International Journal of Advanced Research and Review

www.ijarr.in

SEMANTIC NETWORK ANALYSIS OF BILINGUAL STUDENTS ARABIC/FRENCH AND MONOLINGUAL FRENCH STUDENTS

Ali Sassane

University Putra Malaysia, Department of Foreign Languages, Faculty of Modern Languages and Communication, MALAYSIA. Email:ali.sassane@gmail.com

ABSTRACT

The study of semantic networks has already started with Hendrix (1979) and Fahlman (1979) in their respective studies about partitioned networks and propagation markers networks. These studies are directly related to the field of artificial intelligence for representing and storing in the memory. The psychologists (Collins and Quillian, 1969, 1970) who proposed a hierarchical structure for the study of memorization. This model has proven ordered hierarchy in their study about the response time to the sentences: “A canary is it an animal? “A canary is it a bird? “ In fact, the study of semantic networks could help us understand how semantic networks are organized in the mental lexicon? What are the types of relations that these words among themselves in the mental lexicon? To answer these questions, we want to make a comparison between the semantic networks of Algerian students bilingual Arabic / French in Algeria and French students in France to apply the technique of free association.

Key words: Free associations, mental lexical, inclusion relations & endogenous relations.

INTRODUCTION

Word association test research on verbal association plunge its roots in a very old past of the experimental psychology (Bourdon, 1895, 1902; Cattell, 1887; Galton, 1879; Trautscholdt, 1883). Thus, this technique has become famous thanks to the psychologists and psychoanalysts like(René Roussillon, 1992; C. G. Jung, 1969).According to Laplanche and Pontalis (1968: p. 15), free association is a:

> “Method of expressing without discrimination all the thoughts that comes to mind, about different elements: word, number, picture and dream spontaneous”.

It is a common method within psychology which has been used to reveal the private world of an individual, including his verbal memories, thought processes, emotional states and personalities etc. In a word association test, stimulus words are projected orally or in written form to the subjects who must respond with the first word which comes to their minds and this word is referred to as a response word. Psychologists examine the feature of the response words, and sometimes the amount of time it takes to respond. Word association indicates the interrelation of words in one’s mind, which refers to “the link or links that connect different words in some manner in a person’s mental lexicon” (Schmitt & Meara, 1997). In recent studies, researchers found that there is a great deal of consistency in the response words in word association tests produced by subjects, which suggests that speakers of a language have a similar kind of mental connection between words (Zhang, 2009). Thus word association pattern is considered by linguistics researchers as a reflection of the way the words are stored and linked in one’s mental

lexicon, and word association test is regarded as an important approach in studying mental lexicon. According to (Doise & al., 1992, P. 26) the technique of free association swords consist in present topics word “inductor” from which the subjects will produce other words. However, our research is part of a perspective of cognitive psychology whose purpose is in psycholinguistics. The main objective of this heuristic experiment was to get several graphs representations of semantic networks of the mental lexicon of two students groups, to make a comparative study. Knowing that in a semantic network sare units (inductors words) and arcs that connect these(conductors words)to nodes. These nodes represent both the words mentioned by (conductors words), and also to explain the different relations between the (conductor word) and nodes. We suppose that the study of the relations of semantic networks allow us to test the following hypothesis: representations of various nodes of semantic network sin both groups are they influenced by their cultures and personal knowledge of the world?

I. STATE OF ART

As regards the technique off re associations, the specialized literature is abundant because it provides to us very extensive study results that have been realized in L1and L2.For example, inL1,several types of lexical links were examined (Neely,2007). The most frequent concern antonymy (hot / cold), synonymy (outdated /obsolete) and hyperonymy (bird /sparrow), but there are also links collocational (get on / stairs) and various associative links (cat /dog). Probably, this facilitation means that the words used in these pairs are strongly associated in memory. However, facilitation by semantic links without associative value as also been demonstrated (Frenck-Mestre & Bueno, 1999). In L2, substantially observed the same effects as inL1. The antonym relations, synonyms and hyperonymy facilitate visual identification of the second member of a pair of words built on these relations and collocation relations and association (de Groot & Nas, 1991). Regarding the relations by association, several bilingual studies show that this relation is effectivewithinL2 asin L1, but it weak sensor disappearswhenitp resents the context and word target word in different languages (de Groot & Nas, 1991). These results are valid in presentation conditions that prevent the subject to make predictions about the types of relations that are proposed. However, if the provision of the termsof the mental lexicondoes not followalphabetical orders, what is the organization? In this case, the words are not independent of each other. Sometimes it's hard to imagine a term without thinking about those around: can we think about the “cold” water without thinking simultaneously to “warm” and “hot”? But in this context, how are connected words? We must not think that the words of a language cover the reality of a regular, though different from one language to another, like the pieces of a “puzzle”. The question is not easy because it can have several words that express the same concept (*leopard* &*panther*). While others are not lexicalized concepts (how is the name a *dead plant*?). Sometimes the meaning of several words is the same when they have one or more characteristics in common (mother, sheep, hen or princess are female beings). Many models have tried to explain the second habitations words in the mental lexicon, but all converge to two major types of theories: the “atomicglobule theory” and the “cobweb theory”. The “atomic globule theory” confirms that the words are built from a common set of “atoms sense” (in fact semantic primitives), and that the words are linked because the speakers created them. First, the appellation is seen as an assembly of pieces; secondly, they are considered full with their characteristics and form a network (theories of verbal meanings). In fact, the consensus is not total, and the researchers are now turning to the second type of representation words in memory, which has been in evidence. However no experiment has shown conclusively the existence of semantic primitives.

