

The "associative network": a technique for detecting structure, contents, polarity and stereotyping indexes of the semantic fields

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Résumé

Cet article présente le "réseau d'associations" : une technique dont l'objectif est d'identifier la structure, le contenu, la polarité, la neutralité et les indices de stéréotypie d'un champ sémantique associé à une représentation spécifique.

Après avoir décrit les tâches et procédures de recueil des données, l'article détaille les différents critères de choix et de présentation des mots stimuli, les informations exploitables, les contenus et la structure du champ sémantique; l'ordre d'élicitation des mots, l'ordre d'importance des mots pour les sujets; les ramifications et les connexions entre les groupes de mots comme voie pour reconstruire une trame de texte entre les mots et comme ressource pour rendre la signification des mots polysémiques moins ambiguë, les indices de polarité et de neutralité comme mesures globales des composantes implicites évaluatives et attitudinales des représentations sociales; les indices de stéréotypie; les techniques de codification des données textuelles et non textuelles et les différentes stratégies d'analyses de données. L'analyse présentée porte à la fois sur la dimension liée aux contenus et à la structure du champ représentationnel (Spad-T, Evoc 2000) et sur les aspects qui se centrent plus sur la dynamique du discours implicite des rôles et des fonctions des différentes catégories du texte (DiscAn).

Summary

This article presents a technique aimed at identifying the structure, contents, polarity, neutrality and stereotyping indexes of the semantic field associated with specific representations.

Within a general outline of experimental tasks and administrative procedures, the following aspects are described in detail: criteria for the choice and presentation of stimulus-words, identifiable information, contents and structure of the semantic field; order of elicitation of words, order of importance of words for subjects, the construction of a textual "web" and the disambiguation of meanings through branching patterns among words and connections between groups of words; polarity and neutrality indexes as synthetic measures of the evaluative and attitudinal components implicit in social representations; stereotyping index, procedures for codifying textual and non-textual data and different strategies of data analysis. These emphasise both the dimension linked to the contents and structure of the representational field (Spad-T, Evoc 2000) and aspects that are more focused on the discourse dynamics implicit in the roles and functions of the different categories of the texts (DiscAn).

Mots clés :

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Introduction

The aim of this article is to present a technique for studying the structure, content, polarity and stereotyping indexes of the semantic field associated with a particular representation. The opportunity to represent this article in English and the up-dating of previous French versions (de Rosa, 1995) flowed from experience matured over decades of experimentation and is based in a rich database obtained from the many and wide research projects (including those of cross-national nature) pertaining to various areas of study in which this technique was used alongside other methods.

In order to place the technique in a methodological

context, the methods most frequently used in social representation research already have been reviewed in the introduction. It must be stressed that, just as individual methods only focus on particular aspects of social representations and only a multi-method approach (de Rosa 1987, 1990, 1994, 2002) can truly reveal the complexity and multidimensionality of social representations, the associative network method will only identify certain semantic and evaluative aspects inherent to a particular representation.

1. The "associative network": tasks and administrative procedures

The associative network is a very attractive technique for both respondents and researchers because it is easy to understand and it is both flexible to administer and to adapt to the research's purpose. The "open" and "unstructured" nature of the technique tends to make the subjects more interested and willing to respond. In research that involves a combination of associative network and more structured techniques (such as questionnaires), subjects are more interested in responding to the associative network than in filling in a long, structured questionnaire. Unlike the questionnaire, the associative network does not cause subjects to worry that their competence concerning some objective problem is being tested. Nor do subjects, whatever their age (the technique has been used with schoolchildren), socio-cultural background or nationality, have any difficulty in understanding the tasks involved in the associative network technique. As well as having this administrative flexibility, the associative network can be adapted to different types of research projects and, by varying the stimulus word, to an almost infinite number of research objects.

The task itself is shown below. At the top of the first page is a specific statement of the research area being investigated, followed by some simple instructions. In order to exploit its projective potential to the full, within a multi-method approach we suggest that the "associative network" be used first. This will prevent the information input from the contents of structured techniques from distorting the subjects' associative processes and provide anchorage outside their representations.

Although the results can be analyzed both at the individual and group level, depending on the strategies of data analysis, the administration is usually individual. However administering this technique to small groups, rather than to individuals, is also possible when the group is not simply the context for a collective administration of the task, but the unit of analysis itself. In other terms, rather than the statistical device of individual responses, the social group can authentically be the unit that produces and constructs the social representations of a given object. In order to achieve a degree of consensus about the terms to be chosen starting from inter-individual comparison and differences, the dictionary evoked in relation to a stimulus word will be the outcome of shared representations or of negotiation processes among the group's individual members.

2. Choice, number and mode of presentation/ordering of the stimulus to be used in the associative network

The associative network can use one or more stimulus chosen according to criteria of salience and coherence with research aims. Usually the stimulus is a word; however it would be possible also to use as a stimulus a short text, like a sentence or a proverb; iconic material, like an image, an advertisement, photo, exhibition; video material, like a film, TV program; or sound material, like songs, music etc.

As regards the *number* of stimulus-words, on the assumption that each representation is semantically contextualized within a set of representations, the use of several stimulus-words will produce data for a variety of objects and a configuration of representations will emerge. For example, in a project on social representations of the European Community, besides the stimulus word "European Community", a number of other stimulus words were used such as (on different pages) "nation", "border", the names of individual member states, and (in pairs on the same sheet) "North-South" and "East-West".

The *paired* mode of presentation (two stimulus-words on the same sheet divided exactly into two halves) is suitable for studying representational objects which are regarded as being reciprocally defined through a process of categorical definition (e.g. "North-South").

In some cases, it may be very important to investigate the representational fields related to two close stimulus-words. This is of great importance in the case of longitudinal studies aimed at investigating the transformation of S.R. by changing its denomination - for example "European Community", later transformed into the new name "European Union" (de Rosa, 1996) or "Black-American" re-labeled "Afro-American" (Philogene, 2001), etc. Sometimes the results of study on changing objects of representation have anticipatory value. For example, in research we carried out in ten European countries about Multidimensional Identities and S.R. of the European "Community" - before its redesignation as the European "Union" - the most associated word to the stimulus word E.C. was indeed exactly "Union". In a follow-up program, in order to look at the representations changing via changing names and associated dictionaries, after changing the denomination European Community into European Union, in addition to the list of the words already used in the previous investigation, the list of stimulus words also included European Union. (de Rosa, 1996, 2000, de Rosa & Mormino, 2002).

In any case, it should be stressed that representations always have a contextual and situated position in a relation-

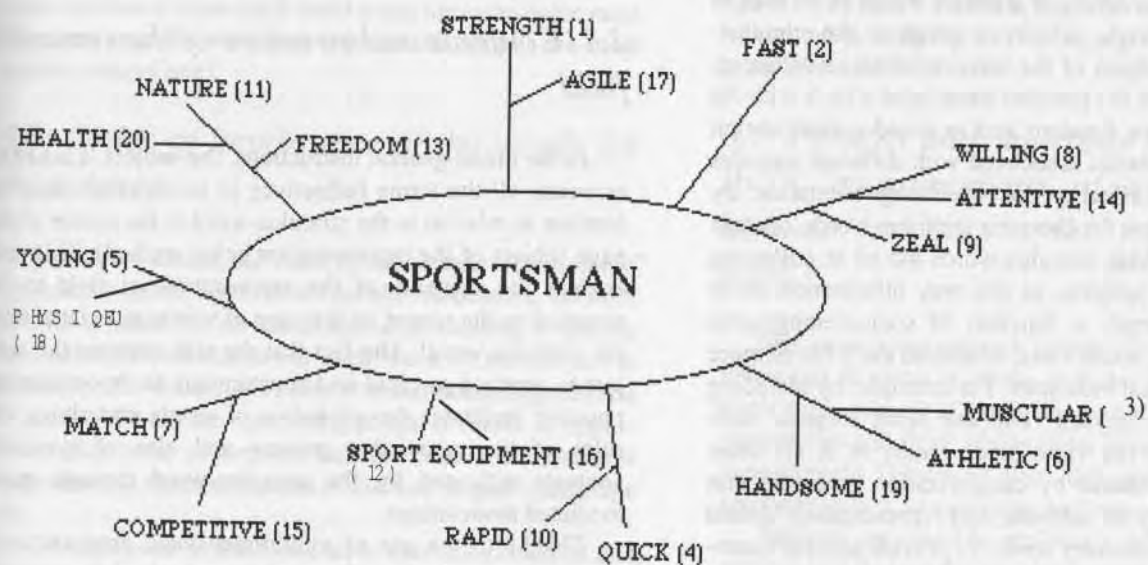
Figure 1 – Associative network instructions

Stage 1

- Build a '**network of associations**' with respect to the keyword presented at the centre of each sheet by writing all the terms (adjectives or nouns) that come to your mind.
- Work as quickly and freely as you can, placing the **words or branching patterns between the words** on the whole page around the keyword.
- As you write each word, **put a number beside the word** to show the **order in which you thought of it**.

