Parallel Session 28: Discourse analysis contributions to PCST study

SCIENCE POPULARIZATION PRACTICES FROM A LINGUISTIC POINT OF VIEW

Daniel Cassany & Carmen López Ferrero

UPF

Abstract

Contrasting specialized discourse and popularizing discourse from a linguistic point of view, we show that the most relevant feature of popularizing discourse is *linguistic variation*. We illustrate these characteristics with the analysis of Internet forums and chats produced by Spanish language people affected by the HIV, by diet diseases or by the use of drugs. The questions that guide our research are: 1) which semantic characteristics of scientific concepts can be understood by the public?; and 2) which referring expressions (names) are the most adequate? The results show that: a) discourse linguistic approach provides useful tools to categorize and evaluate science popularization practices, and b) the study of these practices from a linguistic point of view is a necessary requirement to think about the way science is communicated to society and understood by people.

Keywords: discourse, linguistic variation, science popularization, Internet communication

Text

Theoretical framework and objectives

The discourse linguistic approach provides useful tools to categorize and evaluate science popularization practices. Contrasting specialized discourse and popularizing discourse from a linguistic point of view, we show that the most relevant feature of popularizing discourse is *linguistic variation*. The questions that are guiding our reflection are:

1) which semantic characteristics of *scientific concepts* can be understood by the public at large?; which *conceptual relations* are the most relevant and appropiate, and why? (Cassany, López & Martí 2000);

2) which *referring expressions* (names) are the most adequate in popularizing science? (Cassany & López 2002)

We illustrate these two points with the analysis of Internet forums and chats produced by Spanish language people affected by the HIV, the use of drugs or by diet diseases.

Popularizing science and Internet

Our aim is to characterise the use of science language by virtual Spanish comunities related to the specialized medical fields mentioned. Three aspects define discourses within those communities: a) they show some typical features of each electronic techno-genre (chat, forum, web, etc.); b) they include a diversity of Spanish geographical, generational and social dialects; and c) they use an oustanding amount of terminology and specialized forms, coming from the corresponding scientific disciplines, used at popularized

contexts by non-expert people (chats) or addressed to non-expert people (forums), which acquire connotations and special meanings.

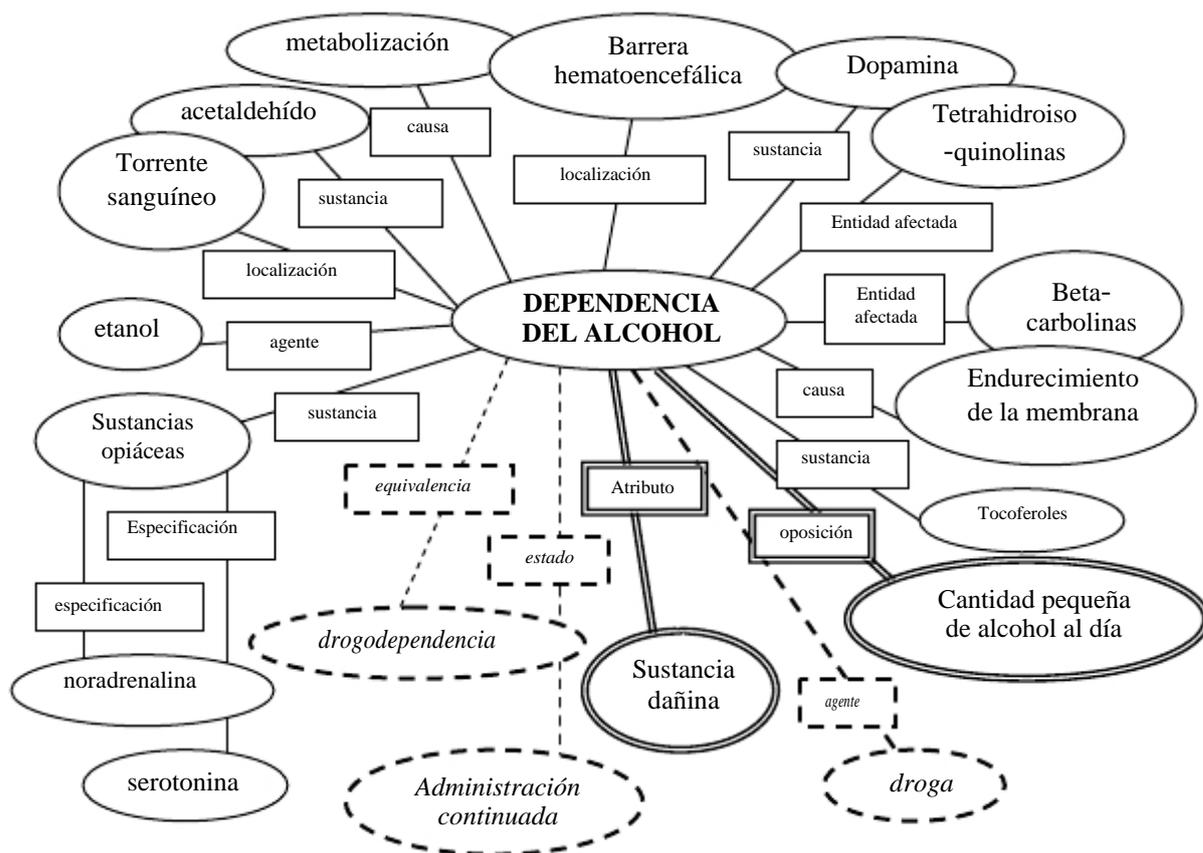Science semantic and lexical variation at Internet

We analyse discourses at Internet from two perspectives:

1) The study of *conceptual networks* of terms employed in the messages. We compare the conceptual networks of the used terms with those of the same terms used within more specialized scientific discourses. This comparison allows us to stablish the *meaning variation* that is going on at a term depending on the context (more o less general or specific) where it is used.