Furthermore, over the past decade, researchers are particularly interested to the study of memory disorders in adults. In this direction, Burke and Peters (1999) have compared the responses the responses of dementing and non-dementing older adults on word association. They suggest that the level of response variability in word association is influenced by age. Burke and Peters measured between-participant variability in two ways. Firstly by examining the proportion of each

participant's responses that were the second most popular response to each item and secondly by counting the number of unique responses each participant gave (unique in that no other individual in the cohort gave that response to that stimulus). They found no contribution of participant age to either measure. They did find differences however in the words that were given as the most popular (or dominant) responses. There was only 60.5% overlap in the three most popular responses to stimulus items across the two cohorts. Burke and Peters (1986) also examined variability across cohorts in terms of the type of response given. Following Deese's (1962) criteria, they classified responses as either paradigmatic or syntagmatic. Paradigmatic responses were those that shared form class with the stimulus item as well as sharing features in terms of meaning (e.g., boy-girl, wise-clever, carrot-vegetable). Syntagmatic responses were those from a different form class than the stimulus item and as such they were words that could co-occur with the stimulus in a sentence (e.g., phone±ring, formal±dress, blue±sky). Burke and Peters found that the majority of responses were paradigmatic, and that the proportion of paradigmatic responses was not influenced by age. This finding is important as several studies have revealed a reduction in the proportion of paradigmatic responses in older adults with dementia of the Alzheimer's type suggesting that such a reduction might be a marker of a breakdown in semantic memory.

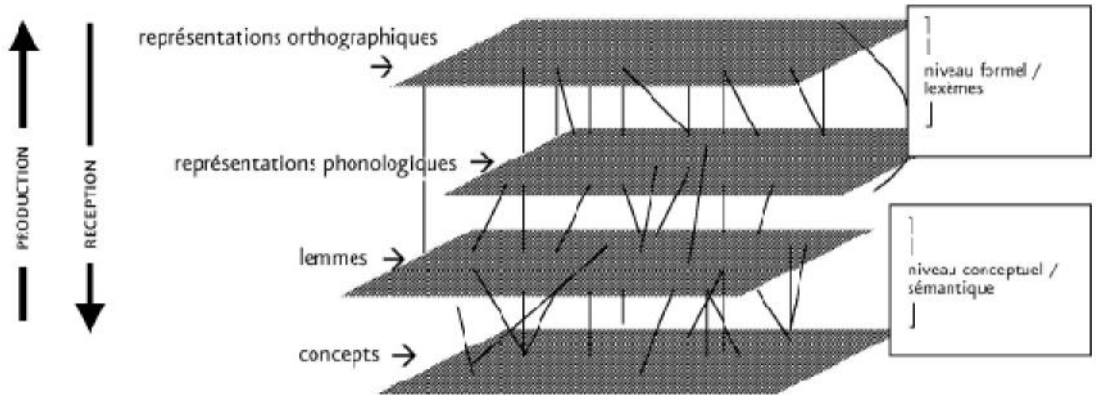
MENTAL LEXICON

All teachers and educationalists insist on the importance of vocabulary to establish meaningful communication. Several lexical researches have attracted more and more interest among psycholinguists. Thus, the study of the mental lexicon has attracted the attention of researchers over the past thirty years. The concept of mental lexicon generally refers to the set of words (or lexical unities) constituting the language of a community or of an individual. Many theories use this concept to reflect the organization of words, semantic memory containing concepts (Collins & Loftus, 1975). In the early designs, this lexicon was likened to a kind of dictionary, where words were described a sin dependent units each other. Morton (1969) has the mental lexicon as a system composed of independent functional units: logogenes (or system "word generation"), where each corresponds to a word logogene. The treatment system is modular, concept ualized as a system of "arrows boxes". The boxes represent autonomous systems containing information that are clean and operating them specifically. Thus, the processing performed on this information can only be achieved when the previous processing is completed; this does not preclude the possibility of parallel processing of different information. For if the words were stored independently, any dictionary, "The Larousse" dictionary for example, would be useless if the words were inscribed in the human mind at random, without organizing principle. Thus, tens of thousands of words known by the subject become inaccessible if they were not arranged in a functional principle.

