TOPICS ON
RELEVANCE THEORY

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[Dados Catalográficos]

Sumário

A Teoria da Relevância (TR), tal como proposta por Sperber & Wilson (86/95), pode ser identificada como um dos programas de pesquisa sobre a interface comunicação/cognição mais influentes das últimas décadas. De fato, buscando uma abordagem inferencial centrada na cognição humana, como alternativa aos rígidos modelos de códigos anteriores, a TR apresenta todos os ingredientes de uma sistematização teórica ambiciosa. Fundamentada em dois princípios-alicerce, o Princípio Cognitivo da Relevância e o Princípio Comunicativo da Relevância, e desenvolvida através das noções de intenção informativa e comunicativa dirigidas pela noção de relevância, enquanto relação custo-benefício, a TR propõe-se descrever e explicar as bases da racionalidade da comunicação humana. Além disso, como bem o demonstra o volume de textos e experimentos sobre a TR hoje, tanto na Europa quanto na América do Norte, a riqueza deste programa de investigação, irradiando elucidações para as diversas áreas, atrai o pensamento crítico internacional na direção de corroborar ou falsear suas potenciais predições. Isso significa que, como proposta consistente e de alto valor explanatório, a TR desencadeia um forte impacto interdisciplinar em que convivem as incontáveis tentativas de mostrar-lhe a aplicabilidade com os esforços teóricos para determinar-lhe as limitações e fragilidades.

A obra que se segue é uma tentativa nas duas direções: a de mostrar o enorme potencial de aplicação da TR e, paralelamente, de trazer à tona algumas de suas dificuldades e desafios para os próximos anos. Nas origens desse trabalho, estão algumas edições do Celsul, de 1997, 2006 e 2008, e especialmente a colaboração dos programas de investigação dos cursos de Letras da Pucrs e da Unisul.

No primeiro capítulo, *Jorge Campos* levanta questões que considera problemáticas para a Teoria da Relevância, em função de alguns de seus compromissos cognitivistas essenciais. O texto, de caráter reflexivo e provocativo, questiona a noção mesma de relevância, na medida em que se pode considerar a irrelevância de muitos dos processos comunicativos cotidianos. Para corroborar seu argumento, Jorge Campos reapresenta sete exemplos desafiadores, já considerados

em seu artigo *A teoria da relevância e as irrelevâncias da vida cotidiana* de 2005. Por fim, a complexidade das noções de custo e benefício, cruciais e problemáticas para a sustentação da teoria, é discutida pelo autor.

No segundo capítulo, *Fábio José Rauen*, levando sistematicamente em conta os desafios ao princípio cognitivo de relevância propostos por Costa em 2005, propõe uma abordagem alternativa, onde o princípio cognitivo de relevância mantém-se intacto, mas sob a contingência do desgaste energético do indivíduo e de um *background* de conhecimentos saturados, ou seja, considerados como garantidos, otimamente certos, transparentes e irrelevantes. O texto de Rauen apresenta também uma revisão da Teoria da Relevância, com base em Wilson (2004), que pode ser instrutiva como leitura introdutória às discussões desencadeadas neste livro.

No terceiro capítulo, *Ana Ibanõs* questiona a alegada existência de incompatibilidade entre os sistemas da lógica demonstrativa e o raciocínio prático. A autora argumenta que os princípios e as regras da Lógica Clássica estão incluídos, de modo mais flexível e amplo, nas inferências sintáticas, semânticas e pragmáticas que fundamentam o raciocínio diário. Seu texto baseia-se na Teoria das Interfaces Externas e Internas de Campos (2004), cujo argumento central é o de que a abordagem correta para a análise de processos inferenciais é dependente do tipo de interface assumida para a explicação de conceitos e fenômenos.

No quarto capítulo, *Jane Rita Caetano da Silveira* argumenta que, considerando uma interface com as ciências cognitivas, a textualidade deve ser analisada através do conceito de relevância, sem o qual a integração dos diversos aspectos que garantem a unidade do texto ficaria inexplicada. O texto, em seguida, analisa a eficiência da abordagem guiada pela relevância na análise de peças comunicativas, em contraste com a utilização dos conceitos tradicionais de coesão e coerência.

No quinto capítulo, *Fábio Alves* aborda a explicitação em tradução. Segundo ele, é preciso analisar as características psicolingüísticas no processamento inferencial de processos de explicitação, sobretudo aqueles de tradutores expertos. Alves questiona quais seriam os fatores que levam tradutores a contornar problemas de codificação e de contexto, através da explicitação, no texto-alvo, de trechos do texto-fonte cujas características impossibilitam que a tradução baseie-se apenas na

codificação lingüística da língua-fonte. Com base nos conceitos de explicitação condicionada pela norma lingüística e explicitação estratégica de Englund-Dimitrova (2005), o texto discute exemplos de explicitação de tradutores novatos e profissionais e propõe a aplicação dos conceitos de explicatura e implicatura para modelar as características inferenciais da tradução a partir de uma rede de decisões motivadas pela relação esforço cognitivo/efeito contextual e pela atribuição de relevância.

No sexto capítulo, *José Luiz Vila Real Gonçalves* discute o papel do arcabouço teórico da Teoria da Relevância para o conceito de competência do tradutor. O texto argumenta que a noção de competência deve ser concebida como a construção de sub-redes cognitivas em congruência com os fenômenos sócio-interativos vivenciados pelo indivíduo, e não como uma especialização geneticamente pré-configurada. Adotando o modelo sistêmico de Alves e Gonçalves (2007), o autor propõe a utilização de conceitos relevantistas para descrever a composição do sistema de sub-competências para a tradução. Gonçalves defende que a Teoria da Relevância apresenta congruência com os postulados conexionistas, apesar de sua base modularista, indicando processos de regulação e otimização de relações entre esforço e efeitos cognitivos na construção dos sistemas de conhecimento do indivíduo, o seu *ambiente cognitivo*.

No sétimo capítulo, *Heloísa Pedroso de Moraes Feltes* avalia a possibilidade de se construir uma teoria de interface que, utilizando o Princípio de Relevância, pudesse contribuir para a implementação de um nível composicional-computacional para inferências numa arquitetura de base conexionista, uma vez que se admita que a Lingüística Cognitiva e, em especial, a Teoria Neural opera com um algum tipo de composicionalidade e, operacional e circunstancialmente, com um nível computacional. A resposta que a autora procura orientar-se em dois sentidos. Primeiramente, o de encontrar elementos para o fortalecimento da adequação descritiva da Lingüística Cognitiva corporificada na hipótese da autonomia parcial de Harder (1999), evitando certos problemas causados pelo continuísmo sintaxe-semântica-pragmática. O segundo, o de levantar a hipótese de uma Teoria da Relevância reconstruída como uma teoria de interface com base no Princípio da Relevância, para a autora, um princípio capaz de sobreviver num nível computacional sem se comprometer com uma arquitetura modular.

