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Saadi Lahlou

Qualitative market research and product development: representations of food and marketing challenges

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Qualitative market research and product development : representations of food and marketing challenges.

Saadi LAHLOU.

EDF. Direction des Etudes et Recherches. Département GRETS

Clamart, France. (331- 47 65 52 21)

Summary : A new method for analysing social representations from sentences in natural language is presented. The basic nuclei of the social representation of "eating" are extracted from two corpuses, one coming from a large set of definitions from a dictionary, the other from free associations of 2000 French adult subjects. The method shows that "eating", as a mental model, is the connection of "libido", "intake", "foodstuffs", "meal", "filling up" and "living". Further analysis on free associations on "eating well" yields some pragmatic scripts, showing how consumers assemble the basic nuclei into action rules. Results uncover an archaeology of social knowledge, showing some psychological and cultural bases on which lie the contemporary representations of eating. As important marketing issues in the food business today are concerned with the psychological determinants of food behaviour, our method may bring some new tools for market research, and open new data fields to systematic investigation.

Communication and life in common imply that members of a society share a common view of the objects in the world they live in. If Paul tells Claude : "Let us go out for a good meal", they will reach satisfaction only if Paul, Claude, and the cook, share a somewhat identical vision of what "a good meal" is. Such common mental constructs are called "social representations" (Moscovici, 1961). They are "a kind of knowledge, socially constructed and shared, having pragmatic purpose and contributing to build a common reality for the community"(Jodelet, 1989).

Since those representations set the guidelines for behaviour, adoption of new food habits, for instance, hardly can bypass adverse food representations : as known since Lewin (1943), to

reach success, new products, or nutritional policies must be compatible with people's food habits but also convictions. Cultural aspects have always been decisive in the choice of foods (Rozin, 1988, Fischler, 1990). But they are even more now the consumer is confronted with a large choice of edible cheap foods. In our rich countries, as the consumer's stomach is (statistically) filled up with nutrients, and since demographic growth is low, the only way to food market growth is intensive; that is maximising the ratio "added value per calorie" (Lahlou, 1993a). This value is added through service, and image. Even if competition remains strong on the classical factors (price, technical characteristics...), it is coming more and more on the grounds of psychological characteristics, resulting in such strange claims as "100% natural" on processed products, "cholesterol free" on some vegetable foods, not to mention some "biological" ads (as if most foods were not of biological origin). Considerable amounts of resources are spent to know better the attitudes of consumers, by companies aware that representations are a key factor in buying decisions : the study of social representations of food has become a major issue for food marketing in our western saturated markets.

But getting a clear view of social representations is difficult, since they are mental constructs and can only be inferred from observation and declarations of the subjects. Still, it is now admitted that social representations can be figured as a combination of basic nuclei -that is some basic concepts or traits, that are mentally associated in the subject's mind (Abric 1984, 1993, Flament 1993). This model has been supported with some empirical evidence (Vergès, 1994 ; Guimelli et Rouquette, 1992). We shall search here for the basic nuclei of the social representation of "eating".

Classical methods soon reach limits in the investigation of social representation when the basic nuclei are not previously known, as investigation is biased by the researcher's preconceptions. Qualitative approaches yield detailed information, but no quantified data, which makes it difficult to distinguish the basic nuclei from less central associations, that would be common only to the subjects interviewed. On the other hand, questionnaire surveys produce biases, and they can never assure that the questions map *all* relevant dimensions of the representation.

We propose a new method, based on natural language analysis, using the "free association" technique, and allowing investigations at a population's level. This method will be demonstrated through empirical investigation, on two corpuses obtained from sources of "common knowledge" : a sample of 2000 French adults, and a dictionary. They yield the same model of "eating" in the French population.

The method : statistical analysis of lexical data

The method aims at spotting the basic nuclei of social representation, in the discourse produced by an informed source. First, a corpus of statements (sentences in natural language), about the same object (here : "eating") is obtained through the free association technique (Freud, 1923 ; Jung, 1933). The sentences obtained are aggregated into a single corpus. The corpus is processed with a statistical analysis of lexical data software, ALCESTE (Reinert, 1983, 1990), that yields classes of statements that have similar lexical content.
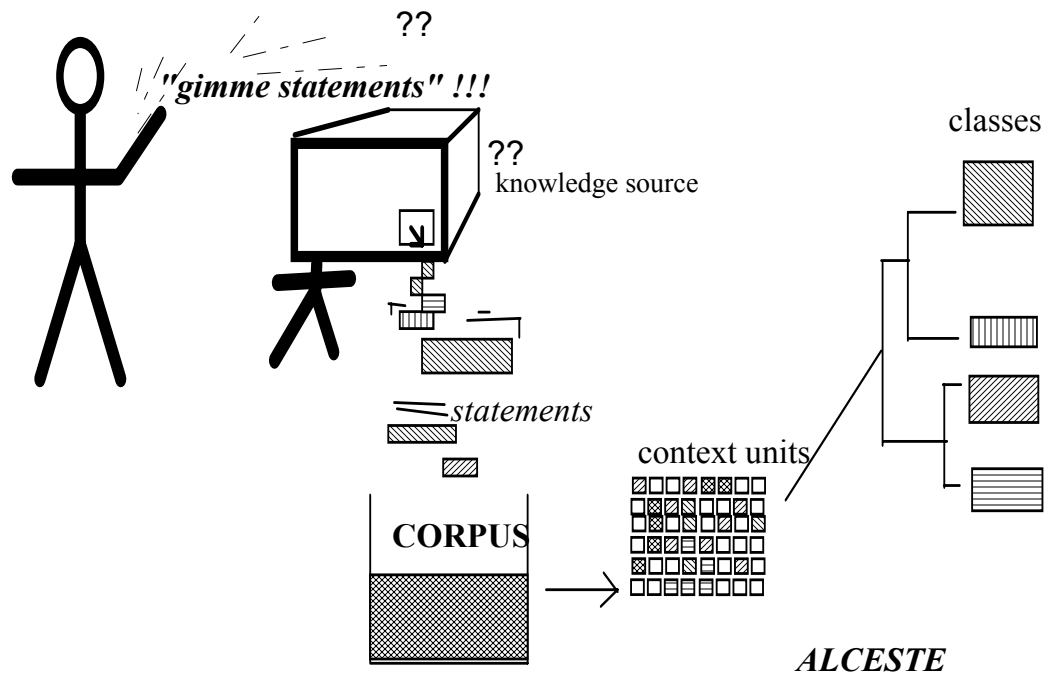
Those semantic classes are considered to be the basic nuclei of the social representation, and the global pattern linking them will be said to be the "paradigm" underlying the social representation of "eating" (Beaudouin & Lahlou 1993). This method is a kind of quantified, detailed, content analysis. As it is computerised, it can be applied to very large sets of statements, far beyond the capacity of human analysis ; it is also free of preconceptions, since there is no interpretation by the software, but mere computing of lexical co-occurrence.