> "We feel that the words are there, insides, available in physical form we emitor receive.(...)The words are not in our head like plumsin a bag, especially since it would take several bags, one for the words to hear, one forwards to read, one for the words to pronounce, one forwards to write, etc., and a whole system of relations between these bags. " (Champagnol, R. 1989, p.53).

Today, researchers agree that often the words of the mental lexicon of the native language (L1) ranges from 20,000 to 150,000words, but most estimates are around50,000 words (Aitchson 1992). In addition, the mental lexicon has at least three different storage levels: level of memory concepts; the level of lemmas ("lexical items forum specified phonological form [but] semantically and syntactically specified" Levelt1992: 5); and the level of lexical-phonological and orthographic representations of words. Levelt's model is too general in as much a sit takes into account all the operations of language production, preferred model Heather Hilton (2002: 3) to represent the L1mental lexicon.

Figure 1. Le lexique mental en L1



This mapping is a simplification of the reality it seeks to describe. First, the filling of the" planes" of the network is too symmetrical, because the units are stored at each level information already grouped into bundles (see the model of the mental lexicon proposed by Aitchison, 1993:197orbyPrince, 1999:341). Psycholinguistic research of oral language reveals the complexity of each part-semantics and formal-this simplified model: the "phonological level" would include syllables subnets, a "prosodic frames", etc. (Levelt 1992: 10-11; Botet al. 1997: 312-13), and it remains to be done to sort out all components of syntactic-semantic networks. For the purposes of our consideration of the mental lexicon of two languages, storage, separate or integrated.Cette question a déjà été soulevée dans les années 50, par Weinreich (1953). Dans son modèle, il distinguait trois relations possibles entre les deux lexiques, visualisés dans la *figure 2*.
Insituation (a), the two lexicons are integrated; in the case(b), they are separated and it is directly from the concepts that can access to the shapes of both; assuming(c), the two languages are separated, but you have to have access to a word of the foreign language (L2), go through the mother tongue(L1). These can be shown below.

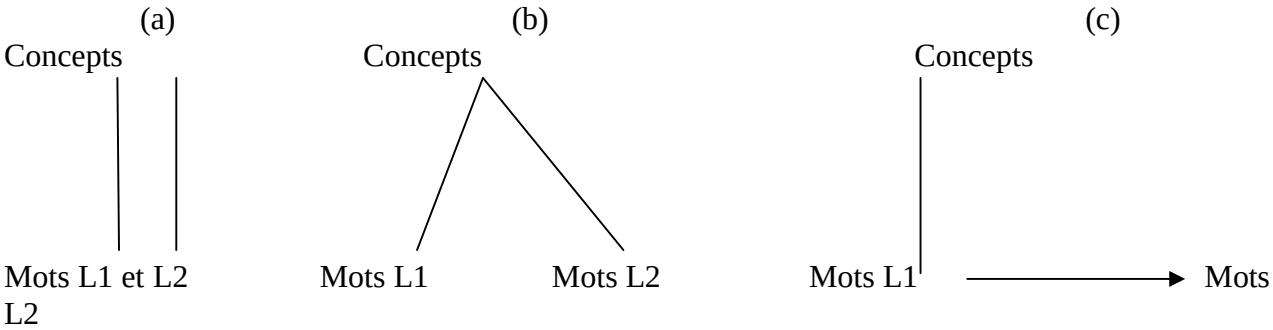


Figure 2. Trois représentations possibles du stockage des mots L1/L2

According to Weinreich, an L2 learner goes through a stage corresponding to (c) to progress to a stage (b) or even (a). Several researchers have tried to test this model. So, Potteret al. (1984) attempted to reject the hypothesis shown in Figure1c (to find a word in L2it must pass throughL1) in favor of the hypothesis1b (lexicons of two languages are stored separately, with direct access concepts to words in both languages). To do this, they asked their subjects to produce word sin L2in the following two conditions:
-Seeing an image corresponding to the requested word;
-Seeing the equivalent word in L1.

Their subjects having shown themselves faster to produce the word in L2at the sight of the image that equivalent word in L1, they deduced that, to produce aL1L2word, it was not without itL1oftheword, but the concept in order to find the matching word in L2. There would thus bea direct path concept of access to the L2word (*Figure 1b*), but no direct way in verbal forms L1 and L2 of those (*Figure 1c*). KerkmanandDeBot(1989) attempted to test the hypotheses shown in *Figures1a* and*11b*. They conclude that the storage of the words of L2 is probably different depending on the one hand, the learninglevelL2, and the other characteristics of the word in question.