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Relevance, kluges, emotions: provocative reflections

Jorge Campos

For more than 20 years now, Sperber & Wilson (1986/95/05) have been supporting a quite interesting and successful approach on the cognition-communication interface, the well-known Relevance Theory (RT). Two are the basic principles that hold the conceptual architecture of the theory in its classical form:

1. Cognitive principle of relevance
Human cognition tends to be geared to the maximization of relevance.

2. Communicative principle of relevance
Every ostensive stimulus (communicative and informative intention) conveys a presumption of its own optimal relevance– the stimulus is relevant enough for it to be worth the addressee's effort to process it and it is the most relevant one compatible with the abilities and preferences of the communicator. The degree of relevance is directly proportional to the relation between processing effort and positive cognitive effect. In identical contexts, the smaller the first the greater the latter and the more relevant the stimulus.

What follows is an attempt of generating provocative reflections about the theoretical basis of the RT. First, we discuss some issues concerning cognitive commitments presumed or presupposed by the RT; second, we question the intuitive character of the notion of relevance as adequate to various forms of communication, if we evaluate the innumerous irrelevances of daily communicative processes. Finally, we discuss the complexity of the notions of cost and benefit crucial and problematic to the foundations of the RT.

Let us start by assuming a debate between the belief of rationality presupposed by the RT and a skeptical view about the perfection of the human mind, as stated by Gary Marcus (2008).

Both basic principles of the RT, as above presented, are compatible with its three meta-theoretical suppositions: the evolution of the human cognition presupposes the cognitive principle of relevance; the massive modularity of the mind favors specific inferential modules and the rationality of the process of human

communication assures the relevance process *qua* an optimal relation between processing effort and positive cognitive effect.

So far, what we can say is that the Relevance Theory presupposes an understanding of the binomial communication-cognition as a systemic construction of the human history in its evolutionary path. The RT conception is compatible with the idea of direction and does not oppose to intelligent design theories.

Gary Marcus(2008), from the NYU Center for Child Language, in his most recent work, *Kluge – The Haphazard Construction of Human Mind*, states that the human brain/mind is formed by a clumsy collection of spare parts due to a random evolutionary history. According to him, we should give a negative answer to the well-known lines written by Shakespeare: "are human beings noble in reason and infinite in faculty?" Marcus states that there are many evidences to show that human cognition is made of uncountable "Kluges", a metaphor to artifacts used ad hoc that would have been designed for other purposes. To the infinite stimuli of the evolutionary process, what we get is an adaptational solution to an urgent problem, not to what is relevant. Built in such a way, the human mind works as a complex mechanism of the contingent determined by circumstances. The solving-problems skill far from being an ordinate and systemic set of logic operations is a kind of MacGyver's gadget that gives a solution that works independently of being or not being the best one. "It is not the most elegant solution to this problem, but hey, it works". This is what exactly happened with the astronauts on the Apollo 13 faced with a life-threatening crisis, they used sock, plastic bags and some duct tape to assemble a filter which allowed them to purify the air and return safely to Earth. It was an inelegant and inappropriate solution, but it worked. Yes, we are an example of cognition full of idiosyncratic gadgets. We have irrational beliefs; a memory that deteriorates with clumsy and obscure formats whose vagueness gives us no certainties about what we remember. We do not store files or pages in our memory, as we do with simple electronic devices, nor do we calculate complex numbers as any calculator does quickly and precisely. Our language capacity, apparently what distinguishes us from other species, is full of ambiguities, vagueness, and redundancies. Our emotions conflict with our rational decisions and our history has been drastically forged by unexplainable wars whose causes are not really precisely known. And what to say about the fragility of our minds that suffer with some

diseases that apparently have no adaptationist purposes at all? We make odd decisions that even impress ourselves and we vote in individuals without even knowing the reason and sometimes even against our own interests. We naturally accept fallacies and our *hearts have reason that even reason can not know*. Quite often we are in bad mood, do not reach orgasms and we are not happy when we should be. We suffer from severe problems caused by minor tribulations and we love to eat what is not really healthy. This is not the picture of the intelligent design, of the creationism, but of a random and haphazard evolution in which rationality is a surprise of survival in a chaotic perspective. As a matter of fact, Biblical Scholars had already pointed out the flaws in the human character through metaphors such as the serpent and the apple.

If, by one side, we favor the RT, then we can argue in the same terms of the Kluge. After all, we have no doubts that we, humans, aren't flawless. But let us consider, for example, the complexity in terms of understanding and communication that a trivial trip abroad comprises; from the restrictions issued in the passport to the air ticket purchase by the internet, embarking and disembarking, all communication in and between the flight, as well as maintenance aspects so that we can fly with no worries, all these seem like a miracle of communication and interactivity. And these procedures take place everyday between thousands of cities in the world in which millions of people and countless flights occur on time and in perfect safety. The same we could say about the technology of space ships and shuttles, as Apollo 13 herself, capable of carrying thousands of tons and flying smoothly into the air. It seems impossible to think about our mind as a kluge, if before such complexity all and every millimetric forms of contact are dependent upon an agreement about fine degrees of relevance.

And what to say about the war, so senseless in a catastrophic view, but an incredible phenomenon of strategy and communication precision? Computer science itself was born out of the necessity of precise messages, highly controlled missiles and bellic systematization. Normally we despise the rules of Logic; we accept fallacies one after another, but we have shown ingenuity in conceiving logic systems in their consistency, completude and decidability. How to explain the telephone, the radio, the Internet and all wonderful technologies of mass communication? Everything is dependent on the protocols of relevance. And we are capable of

transmitting information throughout a milleniar history with high levels of understanding; of translating a number of so different and complex languages in a way that allows us to even understand such strange and distant cultures. Everything is done through Relevance. We would not even be able to access our fragmented memory as if it weren't for the link of relevance. What would happen if we were not able to select what we need to understand a trivial exchange in a dialogue? Or if we had to access all files and paths to reach the understanding of a simple joke? Maybe, we would not live enough to laugh at it.

How would we decide between Kluges and Relevance, between a relevant mind/brain as an index of the intelligent design as well as evolution at random as a result from immediate pressures?

