes de préparation, c'est leur impact sur la santé.
22. En 2050, une mauvaise gestion des denrées alimentaires, via une surconsommation ou du gaspillage, aura quasiment disparu.
23. C'est dommage de gâcher des bons produits en les préparant n'importe comment.
24. Préparer un repas avec soin, c'est déjà un peu le déguster.
25. En 2050, ma nourriture quotidienne pourra comporter des OGM's, pourvu que leur production soit motivée par une réduction d'impacts environnementaux (diminution des engrais, des pesticides et de la consommation d'eau).
26. Je mangerais plus souvent à l'extérieur (restaurants, snacks, fast food,...) si je savais que l'empreinte écologique de mon repas y était moindre qu'à la maison.
27. Pour moi, la sécurité et la traçabilité alimentaire sont primordiales.
28. Il y a de fortes chances pour que les aliments d'une consommation durable en 2050 soient complètement différents de ceux d'aujourd'hui.
29. En 2050, mon alimentation quotidienne se composera principalement de produits locaux.
30. La diversité se concrétise au travers de la redécouverte de produits locaux "oubliés", plutôt qu'à travers l'offre de produits "exotiques".
31. En 2050, le repas principal de la journée se prendra sur le lieu de travail, à l'école, ... en vue de réduire les gaspillages et la consommation d'eau et d'énergie.
32. En 2050, l'industrie agro-alimentaire aura pratiquement disparu: on consommera des produits frais ou artisanaux.
33. La consommation durable suppose que chaque individu fasse un effort personnel pour surveiller sa consommation.
34. Il faudrait ne manger ce qui est strictement nécessaire à la santé (point de vue quantités et contenu en nutriments).
35. Ce serait bien de disposer d'un appareil qui aiderait à gérer la prise de nourriture en contrôlant les apports nutritionnels, en fonction des besoins personnels objectifs, suivant l'âge, le sexe, l'état de santé, les activités, etc.
36. En 2050, la distinction entre aliments et médicaments aura presque disparu: je mangerai pour ne pas être malade, et me soignerai en mangeant.
37. Pour tirer pleinement profit des aliments que nous consommons, il importe de créer une atmosphère de repas conviviale (compagnie, lieu, présentation des mets, ...).

ANNEX II : Q SAMPLE FLEMISH

1. Een markt die normaal functioneert garandeert een duurzame consumptie, als men haar de juiste signalen injecteert (productnormen, labels, fiscale prikkels).
2. Technologische innovatie (bijvoorbeeld een intelligente frigo die haar inhoud automatisch beheert en verspilling vermijdt) is een belangrijk element van een duurzame consumptie.
3. De consument moet zijn voeding kunnen verkrijgen op de meest comfortabele, anonieme manier, zo weinig tijd in beslag nemend als mogelijk.
4. Het is mogelijk om op identieke wijze keuzevrijheid te kunnen uitoefenen in het kader van een duurzame consumptie dan in het kader van een niet duurzame consumptie.
5. In het kader van een duurzame consumptie geldt: hoe groter de milieudruk van een voedingsmiddel, hoe hoger de prijs moet zijn.
6. In 2050 zal het onderscheid tussen producent en consument grotendeels verdwenen zijn: iedereen zal tot op zekere hoogte deelnemen aan de productie van zijn voedsel.
7. Een duurzame voedselconsumptie gebeurt door middel van directe banden tussen lokale producenten en consumenten.
8. Voedsel is geen goed zoals een ander, het heeft een particulier, in zeker zin zelfs sacraal karakter.
9. De productie en distributie van vlees zou moeten toevertrouwd worden door de staat.
10. Ik vind het normaal dat er voedingscoupons (rationeringsbonnen) zijn voor de producten die het meest vervuilend zijn.
11. De manier waarop ik mij van voedsel voorzie is van weinig belang, als ik maar de zekerheid heb dat het echt gezond is wat ik eet.
12. Het is normaal, in een kader van duurzame consumptie, om meer aandacht te vestigen op ons eigen aankoopgedrag van voedsel, om erover te waken dat we enkel het strikt noodzakelijke kopen.
13. Het geprefereerde aanbodskanaal van voedsel zou de kleine lokale winkel moeten zijn, waar de verkoper een gedegen kennis van zijn producten heeft.
14. Een duurzame voeding gebeurt via de bevordering van voedingsstoffen met een gastronomische kwaliteit en het behoud van traditionele voeding.
15. Uiteindelijk is het zo dat (voor)bereide maaltijden efficiënter zijn ten opzichte van het milieu, bijvoorbeeld omdat zij een schaalconomie mogelijk maken.
16. In 2050, in het algemeen, in de keuken, ontdooi en verwarm ik mijn voedsel, en heb ik bijgevolg zo weinig mogelijk afval.
17. Een duurzame consumptie hoeft niet noodzakelijk te gebeuren door middel van een bredere kennis over voedingmiddelen en de manier waarop zij geproduceerd worden.
18. In de basisschool is het essentieel dat kinderen kennis nemen en competenties ontwikkelen gerelateerd aan voedsel (planten, groeien, koken, keuken, etc.).