Furthermore, studies have hypothesized about the existence of a relationship of polysemy between the words belonging to two foreign languages. Thus, Grainger (1993) shows that if presented to subjects first the word `` *four`*` (which, with different sense, available in English and French), then they will react faster that both French 'in English words having a meaning connected to "*four*" in both languages (like French. *cooker*, English. *five*). The presentation of a single form thus leads all activating two meanings and two semantic networks (in two languages). This suggests that the storage of the forms and meanings of these is common and not separated. Dijkstra & van Heuven (2002) have shown that the lexicons of two languages have an integrated storage. In a test of lexical decision where he asked several topics read belonging words in different languages, the slowdown observed in the reactions of these subjects when they have to go from one language to another, does not exceed the middle notes differences reaction time for each language concerned. Mudler (2005) shows the same in the field of phonological aspects of words. Thus, in a test lexical decision, the reaction time of Dutch learners to recognize the French words is longer when the phonology of these words corresponds to that of a word "*dier"*significant "*animal"* in Dutch that the recognition, of the French word to say is slowed. If such interference exists, it shows that the two lexicons are integrated and simultaneously actived.

The different results show both the determination of researcher's to this field of study and their insufficient.

EXPERIENCE

In our experience, we designed the following experimental protocol: First, we took Algerian studentsaged20to18 years, bilinguals Arabic / French and 20 monolingual French students aged 18. Before starting our experience, we explained to each group the interest of our research which consists to compare the mental lexicon of student completely unknown attracted and motivated each group. Then we provided each student a sheet on which is a list of ten different words. These words belong to three different categories: names of animals, objects and adjectives. Each student must tran scribe the first three words that come to mind in front of each word "inductor". The required time allocated to this task was ten minutes; this time is relatively short because, we want to get immediate and spontaneous responses.

RESULT

This experience allows us to get several types of relations inside each semantic network such as inclusion of relations in a field, endogenous relations, etc. In this article, we consciously wanted to limit ourselves only to these two relations because we prefer to talk about other relations in a future article.

1. THEINCLUSION RELATION

This is a fundamental link that corresponds to the type of knowledge and it allows to discerning between the relation of inclusion and belonging.

According to the process of the answers of subjects, each word is connected to another word through a semantic relation which expresses the type of these relations in a semantic network. For example, in Figure 1, among the words evoked by the two groups of students, we find that the stimulus "brush" is associated with the word "hair", expressing the concept of "compound" and "artist" expressing the idea of "belonging". As for the Algerian subjects, they associated the word

to the field of “painting” from which the nomination of “painting”, “painter”, “tool”, “picture”, “color”, “drawing”. It should be noted that we were intrigued by the semantic networks associated with the following words “tool, makeup”, implying that several among bilingual semantic networks as “drawing”, but also “makeup”, “artisan”. They could be inter connected and overlap each other according to the customary practices. This is aesthetics, which the French subjects were not referred. In other words if we continue to expand the semantic network of each word for two groups, we see that it is difficult to stay in one area, because the words are related to personal practices.

Figure 2: Semantic network of Brush among bilingual Arabic/French students

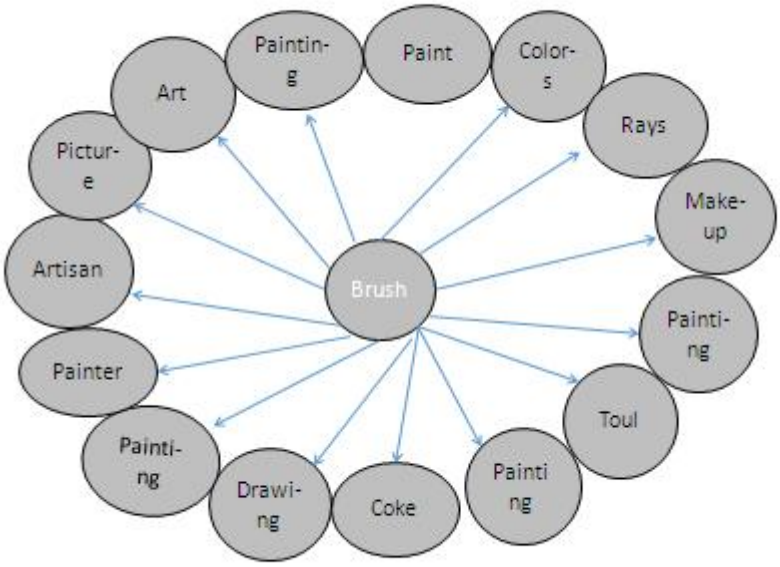
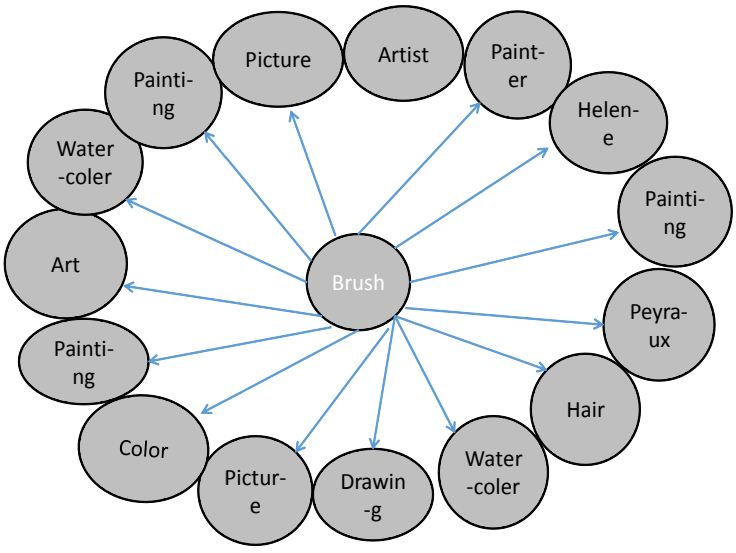