It seems that the classical behavior of scientific explanations follows a certain logic model in which either the system is perfect or chaotic. One can say that in a deductive system a mere contradiction trivializes its operations. From P & - P, it follows R, being R anything. The RT seems to commit itself to an intrinsic idea that human beings are driven by rationality. Kluge, however, states the other way round, in the sense that there is no way to talk about rationality when the evidences lead to a huge amount of incongruence. Maybe, the most obvious consideration is an advertence against extremes. Any radical alternative goes against the idea of experientialism and free will. If Relevance is taken as a strong tendency, we will be driven by it, with no alternatives; if chaos prevails, then nothing can guarantee the rationality of any option.

It might be the case that we are between the relevant and the chaotic, a little rational a little arbitrary building up our history by sinuous lines not circular ones. Why not then accept Kluges in our non-trivial deductions without falling into an appalling triviality?

Maybe the best way of understanding the conflict between the RT and a skeptical reflection as a Kluge is to construe a question abductively. If one favors the notion of relevance, then one gets the best explanation for the rationality of communication when it happens; on the other side, if one favors the mind as a Kluge, then one gets the best explanation to the countless discrepancies of communication when rationality doesn't happen. What is left then? The optimism of supporting the RT considering Kluges qua a matter of relevance in last instance, or the skepticism of

supporting Kluges considering the relevance to the individual as Kluge of the formal systems strict sensu.

Let us continue our argumentation by presenting the intuitive notion of relevance and its discrepancies concerning daily communicative trivialities. If the mind/brain is really a Kluge, we can reason in terms of the RT against the RT itself. How to explain a cognitive tendency to maximize relevance despite the innumerous examples of irrelevancies in daily communicative processes? We can't deny that within the RT framework, the idea of relevance is much more restricted; it only refers to phenomena of inferential ostensive communication and informative and communicative intentions. But, again, how to justify the amount of redundant utterances without positive cognitive effects that abound every day communicative contexts of ordinary people?

As Costa (2005) points out, daily conversation, leisure talk, small talk, unending highly redundant dialogues on the phone, the attention given to repeat and no longer informative news from the radio, television and the Internet; everything seems to be a never-ending practice of absolutely familiar irrelevances. Even the Internet with a massive amount of pages is basically browsed by the same paths. Internauts tend to pursue the same sites, being redundant in their choices. The same applies to romantic discourses in which love and friendship words are repeated to the exhaustion even for a lifetime. We could go on with the list talking about the typical urban autistic that never listens to what the other says, that is always worried about himself and his problems. Moreover, when we chat about the weather, politics and soccer, in which way are these talks really relevant? And if we mention political discourse, how is it possible to justify and explain the relevance of the ever present false promises, let alone the argumentative fallacies? And how about clichés, sayings and proverbs? Let us analyze these irrelevances a little bit more:

Romantic discourse

The romantic discourse is well known by its clichés. This is the case of the expression "I love you", repeated *ad nauseam* by people in love. It is a type of well known and trivial communication, whose redundancy escapes the idea of informative relevance. Its information is always the same in every token, in a way that it doesn't

suggest any benefits if we consider cost x benefit in terms of processing. One could argue in an intuitive way that information in such a case is linked to the emotional and that this unending exchange of the apparently dummy "I love you" results in a subjective happiness, thus paying off the irrelevance.

However, this well successful explanation pushes the notion of cost and benefit to different sets of possibilities; the first of linguistic nature and the second of psychological and emotional natural. If we suppose such a heteromorphy, how can we deal with both at the same time? Given that a romantic discourse is packed with highly redundant expressions and that is often present in our daily life conversation, the question that arises is how to match such features with a relation of cost/benefit information? A negative answer, in the name of the benefit of an undying love, would trivialize any other forms of communication, in the sense that emotional aspects would be enough to justify any unexpected option not predictable by the theory.

Small talk

Non-committal conversation present in social reunions is something that happens frequently between friends, men or women, in their free time. Such an environment is created with the purpose of leading conversation that far from being serious and committed to being informative helps to produce the light mood of such gatherings. As a result, there is no intention whatsoever of optimal relevance, just fun.

Dinners, strolls in the park, meetings at a Pub, leisure time are absolutely loose situations, one might say even irrelevant. Such conversations occupy an extraordinary time of man nowadays. In such cases, we could appeal to the idea of well-being as an underlying phenomenon that would explain these kinds of relationship. The communicative cost would be compensated by the benefit of irrelevance itself. But this would be foreign to the RT.

Mass culture

Mass Culture as stated by U. Eco in *Apocalypse Postponed*, for example, is that which by definition represents a broad spectrum with a great number of people involved. Thus it is the kind of culture in which newspapers, radio, television, magazines and so on occupy every space that information or popular expression would desire. But exactly because of this nature that mass culture is an enormous challenge to the ideas of the RT, as it is characterized by a number of features that oppose to the idea of low cost and high benefit. The first of them is the exceptional repetition of information quite common to different mass communication vehicles. Newspapers, television, magazines convey the same news; and people listen or read it more than once. Another feature of mass culture is that to reach a heterogeneous public it has to present trivial and non-complex information. More informative and complex content would represent more benefit. The same could be said about short and condensed news that lessens its analytical power. One might say that this is not only well suited with low cost but also with the optimization of relevance. But then the notion of relevance would be a notion broadened in a problematic way, towards the law of less effort or lower cost. What else, besides comfort, would compel a person to spend night over night watching television with almost no benefit instead of spending the same hours reading a good book? Moreover, why do mass culture products gravitate toward the sensational, an easy emotional appeal that leads to no privileged or high-level information? We could argue that emotional processing costs less than the intellectual processing, but there are no empirical evidences to such facts or to compare these kinds of communication.

Questions and answers

A question and answer situation can also serve as an example to the daily tendency to being irrelevant. It is well known that making questions is one of the most economic ways of chatting. Normally a question is of low operational cost and, if good, can trigger highly compensating answers. However, it seems that normally people prefer turn-taking conversation, waiting for their time to express their opinions, even if they are not desirable or opportune. As a matter of fact, most people complain that their partners in dialogues do not let them talk, because they are so self-centered that they do not engage in more interesting conversations even if they

would interest the other. At first sight, it seems that dialogues are not motivated by relevance but by the will of communicating and expressing subjectivity, personal opinion. Any conversation can be smoothly agreeable if one of the participants enjoy listening to the other. When both participants are eager to talk, not giving the turn to the other, natural conflict emerges. True to be said, there are people who practice relevance and benefit from the dialogues, but not many. What is at stake here is the idea that the majority follows the optimal relation of cost-benefit.