Technically, classes are built on the principle of putting together statements that are close to each other within a cluster (analogy) and different from statements in other clusters (contrast). This is a principle similar to human natural categorisation and pattern recognition, as described by Rosch (1975) and the Gestatlttheorie. Analogy and contrast are made on the bases of significant traits. In our case, the traits will be lexical (words, word roots), and the mathematical technique used is descending classification ("segmentation").

For instance,

```
    des crudités de la viande et des légumes de la salade et un fruit
```

will be close to :

```
    la viande les légumes dessert les fruits le pain le fromage
```

because they have in common the lexical traits viand+, legum+, fruit+,

and far from

```
    aller au restaurant avec des copains
```

because they have no lexical trait in common. The technique used enables taking account of indirect links between sentences, yielding that :

(1) des crudités de la viande et des légumes de la salade et un fruit

is classed with :

(4) repas copieux avec entrée plat_résistance et dessert

although they have no lexical trait in common, but their association is indirect through sentences like :

(2) a un bon *repas entrée plat_résistance* fromage **salade** *dessert* café

(3) la **viande** les **légumes** *dessert* les **fruits** le pain le fromage

those two sentences being close of the former ones, made close to each other by the co-occurrence of *fromage* and *dessert*, and the fact that, as a cluster, the result has a maximum contrast with other clusters.

Although the software is deaf to meaning, the results make sense, as one can easily judge since the translation in English is :

(1) fresh vegetable meat and greens salad and a fruit

(2)a good meal first course main course green salad dessert coffee

(3) meat vegetables dessert fruits bread cheese

(4) abundant meal with first course main course and dessert

The material : texts obtained through the free association method

Common sense can be expressed by different "minds". The most often interviewed are the native ("man of the street"), and the "expert". But non human sources can also be consulted with profit, for instance the dictionary, precisely designed to express common sense into public knowledge. We shall apply our technique to representative sample (2000 subjects) of the French population (Lahlou, 1992, 1993b), and to a famous French dictionary, Le Grand Robert (9 volumes, 100 000 lexical entries) (Lahlou, 1994a & b). The principle of the method is identical for both sources : the source is stimulated with the name of the object, and asked to produce statements relating to that object.

Human subjects have been asked[1] the open-ended question : "Si je vous dis *manger*, quels sont les cinq premiers mots qui vous viennent à l'esprit?" (if I tell you "eating", what are the five first words that come to your mind ?). Answers yield the corpus "Natives". Here are some answers.

```
* faim, nourriture, joie (hunger, food, happiness)
* cuisiner (cooking)
* fourchette casserole (fork, pan)
* crabe homard poisson (crab, lobster, fish)
* j'ai faim (I'm hungry)
*  viande, légumes, régime, diététique/etc. (meat, vegetables,
dietetics, etc.)
* à grossir, manger=grossir pour moi, j'ai pris 0 kilos (to fatten, to
eat = to fatten for me, I've taken 0 kilos)
* nourriture restaurant sortir. (food, restaurant, going out)
```

This corpus contains 12 000 occurrences, with a vocabulary of 3309, reduced to 308 distinct roots after eliminating roots with few (<4) occurrences, and "tool words" (articles, prepositions...).

The dictionary "Le Grand Robert" (1990, electronic version) also yields analogical indications. E. g. for the entry "manger" (to eat), it features a list of more than 140 synonyms, analogues, contraries and derived terms. A corpus ("Robert small") containing the 140 definitions of first level associates was constituted.

In turn, each of those 140 associates has associates itself. We made a list of those associates of first and second level, that includes 544 words ; and collected all the corresponding definitions in a single corpus[2], called "Robert big". This corpus contains 137,576 occurrences, with a vocabulary of 16,896.

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[1] In Spring 1990, Credoc's periodic survey "Aspirations", 2000 subjects representative of the adult French population (face to face interviews, at home, by professional interviewers).