Figure 3: Semantic network of Brush among monolingual French students



2. ENDOGENOUS RELATIONS

The role of these relations was supposed to think about how to expand the representations associated with mental lexicon to get a general model of semantic networks? In this case, we assume that the words used in our daily life are endogenous to our culture and history.
In other words, our mental lexicon is it placed in a background related to our history and culture?
The explanation of these figures requires "Enactivist" theory or "Embodied Cognition"(Barsalou, L. 2011; Camarazza, A & Mahon, B. 2006; Borghi, A., Galenberg, A & Kaschak, M. 2004; Maturana, H&Varela, F.1987Varela,1989;1996),which consist to say that the words are rooted in a web of meaning. Thus, Figure 2 of Algerian subjects present the words evoked by the "conductor" word "husband" are:"love, happiness, responsibility, unity, security".
This web of meanings is part of the socio-cultural aspects. For Gergen (1995), this phenomenon means that depending on how the words are linked together they become significant. While, the same "conductor" word have evoked in French subjects "wife, lover, mistress, eglize, live together".

This is explained by the significantly similar words are activated to form a semantic network that can be expressed by socio-cultural representations characterizing a given society. It is in this sense that Emile Benveniste allows us to summarize:

"We discerned that the mental categories and laws of thought are, to a large extent that reflects of the distribution of linguistic categories." (Beveniste, E. 1958: 23). Moreover, we observe in Figure 2that the "conductor" word "husband" evokes:"spouse, security, protection". This web meaning I sconstructed from socio-cultural representations related to the role of "husband". We understand that the "husband" is supposed toensure the protection of the couple. In addition, we perceive the influence of religious culture in the following web meaning with the same "conductor" word "husband": "women, children, church". We deduce the "husband" is a man whoh as a "woman, child and they go to church". In this context, André Martinet concludes:

"We measure how far it is the language we speak determines the vision that each of us has the world." (Martinet, A. 1960: 45).

Furthermore, the words evoked by the "conductor" word "barrage"are seen in Figures3. They have been extremely intrigued by them because their web meaning refer to two different representations related to world views and heterogeneous "imaginary".
In this case, we remark a memory to rented of Algerian subjects through the words evoked: "water, stock, life, prohibition, security, squirrel, police, terrorists, barrier control, stop, problems". On the other hand, we remark a more quiet spirit among French subjects from their evocations:"water reserves, great, river, EDF-GDF, fall, groundhog, stop, ecology, water, river, beaver, swimming, lake".
We conclude that all these words of Algerian subjects are attached to verbal images in conjunction with apart icularreality. They refer to a "security" situation that Algerian subjects had to know or to live. Therefore, the relations between these words are woven and interconnected different lya web of meaning "endogenous". According to Emil Benveniste (1954):

"We believea universe that our language was first modeled [...] The language structure that the individual receives from hisentourage is primarily responsible for the way organizes his world." (Benveniste, E. 1954: 25).
Thus, in the same logic, A. Martinet (1960) emphasizes:

> "Each language has a particular organization of data of experience[...] A language is A communication tool that human experience is analyzed differently in each Community." (Martinet, A. 1960: 56).

Finally, it is important to signalize that semantic memory stores the words to categories. The categorization function is already known since Aristotle postulated that the categorization relation

was the basis of any sense of relations between words. This is explained by the fact that all thing or object was belonged to a category. For example, the word “elephant” belongs to the category of “mammals”, which it belongs to the category of “animals”.