Telephone conversation

Another situation that can be an example of low level of relevance is conversation by telephone. Telephone represents high costs in operational terms and money expenditure. Apart from business purposes, people should not spend time with it, but that is not what happens, they normally make a wrong use of the telephone, with prolonged, repetitive and useless conversations. Empirical studies surely would demonstrate how irrelevant and repetitive the conversations on the cell phone are, when used for trivial intentions. McLuhan would characterize the telephone as a cool media because it requires active participation on the part of the user. But this is another story; we cannot identify quantity with quality. There is no doubt that telephone requires interactivity; and the fact that such interactivity is relevant is just serendipity; busy people will not waste their time on the phone with trivial conversation.

Greetings and contact

Greetings and mere contact exchanges are some of the simplest ways of communication, normally made of idiomatic expressions specific for each situation. Phrases such as *Good morning*, *how are you doing*? Everything is ok? Represent the kind of interchange where nothing more relevant is expected besides social interaction. They are mere speech acts resulting from convivial needs. It is obvious that such questions can trigger interesting conversations, but not necessarily. The true is that a social person spends a significant amount of time with these greeting games despite the fact that they are highly redundant and almost meaningless.

Redundant browsing

No doubt, the Internet has inaugurated a new era of intelligent communication. Different from the traditional media, as the television, browsing on the Internet makes it possible for an exceptional larger interactivity. First, because from link to link, the Internaut navigates at his own pace, looking for what he wants and decides to visit; second, because it is an infinite process once everyday thousands of new pages are inserted on the Internet, thus giving the possibility of radically increase knowledge with an extraordinary cultural benefit without an expressive cost raise. But what is new about it? Recent researches, Costa (2004), have demonstrated that people browse the same sites everyday. Facing the extraordinary richness of the Net, it is a real challenge to the idea that people are guided towards relevance. E-mails, chats, blogs, etc., reveal the same thing. It is a poor communication, repetitive and with very limited benefits, indeed.

Concluding reflections

As the RT in its core tries to be descriptively and explanatory consistent, with the two Principles of Relevance (cognitive and communicative), one might think that it must comprise explanations for the daily irrelevances, as above mentioned. A way of taking care of it would be to state that there is benefit involved. In the Romance discourse, for example, it is unquestionable the existence of emotional and affectionate benefits. Concerning small talk, the simple pleasure of it to compensate the stress of professional responsibility is obviously a benefit. Similarly, there is a very low cost in the consumption of mass culture, once the individual has a passive role in it. He can even watch a television program in bed, with the remote control in his hands, without any concern about really paying attention top what he is really doing. On the Internet, at first sight, everything seems easy, but the inferential process to decide which alternative links are worth browsing represents an implicit operational cost that must be reevaluated. If we compare it with the process of watching television, there is much more cost; being active means cost, even if the benefit pays it.

Such consideration leads to a very important signal not totally inconsistent with the RT, that is, people tend to be relevant, but they are guided by low cost more than by greater benefit. In reality, the Principle of Inertia prevails in uncountable situations, mainly in terms of informal or non-business like moments. It seems that the positive notion of relevance in which the benefit guides the cost works primarily when people are into a professional mode, with functional objective to generate knowledge. This activity contrasts with the huge tendency to leisure whose characteristics are quite different given that the emotional and sentimental profit, for which pleasure guides the process, characterizes another type of benefit whose low costs is one of the fundamental demands. In other words, if the notion of relevance seems perfectly adequate to communicative contexts aiming at objective information, two kinds of situations represent interesting challenges because they are problematic to the idea of cost/benefit: the valor of the emotional benefit and the tendency to inertia as factors that might create an unbalanced situation in the production and reception of relevant inferences if they are in conflict with informative aspects of a given communicative event. A jealous guy A, for example, given the high emotional relevance to him, can infer x as an alternative to y, although y would be much more relevant in terms of information than x. The same can be said about a lazy guy B that can select x and not y simply because x represents zero cost, although y might give him an optimal relation of cost/benefit. And the problem is that those examples are much more common and representative to what really happens in everyday life than the academic stereotyped situation of objectivity.

Finally, Let us discuss the notion of cost and benefit already mentioned before and its problematic complexity to the RT. Sperber and Wilson embrace the RT as a theory of ostensive human communication based on Principles of Relevance essentially linked to the intuitive dichotomy cost/benefit. In such a perspective, human cognition is oriented by a tendency of optimization of the communicative act that is fundamentally expressed in the attempt of offering/getting the maximal contextual effect with a minimum processing effort. To describe/explain the object of communication thus created, S&W organize a model of a complex rational behavior, with a non-trivial inferential basis that guides and complement a system of codes sustained by mutual knowledge among the interlocutors. Given the Relevance Theory, the act of ostensive communication comes with a presumption of optimal relevance as a result of a natural ability to Cognitive Sciences and this allows the

participants of the process to coordinate their inferences so that they can interact in a rational form of understanding. The bigger the contextual effect, the lesser the cost of processing; inasmuch as the relation between them is optimized, more relevant it is and, certainly, there will be a better understanding.

What follows is a set of problems, crucial to the RT by hypothesis and, still by hypothesis drastic to its pretension of both being an extremely rigorous theory that would apply to any kind of human communication. Even if we understand the notion of relevance as a technical concept connected to daily usage, it is only an intuitive motivation; even if we understand its technical use as of qualitative and comparative nature – and not formal, statistical or probabilistic; even if we understand the concept of relevance as a propriety with degrees of relation between cost and benefit (a very familiar notion in different areas of knowledge), we still have to reflect on the rigorousness of each of its components and their relation with close concepts, but not identical,still unbearably vague. As a matter of fact,

(a) Cost comprises:

- Cognitive, mental and neurophysiologic processing and so on;
- Processing of verbal language in the phonological level;
- The same for the syntactic level;
- Idem for the semantic level;
- Idem for the pragmatic level;
- Degree of accessibility of contexts;
- Degree of accessibility of the lexical memory;
- Degree of the calculability of deductive, inductive and so on inferences;
- Degree of perception of the cognitive environment.

(b) Benefit comprises:

- Degree of importance in terms of content/proposition;
- Degree of adequacy, connection and interactivity;

- Understanding of implicatures;

- Contextual implicature;

- Rhetorical benefit;

- Cultural benefits;

- Moral benefit; psychological benefit;

- Emotional benefit.

Given the range of what we can consider about any of the axis of the cost/benefit relation, it is quite difficult to evaluate them if more than one is happening at the same time. Let us illustrate the complexity of the question with two examples.

Let us suppose a context in which Mary wants to know John's whereabouts so that she can talk to him. Mary's friend answers her with one of the followings alternatives.

a) I saw him by afar entering Atlas Theater two hours ago.
b) I think that he entered that store cross the street half an hour ago with a parcel in his hand.
c) I don't remember where I saw him, but he was with a woman.
d) I don't now where he is now, but someone told me that saw his bike crashed by the sidewalk.

