Metaphorical Representations of the Thematic Identity of Social Groups in the Assistance of Information Retrieval

Abstract: Retrieving information from the Internet has been a difficult task for several reasons, such as the great amount of information currently accessible online. This reality has led different research areas to study filtering techniques to improve the accuracy of responses to specific requests. This paper introduces a user-friendly theoretical filtering methodology, called metafilter, based on the concept that people represent themselves and the world around them by using metaphors, which could be used for information retrieval. The ontological concept of facets as proposed by Ranganathan — Personality, Matter, Energy, Space and Time — guides our classification of metaphoric representations. A case study based on a discourse community in the Transportation field was used to illustrate our proposal.

1. Introduction
The increasing number of inscriptions currently circulating in different social contexts, largely stimulated by the advance of new technologies, has caused the adversity of a high degree of disinformation, as information-retrieval capacities lag behind the accelerating production of knowledge. Solla Price (1965) anticipated such growth in knowledge construction when he stated that academic production grows exponentially, duplicating its production every 10 years. Thinking in terms of the Internet, such possibilities are even greater. Structured as a network, this virtual communication medium allows an almost unrestricted supply of and access to data. This facility, as was pointed out by Pierre Lévy (1999, p. 13), has caused an explosive and chaotic growth of telecommunications, multiplying and accelerating the amount of available inscriptions.

Concerned with the conceptual problems that guide knowledge organization and processing, we have bent over not only the production, but especially the retrieval of available information, in consonance with studies in the area of social identity and memory. This is the framework of our work: to think about information retrieval from the Internet, including aspects of the identity representation of different social groups which use this huge database, with the purpose of allowing the filtering of relevant information.

On the one hand, metaphors are a linguistic resource that moves a given term into a sphere of meaning which was not originally related to it, with the purpose of representing the world by means of analogies. On the other hand, the set of meanings established within a group provides us a hint of the identity of such group, thus helping recognize both its more direct areas of interest and its knowledge-organization structure — and, consequently, its way of retrieving
information. If we can establish this identity, we may obtain the most relevant areas to the group and, thus, determine a possible filtering of the available information.

We assume that, in academic environments, the constituted social groups employ a given set of metaphorical representations for their object of study/work. Such representations establish an identity cohesion which allows group members to recognize themselves as such – an identity of the group itself – and to select terms and specificities relevant to the retrieved documents. The viability of this analysis served as a base for the development of an empirical framework, by means of a case study, to obtain the set of metaphorical representations a given social group – in our case, researchers in the Transportation field – employs to represent its object.

The theoretical proposition of a metaphorical filter to support information retrieval based on the thematic identity of social groups is based on the interactive view of meaning construction, and has the Nonchalance Principle (Berrendonner, 1989) as one of its theoretical backgrounds. Following, we will present a theoretical base according to which the representations guide the memory and identity of the social group, which in a way define its priorities and relevancies for data retrieval. Subsequently, we will establish an interface between metaphors and the classification of facets as proposed by Ranganathan, aiming at showing that such a relation can both evidence a group’s identity, as is illustrated by the case study, and guide the organization of the knowledge constructed and “consumed” by that social group.

2. Interactive Construction of Meaning

The conception of an interactive construction of meaning assumes a constant retro-supply among the interacting parties, so that any utterance is linked to the meaning of the previous one, and so forth. We claim that this construction is based not only on what is explicit, but also on what can be inferred from the utterances, as well as on what constitutes features of identity and memory.

2.1 Nonchalance Principle

Our proposition is based on representations as shared meanings constructed through an interactive-communicational process whose organization is ruled by Berrendonner’s (1989) Nonchalance Principle. It establishes an interface between communication and cognition according to which utterances contain little informative material, which is made possible because the speaker considers that the interlocutor already has an information background that will allow him/her to infer further specifications from a sub-specified utterance.

Such an inferential process, according to Berrendonner, is based on a set of correlated concepts that surround a nuclear and guiding concept. He names such set “conceptual constellation” and the nuclear concept “attractor”. This astronomical metaphor suggests that, in each communicational situation, sets of meanings are established in which occasionally one of the terms plays the part of gravity center of the system, allowing correlated concepts to be “activated”, ready to enter the utterance process and, consequently, the representational set of those involved in the communication.

The assumptions that support our conception of meaning take into account the conditions for the production of utterances, as they admit the occurrence of semantic shifts according to the several combinatory relationships adopted by the conceptual elements that take part in different communication situations. Based on
these principles, we assume the meaning to be constructed in an interactive situation between the one producing the utterance and the one “consuming” it.

We must also examine information transference, particularly in academic circles. It is mostly written/read and, in this sense, the practice of reading is seen as “knowing to be involved in an interaction with someone in a specific social-historical moment, and that the writer, as any other interlocutor, is using language from an established social position. To read is to be involved in a social practice” (Moita Lopes, p. 1996). This implies that the interlocutor carries a knowledge background which is necessarily assumed in the interaction process. Such background consubstantiates as a cumulative-dependent function of knowledge and experiences, being essential for meaning construction, which is not only a result of a symbolic transmission along a timeline (collective diachronic memories), but also – and above all – relates the parties involved in the communication, implying that this construction takes place in consonance with the cultural aspect of the social groups such parties belong to. To study these cultural aspects is also, in a certain way, to seek to understand the aspects of the group’s social identity and memory.