[2]After elimination of some rare words and sub-definitions that wore not relevant (e. g. integration in the mathematical sense).
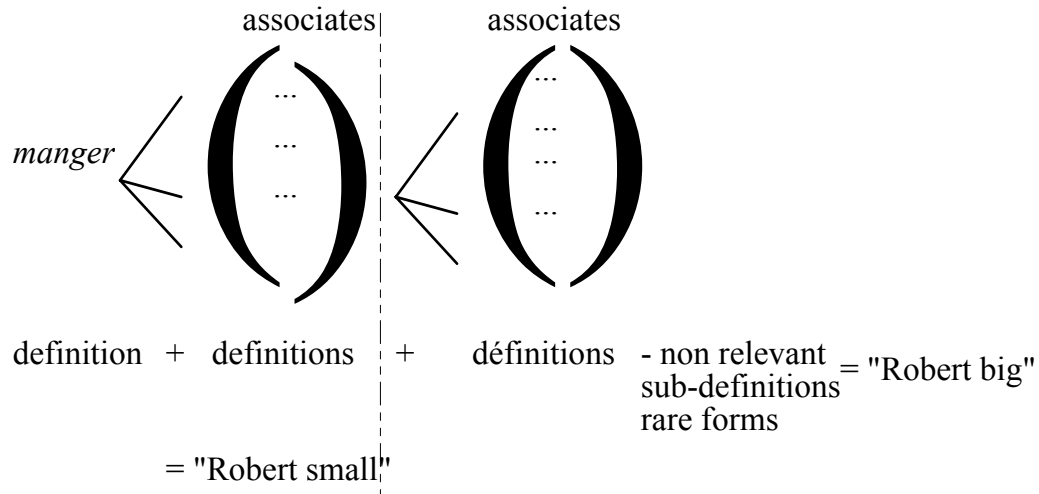
Here is, for example, a (short) definition of a verb, that has 3 sub-meanings (to make swallow, to gulp down, to learn massively):

> ****** * INGURGITER** *v. tr.*
> *(Sujet nom de personne).*
> *＿ 1. Rare. [a] Introduire dans la gorge, faire avaler (qqch.) à (qqn). > Enfourner, entonner. Ingurgiter qqch. à qqn. La potion qu'on lui a ingurgitée. S'ingurgiter qqch., l'absorber. «En s'ingurgitant un sévère apéritif» (Huysmans, à rebours).*
> *[b] Ingurgiter ses leçons à un élève. - S'ingurgiter un énorme traité.*
> *＿ 2. (1840). Avaler avidement et en quantité (qqch. : aliment, boisson). > 1. Boire, déglutir, engouffrer. Faire ingurgiter qqch. à qqn.*
> *＿ 3. (1856). Absorber massivement un savoir sans pouvoir l'assimiler.*
> *> Apprendre.*

EATING as evoked by the dictionary

The corpus "Robert small" was broken down into 1220 statements. Tool words (articles, prepositions etc.) were not retained, and the words have been lemmatised (reduction of verb to the infinite, adjectives to singular etc.). Finally 877 lexical traits (the most frequent) were retained for analysis.

Besides *eat* (*manger* 443 occurrences) the most frequent traits are *take* (*prendre,* 662), *do* (*faire,* 258), *someone(-body) (quelqu'un, 243), table (243), foodstuff (aliment, 190), mouth (bouche, 184), meal (repas, 166), feed (nourrir), touch (toucher), attack (attaquer), food (nourriture), something (quelque chose), mouth (gueule), swallow (avaler)* and *taste (goût).*

Analysis yields four classes :

TAKE (*PRENDRE)*

This class (the largest) is mainly characterised by verbal traits, which is remarkable since the software is deaf to grammatical classes when it classifies :

take, touch, attack, smbdy, smthg, cut, hand, subject, burn, gnaw, contact, weapon, consider, strong, pounce/melt, crunch, attain, opponent, enemy, catch, fire, hit, destroy, pull, pinch, act, fight[3].

This class of intake and appropriation is heavy with violent, agonistic, aggressive connotations.

FOOD *(NOURRITURE) :*

Typical traits of this class are foodstuffs, or food categories.

food, feed, bread, nourishment, diet, live, fasting, sustenance, plant, necessary, supply, deprivation, milk, dietetic, (starvation) diet, element, meat, nutri (-tion, -ent), breast, sustain, sour, sweet, child, cake, sap, starve, vegetable, shortage, product, water, berevage, fresh, animal, fruit, lean, flesh, breed, idea, god, egg[4].

One notes the presence of *breast* and *milk*, among other foods.

MEAL (REPAS)

Typical traits are nouns of meal objects other than foods, relating to the people present, or the table arts, timing, occasion. This class is centred on ritual, instrumental and social aspects of the intake. It precises the circumstances and means of the intake.

meal, table, dinner, service, crockery, soup, buffet, invite, serve, lunch, dish, restaurant, dessert, host, trait, guest, canteen, snack, fork and spoon, hotel, together, utensil, plate, wash, breakfast, treat, region, evening, hour, order, room[5].