Figure 4: Semantic network of Husband among bilingual Arabic/French students

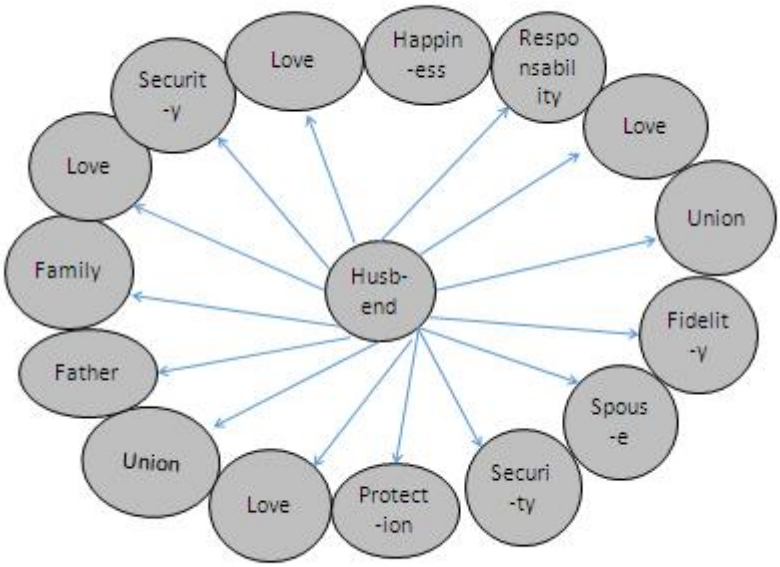


Figure 5: Semantic network of Husband among monolingual French students

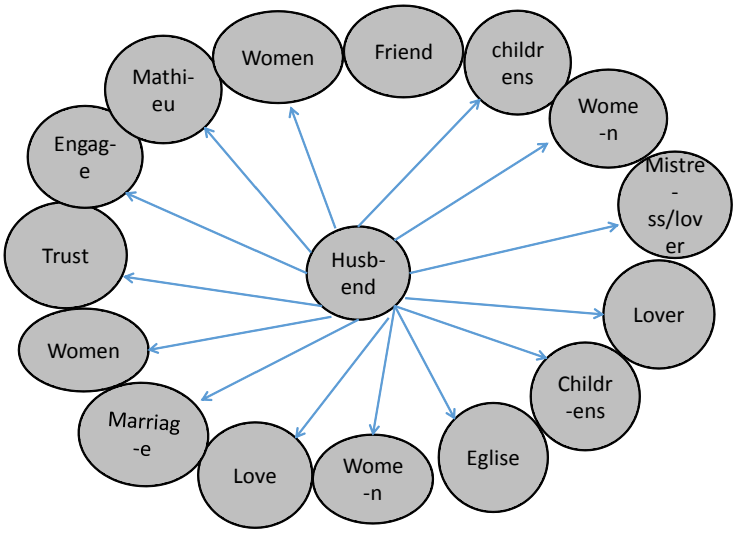


Figure 6: Semantic network of Barrage among bilingual Arabic/French students

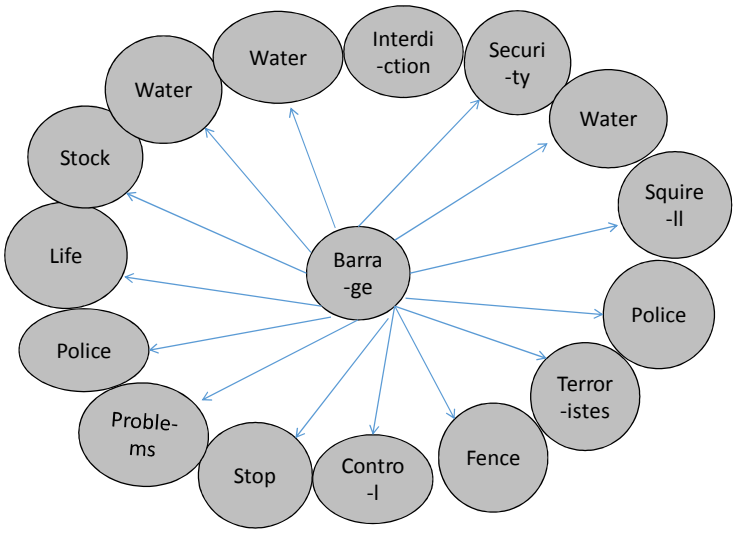
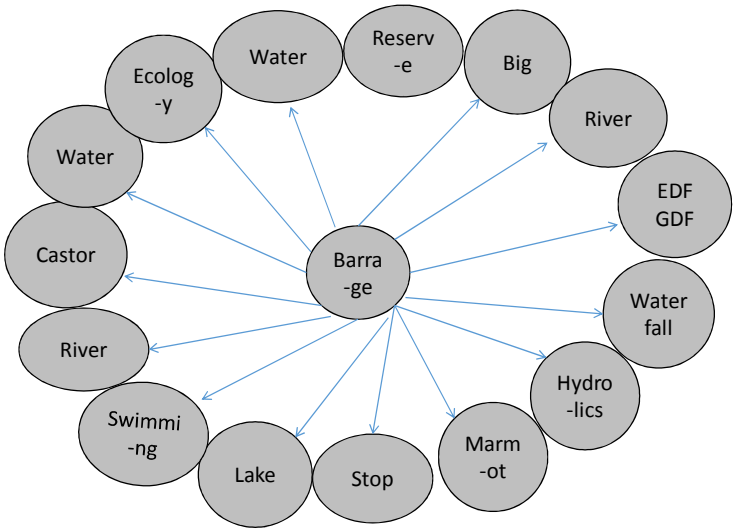


Figure 6: Semantic network of Barrage among monolingual French students



CONCLUSION

The technique of free associations has demonstrated the existence of different semantic network sin side each figure. These semantic networks form links that are influenced by the personal history of each group. In this regard, we assume that a cognitive process occurs in semantic memory which includes the words as semantic networks. Actually we can't show it here. This study also allows us to verify our hypothesis through the application of "Enactivist" theory. However, we prefer to remain modest compared to its results because, we expect to take more subjects participating in the next experiment before generalizing these results. However, the only criticism for this technique, despite its effectiveness, is that it depends on the mental state of the subject and the contingency.