Considering the context aforementioned, a purely informative analysis would have its relevance in the said order: a), b), c) and d). The first one is adequate to the context and its cost processing; b) points out a doubt, what reduces the benefit, c) does not answer to the question where John is and d), likewise, with an even higher cost, does not reach the expectations nor offers any useful and precise information. However, if we consider the emotional context, it is reasonable to suppose that it would be possible to invert the order of relevance for those alternatives from d) to a). We could even consider that b), even with its uncertainty and a higher processing cost than a), would allow an immediate assessment, perhaps clarifying the case and even eliminating alternatives. c) plays with jealousy or with Mary's curiosity that overcomes the pressing need of knowing where John is. In a trivial way, we could consider that in such case, health and love are more relevant to people. Indeed, but, this would put us into a theoretical discomfort of having to admit that every and any

option of relevance is guided by our emotional mood. Besides, contextual implication would not result from knowledge but from emotions, clearly a circumstantial and arbitrary benefit. In other words, the attempt of approaching communicative rationality is compromised by the interference of complex benefits. Jealousy, for example, can lead a person to a highly costly processing, from making uncountable inferences about a betrayal possibility to even hiring a private investigator. There are people who waste years of their lives because of suspicion. And sometimes, after an awful day tormented by suspicion, everything ends with one "I love you" repeated night after night that renders completely irrelevant the suspicions caused by jealousy. A way out would be to consider that these kinds of situations are uncharacteristic. But this would not hold, because people live by emotions and communication, either more ostensive or less ostensive involves emotional aspects, albeit subtle, as friendship for example that would allow generating instances like the above. This without even considering that since the Sophists, Rhetoric overlaps Logic in lots of circumstances and the irrelevant might persuade and win over the valid and relevant. To consider only positive effects is an attempt to reduce the fallacies to negative effects, not taking into consideration that the real issue is to try to explain why they happen.

Another interesting case to defy the intuitive notion of the cost/benefit relation in the RT concerns the following situation: Let us suppose a context in which a mature Mary is learning Mandarin as a way of putting her mind to work and preventing degenerative illnesses such as Alzheimer's. The teacher starts a long and thorough explanation about the written and oral characteristics of the language demanding from Mary a high processing effort. But this is exactly what she wants because the bigger the cost, the higher the benefit, once what she seeks is the benefit of higher processing. The other way round is also possible; sometimes what we want with a dialogue is the benefit of the absolutely irrelevant as a means of having a interaction without interpretative cost. That is, we seek out the relevant whose contextual impact must be small to lessen the cost. "We have chatted the afternoon away and it was so good!" would say a very relaxed and serene lady about the idle afternoon she spent with her friends when the relevant was not being relevant.

The difference between provocative reflections and an attempt at corroboration the theory is that the former seems less relevant than in fact is.

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On relevance and irrelevances

Fábio José Rauen

1. Introduction

According to relevance theory, the concept of relevance results from an economy based on the relationship between costs and benefits, so that the larger the benefits and the lower the costs are, the greater the relevance of an input for the cognitive processes will be. Thus, this economy supports human communication, guiding inferential processes and allowing a common interpretation.

However, Costa (2005, p. 161-169) presents seven types of communicative events that defy this relationship, questioning the cognitive principle of relevance, according to which the cognition is guided to maximize relevance. He stresses: loving clichés, light talking, mass culture, people's propensity to talk about themselves rather than engage in questioning behaviors, waste of time on the phone, greetings and contacts, and redundant navigation in the Internet.

One way to solve this problem, according to the author, is to assume that some benefit exists anyway. In this case, people tend to be relevant, but they are guided by a law of inertia, that is, they act guided by lower cost rather than greater benefit.

> It seems that the positive notion of relevance, in which benefit guides cost, works, first, when people are involved with professional production, and functional objectivity to yield knowledge. Such activity contrasts with the enormous trend for leisure, whose properties are different, because affective, emotional exploitation, where pleasure drives the process, characterizes another type of benefit in which the low cost is one of the basic requirements (COSTA, 2005, p. 167).

Costa argues that if the notion of relevance is adequately adjusted in communicative contexts, which are centered in objective information, there are two kinds of situation that yield problems to the cost-benefit relation: weight of emotional benefit and trend to inertia.

> A jealous individual, for instance, can infer x instead of y as informatively more relevant, because of the high emotional relevance for him; a lazy individual B, similarly, can select x and not y, though y represents an optimal cost-benefit relation, simply because x represents zero in terms of cost, although its benefits may be close to zero (p. 167-168).

Considering challenges proposed by Costa (2005), an alternative approach will be presented in this essay, in which the cognitive principle of relevance remains intact, but under the contingency of individual energy consuming and a background of saturated knowledge, that is, guaranteed, certain, transparent, and optimally irrelevant knowledge.

To take account of this claim, first, relevance theory is reviewed, based on Wilson (2004). Later, the alternative proposal is presented and tested on each of the cases suggested by Costa (2005).

2. Relevance theory

According to Wilson (2004), a cognitive pragmatics must analyze how utterances are understood, that is, how contextual factors and linguistic properties interact in the interpretation of utterances; or, how facts about speaker, audience, time and place of utterance combines with the phonological, syntactic and semantic structure of the sentence uttered to yield a particular interpretation. [1]

The problem is that the meaning handled by the speaker goes beyond the linguistic meaning assigned to the sentence by the grammar. A sentence meaning is an aspect of linguistic structure that remains unchanging across all utterances. It is usually schematic or incomplete, and must be contextually completed or enriched to yield a true or false definite proposition. A speaker's meaning is always what the speaker intends to communicate by uttering a sentence. Consequently, the same sentence may convey many different speakers' meanings. Therefore, a range of pragmatic processes must be used by the audience to complete, enrich and

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[1] This section is a brief review of Wilson's (2004) Course on Pragmatic Theory with some punctual adaptations.

complement the schematic sentence meaning in order to yield a hypothesis about the speaker's meaning. [2]

The notion of context, which generally defines pragmatics, is seen in various ways. Texts about pragmatics consider two aspects of context in special: the physical situation or environment of the utterance, and the preceding or following text or discourse. [3] In a cognitive approach, however, it is rational taking for granted that any assumption which the hearer is capable of retrieving or deriving from memory, perception or inference (isolated or in combination), helps to identify the speaker's meaning. With that in mind, the context must be the set of mentally-represented assumptions (apart from the assumption that the utterance has been produced), which is applied in the interpretation, including assumptions obtained from observation of the speaker, the immediate environment, or the interpretation of preceding text. According to Wilson, the problem of context selection is genuine and serious, because the listener's task in communication is to construct a hypothesis about the speaker's meaning by choosing, from a set of interpretations, a combination of context, explicit meaning and implicit meaning.