APPETITE (APPETIT)

---

[3] prendre, touch+, attaqu+, qqn, qqch, entam+, main+, sujet, consum+, ronge+, contact+, arme+, consider+, fort+, fondre., croqu+, atteindre, adversaire, ennemi, attrape, feu, coup, detruire., tirer., pince+, agir., combat

[4] aliment+, nourr+, pain+, nourrit+, regime, vivre., jeun+, subsistance, vegetal+, necessaire+, fourn+, privation+, lait, dietetique+, diete, element+, viand+, nutri+, sein, sustente+, ame+, sucre+, enfant+, gateau+, seve+, affame+, legum+, liquid+, manque+, produit+, eau, boisson+, frais, animal<, fruit+, maigr+, chair+, eleve+, idee+, dieu, oeuf

[5] repas+, table+, dine+, service+, vaisselle+, soup+, buffet+, invite+, servir., dejeune+, plat+, restaur+, dessert+, hote, trait+, convive+, cantine, collation+, couvert<, hotel+, ensemble, ustensiles, assiette+, laver., petit-dejeuner, regal+, region<, soir+, heure<, ordonn+, salle
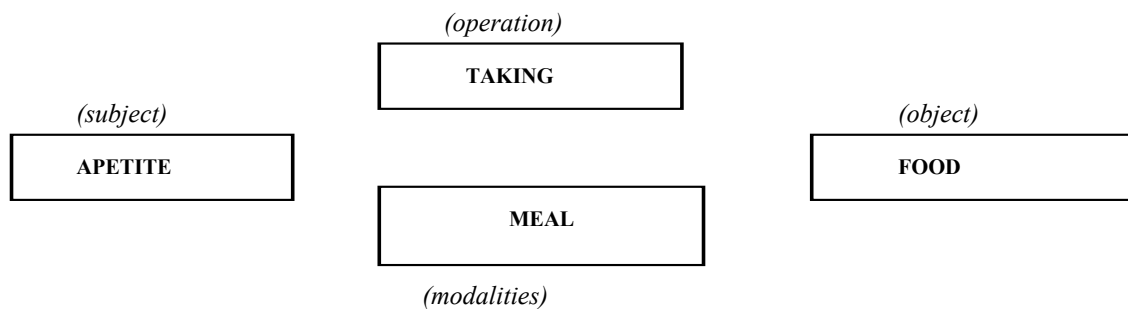
The traits obviously characterise the desire for food, and more generally libido.

glutton, appetite, eat, greedy, guzzle, gluttonous, gorge, stuff, voracious, excess, ogre, avid, fulfil, cram, hunger, appetite, suck, carnivorous, eye, avidity, satisfaction, wolf, desire[6].

Desire is expressed with a connotation of greediness, voraciousness that is typical of intense desire. This violence, slightly surprising in such a corpus, is not an artefact. Further analyses on the larger corpus confirm and enhance this aspect.

This classification can be considered as the *central paradigm* of the social representation of eating.

(operation)

```
        ┌─────────────────┐
        │     TAKING      │
        └─────────────────┘
```

(subject)   *(object)*

```
┌─────────────────┐                              ┌─────────────────┐
│    APETITE       │                              │      FOOD        │
└─────────────────┘                              └─────────────────┘
```

```
        ┌─────────────────┐
        │      MEAL        │
        └─────────────────┘
```

(modalities)

Further analysis on the larger corpus "Robert big" yields two extra classes of supra ordinate goals (FILLING UP, LIVING) that focus on the social, moral aspects (keeping balance, sharing...). These classes show how the representation of eating is connected with a more general world of the subject, his goals and his conception of life.

This analysis also yields deeper and purer concepts for the previous nuclei : the "appetite" class looses its feeding connotations (which rally the "FOOD" class) and becomes a more general hunger, with sexual and cognitive connotations (e. g. "sexual", "curiosity", ...) which makes us identify it with a basic "LIBIDO" drive.

This representation of eating can be pictured as the following combination of basic nuclei :

---

[6]glouton+, appet+, mange+, gourmand+, goinfr+, goulu+, rassasi+, empiffr+, vorac+, exces, ogre+, avide+, assouvi+, bafre+, faim+, appetits, aspir+, carnassier+, yeux, avidite, contente+, loup+, desir+

(goals)

```
┌─────────────────────────────────────────────────────────┐
│   FILLING UP                      LIVING                  │
│      7%                            33%                     │
└─────────────────────────────────────────────────────────┘
```

(operation)

```
        ┌──────────────────────────┐
        │        TAKING            │
        │         15%              │
        └──────────────────────────┘
```

(subject)   *(object)*

```
┌───────────────────────────┐          ┌───────────────────────────┐
│  LIBIDO                    │          │  FOOD                      │
│   8%                       │          │   24%                      │
└───────────────────────────┘          └───────────────────────────┘
```

```
        ┌──────────────────────────┐
        │         MEAL             │
        │          13%             │
        └──────────────────────────┘
```

(modalities)
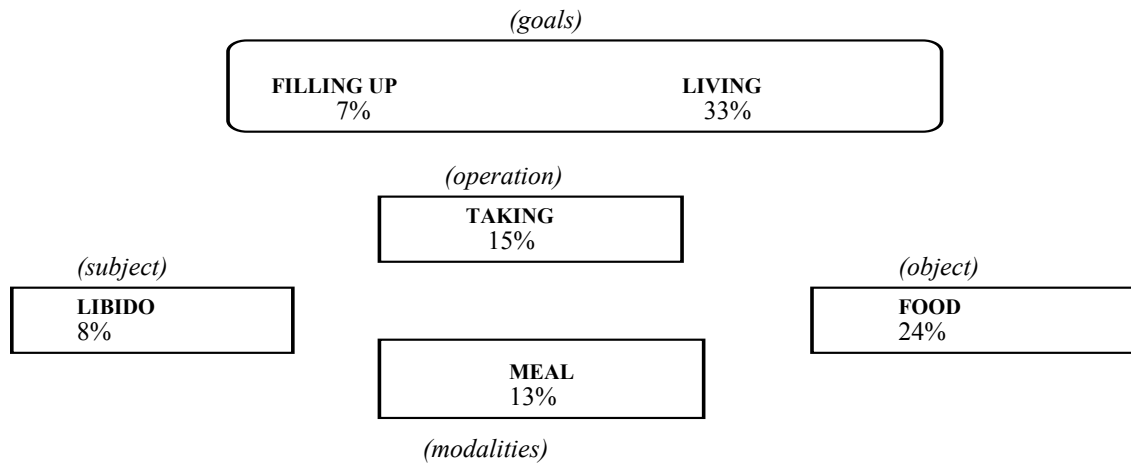
It is interesting to note that those elements constitute the bases of a typical causal script, with a *agent*, an *action* and a *patient*. This classical causal script is here completed with goals, and means. Therefore, dictionary analysis with our method painlessly yields *knowledge modelling* concerning our object (eating). The model is explicit and simple, as could be expected from a source that has didactic intentions, like the Grand Robert.