REFERENCES

Aitchison, Jean. 1993. *Words in the Mind: An Introduction to the Mental Lexicon.* Oxford: Blackwell.

Abler, M & Obler L. 1978.*The bilingual brain: Neurophysiological and Neurolinguistic Aspects of bilinguism*. New York, NY: Academic Press.

Barsalou, L. W. 2008. Cognitive and neural contributions to understanding the conceptual system. *Current Directions in Psychological Science*, *17*(2), 91-95.

Bonafre, S. 2005.*Automatic activation and control of semantic memory: Associative Priming vs field divided by category and cognitive potential*, PhD thesis. University of Bordeau II - Victor Segalen.

Borghi, A. M., Glenberg, A. M., & Kaschak, M. P. 2004. Putting words in perspective. *Memory & Cognition*, *32*(6), 863-873.

Burke, D-M. 1999. *Language production and aging*. In: Kemper S, Kliegel R, editors. Constraints on language: Aging, grammar, and memory. London: Kluwer, pp. 3-28.

Burke, DM & Peters, L. 1986. Word associations in old age: Evidence for consistency in semantic encodingduring adulthood. *Psychology and Aging* 4: 283-92.

Bandera, L & al. 1991. Generative associative naming indementia of the Alzheimer's type. *Neuropsychologia*; 29: 291-304.

Benveniste, E. 1971. *Problems in general linguistics* (Vol. 8). University of Miami Press.

Benveniste, E.New trend in general linguistics, *Journal of Psychology*, Paris. PUF, January & June 1954, p. 23.

Caramazza, A., & Mahon, B. Z. 2006. The organisation of conceptual knowledge in the brain: The future's past and some future directions. *Cognitive Neuropsychology*, *23*(1), 13-38.

Cornuéjols, M. 2001.*Sense, meaning the image*. Paris, L'Harmattan, p. 20.

Champagnol, R. 1989. Method of lexical access. *Canadian Journal of Psychology Journal of Psychology* 01; 43 (4): 471.

Collins, Allan M. &Loftus, Elizabeth F. 1975. A spreading-activation theory of semantic processing. *Psychological review*, vol. 82, no 6, p. 407

Meaning of Words: The Semantic Network Dictionary. Acts of Italian Days Dictionaries, 28-29 January 2008. *Review Linguistica* N°34, pp. 65-70.

Dijkstra, A. & W.J.B. van Heuven. 2002. The architecture of the binlingual word recognition system: from identification to decision. *Bilingualism: Language and Cognition*, 5, 175-197.

De Bot, K. 2004. The multilingual lexicon: Modelling selection and control. *International Journal of Multilingualism*, vol. 1, no 1, p. 17-32.

de Bot, K. Sima, P & Marjorie, B-W. 1997. Towards a lexical processingmodel for the study of second language vocabulary acquisition. *Studies in Second Language Acquisition*19, 309-430.

De Bot, K & Schreuder, R. 1993. Word production and the bilingual lexicon. *The bilingual lexicon*, *191*, 214.

de Bot, K. 1992. A Bilingual production model: Levelt's speaking model adapted. *Applied Linguistics* 13, 1-24.

De Groot, A. M., & Nas, G. L. 1991. Lexical representation of cognates and noncognates in compound bilinguals. *Journal of memory and language*, *30*(1), 90-123.

Deese, J. 1962. Form class and the determinants of association. *Journal of Verbal Learning and Verbal Behavior*; 1: 79-84.

Ferand, L & Alario, F-X. 1998. Norms ofVerbalassociationsfor 336namesof concrete objects. *Psychologicalyear,98 (4), 659-709.*

Forster, K. I. 1976. Accessing the mental lexicon. *New approaches to language mechanisms*, *30*, 231-256.

Fahlmane, S. E. 1979.*A System for Representing and Using Real-work Knowledge*, MIT Press.

Findler, N. V. (Ed.). (*2014). Associative networks: Representation and use of knowledge by computers.* Academic Press.