There are two layers of intention for the hearer to discover in overt communication: a basic speaker's intention to inform the audience of something – informative intention, and a higher-order intention that the hearer should recognize that basic intention – communicative intention. [4] According to Wilson, the speaker's meaning is a complex mental state. Thus, to identify the speaker's meaning is equivalent to identify this complex mental state.

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[2] The audience rarely is aware of the borderline between sentence meaning and speaker's meaning. However, some aspects of the interpretation depend solely on sentence meaning, and others depend on contextual factors. Some aspects are explicit (part of what is stated, asserted, or said); while others may be implicit (part of what is hinted, suggested or implied). One of the tasks of pragmatics is to define and establish borders between the explicit and implicit content (communication or meaning).

[3] According to Wilson, traditional definitions of context do not explain how to identify particular aspects of the physical environment or preceding text that can influence the interpretation of an utterance. If 'the universe' is the physical environment, then it does not help with the interpretation of any particular utterance; if it is something smaller, then knowing how to draw the line around the relevant inputs of the universe is essential. The same is valid for preceding discourses and texts.

[4] According to relevance theory, there are three ways in which information can be transmitted: accidentally, covertly, and overtly. *Accidental information transmission* occurs when some clues (accent, sorts of moods, etc.) may be noticed by an audience, and used to draw a variety of conclusions which do not form part of the speaker's meaning, and are not intentionally transmitted. *Covert information transmission* involves intentions (to be more agreeable, for instance), but one which is not intended to be recognized or shared with an audience. Finally, in *overt information transmission*, or overt communication, a genuine exchange occurs. The speaker intends to convey a message, and intends her hearer to recognize this intention.

Relevance theory is strictly concerned with the speaker's meaning, that is, with the overt intentional communication. So, understanding an utterance means identifying the overtly intended interpretation. The speaker's meaning is defined as the meaning that the speaker wants the hearer to recover, is actively helping the hearer to recover, and would acknowledge if asked. Therefore, the assumption that the speaker formulates her utterance so as to make it easy for the hearer to recover the intended interpretation is essential in relevance theory.

According to Wilson, the theory is based on a few very simple assumptions:

> a) every utterance has a variety of linguistically possible interpretations, all compatible with the decoded sentence meaning; b) not all these interpretations are equally accessible to the hearer (i.e. equally likely to come to the hearer's mind); c) hearers are equipped with a single, very general criterion for evaluating interpretations as they occur to them, and accepting or rejecting them as hypotheses about the speaker's meaning; d) this criterion is powerful enough to exclude all but at most a single interpretation (or a few closely similar interpretations), so that the hearer is entitled to assume that the first hypothesis that satisfies it (if any) is the only plausible one. [5]

The criterion of interpretation of relevance theory develops from a basic assumption about human cognition, i.e., human cognition is relevance-oriented. The whole cognitive system is geared to picking out potentially relevant information. [6]

Information can be relevant only in a context. The fundamental claim in relevance theory is that new (or newly presented) information is relevant in a context when it interacts with the context to yield cognitive effects.

There are three cognitive effects of an input in a context: a) strengthening a contextual assumption; b) contradicting and eliminating a contextual assumption; and c) combining with a contextual assumption to yield contextual implications, i.e., conclusions deducible from new information and context together, but from neither new information nor context on their own.

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[5] In relevance theory, there is a single general criterion for evaluating possible interpretations. The aim of a cognitive pragmatic theory is explaining how hearers attribute speaker's meanings, both successfully and unsuccessfully. The criterion, even when appropriately applied by a hearer, does not always pick out the right interpretation. Thus, it must pick out not the interpretation that actually is correct, but merely the one that the hearer treats as correct. It is an aid to guessing the speaker's intentions, because there is no way of guaranteeing that the hearer will be able to access and use the intended set of contextual assumptions.

[6] Information can be relevant without being communicated at all. The theory defines a notion of relevance that applies not just to information communicated by utterances but to all information, acquired from any source: e.g. perception, memory, and inference. Relevance theory defines relevance as a potential property of inputs to cognitive processes, whether these are external (e.g. sights, sounds, utterances, actions) or internal (e.g. thoughts, memories, conclusions of inferences).

Let us see some examples. In Case A, Mary goes to the butcher's with the following thoughts (the context in which new information will be processed): [7]

1a. I'll (probably) buy meat.
1b. If I buy meat, I'll make a roast beef for lunch.
1c. If I don't buy meat, I'll make spaghetti for the lunch.

Mary, then, finds the butcher's opened, which makes her think:

2. I'll buy meat.

This input has two cognitive effects when processed in the context in (1). It strengthens or provides more evidence for the assumption in (1a); and it combines with the assumption in (1b) to yield the contextual implication in (3):

3. I'll make a roast beef for lunch.

Thus, the information in (2) is relevant in this context, precisely because it has these cognitive effects. The greater the cognitive effects, the more contextual implications and strengthenings of existing assumptions, the greater the relevance.

In case B, Mary goes to the butcher's with the same thoughts, but she finds the butcher's closed, and thinks:

4. I'll not buy meat.

Here, the contextual assumption in (1a) is contradicted by the new information in (4). When new and old assumptions contradict each other, the weaker of the two assumptions is abandoned. Here, the new information in (4) provides strong evidence against the old assumption in (1a), which is therefore abandoned. The information in (4) also combines with assumption in (1c), and yields the contextual implication in (5):

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[7] Here, Wilson's original example was adapted.

5. I'll make spaghetti for lunch.

The information in (4) is relevant in this context, because it contradicts and eliminates existing assumptions, and the more assumptions it eliminates, the more relevant it is.

On the other hand, there are three ways where new or newly-presented information can fail to be relevant. In case C, while Mary goes to the butcher's with the same thoughts, she notices that a bookstore is closed:

6. A bookstore is closed.

This information is irrelevant in a context consisting solely of the assumptions in (1a-c). It does not strengthen one of these assumptions, it does not contradict and eliminate one of these assumptions, and it does not combine with one of these assumptions to yield a contextual implication. Consequently, it would be irrelevant in a context consisting only of (1a-c).

Finally, in both cases (D) and (E), the assumption in (1d) must be added to the set of assumptions in (1a-c).

1d. Mary's name is Mary.