Look at the stage 1 example below

The keyword "sportsman" in the centre of the page is linked with terms (**adjectives or nouns**) that might come to mind. Next to each word is a number showing the **order in which it was thought of**.

**Stage 2**

- Now look at the **associative network** you have made and, if you wish, show any further **connections between the words or groups of words** you have thought of by joining them with **arrows**.
(Examples are provided for each stage)

Stage 3

- Look at the words you have written and mark each word as **positive (+)**, **negative (-)** or **neutral (0)**, according to the meaning they have for you in this context.

Stage 4

- Finally, **look again at the 'associative network'** that you have made.
- Classify the words in **order of importance**, by writing **I** next to the most important word for you in this context, **II** for the second most important, **III** for the third, **IV** for the next one **and so on** for all the words you have written.
- Please, use a **red pen** for this.

nal meaning system, including the context of the setting where the test is administered. In our previous research project related to the S.R. of the four cardinal points of the compass (North-South-East-West), the use of "West" assumed the points to be not only geographical parameters, but also representational objects linked both to socio-political and historical dimensions and to the socio-cultural positioning of the subjects. The use of the word "West" plays a different role compared to its relational position in the chain of the stimulus-words (terrorism, USA, West, Islam, war, peace) when the same stimulus "West" was adopted in the research study activated in reaction to the extraordinary event of the September 11, 2001 attacks in the United States. (see de Rosa, Bigazzi & Bocci, 2002)

As regards the *ordering* of stimulus words to be used in an associative network, priority is given to the stimulus-word, the central object of the representation investigated, in order to bring out the contents associated with it with the maximum projective freedom and to avoid contamination between the dictionaries associated with different stimulus words that have an effect on the object's representation. By expanding the criteria for choosing stimulus-words, one can also include particular stimulus-words aimed at collecting information about subjects. In this way information about subjects is not simply a function of socio-demographic variables (sex, age, social class, education etc.), but of more strictly psychological indicators. For example, by including the stimulus-word "myself" one can elicit subjects' self-representations. In my view, since reality is at all times being selectively filtered by categorization processes that involve the identity of subjects, self-representation should be checked in almost every study. To provide another example, in a research project aimed at illustrating representational systems activated by the Benetton advertising campaign, as well as stimulus-words directly referring to the images of particular advertisements, the associative network also included the stimulus-words: "Benetton" and "I" in order to bring out how and to what extent the self-representation was related to the representations and attitude polarization of subjects relative to the brand name, and to study their relations to the impact of the advertisements (de Rosa, 2001).

Data can thus be processed to produce an interaction between results for different stimulus-words. By using appropriate data analysis techniques one can study the collocation of groups of subjects on the basis not only of socio-demographic indicators, but also of psycho-social indicators that have emerged in response to a particular stimulus-word. The results of responses to particular stimulus-words are used not only as an "active" variable for the specific representational field expressed by the subjects, but as an "illustrative" variable regarding the configurations of the repre-

sentational field that have emerged in relation to the stimulus word which is the central research object. Again using the example of the research program on Benetton campaigns, once subjects with a positive or negative self-image, or with a positive or negative attitude to the brand-name have been identified, one can study the way in which these groups of subjects are collocated along the factorial axes that emerge from the representational configurations relative to the stimulus word associated with the particular advertisement (de Rosa, 2001).

3. Information shown by the associative network

3.1. Contents and structure of the semantic field

In the initial general instructions, the subject is asked to associate all the terms (adjectives or nouns) that occur to him/her in relation to the stimulus-word in the center of the page (object of the representation being studied). This task enables the contents of the representational field to be revealed by the spread on the page of words associated with the stimulus-word¹. The fact that the task requires the subject to produce as rapid and spontaneous an association as possible facilitates the elicitation of words underlying the rules of the associative process and also of symbolic contents activated by the stimulus-word through more mediated associations.

Thanks to the use of multidimensional analysis techniques, the processing of textual data obtained through the associative network (using the techniques described in Section 5) is able to illustrate not only the contents, but also the structure of the representational field, i.e. the organization of meanings in structural dimensions that can give rise to interpretations that express the position of groups or subgroups of subjects that have combined to produce a particular factorial axis.

¹ The graphic/spatial use of the sheet gives rise to several recurring configurations. These could be usefully studied, using large populations and the same object-stimulus. Qualitative observations, which up till now have been carried out in our research at a purely exploratory level, show several typical strategies for collocating associated words in the available space using organizational principles of polarity affinity or contrast. For example, configurations of positively connoted words appear on one half of the sheet and negatively connoted words on the other; or star-like configurations linking the key words of the chains activated by the associative process etc.

3.2. Order of elicitation of words

In producing an associative network (see figure 1, stage 1²) subjects are also asked for information concerning the order of elicitation or appearance of words. On the basis of what has been learned in cognitive psychology concerning verbal reaction time and speed of association, order of appearance can be used as an indicator of prototypic *accessibility*.

The literature sometimes tends to confuse the order of word elicitation with a criterion of importance. However, associative speed not only indicates the strength of an associative link and thereby its *salience*, but also of its *accessibility* in terms of a greater prototypical agreement (i.e. the most commonly associated word is not necessarily the most important one for a subject, but can be simply the most socially shared one).

3.3. Order of importance of the words for the subject

In order to distinguish order of appearance from order of importance, most applications of the associative network also have made use of a task aimed at eliciting a specific attribution of importance for each word by the subject in that particular context. In order to avoid confusing subjects by asking for double-numbering of words (order of appearance plus order of importance), the request for order of importance is made at the end of the four stages.³ (see stage 4).

To look back at the associative network produced and classify each word by order of importance is a double level evaluative task, implying a cognitive process of a more rational nature, compared to the higher projective nature and higher speed which characterize the order of elicitation (stage 4).

3.4. Branching patterns and connections as a way of reconstructing a textual web between words and as a resource for disambiguating meaning

The associative network enables subjects to identify

both the *branching pattern* between words (see stage 1) and further *connections* between words or groups of associated words spread out in the semantic space around the stimulus-word (see stage 2). This task enables associated words to be contextualized in chains of words in accordance with the clustering of the semantic field directly produced by subjects rather than as the result of statistical processing. This enables a textual web to be reconstructed even from individually associated words. Though restricted to branching patterns for a few words or connections between word groupings, this textual web is an essential resource for the disambiguation of the meanings of polysemous words.

This disambiguation is not strictly necessary when the original lists of words are used as textual data, e.g. with Spad-T (see para 5.1), but is essential when a meta-text is to be created by category attribution, e.g. with the DiscAn program (see para 5.3).

3.5. Polarity and neutrality indexes as synthetic measurements of evaluation and attitude implicit in the representational field.

The associative network introduces a further non-traditional task in order to create an *index of polarity* as a synthetic measurement of evaluation and attitude implicit in the representational field, and an *index of neutrality* as a control measurement (assuming that high positive polarity corresponds to lack of neutrality and vice versa).

Subjects are asked to attribute a polarity to each word, using + - or 0 signs for positive, negative or neutral values respectively. In order to calculate the polarity (positive, negative and neutral) on the basis of the total number of words associated by each subject, two specific statistical indexes have been created. The first is as follows:

$$\text{Polarity index (P)} = \frac{(\text{Number of positive words} - \text{Number of negative words})}{\text{Number of total words associated}}$$

This index ranges between -1 and +1. If P is between -1 and -.05 (this value may be later recoded as 1 or as -1), most words are connotated negatively. If P is between -.04 and +.04 (this value may be later recoded as 2, or as 0), positive and negative words tend to be equal. If P is between +.04 and +1 (this value may be later recoded as 3, or as +1), most words are connotated positively.

² It is strongly recommended to include an example for each stage, which illustrates the instructions, because by experience, the administration of the technique without an illustrated example often leads to wrong understanding of the task.

³ A way to avoid confusing the two sets of numbers is to ask subjects to use a different coloured pen for each set (or to circle the numbers that refer to order of importance, or to use roman numerals I, II, III etc.)