19. Het is evident (normaal), in het kader van een duurzame voeding, dat huishoudens meer tijd spenderen aan de bereiding van het voedsel.
20. Vanuit een milieuperspectief is het meer efficiënt om maaltijden collectief te bereiden, bijvoorbeeld in een buurtkeuken.
21. Wat van belang is bij de manier (methode) waarop eten klaargemaakt wordt, is de impact op de gezondheid.
22. In 2050, zal een slecht beheer van etenswaren, via overconsumptie of verspilling, quasi verdwenen zijn.
23. Het is zeer jammer om goede ingrediënten te verspillen en ze gelijk hoe klaar te maken.
24. Een maaltijd met zorg klaarmaken is al een deeltje van de degustatie.
25. In 2050 is het zo dat mijn voeding ten dele uit ggo's mag bestaan, maar enkel op voorwaarde dat hun productie wordt gemotiveerd door het bekomen van verminderde milieudruk (minder bemesting, pesticiden en waterverbruik).
26. Ik zou meer uit eten gaan (restaurant, snacks, fast food) als ik zou weten dat de ecologische voetafdruk van mijn maaltijd dan kleiner is dan thuis.
27. Voor mij is de voedselveiligheid en de traceerbaarheid van voedsel absoluut primordiaal.
28. Er is een grote kans dat de voedselartikelen van een duurzame consumptie in 2050, volledig anders zijn dan deze van vandaag.
29. In 2050 zal mijn gemiddelde voeding voornamelijk bestaan uit lokale producten.
30. De diversiteit concretiseert zich eerder door de herontdekking van vergeten producten, dan door middel van exotische producten.
31. In 2050 zal men de hoofdmaaltijd nemen op het werk , de school...om zodoende de verspilling van water en energie substantieel te verminderen.
32. In 2050, zal de agro-industrie praktisch verdwenen zijn: men zal verse en artisanale producten consumeren.
33. Een duurzame consumptie veronderstelt dat elk individu een persoonlijke inspanning doet om over zijn consumptie te waken.
34. Ik eet enkel en alleen wat noodzakelijk is voor mijn gezondheid (in termen van hoeveelheden en voedingswaarde).
35. Het zou een revelatie zijn om te beschikken over een apparaat dat mijn persoonlijke voedselinname analyseert in termen van objectieve voedselnoden , naar gelang leeftijd, geslacht, specifieke gezondheidstoestand, enz.
36. In 2050 zal het onderscheid tussen voedingsmiddelen en medicijnen bijna geheel verdwenen zijn: ik zal eten om niet meer ziek te worden, en om mij te verzorgen zal ik eten.
37. Om op voldoende wijze te profiteren (ten volle genieten) van het eten dat we consumeren is het belangrijk dat we een sfeer van 'gezellig samen zijn' creëren (het gezelschap, de plaats , de presentatie van de maaltijden...).