2.2 Identity and Memory

Le Goff (1996) points out that a revolution took place in the developments of memory along the 20th century, particularly after the 50’s. He attributes the technologies that appeared during that period – large calculators, for instance – a storing value that has changed the relationship between man and data storage systems. However, for the purposes of this article, what interests us most is the approach to memory as presented by Huyssen (2000, p.37), who states that “memory is always transitory, notoriously untrustworthy and prone to forgetfulness; in synthesis, it is human and social”, for we aim at considering how man establishes representations.

We consider forgetfulness as a constitutive element of memory, since memory is ruled by choices which end up determining what will remain as memory features and what will become traces that will later be forgotten. In this “game”, we assume identity and memory to be manifest by means of the discourse, since the representations are uttered by it. Pécheux (1999, p.50) defines memory as something understood in the intercrossed meanings of a mythical memory, of a social memory embedded in practices, and of a memory constructed by historians, which leads us to consider the discursive manifestations through which such meanings are exposed.

We can therefore assume, despite the impact of technology as a factor of interference in the construction of memory, that what interests us in memory studies is its human character, prone to failure. Being an essentially human phenomenon, memory blends with identity, each one strengthening the other. Phenomena that will be either forgotten or remain memorized derive from identity features that condemn them to one situation or the other, and are materialized in the discourse by the set of metaphors selected by a social group as the one that better represents its informational interests.

To speak of interests is, somehow, to bring forth the concept of relevance. To Saracevic (1970), in the realm of information retrieval, relevance is defined by the correspondence between a document and a question, by the degree of adjustment needed between the document and the user’s previous knowledge, and by the level of signification that aims at a purpose. We can thus infer that relevance criteria are random and personalized, since they assume both the user background –
which one may attempt to level, but will never match – and the notion of purpose – a variable that strongly depends on the timeline.

3. Representations

Our goal is to present the metaphors as a viable resource for organizing knowledge aiming at information retrieval, thus evidencing their guiding role in the construction of the identity of a social group. We will also attempt to show that a set of metaphorical representations can help organizing knowledge, establishing an interface with Ranganathan’s facets.

3.1 Metaphors

As we already said, a metaphor is a figure of speech which transfers a term to a sphere of signification which is not originally related to it, seeking to represent the world by means of analogies. Lakoff and Johnson (1980) suggest that humans organize knowledge by means of structures called Idealized Cognitive Models and that categorical structures derive from this organization. This proposal assumes that mental organization occurs by means of the cultural construction of world-knowledge schemes. In order to be represented, such socio-culturally established schemes are shared by members of the social group. The novelty of this proposal was to consider categorical representation as socially constructed. Based on this model, we suggest that features of social identity and memory of a given group are expressed by its chosen socially determined sets of metaphors.

Lakoff and Johnson also introduced the concept of ontological metaphor, a cognitive model that guides the representation of man in the world. We will displace this concept from world representation and apply it to the representation of a field of knowledge, thus proposing that the recurrent occurrence of this phenomenon organizes discursive manifestations. Based on the identification of metaphorical representations in an area of expertise, we will introduce a theory of knowledge organization which helps the members of the group to retrieve information more precisely.

Assuming that the metaphors represent socially constructed categories, we will now, before presenting the case study, establish their link to knowledge representations.

3.2 Facets

Thinking about representations of meaning leads us to the father of Library Science, Shiyali Ramamrita Ranganathan (1967). We assume there is no need to reinforce his revolutionary role in the fields of classification and indexing theory. His classification view, though new and with important repercussion in classification theory as a whole, reflected the modern conception of knowledge construction, which, between the 19th and 20th century, assumed that a given discipline had precise boundaries and a conceptually delimited theoretical base.

The organizational scheme proposed by Ranganathan defines concepts that will be very useful to our analysis, especially those of entity – focused on the concrete or conceptual – and of universe – a set considered within a given context. The concept of entity is important to us because it refers to the area to be represented, so we consider that it establishes a group’s conceptual identity boundaries. To conceive any filtering mechanism is, above all, to define the nuclear concept of the area of interest. The concept of universe relates to the already mentioned referential constellation, evidencing the set of metaphorical
representations that illustrates this field of knowledge. We assume the universe of concepts to be “contained” in a group related to a nuclear concept.

Following, we will identify, by means of a case study, the set of metaphors representing the Transportation area and relate them to the five fundamental categories presented by Ranganathan – Personality, Matter, Energy, Space and Time.

4. Case Study
The case study that illustrates our analysis was performed with a research team of 28 professionals with different levels of expertise and from different regions of Brazil, devoted to Transportation studies. Our purpose was to cover a common and recurrent set of representations which worked adequately to an expressive number of professionals.