The second index is as follows:

$$\text{Neutrality index (N)} = \frac{[N \text{ of neutral words} - (N \text{ of positive words} + N \text{ of negative words})]}{\text{Number of total words associated}}$$

This index also ranges between -1 and +1. If N is between -1 and -.05 few words are connoted neutrally (= low neutrality). If N is between -.04 and +.04, neutral words tend to be equal to the sum of positive and negative words. If N is between +.04 and +1, most words are connoted neutrally (= high neutrality).

The importance of these measurements is that they are the result of the evaluations of the subjects themselves and not of a post hoc categorical analysis on the basis of evaluations of the researcher. By synthesizing the evaluation and attitude component implicit in the representational field, these indexes can be used as illustrative variables for groups of subjects that can be projected onto the factorial axes produced by the representations that have emerged as responses to the stimulus words.

In line with the above objective, this procedure enables a cross-analysis to take place between the various files of active variables (associated words) relative to the stimulus words. This enables, for example, an analysis of the position of subjects with a high index of positive words associated with the "self" stimulus relative to subjects with a high index of negative words associated with "self" as regards the representational configurations produced by other stimulus words.

Using multi-method techniques and multi-step data analysis strategy, this kind of cross-analysis affects not only the interpretation of the representations produced by the stimulus words, but also the study of how indexes of polarity used as independent variables created post hoc on the basis of associated networks affect or are related to the data obtained, for example, from a questionnaire.

Finally, polarity and neutrality indexes can be calculated as well in relation to the succession order of the evocation words from the first to n° associated words. In this way it is possible to reconstruct the temporal trend in the pattern of connotations induced by the word or visual stimulus as well as the succession of associations. (For a more in-depth view, see de Rosa & Kirchler, 2001.)

3.6. Stereotyping indexes as a measure of the dictionary's differentiation in relation to a certain object of representation

Another interesting piece of information concerns the amount of differentiation in the dictionary expressed by

each group in relation to the representation objects.

Presuming that in function of the greater or lesser lexical and semantic articulation, a given representation object results more or less differentiated by meanings, attributes, and evocations, one assumes the measurement derived from the relationship between different words and the total number of words an indicator of "stereotypy". This is in the broad meaning of the term as recognized cognitive processes of categorical oversimplification of the reality that characterizes them.

This measurement (here shown as Y) is derived from the following calculation:

$$Y = \frac{\text{Number of "different" words associated by each group of subjects}}{\text{Total number of words associated by each group of subjects}} \times 100$$

From the moment that the same individual does not associate the same identical words, his total number of different words will always correspond to the total number of words he associates. Therefore, this calculation is not a measurement applied to each subject, but comes about by dividing the number of "different" words associated by the whole group by the total number of the words associated by the entire group. This represents the global lexical repertory evoked in relation to a given representation object. Before beginning the calculation, it is possible to reduce the equivalent lexical forms by using the usual procedures (reducing words to their masculine singular forms, transforming verbs and nouns into the corresponding adjective, etc.) In order to bring this new measurement (Y) to a value between -1 and +1 (rather than on a scale of 100) and to insure that the value of +1 corresponds to the maximum value of the stereotypy (and not vice versa), the values obtained are transformed via the following formula:

$$X = \frac{[(2Y) - 1]}{100} \times (-1)$$

This will enable us to represent in a single graph the results relative to the polarity, neutrality and stereotyping indexes that emerged from the associative network analysis.

4. Procedures for codifying textual and non-textual data

The skilled researcher will immediately recognize that, despite the advantage of a free and attractive task for subjects, the associative network requires lengthy analysis of the procedures necessary for data codification and analysis. Although ten years ago the statistical packages for multidimensional analyses were less sophisticated and flexible than

current versions, the following paragraphs offer a brief step by step description of the procedures for data codification and analysis in use since the creation of the *associative network*. Other more efficient methods no doubt now exist and I hope that other researchers will be able to suggest different and more interesting solutions to the data analysis question. For coding all data (textual and numeric) obtained from associative networks, it is necessary to create a separate database for each semantic space activated by each stimulus word using a software like "Filemaker Pro" in order to record all the information it obtained, i.e. :

- a) associated words listed in *order of priority of elicitation*, marked for subject *polarity* (positive, negative or neutral)⁴;
- b) *branching patterns* between words⁵;
- c) *connections* between groups of words⁶.

Under this procedure each subject, identified by a number and socio-demographic variables, is included in three different data-bases for each stimulus word. While the complete list of words, listed by subject *order of elicitation* and polarity marking, is the fundamental data base for analysis, the files for branching patterns and connections between groups of words are principally used for disambiguating the meaning of polysemous words when they need to be categorized. Both branching pattern and connection files (with polarity marking) give rise to congruence/incongruence analysis derived from calculation of the scores attributed to semantic chain words. Congruence/incongruence is attributed to branching patterns and connections by comparing each word (starting with the word that has been associated first and continuing in the sequential order of branching or connection) with all subsequent words in the same branching or connecting pattern.

In order to develop distance tools for on line research co-operation and to allow a large group of research trainees dispersed across Europe to collect data for the broad cross-national research program "EuroSKYcompass" on the SR of North-South-East-West, we recently developed a flexible on line form for coding data derived from the *associative network* included in a large set of other techniques. This form is linked to a relational data base in 4thD technology on the European Ph.D. on Social Representations and Communication's web site⁷, which allows filling in not only the isolated list of words associated to the stimulus-words in the two languages (in the original language for the analyses country by country, but also its translation in English for the creation of a unique cross-national database) but also all branching patterns (ramifications) and further links (connections), the order of elicitation, the order of importance and the sign of polarity. We are now developing a version to fill in the associative network directly on the web page, skipping the paper version.

5. Applying associative networks to different research projects: the different strategies of multi-step data analysis

In general, if one wishes to use various data analysis strategies, it is better to proceed step by step, guided by specific objectives and hypotheses of interaction between the technique utilized and the expected results for each successive phase. For reasons of space - among several multi-methodological research programs about different topics. I will present below a few of the results concerning different analyses performed by Spad-T, Evoc 2000 and DiscAn for successive phases for only one of the research programs which was aimed at investigating Social Representations "of" and "mediated by" Internet in web surfers and tourists in order to look at the persuasive effect of buying behavior via internet rather than via traditional channels and tourist agencies (de Rosa & Bocci, 2002).

Presented as an example of some of the possible data analysis procedures, this section of the wider research program proposes exploring the social representations and practices of tourists/"surfers" via the following strategies:

- a) identifying the content, structure and polarity of the representational fields associated with the following stimulus phrases:

- "Looking for tour packages via traditional channels means...";

- "Looking for tour packages via Internet means...";

- b) delineating decision-making paths associated with the use of different media (Internet and traditional channels) preceding the purchase of tour packages. Here "paths" do not only mean the sum of the steps, but also the emotional correlations and the representations associated with them, as well as the different objectives that can be reached depending on the chosen means.

Given the characteristics of the survey sample, (120 tourists/"surfers" all with practice in the use of the internet although with different degrees of expertise), it is assumed that the representational field generated by the stimulus "Looking for tour packages via Internet" is noted more positively than the representational field generated by the

⁴ Words should be typed in small type, leaving a space between the word and the number and between the number and the polarity marking; in the final version of the associative network, which requires subjects to mark the order of importance of words as well as the order of elicitation, the order of importance should also be included.

⁵ Words in the branching pattern should be marked * in the data base.

⁶ Words in the connections pattern should be marked \$ in the data base.

⁷ This form is on the web site of the European PhD on Social Representations and Communication at: <http://www.europhd.psi.uniroma1.it/main/main.htm> research on line/EuroSKYcompass. Of course a personal password is needed in order to fill in the data and use the on line system.

stimulus "Looking for tour packages via traditional channels".

It is also assumed that along the associative path distinct salient phases will be revealed concerning the search for tour packages both via traditional channels and the Internet. These should be filled with meaning, as well as experience and relevant valences for the representational field evoked.

- Step 1: The initial analyses concerning the associative network envisaged calculating the polarity and neutrality indexes via the use of the SPSS program and calculating word frequencies (dependent variables) associated with different stimuli using Spad-T.

- Step 2: Application of Spad-T provides results illustrating the organization of the semantic space according its contents (active variables) and the positioning of the different groups of subjects. These are identified not only on the basis of the socio-demographic characteristics, but also on the basis of the polarity and neutrality indexes associated to the different stimulus words and of their attitudes and social practices concerning internet and tourism investigated by the questionnaire (used in this step as illustrative variables).

- Step 3: In a subsequent phase, the list of words associated to various stimuli was processed using the Evoc 2000 program (analyse d'evocations) with the goal of identifying the candidates for central nucleus and for the periphery of the social representations.