This blind method gives results that are very stable to parameter modifications in the analysis, analysis of sub-corpuses, pre-treatment by reduction through syntactic analysis, and/or semantic networks (Constant, 1991, Pigamo, 1990).

The human subjects

The analysis of free associations of "eating" (2000 subjects, Spring 1991) yields results quite similar to the dictionary, although a bit poorer.

(finalités)

> BALANCE
> 13%
>
> **LIVING**
> 25%

(opération)

> break a meal
> 3%

(sujet)

> LIKE/APPETITE
> 13%

(objet)

> **FOOD**
> 25%

> **MEAL**
> 20%

(modalités)
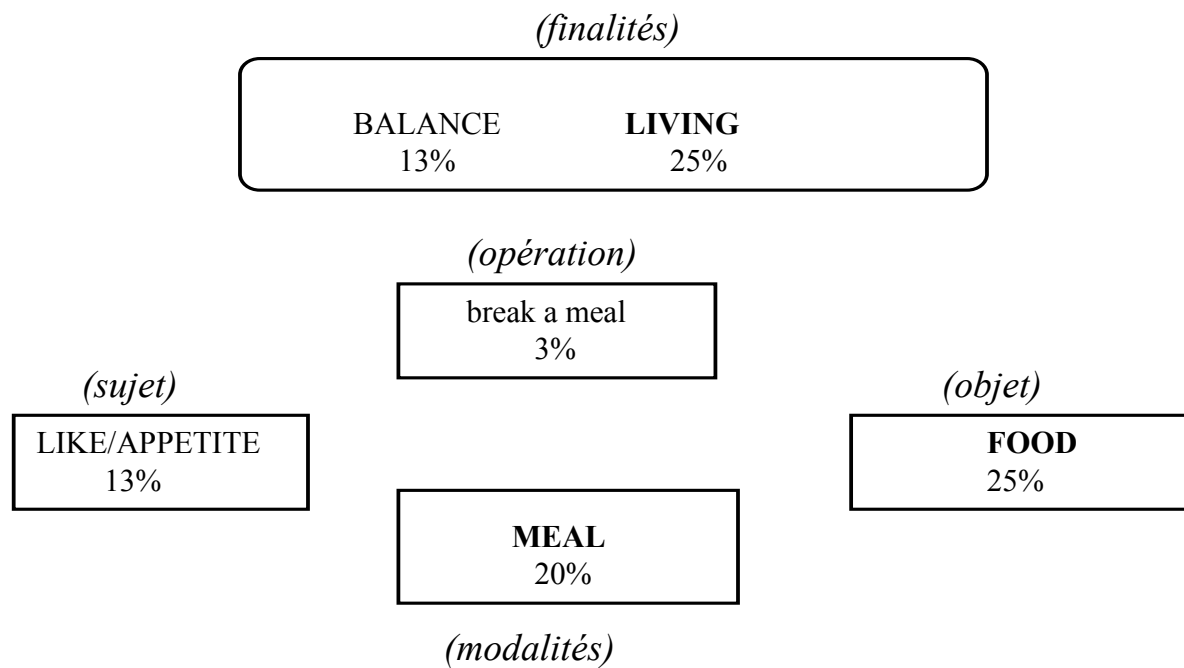
The most significant difference is that the central class "TAKE" has almost totally disappeared, leaving a faint notion of breaking the fast, or taking a meal. This can be understood since, as the survey is a face to face dialogue, this trait can have been omitted by interviewees because it is too obvious (it would indeed sound a bit stupid to say that eating evokes *taking* food). This implicitation can also be interpreted a the light of the fact that it is precisely this nucleus that has the most animal/primitive/aggressive connotation.

Whatever, this shows that : (1) the method is reliable enough to give similar results in two very different sources of the supposed same representation, (2) that the dictionary is not only less expensive to interview but also more precise because more structured and didactic, and has less inhibitions to talk than the native.

This structure is interesting in itself, since it features clearly the basic nuclei of the representation of eating for French people.

The analysis of the dictionary alsoallows some interesting archaeological findings. Language is a kind of collective memory ; in the networks of explicit definitions seem to lie some ancient meanings, that evoke Jung's "collective unconscious", and might enlighten some of the magical beliefs that can be found in our cultures.

We believe the investigation technique we propose is valuable for research purposes, and for marketing purposes. The former will be illustrated here with some discussion on the origins of the *incorporation principle* in the light of our results. Marketing applications will then be evoked with a brief investigation of the way natives explicit their pragmatic rules for "eating well", which, as we shall see, derive from the basic paradigm of "eating"

An hypothesis to explain the incorporation principle

It is interesting to note that the structure found makes explicit the incorporation principle, now classical in food sociology (Frazer, 1890, Fischler 1990). This principle, a cultural universal, says, roughly, that people believe *they become what they eat*. As we shall see, this transubstantiation is simply the reading, from right to left, of the main elements of the paradigm : the eater, the action of putting one into another, and the eatee.