Grainger, J. 1993. Visual Word Recognition in Bilinguals. In Schreuder, R. & B. Weltens (eds), *The Bilingual Lexicon*, Amsterdam, Benjamins, 11-27.
Gewirth, L-R, Shindler, A-G & Hier, D-B. 1984. Altered patterns of word association in dementia and aphasia.*Brain and Language; 21: 307-17.*
Heather, H. 2002. Models of lexical acquisition in L2: where are we now?,*Asp (35-36) http://asp.revues.org/1668.*
Hendrix, G-G. 1979. Encoding knowledge in partitioned networks. *Associative networks: Representation and use of knowledge by computers, 51-92.*
Kleiber, G & Tomba, T. 1990. The hyponymy Revisited: Inclusion and hierarchy. *In l*anguages *N°. 98: pp. 7-32.*
*Kerkman, H & K. de Bot. 1985.*The organization ofthe bilinguallexicon. *AppliedLinguistics inArticles, 34, 115-121.*
Jung, C-G. 1943. *The man to discover his soul: Experience of associations*. Paris (eds) Payot, p. 135-142.
Le Ny, J-F. 2007.Language; the mental lexicon; language comprehension; the organization of knowledge and beliefs; typicality.In J. & G. Y. Boudouin Tiberghien, *Cognitive Psychology. Vol. 1: The adult. Rosny-sous-bois : Breal.*
Lortal, G.*Lexicon organization to attend lexical access*. DEA: Theoretical Linguistics, descriptive & Automatic. University of Paris VII, September 2003.
Levelt, Willem J-M. 1992. Accessing words in speech production: Stages, processes and representations. *Cognition* 42, 1-22.
Levelt, Willem J-M. 1989. *Speaking: From Intention to Articulation*. Cambridge, MA: MIT Press.
Marquer, P. 2005.*The organization of the mental lexicon*. Paris (eds),L'Harmattan, pp. 5-14.
Mudler, K. 2005. The influenceof phonologyinword recognitioninFrenchL2. MAThesis, University ofAmsterdam.
Martin, A. 1992. *Degraded knowledge representations in patients with Alzheimer's disease: Implications for models of semantic memory and repetition priming*. In: Squire LR, Butters N.Neuropsychology of Memory. London: Guildford Press.
Martinet, A. 1960. *Elements of general linguistics*, Paris, (eds), Colin.
Nebes, R-D. 1992. Semantic memory dysfunction in Alzheimer's disease: Disruption of semantic knowledge or information-processing limitation? In: Squire LR, Butters N, editors.*Neuropsychology of Memory.* 2nd ed. London: Guildford Press, p. 233-40.
Laplanche, J., & Pontalis, J. B. 1968. *Vocabularyof psychoanalysis.*UniversityPressesof France,
Proulx, J. Inactivation The cognitive theory the personification; an attempt to better understand our language activity,*Journal of the Canadian Association For Curriculum Studies*. *Vol 2. N° 1 spring 2004, pp. 147-150.*
Prince, P. 1999. The lexicalLearninga second language: scalablenetworks. *ASp 23-26, 335-47.*
Prince, P. 1998. Theasymmetryeffectin the bilinguallexical processing. French *Psychology*43/4, 283-96.
Prince, Peter.1996. Second Language Vocabulary Learning: the role of context versus translations as a function of proficiency. *Modern Language Journal* 80, 478-93.
Roussillon, R. 1991. Eventnewsandreality testingin thepsychoanalyticfacetoface. *FrenchPsychoanalyticReview,55 (3), 581-596.*
Ricateau, M. 1975.*Semantic memory and long term memory*. Paris, CNRS.
Rosenzweig, M-R. 1957.Studies onthe association ofwords.*Psychologicalyear,57 (1), 23-32.*
Santo Pietro, MJ &Goldfarb, R. 1985. Characteristic patterns of word association responses in institutionalized elderly with and without senile dementia. *Brain and Language*; 26: 230-43
Sassane, A.*Cognitive and Neurolinguistic modeling bilingual Arabic / French in Algeria: the case of high school students aged 15 to 16 years*. PhD. University of Franche-Comté. Besançon, France. November 2010.

Singleton, D. 1999.*Exploring the second language mental lexicon*. Cambridge University Press, pp. 163-175.
Taft, M & Forester, K-I. 1975.Taft, M., & Forster, K. I. (1975). Lexical storage and retrieval of prefixed words. *Journal of verbal learning and verbal behavior, 14(6), 638-647.*
VanderLinden, E. 2006.MentalLexicon andword learning, FrenchJournal of Applied Linguistics, *Vol1. XI, p. 33-44*.
Valera, F., Thompson, E., & Rosch, E. 1991. *The embodied mind: cognitive science and human experience*. Cambridge: MIT Press.
Vygotski, L-S. 1985.*Thought and language*. Translated from Russian by Françoise Sève, Paris, Sociales Editions, p. 370.
Wang, H-L, Bing, W-D & Hou, Y. 2010. A comparison study on word association between English native speakears and Chinese English learners. *Candian Social Science, vol 6, N° 6, pp. 45-60.*
Whorf, B-L. (1956).*Language, Thought and Reality*: MIT Press,French Translation: Linguisticand anthropology. Denoël, pp. 7-15.
Weinreich, U. 1953. *Languages in contact.* New-York, publications of the Linguistic Circle of New York.
Champagnol, R. 1989. Method of lexical access. *Canadian Journal of Psychology Journal of Psychology* 01; 43 (4): 471.