- Step 4: In the third phase, the elicited words were grouped by categories and subsequently processed using the DiscAn program with the goal of reconstructing the organization of the categories' functional roles in the associative dynamic of a text.

The results derived from Step 1 of the analysis show that a polarity index associated to a stimulus researching tour packages "via traditional channels" is positive in 48.2% of the cases and negative in 19%. Calculated as a control measure, the neutrality index results as weak in 80.2% of the cases. The percentage of terms associated to researching tour packages "via internet" with positive connotations (63.2%) results higher. However, concerning negative words associated to the stimulus, the percentage lowers to 11.1%. The neutrality index, in this case, results still weaker (98.3% of the cases) revealing that the representational field associated with this stimulus is strongly polarized.

5.1 Example of application of Spad-T

Once separate data bases for the words, branching patterns and connections obtained from the associative networks are available, a series of procedures are needed to prepare the various files of illustrative and active variables for processing with Spad-T⁸ (*Système portable d'analyse des données textuelles* - software available for IBM and

MAC: Lebart, Morineau & Bécue, 1989). Spad-T is used on data obtained from the "associative network" with the objective of finding the structure and content of the representational field associated with the various word-stimuli. In fact, Spad-T applies *analysis of lexical correspondences* (ACL) to the text data, allowing us to obtain a synthesis of the information contained in the preliminary data matrix via the extraction of a certain number of factors.

Of the many processing procedures provided by the program, Artex, Selox, Numer and Aspar are recommended for the active variables (words) and Ardic, Selec and Posit for the illustrative variables. For a more detailed reading of the representations in terms of subject grouping, cluster analysis can be used using both Spad-T (using Aspar, Recip and Parti for the classification of individuals and Aspar, Permu, Recip and Parti classification in terms of active variables) and exporting the matrix of factorial coordinates in SPSS.

In the part of the research that we are presenting, we limit ourselves to illustrating the results from the SETEX procedure, performed by Spad-T after having "cleaned" the texts, which lists the lexical forms contained in the text and provides a printout of their frequencies and their length. In addition, it also allows the definition of the frequency threshold of the words to be considered in the ACL via the NSEU option.

The 120 subjects elicited 478 terms from the stimulus: "looking for tour packages via traditional channels means...", which were reduced to 241 by the SETEX procedure (threshold NSEU=2).

The 482 terms elicited by the 120 subjects from the stimulus: "looking for tour packages via Internet means..." were reduced to 216 by the SETEX procedure (NSEU=2).

Found in the tables below are the lists of words in decreasing order of frequency respectively associated to the stimuli: "looking for tour packages via traditional channels means..." and "looking for tour packages via Internet means..."

⁸ It is essential to use the version produced after 1990. The previous version (1987) had difficulty with accented texts and words in small type and did not have sufficient memory to handle vast quantities of words in Equiv; it was also unable to calculate factorial coordinates beyond a certain threshold. The new version (5.0) available for IBM for Windows permits both ACL and ACM.

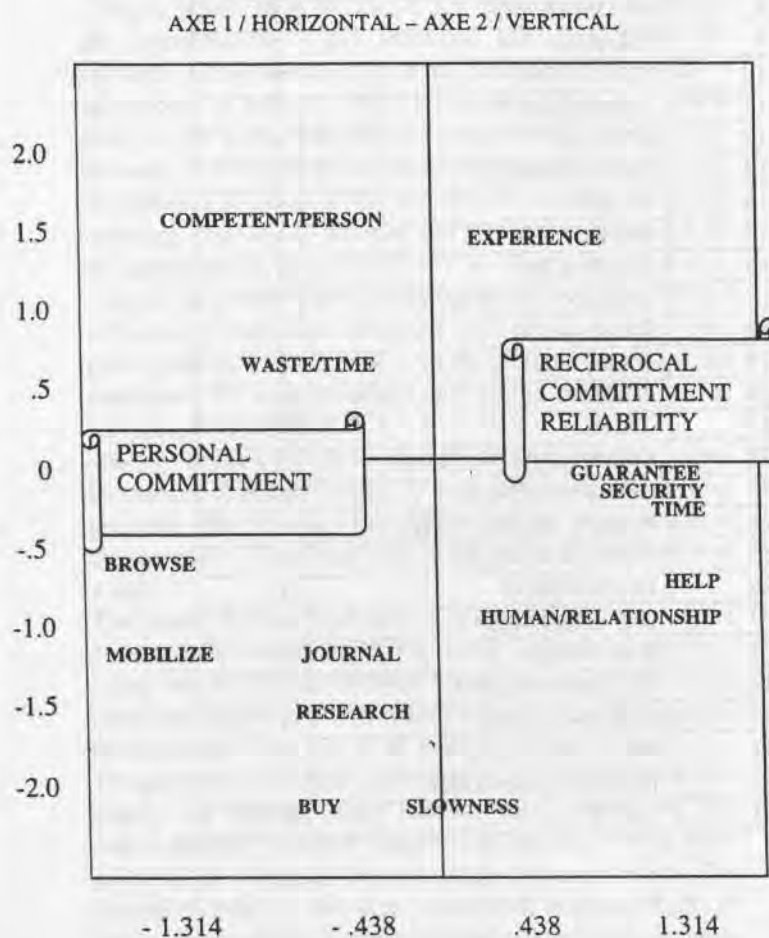
Table 1: Lists of words in decreasing order of frequency respectively to the stimuli:
"looking for tour packages..."

<i>"...via traditional channels means..."</i>		
NUM.	ELICITED WORDS	FREQ.
1	AGENCY	26
2	SECURITY	20
3	WASTE OF TIME	14
4	ADVICE	10
5	TRUST	8
6	HUMAN CONTACT	8
7	LINE	6
8	GUARANTEE	7
9	HUMAN RELATIONS	7
10	RELIABILITY	6
11	AGENT	6
12	MOBILIZE	6
13	CATALOGS	6
14	HIGHER COSTS	6
15	EXPERIENCE	6
16	RESEARCH	6
17	FRIENDS	5
18	SMALLER OFFERING	5
19	LEAVE THE HOUSE	5
20	EXPENSES	5
21	TIME	4
22	KNOW (SOMEONE)	4
23	BROCHURE	4
24	NEWSPAPERS	4
25	COMPETENT PERSONS	4
26	SLOWNESS	4
27	LESS INFORMATION	4
28	PACKAGE CHOICE	4
29	HELP	3
30	ASSISTANCE	3
31	BUY	3
32	SECURITY OF CHOICE	3
33	PHOTO	3
34	INCREASED COSTS	3
35	PAYMENTS	3
36	DIRECT RELATIONSHIP	3
37	BROWSE	3
38	TRADITIONAL	3

<i>"...via Internet means"</i>		
NUM.	ELICITED WORDS	FREQ.
1	SPEED	27
2	SAVE	15
3	MORE CHOICE	14
4	RISK	12
5	EASY	12
6	NEW APPROACH	10
7	LAST MINUTE	9
8	FROM HOME	7
9	IMAGE	7
10	SAVE TIME	7
11	IMMEDIACY	6
12	FIND OUT	6
13	WIDE CHOICE	5
14	COSTS	5
15	INSECURITY	5
16	FREEDOM	5
17	LARGER OFFERING	5
18	RESEARCH	5
19	BARGAIN	5
20	TIME	5
21	TRIPS	5
22	COMPLETE PICTURE	4
23	CONVENIENCE	4
24	WASTE MORE TIME	4
25	DIRECT ACCESS	3
26	DISPERSION	3
27	IMPERSONAL	3
28	EXPENSES	3
29	SEARCH ENGINE	3
30	BECOME LOST	3
31	PRACTICALITY	3
32	RESERVE ON-LINE	3
33	VAST	3

However, as can be observed below, the application of Spad-T to the lists of words associated to the stimulus/stimuli is especially interesting because of the configuration of the variables active in the factorial space and for the positioning of the illustrative variables.

Figure 2 - Representation of ACTIVE VARIABLES (words associated to the STIMULUS phrase "LOOKING FOR TOUR PACKAGES VIA TRADITIONAL CHANNELS MEANS..." relative to the intersection between FACTOR 1 and FACTOR 2 from the SPAD-T program.