In case D, inside the butcher's, someone says to Mary:

7. Your name is Mary.

This case is different from the original Case A, in which the newly presented information confirms a doubt in (1a). Here, Mary has no doubt about her name, and this newly-presented information could not strengthen the existing assumption. Thus, the proposition in (7) would be irrelevant to her (though the fact that someone had uttered (7) might be relevant as a request for confirmation of her name).

In case E, inside the butcher's, someone says (8) to Mary:

8. Your name is not Mary.

Here the new information contradicts an existing assumption, but this case is different from the case B. The existing assumption that Mary's name is Mary is very strongly held, and she is doubtful about abandoning it just because someone disagrees with it. In this case, the new information will not be strong enough to overturn the existing assumption. Therefore, the new information will be rejected, since there is no alteration in the existing assumptions, no cognitive effect, and for this reason no relevance for the proposition expressed by (8) (although, again, the fact that someone has uttered (8) may be highly relevant).

Information is relevant in any context in which it has cognitive effects, and the greater its cognitive effects is, the greater its relevance will be. However, this comparative definition of relevance is inadequate. Let us see this in case F, in which Mary goes to the butcher's with the same thoughts in (1) in her mind again. When she reaches the butcher's, and finds it opened, the set of thoughts (2a-c) may come to her mind. Which of them would be more relevant to her?

2a. I'll buy meat.
2b. It's not the case that I won't buy meat.
2c. It's not the case that I won't buy meat, and a bookstore is closed.

The thoughts in (2a-c) have exactly the same cognitive effects in this context: they strengthen (1a), have the contextual implication in (3), and do not achieve any other cognitive effect. If comparisons of relevance were based solely on cognitive effects, then the difference in relevance between (2a-c) would not be explained. Although (2a-c) all have the same cognitive effects, apparently, the differences result from the fact that the cognitive effects are easier to derive from (2a) than from (2b) or (2c), which are both linguistically and logically more complex, and include the logical form of (2a) as a subpart of their own logical form. [8]

Thus, evaluations of relevance depend on two factors: (a) cognitive effects, and (b) the processing effort required to recuperate them. So: a) other things being equal, the greater the cognitive effects of an input to an individual who processes it,

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[8] The utterance understanding is affected by the required processing effort, and these issues have been studied in Psycholinguistics. Some factors are quite known, like recency and frequency of use, or linguistic and logical complexity.

the greater the relevance to that individual at that time; and b) other things being equal, the smaller the processing effort required to derive these effects is, the greater the relevance of the input to that individual at that time will be.

According to Wilson, the problem for a theory of human cognition is that there is too much information available to be able to be dealt with, too many potential contexts accessible in which to process any given input, and too many inferences that could potentially be drawn. The task is to answer how human beings consciously or automatically select which inputs to deal with, which context to process them in, and when to stop?

If human cognition is relevance-oriented, then systems of perception, memory and inference are organized so that they automatically tend to allocate attention and processing resources to the most available relevant inputs, and to process them in a way that tends to maximize their relevance. According to relevance theory, this is the Cognitive Principle of Relevance: human cognition tends to be geared to the maximization of relevance.

In overt intentional communication, the speaker produces an ostensive stimulus that provides some evidence in order to draw some conclusion. For relevance theory, to communicate is to offer information, and offers create presumptions or expectations, that will be justified or not. When someone offers an utterance or other ostensive stimulus, the hearer is allowed to expect it to be relevant enough to be worth processing. Therefore, the act of addressing someone automatically creates a presumption of relevance. In turn, as the utterances may have a number of linguistically possible and potentially relevant interpretations, the actual interpretation is the one that best satisfies the presumption or expectation of relevance.

How much relevance does the communicator satisfy these expectations? According to Sperber and Wilson, the utterance should have at least enough cognitive effects, at a low enough processing cost, to be worth dealing with. So, they have defined a notion of optimal relevance, which involves two clauses: a) the utterance should be at least relevant enough to be worth processing; and b) the utterance should be the most relevant one compatible with the speaker's abilities and preferences.

What counts as 'relevance enough' varies individually and circumstantially. To be relevant enough, the utterance must be more relevant than anything else the audience could have been dealing with, if no utterance had been produced. In a surgery, for instance, no interruption is relevant enough to be worth any attention; talking with friends, even a casual comment may be relevant. Thus, the expectations of relevance differ in predictable ways from situation to situation, and it is expected that utterances reach relevance in more or less specific ways on different circumstances.

According to clause (a) of the presumption of optimal relevance, the hearer should take the linguistically encoded meaning and expand it to a point in which it is at least relevant enough (has at least enough cognitive effects, for small enough processing effort) to be worth processing by a relevance-oriented cognitive system.

Let us consider a class which has only Inorganic Chemistry lessons that evening. A classmate enters the classroom and says (9):

9. Folks, the teacher didn't come tonight.

In order to bridge the gap between sentence meaning and speaker's meaning the hearers have to assign reference to the phrase the teacher. When the classmate says (9), she encourages the audience to assign reference in a way that will make the utterance at least relevant enough to be worth their attention. In this case, the first interpretation that occurs is probable that the teacher refers to the teacher of Inorganic Chemistry, that is, the teacher that was supposed to teach that evening class.

According to clause (b), the speakers are expected to produce the most relevant possible utterance, except if this goes against their abilities or preferences. As Relevance theory considers only overt intentional communication, the speaker wants his meaning to be recognized. If he does his best, then he helps the hearer's understanding. In case (9), the utterance also satisfies clause (b), because if the speaker had some other teacher in mind, e. g., the teacher of Mathematics, it is in his own interests to reformulate his utterance to make the intended interpretation as easy as possible; thus keeping away from the risk of misunderstanding.

Clause (b) is very important, because it rules out need for the hearer to go on and think about other less accessible interpretations, after having recognized an acceptable interpretation. This recommends a concrete comprehension procedure which the audience may use to discover the best hypothesis about the speaker's meaning. The procedure predicts that the audience must follow a path of least effort in computing cognitive effects: a) considering interpretations (e.g. reference assignments, contexts, etc.) in order of accessibility; and b) stopping when his expectation of relevance is satisfied (or abandoned).

In consequence, it is possible to precise the communicative principle of relevance including the notion of optimal relevance and the presumption of optimal relevance, that is, every utterance (or other ostensive stimulus) creates a presumption of its own optimal relevance.

It is worth mentioning that there are degrees of sophistication in utterance's interpretation, according to Wilson. She argues that the audience's expectations of relevance may be disappointed, for instance, because the speakers not always are able to make their utterances optimally relevant. As they don't know what is in the hearers' minds, they occasionally may make wrong guesses about what will be seen as optimally relevant. Normally, the audience can handle with this fact.