2) The description of the popularizing strategies (discursive, lexical and rhetorical) unfolded to *name* and *present* scientific concepts within messages. These analyses show the greater or lesser formality of discourse and the degree of shared knowledge among virtual communication participants.

Those two analyses are made on the discourses produced within the following web sites: egalia.com, interactua.net, foro-vih.org/preg, biopsicologia.net, foroanorexia.com, www.lasdrogas.info, foroanorexia.com, from 1999 to 2003, with 1082 messages and 140.770 words.

Semantic variation at conceptual networks

In the following diagram we show the changes that suffers the conceptual network of the term *alcohol dependence*. The central concept is the nucleus that stablishes different links with other secondary concepts. With a straight line we stand out the links that are kept in the two domains (specialized and popularized), and we specify the type of stablished relation (according to De Beaugrande & Dressler 1981). With a discontinuous line we point to the conceptual links that disappears at the popularized text. Finally, with a double line we mark the new conceptual relations that are stablished at the popularized discourse in front of the specialized source (Cassany y López in press).

metabolización

acetaldehído

Barrera hematoencefálica

Dopamina

Tetrahidroiso-quinolinas

Torrente sanguíneo

causa

sustancia

localización

sustancia

Entidad afectada

localización

etanol

agente

DEPENDENCIA DEL ALCOHOL

Entidad afectada

Beta-carbolinas

Endurecimiento de la membrana

causa

sustancia

Sustancias opiáceas

sustancia

equivalencia

Atributo

oposición

Tocoferoles

Especificación

estado

Cantidad pequeña de alcohol al día

especificación

drogodependencia

noradrenalina

Sustancia dañina

agente

serotonina

Administración continuada

droga

Naming variation

As for lexical issues, whe have identified different types of popularization practices at Internet, depending on the status of scientific knowledge (new or shared):

a) The contrast between two terms and the use of metalinguistic forms, which introduce *new* concepts whithin the communicative context:

A **diferencia** de otros fármacos de las mismas características, la mirtazapina tiene un efecto serotoninérgico más específico, con lo cual se evitan algunos efectos secundarios. [...] **Sin embargo,** la mirzapaina tiene efecto antihistamínico, [...]

b) Presupposition and naming proforms of very little semantic value, that involve *shared* information by participants:

Estoy muy bien, físicamente perfecto, en realidad nunca me he encontrado mal, me enteré de mi **"cosilla especial"** de forma totalmente casual.

c) Creative uses to present scientific concepts, such as comparisons and metaphors, which combine the *new* information *with the shared* one, and the use of general and spontaneous terms of science origin:

No os voy a enumerar todos los padecimientos, ni quiero hablar de tratamientos, nauseas, y todas estas cargas que compartimos, sino de la carga que para mi fue más pesada durante algún tiempo: el silencio, el secreto.

Implications of the study

The study of science popularisation practices from a linguistic point of view is a necessary requirement to think about how scientific language is used by non expert people in their interaction. In this sense, it allows to evaluate the shared scientifc knowledge and the way concepts from science are understood.

About the first question arised, our studies conclude that relations of *localization* and *cause* are the more frequent meaning variations introduced at scientific concepts to be understood by lay people. They are also new relations that place the concept, that is to say, contextualize it and stand out what causes it. They are conceptual relations which give answer to questions like who?, why? and where? The answers to these questions allow lay people to understand and give social relevance to scientific knowledge.

As for the second question is related, discursive (definitions, contrasts between two terms, for example), lexical (uses of specific terminology together with proforms) and rhetorical (metaphors, for instance) strategies are required by lay people to talk about science. In relation with these strategies, the main difference with specialized discourse lies in the use of some type of discursive (like constrast) and lexical (like proforms) practices in popularizing science, that are strange in specialized context.

Bibliography

DE BEAUGRANDE, Robert & DRESSLER, Wolfgang (1981). *Introducción a la lingüística del texto*. Barcelona: Ariel.

CASSANY, Daniel, LÓPEZ, Carmen & MARTÍ, Jaume (2000). "Divulgación del discurso científico: la transformación de redes conceptuales. Hipótesis, modelo y estrategias.", *Discurso y sociedad*, 2/2, 73-103.

CASSANY, Daniel & LÓPEZ FERRERO, Carmen. (2002) "Sida y seropositividad en Internet", *Quark. Ciencia, medicina, comunicación y cultura*, 24, 62-75.

— (in press) "El uso de conceptos científicos en Internet: valoración conceptual y denominativa", *Seminario Ciencia, tecnología y lengua española: la terminología científica en español*, Fundación española para la ciencia y la tecnología (FECYT), Madrid.

PCST International Conference - www.pcst2004.org

4