If the graphic representation of the active variables that determine the factorial configuration offers the possibility to recognize a large number of words associated to the stimulus phrase, to correctly interpret the factors it is good practice to refer to the tables produced by selecting the associated words (active variables) on the basis of absolute and relative contributions that are important for statistical pur-

poses. This is in order to avoid erroneously identifying semantic "clouds" in the space formed by neighboring words only on the basis of spatial proximity but that contribute to the calculation of the axes in a completely different or perhaps even irrelevant way. Here we are limiting ourselves to providing only the tables relevant to the first factor for both of the semi-axes (see tab. 2 positive semi-axis and tab. 3 negative semi-axis), indicating in each the illustrative variables that result significant for the purpose of positioning of the subjects. As can be deduced from the tables, we proceeded to a cross-analysis of different instruments (associative network and questionnaire). The associative network reported for the stimulus in question was therefore used as a source of active variables (*the words associated to that particular stimulus-phrase, for example "looking for tour packages via traditional channels..."*). As a source of illustrative variables it refers to the polarity indexes calculated on the associative network relative to that same stimulus as well as the polarity indexes calculated on associated networks relative to other stimuli ("tourist", "internet", "looking for tour packages via internet...") in order to project the synthetic behavior measurements towards the two different options for services to purchase onto the respective representational fields. The goal sought by identifying other illustrative variables derived from the analysis of responses to the questionnaire was to position the subject population on the representational fields, also on the basis of more specific profiles linked to their experiences as "tourists" and "internet users". Of course, in the tables we are reporting only those illustrative variables that resulted significant for statistical purposes and not the entire pool of variables identified to perform cross-analyses of the various instruments.

As the graph (Fig. 2) and tables (Tab. 2) show, the *first factor* extracted from Spad-T relative to the stimulus "Looking for tour packages via traditional channels means..." - (traditional channels identified by our subject sample as a travel agency) - is characterized by the presence of terms that refer to traditional channels as tools that assume a *reciprocal commitment on the part of the agent and the client, based on reliability*. On one hand, they are able to offer greater guarantees, both concerning information provided and payment security for any tour packages purchased. On the other, they require a substantial *personal commitment*: time wasted by physically going to the agency, browsing through numerous catalogs in order to obtain necessary information. Among the terms located along the positive semi-axis we find, for example: "security", "help", "guarantee". On the negative semi-axis, however, are found terms like: "mobilize", "browse". On the positive semi-axis are found subjects who declared their intention not to purchase tour packages via Internet, even if they consulted it to

Table 2 - Results obtained via Spad-T concerning the associative networks related to the stimulus "...via TRADITIONAL channels" - FACTOR 1 POSITIVE AND NEGATIVE SEMI-AXIS

Active Variables	SEMI-AXIS	C.A.	C.R.
Security	+1.54	26.6	.46
Help	+2.99	15.1	.24
Mobilize	-1.98	13.3	.17
Time	+1.73	6.8	.14
Guarantee	+1.22	5.9	.12
Waste of time	-.59	2.8	.06
Browse	-1.43	3.4	.07
Illustrative variables for positive semi-axis: • POLARITY INDEX "...via TRADITIONAL CHANNELS": POSITIVE. • POLARITY INDEX "...via INTERNET": POSITIVE=NEGATIVE. • Location of Tourist Visit: ITALY+EUROPE • Average connection time via internet: A FEW MINUTES. • Consultation of other web sites: NO. • Use of chat: NO. • Number of tourist sites visited: ONE. • Number of interesting tour packages found via internet: MORE THAN TWO. • Profession : OTHER PROFESSION. • Justification for intention NOT to purchase tour packages via internet: LACK OF SECURITY. Illustrative variables for negative semi-axis: • POLARITY INDEX "...via TRADITIONAL CHANNELS": NEGATIVE, POSITIVE=NEGATIVE • Average duration of tourist visit: UP TO A WEEK. • Location of tourist visit: EUROPE. • Usual planning strategy for trips: RELYING TOTALLY ON ACCOMPANYING GUIDE • Evaluation of INTERNET as the most useful instrument in the final choice: EXPERIENCE • Usual place for connection: HOME + SCHOOL/OFFICE+ INTERNET CAFE'. • Consultation of Web Sites: YES. • Use of Chat: YES. • Profession: PROFESSIONAL. • Justification for intention to purchase tour packages via internet: GOOD EXPERIENCE/PAST			

find information. They principally complained about the lack of security and preferred to rely on traditional channels. In contrast, on the negative semi-axis are located persons who continue to prefer instruments that permit them to take advantage of others' experience and to plan their trips by completely relying on guides. In addition, also found on this semi-axis are subjects who because of a good past experience intend to purchase tour packages via Internet in the near future.

From the first five factors derived from Spad-T relative to the stimulus "Looking for tour packages via Internet means..." various tendencies emerge according to the users' familiarity and level of expertise. The more expert users tend to express representations and evaluations of the phenomenon in a multi-form optic, considering the characteristics traditionally associated with this media in a more critical way than inexperienced users and avoiding supporting reductionist positions that concerning this tool are exclusively "pro" or "con".

The *first factor* is characterized by the presence of terms only on the negative semi-axis (see Tab. 3). The words refer to the *temporal dimension*: the Internet seems to be considered principally as an instrument that requires an excessi-

ve amount of "time" to use. In fact, this concerns subjects that express a negative polarity index and that, not by chance, show a low level of Internet use, connecting only a few times a month or for a few minutes. However, they say that they find sites that are dedicated to tourism (Tour Operators) as well as institutional sites interesting. In addition, they characterize themselves as autonomous in choices concerning trip planning and have a preference towards instruments that can offer the greatest amount of information (see Tab. 3)

The *second factor* concerns the *economic dimension*, with terms on the positive semi-axis that refer to the Internet as a tool that despite requiring more time to consult it, permits making use of more information and offers, for example the "last minutes" ("expenses"; "last minute", "larger offering"). On the negative semi-axis the instrument's novelty highlighted ("new approach"), which permits the user to virtually visit the places where he/she plans to go ("image"), to know the costs ("costs") and also obtaining discounts ("saving"). The possible risks connected to the use of this method of purchasing are also highlighted ("risk"). On the positive semi-axis are located women; secondary school graduates; internet users with average expert-

ise; tourists that take trips both in Europe and Non-European countries; and subjects who say that the purpose of the trip is prevalently linked to vacation. Also, there are those who look for tourist information on the Internet, especially visiting various tour operator sites, citing "last minutes" and good past experiences as motivating their intention in the near future to purchase tour packages on-line. On the negative semi-axis are found men; university graduates; users who connect to the Internet several hours a day, researching information relative to both work and free time but who did not cite this media as one of the instruments used to seek tourist information and who believe that specialized journals are more useful in guiding their choices (see tab. 4).

5.2. Example of application of the EVOC 2000 program

The Evoc 2000 Program, created by Pierre Verges (2002) represents another strategy, specifically adapted by the author, for analyzing textual data from the associative network.

Evoc 2000 allows the execution of a lexicological-type analysis using a questionnaire, like the one used by the associative network. After having completed "nettoyage" on the two residual lists of "cleaned" words and compared the word frequency and the average order of appearance, in this specific example the analyses completed using the Evoc 2000 program show that terms that occur in the first qua-

drant of the "Rang x Fréquence" table relative to "looking for tour packages via traditional channels" (high on the left and therefore candidates for building the central nucleus of the representation) explicitly refer to the "sources of information" (agency). Among the first words elicited (range < 3.1) and the most frequent (freq sup ou = 6), certain elements are highlighted that substantially refer to two meanings:

- initiate a personal relationship with the interlocutor (human relationship; human contact; advice);
- believe the source of information to be secure (reliability; experience).

Other, negative elements are found alongside these positive elements: "waste of time" and incurring "higher costs".

All the terms that are candidates for the central nucleus seem to refer to the phase of information gathering, with the exception of the term "higher costs" that would concern an eventual conclusion of the negotiations.

Elements concerning interpersonal relations seem to characterize not only the central nucleus but also the periphery, as shown in the lower left quadrant and that contains among others the terms: "help", "assistance", "direct relationship". Human and professional (competent persons) would be, therefore, the fundamental elements in the choice to go to an agency. However, what makes the representation of the central nucleus specific is the unbreakable bond between the interpersonal relations and the factor of trust in the source of the information.