In the primitive and biological form of the paradigm, the human is the subject :

```
the eater intakes the eatee
```

we see here a reversed form of the script :

```
the eatee becomes part-of the eater
```

only that it is read here at a symbolic level, where material objects are tokens that stand for entities with spiritual characteristics :

```
the essence of the eatee becomes part of the essence of the eater.
```

Therefore, the incorporation principle ("Man becomes what he eats") can be interpreted as the use of this basic paradigm at a symbolic level, where material objects are considered by the subject as a token, a representant of the essence of the object. This will not be a surprise to those familiar with the study of magical practices.

It seems that the mental connections between the basic nuclei of social representations can be believed to *work both ways*. Let us precise : learned in preverbal infancy and practised everyday at meals, comes up the belief that *desire* is satisfied through *intake*. In other words, the incorporation paradigm has a causal value for the human subject, and this attribution of causal value, legitimate, comes from repeated experience of satisfying intakes. This idea has been expressed by Spitz (1965) : "the sequence of satisfaction that follows the cries of hunger (of the new-born) is the first experience to which we can track the beginning of the ideational category of causality". It is therefore understandable that, to satisfy a desire, humans will naturally try to use the same type of "reliable" oral script to obtain satisfaction, magically.

This could explain many magical practices on food, from cannibalism to Eucharist, and may be some "natural eating" beliefs. This hypothesis also accounts for the fact that the incorporation principle is a cultural universal for humans, since it stands on biological bases. Compared to the classical interpretations by the laws of sympathetic magic or mere association (Rozin, Millman & Nemeroff, 1986), this hypothesis would explain why for people the *intake* of symbols is believed more active to assimilate their virtues, than of, for instance, merely *touching* them. Precocious learning of that belief by behavioural conditioning at pre logical developmental stages would account for the fact that this belief overcomes scientific criticism in subjects.

This feature is coherent with the findings of Freud (1921), tracing the identification principle back to the oral phase of the organisation of libido, in which one incorporates, by the act of eating, the objects desired and liked, and in doing so, one destroyed it as such. Our material brings evidence to this interpretation since the action class (TAKE) is strongly connoted with an aggressiveness logically unexpected, but typical of the subject/object ambivalence in the oral and pre-objectal phases of development ; and also that the FOOD class contains traits typical of the breast feeding relationship, as well as some religious connotations.

In this perspective natural language could therefore be considered as a cultural sediment, keeping vivid traces of former cultural and self development, a kind of collective memory, where one could find traces of mankind's past and childhood, just as we can see in Le Grand Robert, in watermark, Man-the-hunter with his predator instinct, and Man-the-infant with his oral drive. This is coherent with the old idea that language is at the same time a vehicle and an image of the culture (Durkheim, 1895, Whorf, 1956).

Pragmatic aspects of the representation

Our method allows further investigations of representations, that gives a clearer view of how the subjects use them as behavioural guidelines. We shall now analyse a corpus of answers to the question "If I tell you eating well, what comes to your mind ?" (Spring 1990, 2000 , representative of French adults). Because of the adjective "well" this question induces answers on what *is to be done* by the subject. Free associations are then oriented towards behaviour, enlightening the pragmatic aspect of social representations. This aspect is a most prominent function of social representations, which are a picture of the world intended to serve the pragmatic goals of individuals in their everyday life (Moscovici, 1961).

After cleaning up (suppression of *don't know*, *that's all*, etc.), reduction of locutions, composed nouns, and excluding articles, the corpus contains 13,504 useful words, with a vocabulary of 1,408 different graphic forms, of which 999 appear 3 times or less. The mean per sentence is 6.75 useful words.

Most frequent traits are :

eat (manger, 871), good (bon 716), meal (repas 453), balance (équilibre 407), not (pas 400), I (je 290), it is (c'est 219), not (ne 218), well (bien 212) , in by (en 181), one, we (on   176), healthy (sain 166), do (faire 165); that (que 138), meat (viande 134), restaurant, with (avec), vegetable (légume), thing (chose), for (pour), too much (trop), self (se), hunger (faim).

The most frequent word chains are *good meal* (bon repas) and *eat balanced* (manger équilibré), quite frequent, but also many negative chains : *not too much, no more, not always no excess*, that most often limit : *fat, heavy, rich foods, sugar,* and *meat*.

Superficial analysis confirms that we are on the same grounds of the central paradigm, but that sentences have a prescriptive connotation.

Global analysis yields 7 classes :

To eat one's fill (10-14%)

The first is based on the repletion feeling : to eat normally, but not too much, just enough to satisfy the hunger. Some answers :

To eat correctly, to eat one's fill (manger correctement manger à sa faim)

To fill up one's stomach (à se remplir le ventre)

to eat normally, to feed myself just remaining with a small hunger (me nourrir normalement, me nourrir en restant avec une petite faim)

etc.

This is the representation underlying :

-Have some *more* of this pie ?

-*No* thank you, it is delicious, but it wouldn't be *reasonable*.

Eat what I like (14-17%)

This class is centred on pleasure, and desire is the criterion of choice.

To eat what I fancy, what I take pleasure in (manger ce qui me plaît ce-que j'ai le plaisir à manger)

It's great, there's the pleasure of savouring good things (c'est formidable il-y-a le plaisir de déguster des bonnes choses)

Etc.