Data collection was made by means of a questionnaire sent and received by e-mail, seeking to catalogue representations of this area by analyzing the following question: “What does Transportation mean to you?” Our methodology was to examine the linguistic periods in which the professional explicitly used – or obviously intended to use – verbs to be or to represent, as in “Transportation is...” or “Transportation represents...” Such analysis revealed a recurrent use of terms comprehended by three semantic spheres: a) network / set / system; b) movement / displacement; c) means / form / proceeding.

The examinations of such data suggested that representations relative to semantic group (a) related to the Personality category, as it synthesizes the essence of this entity. Thus, the ontological metaphor of the Transportation area for our team is: “Transportation is a systemic network”.

In semantic group (b), we realized that the linguistic periods were mostly constituted by sentences employing the verb to be, but including the meaning – whether explicit or not – of verbs to make possible and to allow. Therefore, this set was related to category Matter, as it referred to the work people perform to achieve a final product, that is, its function: “Transportation is movement”. We can illustrate by quoting a reply from a researcher: “As an economical and social activity, I would say Transportation is the set or resources used to allow displacement...”

Group (c) contained metaphorical representations that related the Transportation area to category Energy. Ranganathan’s definition of this facet is that energy is manifest in spiritual, mental and physical activities which are translated into something inanimate, animate, conceptual, intellectual or intuitive, but taking humans as a reference. Since we are actually dealing with the representations humans make of their field of knowledge, we decided to use such category, because what interests us is how the linguistic community conceptualizes this phenomenon. In our case, the metaphor used was “proceeding”, as it deals with how it is done. An illustrative example is: “Transportation are the necessary proceedings to displace people, goods or information”.

Facets Space and Time, concerning Transportation, are inherent to its very essence, since they are closely related to the concept of “displacement”, and the members of this social group will hardly conceptualize ideas so close to their usual activities. According to Lakoff and Johnson (1980, 3), “In most of the little things we do every day, we simply think and act more or less automatically along certain lines” and, also, for a group’s identity and memory.
This idiosyncrasy of the Transportation area reinforces the idea that the set of metaphors establishes – or is established by – the identity of the group that employs it, determining relevancies which then will define what must – or must not – be retrieved.

5. Proposed Metafilter

To see a group’s identity as a guide for organizing produced and retrieved knowledge aims at proposing a conceptual framework that supports the creation of an information-retrieval filter to be used in a culturally globalized world. Therefore, to conceive such filter implies dealing with the varied accumulated knowledge from members of several social groups.

In order to establish a closer relationship between the theoretical discussion on communicative processes and a reflection on filtering, we insist that, in the communicative process, the only common contents within a given social or cultural group is that whose meaning (information) is considered as common contents by the members of such community, thus characterizing its identity features.

Examining the interactive process of meaning construction, we somehow relate the information retrieval process with the reception axis, and not only with the production axis, since information is associated to meaning, thus assuming a semantic understanding of the utterance. We also admit, as stated by Eco (1986), that the text generation process embeds an anticipation of the interpretation, since “decoding” a verbal message means to have not only linguistic ability but also a competence of a varying circumstantial essence, which allows for assumptions and the repression of idiosyncrasies. Such abilities imply a certain degree of subjectivity which – though it may seem a paradox – the proposed metaphor-based filter attempts to minimize.

To design the metafilter, we have attributed the metaphorical representation a similar characteristic to the one we applied to Ranganathan’s facets, as both are contextually situated within a given domain or subject. The metaphorical representations also reflect the specificities of a social group inserted in a domain or that employs it, allowing its members to recognize themselves as participants.

The metafilter conception requires two metaphorical sets for the several knowledge areas: one representing essential conditions and the other representing accessory conditions. In our studied area, the essential conditions include categories Essence, Function and Way. They are correlated to facets Personality, Matter and Energy, respectively represented by metaphors “systemic network”, “movement” and “proceeding”. The accessory conditions, for reasons already exposed, are represented by facets Space and Time, occupying generic categories called Peripheral, with no metaphorical representation.

6. Conclusion

Any classification criterion, with its subsequent relevant criteria, ultimately seeks to fulfill user expectation. In this case, our conceptual filtering proposition aims at employing metaphors that represent the categories satisfying the conditions necessary to represent a given area of knowledge, and therefore can characterize the social group’s identity. On its turn, this identity establishes the relevancies according to which the group’s informational demands are organized. Therefore,
the metaphors may support an identity representation that both allows the group to recognize itself as such and specifies the concepts used in its field of expertise.

Notes
I Article derived from the author’s Doctorate thesis called *Binômio Lingüística-Ciência da Informação: Abordagem Teórica para Elaboração de Metafiltro de Recuperação da Informação* (linguistic-information science binomial: theoretical approach for the design of an information-retrieval metafilter), defended at IBICT/UFRJ (Federal University of Rio de Janeiro, Brazil), oriented by Prof. Dr. Maria Nélida Gonzáles de Gómez.

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