Among the negative connotations we find the "temporal aspects" that recur among the candidates for the central

Table 3 - Results obtained using Spad-T concerning associative networks related to the stimulus "...via INTERNET" - FACTOR 1 NEGATIVE SEMI-AXIS

Active Variables	SEMI-AXIS	C.A.	C.R.
Time	-	72.0	.81
Become Lost	-	13.5	.26
Illustrative variables • POLARITY INDEX "TOURIST": NEGATIVE. • POLARITY INDEX "...VIA INTERNET": NEGATIVE. • NEUTRALITY INDEX TRADITIONAL CHANNELS: HIGH NEUTRALITY • Place of Tourist Visit: ITALY+NON-EUROPEAN COUNTRIES. • Motivation for the tourist trip: VACATION+ WORK. • Habitual Strategies for trip planning: DECIDE EACH DETAIL BY YOURSELF. • Evaluation of INTERNET as most useful tool for the final choice: INFORMATION PROVIDED. • Usual place for connection: HOME, OTHER. • Sectors for Information Research: FREE TIME. • Connection Regularity: A FEW TIMES A MONTH. • Average Connection time: A FEW MINUTES. • Consultation of Web Sites: NO. • Profession: OTHER PROFESSION. • Type of Tourist Sites Considered Interesting: TOUR OPERATORS + INSTITUTIONAL SITES.			

Table 4 - Results obtained using Spad-T concerning associative networks related to the stimulus "...via INTERNET" - FACTOR 2 POSITIVE AND NEGATIVE SEMI-AXIS

Active Variables	SEMI-AXIS	C.A.	C.R.
Expenses	+ 2.52	12.5	.20
Last minute costs	+ 1.33	10.5	.18
Larger Offering	- 2.14	15.0	.19
Complete Picture	+ 1.44	6.8	.12
Saving	+ 1.49	5.9	.09
Risk	- .77	5.8	.09
Dispersion	- .77	4.7	.07
Image	+ 1.51	4.5	.10
Waste/more/	- 1.23	7.0	.12
New Approach	+ 1.26	4.2	.09
Time	- .71	3.3	.06
	- .99	3.2	.03

Illustrative Variables for positive semi-axis

- POLARITY INDEX "...VIA INTERNET": POSITIVE=NEGATIVE
- NEUTRALITY INDEX "INTERNET": WEAK NEUTRALITY
- NEUTRALITY INDEX "...VIA INTERNET": WEAK NEUTRALITY
- Average Length of Trip: FROM TWO WEEKS TO A MONTH.
- Place of Tourist Visit: EUROPE, NON-EUROPEAN COUNTRIES, ITALY+NON-EUROPEAN COUNTRIES, EUROPE+NON-EUROPEAN COUNTRIES.
- Reason for Tourist visit: VACATION.
- Internet use: YES.
- Use of Specialized Journals: NO.
- Choice Criteria for Travel Agency: EASE.
- Evaluation of Internet as most useful tool for the final choice: FRIENDSHIP.
- Length of experience in using INTERNET: LESS THAN A YEAR.
- Usual place for connection: HOME + SCHOOL/OFFICE+INTERNET CAFE',
- Sectors for Information Research: WORK, FREE TIME
- Connection Regularity: A FEW TIMES A MONTH.
- Average Connection Time: LESS THAN AN HOUR.
- Self-evaluation of expertise compared to other users: AVERAGE EXPERT.
- Researching tour packages on the INTERNET: YES.
- Remembers the name of tourist sites visited: YES.
- Frequency of researching interesting tourist packages via Internet : UP TO TWO.
- Type of tourist sites considered interesting: TOUR OPERATORS.
- Justification for intention to purchase tour packages via internet: LAST MINUTE, GOOD PAST EXPERIENCE.
- Sex: FEMALE.

Illustrative Variables for negative semi-axis:

- POLARITY INDEX VIA INTERNET: NEGATIVE, POSITIVE.
- NEUTRALITY INDEX INTERNET: MEDIUM NEUTRALITY.
- NEUTRALITY INDEX VIA INTERNET: MEDIUM NEUTRALITY
- PLACE OF VISIT: ITALY+EUROPE.
- NUMBER OF INSTRUMENTS USED FOR TOURIST INFORMATION RESEARCH: FOUR.
- INTERNET USE: NO.
- USE OF SPECIALIZED JOURNALS: YES.
- AMONG THE TOOLS YOU USED, WHICH HELPED THE MOST IN THE CHOICE: SPECIALIZED JOURNALS.
- WHY DO YOU CONSIDER IT THE MOST USEFUL IN THE FINAL CHOICE: INTERPERSONAL RELATIONS.
- WHERE DO YOU CONNECT FROM: HOME + SCHOOL/OFFICE.
- WHICH SECTORS DOES THE INFORMATION THAT YOU RESEARCHED CONCERN: WORK + FREE TIME.
- ON THE AVERAGE, HOW LONG DID YOU REMAIN CONNECTED: SEVERAL HOURS.
- DID YOU EVER SURF THE INTERNET TO FIND TOUR PACKAGES: NO.
- DO YOU REMEMBER THE NAMES OF THE TOURIST SITES YOU VISITED: NO.
- SEX: MALE.
- LEVEL OF EDUCATION: UNIVERSITY GRADUATE.

nucleus and in the periphery as well as in the upper right quadrant and the lower left quadrant (time, slowness). In the last quadrant (lower right) we find terms that lead us to assume a conclusion to the negotiations following a careful process of consultation (buying, payments, security in choosing, expenses) as if, notwithstanding certain limits, the relationship created has created the expected result. It is significant, however, to underscore that these terms are those that were elicited by the lowest number of subjects (freq = 3 < 6) and elicited last. (range >= 3,1).

looking for tour packages via Internet is expressed in contradictory terms. It appears that "time saving" (among the candidates for the central nucleus) predominates, contrary to what is shown in looking for tour packages via traditional channels where "waste of time" is found among the elements of the central nucleus.

Another dimension expressed in contradictory terms is the economic dimension. In this case as well, "savings" appears to dominate among the candidates for the central nucleus. The representation is in contrast as well with "loo-

Table 5 - Application of the program Evoc 2000 «Rang x Fréquence» table relative to the associative networks "Looking for tour packages via traditional channels means..."

Minimal frequency = 3		Intermediate frequency = 6		Average range= 3,1	
Frequency >= 6, Range < 3,1				Frequency >= 6, Range >= 3,1	
agency	26	3,077		line	7 4,857
security	20	1,750		guarantee	7 3,857
waste of time	14	2,500		agent	6 3,833
advice	10	2,800		catalogs	6 3,833
trust	8	2,375		mobilize	6 3,333
human contact	8	1,625		research	6 3,500
human relations	7	2,571			
higher costs	6	2,667			
experience	6	2,167			
reliability	6	1,500			
3 >= Frequency < 6, Range < 3,1				3 <= Frequency < 6, Range >= 3,1	
slowness	4	3,000		smaller offering	5 4,200
time	4	2,250		expenses	5 4,200
competent persons	4	1,750		leave the house	5 3,600
to know (someone)	4	1,500		friends	5 3,200
traditional	3	2,333		less information	4 4,750
help	3	2,000		brochure	4 4,500
assistance	3	1,667		newspapers	4 3,250
direct relationship	3	1,667		photo	3 6,000
				payments	3 5,000
				higher costs	3 4,333
				browse	3 3,667
				security of choice	3 3,667
				buy	3 3,333

The "Rang x Fréquence" table on "looking for tour packages via Internet" is noticeably different from the preceding one and is characterized by the absence of elements referring to interpersonal relations. Instead, it shows the term "impersonal" found in the lower right quadrant (3 = frequency > 6 and maximum range of 3,1).

Among the candidate elements for the central nucleus, reference to security concerning the source of information disappears completely. In fact, in the peripheral elements we find the term "insecurity". The temporal dimension of

king for tour packages via traditional channels" where the term "higher costs" appears among the candidates for the central nucleus. The "Rang x Fréquence" table on "looking for tour packages via Internet" is different as well from the preceding one because of the presence of new elements. In the upper right quadrant we find the term "new approach". This, in a way, seems to synthesize the terms present both among the candidates for the central nucleus and on the periphery inherent to the phase of information collection (finding out) with reference to various special conditions in researching (ease, immediacy, speed, practicality, from

home, direct access).

The breadth of information appears to be confirmed both among the candidate elements for the central nucleus (more choice) and the peripheral elements (wide choice; larger offering; complete picture; bargain).

In contrast with the peculiar advantages of the Internet, the dimension of risk emerges. The term "to risk" is located among the candidates for the central nucleus. However, among the peripheral elements we find some specifications: connected to the vastness of the Internet are also the risks of "dispersion", "becoming lost", "lack of security", etc.

the lexical units present in the corpus of texts have been categorized, one can work on the "metatext" produced by the classification using discourse analysis procedures. DiscAn calculates the probability of transition from one category to immediately preceding or subsequent ones (first level Markov chains). The probable chaining of semantic nodes, represented by the thesaurus categories, can thus be calculated. For each node the degree of reception (input) and emission (output) can then be calculated and its role in the semantic map of the corpus can be defined. Nodes with greater input than output are defined *absorbing* nodes nodes with greater output than input *diffractor* or *source* nodes,

Table 6 - Application of the program Evoc 2000 «Rang x Fréquence» table relative to the associative networks
"Looking for tour packages via Internet means..."