Balanced and healthy (16-20%)

This class mixes the strive for natural products, and a balance of nutrients, it is typically a dietician's discourse.

To eat balanced, without chemicals or preservers (manger équilibré, sans produit chimique ni conservateur)

To eat healthy, varied food s and fresh products (manger sainement, une nourriture variée et produits frais)

Food balance, protein,; lipids, glucids, vitamins, minerals (l'équilibre alimentaire protéines lipides glucides, vitamines sels minéraux)

Etc.

This is more frequent among women, and upper middle class. *Glucids, proteins, lipids, vitamins, energy, fresh, natural* appear frequently, and also the refusal of : *chemicals, canned products, frozen foods, artificial colouring.*

Not too much fats or sugar (11-13%)

This class is of forbidding and restriction, against fats and sugar , and excess in general.

Not too fat not too much sugar and not too many calories (pas trop gras pas trop de sucre et pas trop de calories)

But not eat too heavy (mais pas manger trop lourd)

Diet cholesterol too much sugar (régime cholesterol trop de sucre)

etc.

This is more frequent among elder people

Foodstuffs and meal course (15-19%)

This class, very stereotyped, describes the traditional sequence of a French meal course.

A good meal : first course, main course, cheese salad dessert coffee (un bon repas : entrée plat de résistance fromage salade dessert café)

Meat vegetables, bread and a glass of wine ! and cheese (viandes fruits légumes, pain et un coup de rouge! et du fromage)

Etc.

Traditional home-made dishes (4-6%)

This class insists on family aspects of food ; tradition and home making are the marks of a "roots" cuisine with strong affective tone.

A good grub French style home made cooked dishes (une bonne bouffe à la française plats cuisinés maison)

Fine-cooked dishes pastry (des bons petits plats pâtisserie)

To have a good meal with my mom, the good old family cooking of my childhood (faire un bon repas avec maman, la bonne cuisine familiale de mon enfance)

A family table, happiness harmony and good cooking (une table familiale gaie présence d harmonie et de bonne cuisine)

etc.

Conviviality (12-14%)

This class evokes feast, banquets, and friends : the social aspect is central.

To have a super good meal with friends (faire un super bon repas avec des amis)

A good grub with pals, like a country barbecue (a une bonne bouffe avec des copains style barbecue a la campagne)

Feast, good wine (bon gueuleton, bon vin)

etc.

This is typical of young men, inhabitants of mid-size towns, factory workers, employees.

Restaurant (6-8%)

This is a gastronomic class in the French sense of the term, with decorum, table arts, of which the restaurant is typical as the place where the art of eating takes place as a ritual.

Gastronomic restaurant (restaurant gastronomique)

Go to a beautiful restaurant with refined menus, pâté (aller dans un beau restaurant avec des menus raffinés du foie_gras)

Go out at the restaurant with my wife (faire une sortie au restaurant avec ma femme)

Etc.

This is typical of young people, inhabitants of big towns, men, unmarried couples, higher education, upper classes

Factor analysis of the corpus yields a connotation space where two words are all the more close than they co-occur in the sentences. For instance, *restaurant* is very close of *gastronomy*, and *cheese* of *dessert*. In this space the classes are organised around 4 poles. The first relates to the body's voice (*Eat one's fill*, *Eat what I like*), the second to the respect of

some ethics -in fact, dietetics- (*Balanced and healthy, Not too much fats and sugar*) ; the third to social aspects (*Conviviality*, *Home-made*, *Restaurant*), and the last, which is also the most stable and structured, pragmatic (*Foodstuffs and meal course*). A mapping is given in annex, and detailed results in (Lahlou, 1992). It is interesting to replace those classes in the frame of the central paradigm.

(finalities)

Balanced and healthy
16%

Not too much fats and sugar
13%

(operation)

(subjet)   *(object)*

Eat one's fill   **Foodstuffs and meal course**
14%   15%
Eat what I like
17%

Conviviality   14%   **Good homemade dishes**
4%
Restaurant   6%

(modalities)
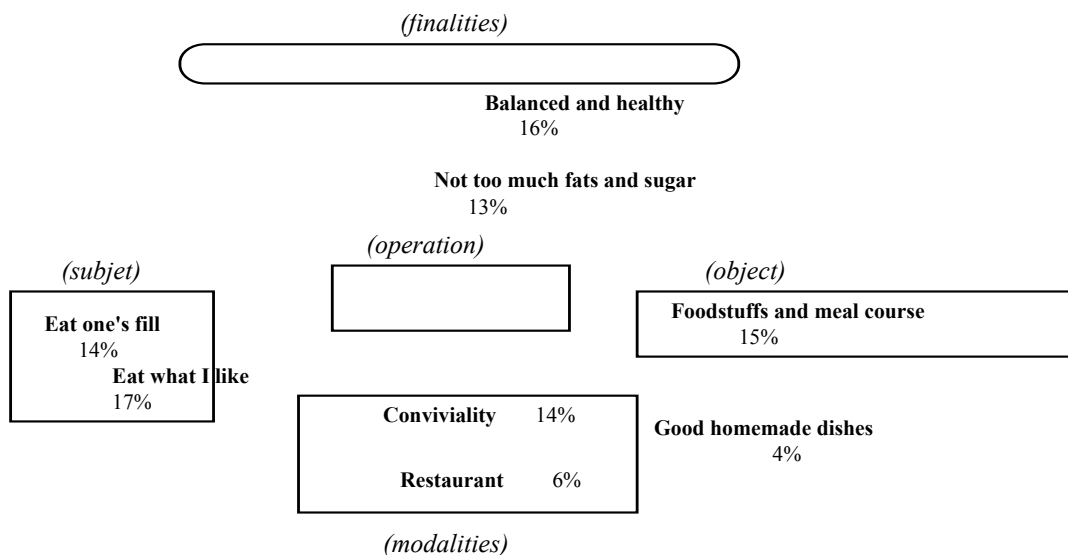
As one can see, the classes don't fit well in the frames. Indeed, *Eat one's fill* and *Eat what I like* are centred on the subject. But the first class is deported to the pragmatic aspect, as it contains as well motivation and sensation as a stop condition. The second is clearly deported towards the object, it mentions not only the desire, but also the foods, either as a general token (*something I like, things that...*) but sometimes explicitly (*chocolate, wine, sweets...*). And both classes are rather verbal, the answers often contain the trait *eat*.