Minimal frequency = 3			Intermediate frequency = 6			Average range = 3,1		
Frequency >= 6, Range < 3,1			Frequency >= 6, Range >= 3,1					
Speed	27	2,259	new approach	10	3,500			
Save	15	2,867	last minute	9	3,556			
more choice	14	2,429	image	7	4,143			
risk	12	2,750	from home	7	3,286			
easy	12	2,333						
save time	7	2,429						
find out	6	2,333						
immediacy	6	1,667						
= 3 Frequency < 6, Range < 3,1			= 3 Frequency < 6, Range >= 3,1					
larger offering	5	2,800	costs	5	4,800			
research	5	2,800	insecurity	5	4,800			
wide choice	5	2,600	time	5	4,200			
freedom	5	2,000	bargain	5	3,600			
complete picture	4	3,000	trips	5	3,400			
convenience	4	2,250	waste more time	4	4,250			
practicality	3	2,667	impersonal	3	6,333			
vast	3	2,333	direct access	3	5,000			
			become lost	3	5,000			
			dispersion	3	4,667			
			expenses	3	4,667			
			reserve on-line	3	4,333			
			search engine	3	4,000			

5.3. Example of Application of the DiscAN Program

Associative networks can also be processed using DiscAn (Discourse Analysis), starting not from the lists of associated words but from a kind of "metatext" (a categorization of all the lists of words by means of a specific category system). DiscAn (Discourse Analysis) is a computer system for content and discourse analysis designed by Pierre Maranda (Laval University, Quebec, Canada: 1990, 1992). Once the thesaurus has been constructed, i.e. when

and transmitting nodes, which neither reduce nor extend the discursual dynamics of the corpus but have a simple, connective function, are defined as relay nodes. It is also possible to record the semantic "activity" of a corpus depending on the intensity with which each node functions as absorbing, diffractor or relay.

"Corpus dynamics" is a measure of the semantic power of a node (tag) in a network as expressed first by the ratio out-degree/indegree ($d+/d-$). Thus, if a tag scores=1, it is strictly a transmitter node, i.e., a simple relay. If it scores >1, it is a partially absorbing node because it "receives" more than it

"emits".

DiscAn then performs a further computation: tag indegree multiplied by its frequency, i.e.,

$$(d- x f) + (d+ x f).$$

This formula measures a tag's contribution to the "activity" of a semantic network.

DiscAn also produces a "summary of corpus dynamics" as a basis for semantic cartography.

On the basis of this data a map can be drawn to illustrate discourse dynamics - the activity and role of the more significant nodes-categories. Although associative networks cannot be directly assimilated to 'discourses', the sequence of elicitation of the words associated with the stimulus image has something in common with discourse - a morphological structure that can be analyzed in terms of its internal relations to produce an overall picture.

Associative network data analysis strategies using Spad-T and DiscAn have different objectives, with the former producing structural configurations of the semantic field as a function of the subject group and the latter the discourse dynamics underlying the associative process that has produced the associative networks. They are therefore complementary, not alternative strategies, as the examples below will show.

Referring to the illustrative research case found above and departing from the original word lists, before anything else, 12 categories for the words associated to the stimulus "looking for tour packages via traditional channels means..." and 11 for words associated to the stimulus "looking for tour packages via Internet means..." were respectively created. By applying the DiscAn program, it was possible to visualize the results obtained in two maps containing the categories having the highest frequency, or rather, the categories having major factors activity and the most probable links among the categories.

Concerning "looking for tour packages via traditional channels", the reference to "sources of information" recurs as much in the first quadrant of the "Rang x Fréquence" table produced by the Evoc program, as in the sources of the DiscAn map. The new information obtained via DiscAn is the relation among the elements expressed in terms of probability. "Seeking information" results strictly connected to "interpersonal relations" ($p = .114$), as the "reliability" of the source is connected to "interpersonal relations" ($p = .120$). "Temporal aspects" are connected both to "seeking information" ($p = .071$) and to "interpersonal relations" ($p = .119$).

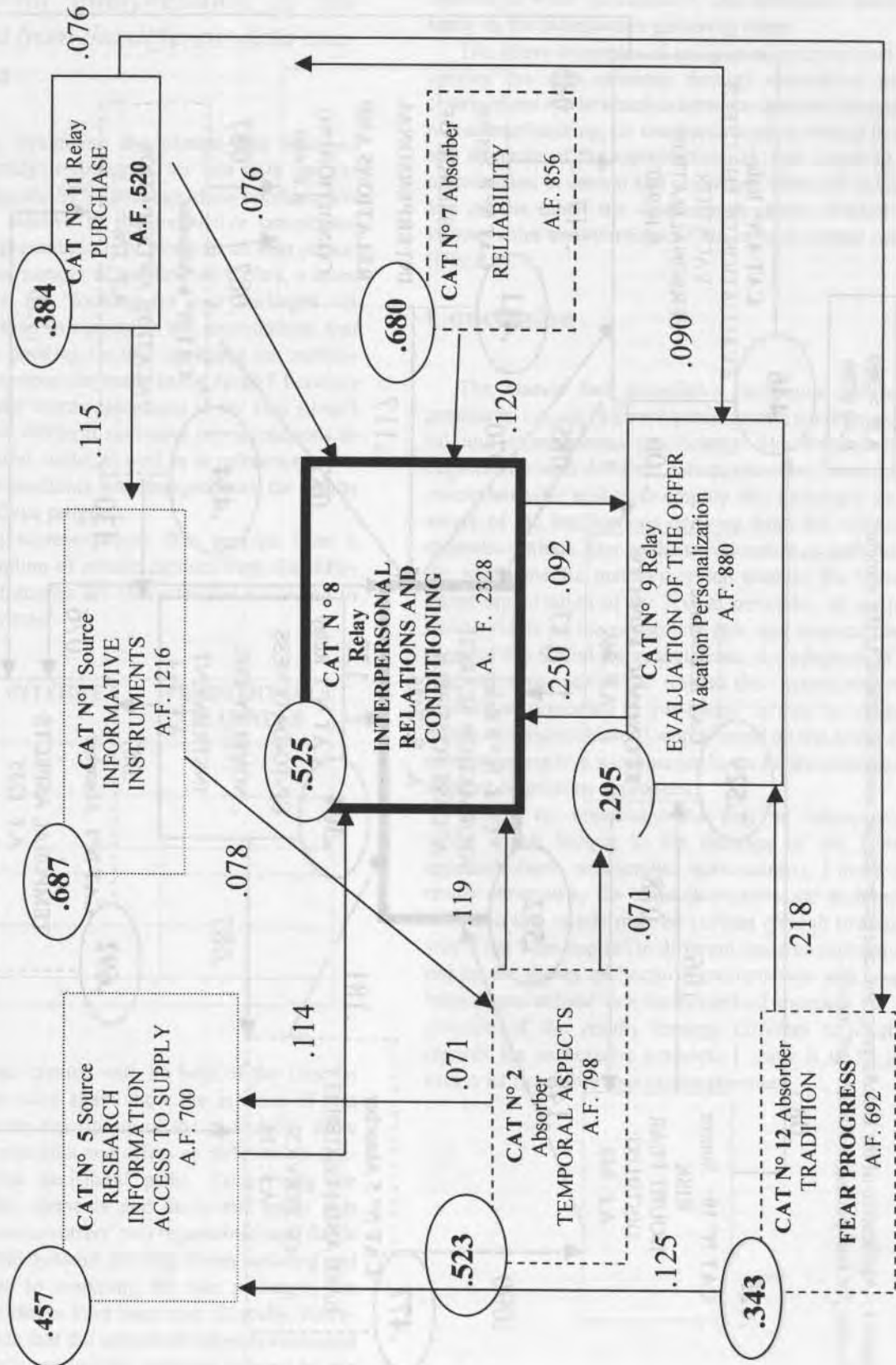
After having referred to the "purchase" phase, the DiscAn program added new information such as a comparison between the "informative instruments" utilized ($p = .115$) and the 'temporal aspects' ($p = .078$). The reconstruction of a complex discursive dynamic infused with meaning,