In the modalities, if the classes *Conviviality* and **Restaurant** are well in the frame, the class *Home-made*, even if the connotations and many traits clearly place it near the two former, contains explicit references to foodstuffs (the *traditional dishes*).

The classes *Balanced and healthy*, and *Not too much* have ethical and even moral connotations. but the balanced class is expressed in terms of object characteristics as well as in terms of principles, and the class not too much contains a reference to action (avoidance) and to objects named by their characteristics (*fat, sweet*) or even by names (*fats, alcohol, canned foods*).

Finally, the *Meal course* class, although it is purely objectal in trait contents, presents a systematic order that can only be qualified as actional, and prescribes the sequence in which foods must be eaten.

The central frame, TAKE, remains empty. The operator has been totally made implicit, it has been absorbed in the other classes.

Most of those effects can be explained by some classical aspects of the representational scripts theory ; they basically derive from the fact that scripts are simple, pragmatic, goal oriented schemata that people use to guide their behaviour.

First, representational scripts are concrete and synthetic : they articulate the basic nuclei of representation into simple action rules. In this respect, they are at once structure and process : structures that articulate in the form of process.

Second, they are simple and unambiguous.

Third, they are systematically focused on the conclusion (finality of the action), compared to the basic representation. This effect is easily readable on the figure through the systematic deportation of the classes to the right side of the frame.

The central nucleus of the paradigm, he operator TAKE, because it is obvious in an everyday life context, is implicit in the subjects' answers (an effect that was predictable). It has been incorporated in each script so that each script is a self sufficient "runtime" rule with its own action motor.

Finally, let us mention that the subjects did not all say the same things. Statistical analysis shows some traits are typical of some categories. For instance, men rather talk about : *bon(good), foie gras (pâté), qualité (quality), banquet (feast), vin (wine), pomme. de terre (potato), français (French); choucroute (sauerkraut), sauce, frites (French fries), charcuterie (delicatessen) copains (pals), steak, canard (duck), restaurant, and boeuf (beef)* ; and women about : *équilibré (balanced), légumes (vegetables), sain (healthy), laitages(dairy products), vitamines (vitamins) kilos, lait (milk), varié (varied).*

Young people rather talk about in *bouffe (grub), copains (pals), restaurant, couscous, dessert, gâteau (cake)* ; and the elderly about : *peu (few), sans (without), excès (excess), modérément (moderately), raisonnable (reasonable), and cholesterol.*

Crossing representations with actual behaviour shows, as could be expected, significant interaction (Lahlou, 1994b, in press) : representations are like mental organs, some of their nuclei develop more when frequently used by the subject, while others, although still present, atrophiate. For instance, elder people, who are more restricted in their intake behaviour because of health concerns, will display representations where the "balanced", and "not too much" scripts are more prominent ; whereas youngsters, focused on the social, fulfilling, and enjoyable aspects of eating, display more developed "eat what I like", "eat my fill", and "conviviality" nuclei.

Conclusion

Lexical analysis allows an anatomy of social representations at a scale that was hardly accessible with qualitative techniques. Results obtained on food representations are coherent with the classical findings. Beyond investigation on human subjects, the technique enables analysis of material coming from documental collective sources, like dictionaries (but many such sources could be considered). Those conceal implicit models of knowledge which apparently account for many "live" representations that can be observed in the subject. Also, the study of linguistic sources, as language acts as a collective memory, can yield patterns of a former state of representational development, in sociogenesis or epigenesis. In our case, it seems that the incorporation principle, a universal that funds many magical practices, may be derived from this basic paradigm.

The nuclei of the basic paradigm can be articulated into pragmatic scripts, providing economical guidelines for everyday behaviour. Detailed analysis can therefore yield some elements for behaviour prediction. Hereby, although the method still remains to be improved for better accuracy, it opens interesting perspectives in the study of human thought and behaviour in general, and in the food domain especially.

It seems superfluous to insist on the pragmatic interest that such a knowledge of underlying mental structures can bring to economic actors of the food industry, in their effort to understand and influence representations and behaviour ; we can only hope that they will not misuse it.

Enjeuls actuels du marketing dans l'alimentation et la restauration. Symposium international, Montréal, 5/1994.

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axis 3

Si je vous dis "bien manger" à quoi pensez-vous ?
French sample N=2000. Spring 1990, Crédoc survey
Connotation space.

Eat one's fill

Eat what I like

Restauran

Convivialit

Home made dishes

Not too much fats and sugar

axis 2

pas trop

Foodstuffs and meal course

Balanced and healthy

etc

axis 1