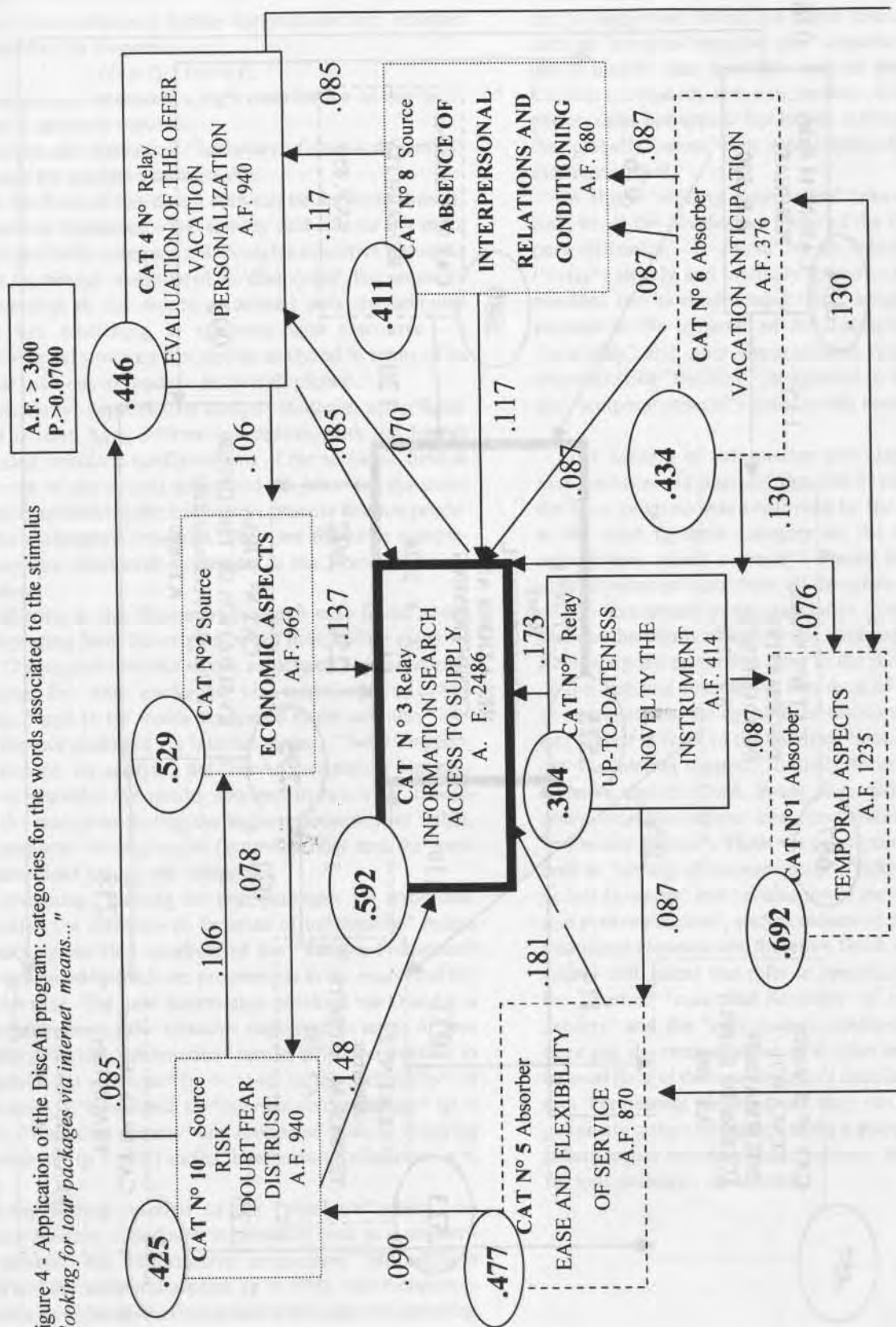
experience and valence have been met. This dynamic does not, in fact, result linear, but rather circular with elements such as "temporal aspects" and "characteristics of traditional channels" that permeate various phases of the run. Causality, a linearity in the succession of the identified categories, does not appear but rather, a circularity of thought that globally passes from a descriptive to an interpretive-evaluative level.

In short, "seeking information" takes on the "source" role, while the "evaluative phase of the offer and vacation personalization" is found in an intermediate position ("relay") strictly and mutually linked to the "interpersonal relations and its conditioning role", assigning the inclusive position in the dynamic of the discourse ("absorber") to "reliability" and other characteristics related to traditional channels (like "tradition" as opposed to fear and progress) and "temporal aspects" related to this economic transaction.

The breadth of information provided by "looking for tour packages via Internet" that had already emerged using the Evoc program was confirmed by the DiscAn program, as the most dynamic category on the map results "seek information, access to supply". Placed in the center of the page, it received input from all the other categories, constituting a crossroads in the associative dynamic in the passage from the disadvantages to the advantages of the Internet. Reviewing the terms that refer to the three sources present on the map and considering that most of these have negative connotations, the dynamic of discourse reveals that surfer placed in front of the stimulus "looking for tour packages via Internet means..." initially focus on the limits and negative aspects ("risk, doubt, fear, distrust", "absence of interpersonal relations and conditioning") together with "economic aspects". Then, via connection elements (relais) such as "novelty of the instrument", "information search and access to supply" and "evaluation of the offerings and vacation personalization", surfers rediscover its advantages over traditional channels and therefore finish the associative discourse with terms that refer to specific positive aspects of the Internet: "ease and flexibility of service", "temporal aspects" and the "anticipatory function of the vacation". Here too, the reconstruction of a rather articulated representational field of the tourist/surfer's decisional path have been met. Permeating various areas, they run from negatively to positively polarized aspects along a discursive dynamic that passes across meaning and experience attributed to looking for tour packages via Internet.

Figure 3 – Application of the DiscAn program: categories for the words associated to the stimulus "looking for tour packages via traditional channels means..."





5.4. Transversal interpretation of the results derived from the different data analysis strategies

In synthetically evaluating the picture that emerged using the various analysis strategies, we can state that the results obtained using the SPSS package allow confirmation of the hypotheses relative to the evaluative component implicit in social representations of research on tour packages. In this particular sample of tourists/net surfers, a more positive connotation for "looking for tour packages via Internet" is shown than in respect to the connotations that are associated with "looking for tour packages via traditional channels". The comparison made using Spad-T between the frequencies of the words associated to the two stimuli introduces us to two different opposing representations in reference to the central nuclei as well as in reference to the peripheral elements quadrants that emerged from the results obtained using the Evoc program.

The contrasting representations that emerge from a transversal interpretation of results derived from the different data analysis strategies are characterized according to the following key criteria:

KEY CRITERIA	INTERNET	TRADITIONAL CHANNELS
Interpersonal Relations	-	+
Source Reliability	-	+
Time Saving	+	-
Money Saving	+	-
Possibility of choice	+	-
Risks	+	-

The graphic maps created with the help of the DiscAn program allow us to once again show the salience of that kind of criteria via the description of the probability links among the various elements and offers us different reconstructions of the two decisional paths. Concerning the reconstruction of the elements and decisional paths that emerged from the tourist/surfers' two representational fields along a conversational dynamic passing across meaning and experience attributed to searching for tour packages, we believe that the hypotheses have been met. Globally, however, we must conclude that the sample of subjects examined does not seem to fully exploit the potential offered by the

Internet to work "prosumer". The Internet is used prevalently in the information gathering stage.

The above examples of analysis techniques used in processing the data obtained through associative networks clearly show the interaction between data and analysis technique, emphasizing, on one hand, aspects related to content and structure of the representational field (Spad-T) and its organization in central and peripheral elements (Evoc2000) and on the other, the discourse dynamics implicit in the various roles and functions of the various textual categories (DiscAn).

Conclusion

The classic free association technique gained some popularity among different paradigmatic traditions of general and experimental psychology, like behaviorism and cognitivism with different assumptions and meanings. Any researcher who wishes to employ this technique should be aware of the implications deriving from the various paradigmatic options. Due to the social nature of both the episodic and semantic memory which enables the meaningful latent organization of the lexical networks, in particular if he/she refers to the constructivistic and interactionist paradigm of the Social Representations, the adoption of classic free word association, as well as the "associative network technique" presented in this article cannot be reduced to a purely atomistic chain of words based on the linear sequence of response to a stimulus (as in the behavioristic and subsequent cognitivist approach).

Despite the impression that may be induced by using terms which belong to the heritage of the behaviorist approach (such as stimulus, associations), I hope that the reader attracted by the "associative network" technique described in this article may be curious enough to look at the way it has been applied to different research programs inspired by the theory of Social Representation and how it has been contextualised in a multi-method approach for a triangulation of the results through different techniques. As regards the associative network, I leave it to its users to assess its flexibility and informativeness.

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