For example, a second classmate, unknowing that his classmates were already informed about the Inorganic Chemistry teacher's absence, may say (10):

10. Folks, the teacher didn't come tonight.

Obviously, this information is known and irrelevant. The audience does not look for some alternative interpretation rejecting it because it does not satisfy the expectation of relevance. The audience realizes that the speaker has aimed at optimal relevance, and accepts an interpretation that satisfies this weaker expectation.

In other hand, speakers may distract or deceive. So, the utterance seems relevant without actually being relevant. If someone recognizes (9) or (10) as a lie, he will refuse to accept the proposition it expresses, and then, it will be not relevant. Instead of rejecting this interpretation and trying to find some other one that is

optimally relevant, he selects the interpretation that the speaker might reasonably have intended to seem optimally relevant. [9]

A speaker aiming at optimal relevance tries to do at least two things: a) achieve enough cognitive effects to be worth processing; and b) avoid causing the hearer any wasted effort in achieving those effects.

Because of clause (b) of the presumption of optimal relevance, there are two important consequences for the analyses of pragmatic interpretation: a) the first satisfactory interpretation is the only satisfactory interpretation; and b) extra processing effort should be offset by extra (or different) effects.

The first consequence predicts that if an utterance has a highly salient or immediately accessible interpretation which is relevant in the expected way, this is the only interpretation that the hearer can reasonably select; and, thus, other interpretations are not allowed. This converges to the action of the relevance-theoretic comprehension procedure, which automatically accepts the first satisfactory interpretation it is capable to construct.

Let us see Wilson's example in (11):

11a. Peter: Do you want some coffee?
11b. Mary: Coffee would keep me awake.

In many circumstances, Peter would interpret Mary's utterance in (11b) by providing the contextual assumption in (12a-b) and developing the contextual implication in (12c):

12a. Mary doesn't want to keep awake (contextual assumption).
12b. Mary doesn't want anything that would keep her awake (contextual assumption).
12c. Mary doesn't want any coffee (contextual implication).

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[9] According to Wilson (2004), because the expectations of relevance may be more or less sophisticated, it is realistic supposing that children begin with an immature expectation of actual optimal relevance, selecting the first interpretation that is optimally relevant to them. After, they develop a more sophisticated expectation of attempted optimal relevance, being able to search for the first interpretation that the speaker might have thought would be optimally relevant to them. Finally, they might become capable of shaping a fully sophisticated expectation of purported optimal relevance, and select the first interpretation that the speaker might have thought would seem optimally relevant to them.

Alternatively, Mary might, for instance, have to attend a boring lecture, and the interpretation might be both intended and understood as:

13a. Mary wants to keep awake (contextual assumption).
13b. Mary wants whatever would keep her awake (contextual assumption).
13c. Mary wants some coffee (contextual implication).

Wilson asks how does the hearer know which interpretation was intended, which context to use and which implication to derive? The answer follows from clause (b) of the presumption of optimal relevance. If it is contextually clear that the contextual assumptions in (12a-b) are highly accessible, and leads to a manifestly satisfactory interpretation like (12c), this is the only interpretation the speaker is free to intend, and the hearer is free to choose.

Similarly, if the contextual assumptions in (13a-b) are highly accessible, and lead to a manifestly satisfactory interpretation, then this is the only interpretation the speaker is free to intend and the hearer to choose. The first interpretation that satisfies the hearer's expectation of relevance is the unique interpretation that satisfies the hearer's expectation of relevance. All other interpretations are not allowed.

The second consequence predicts that extra required effort implies extra or different effects, and supplies some arguments to treat indirect utterances. It follows from clause (b) of the presumption of optimal relevance that this extra-effort must be somehow justifiable. The most obvious justification is to take for granted that the speaker intended to achieve some extra or different effects, not achievable by a more direct formulation. Hence, extra effort required should be compensate by extra, or different, effects.

In the example (11), Mary says 'Coffee would keep me awake', intending Peter to supply the assumption that she doesn't want to stay awake and derive the conclusion that she doesn't want any coffee. Mary's utterance, on this interpretation, would not be optimally relevant, if all she wanted to communicate was the information that she didn't want any coffee.

Two questions are enough to assess this, corresponding to the two clauses of the optimal relevance presumption. The first question is if Mary could have expected (11b), on this interpretation, to have enough cognitive effects. According to Wilson,

the answer is affirmative. By asking (11a), Peter has indicated that a direct 'Yes' or 'No' answer would be adequately relevant to him. If he derives the implication in (12b), he can arrive at the answer 'No'.

The second question is if some other utterance could have achieved these effects more economically. As Wilson states, the answer is affirmative again. If all Mary wanted to communicate was that she didn't want any coffee, she could have communicated it more economically by saying, simply, 'No'. So the utterance fails clause (b) of the presumption of optimal relevance, because it puts the hearer to some unjustifiable effort, and does not satisfy his expectation of optimal relevance.

If Mary's utterance is to be optimally relevant, it follows from clause (b) of the presumption of optimal relevance that she must have intended to achieve some extra cognitive effects, which could not have been achieved by saying simply 'No'. This interpretation satisfies Peter's expectation of relevance, given that the extra effort required is compensated by extra, or different, effects. When there is some element of indirectness in an utterance, extra processing effort is required, and therefore, by clause (b) of the presumption of optimal relevance, this encourages the hearer to look for extra effects, i.e. effects that a more direct formulation could not have achieved.

So, on relevance-theoretic approach, identifying the speaker's meaning involves the simultaneous construction of a package with an appropriate context, an explicit content and a set of cognitive effects. How is this package constructed, and in what order? According to relevance theory, no serial order is prescribed: typically, hypotheses are considered in parallel, and mutually adjusted to satisfy the hearer's expectations of relevance as on-line comprehension proceeds.

In certain circumstances, the hearer may have no particular expectations on how relevance is to be achieved. This often happens in test situations, when participants are asked to choose an interpretation for an ambiguous utterance such as (14):

14. Mary wrote a letter ['correspondence', 'from the alphabet'].

What is done is follow a path of least effort, using a stereotypical, easily accessible scenario in which Mary writes a correspondence. The result would be a

standard and easily accessible set of cognitive effects. In such cases, one can think of the interpretation process as largely effort-driven.

In other cases, the hearer may have quite precise expectations about the level and type of cognitive effects to be achieved. Let us consider the exchange in (15), for example:

15a. Peter: Would you like an ice-cream?
15b. Mary: No thanks. I've just had one.

The first part of Mary's utterance ('No thanks') is likely to raise a question in Peter's mind about why has she rejected. If the second part of her utterance is to achieve relevance in the expected way, Peter must interpret one to mean 'ice-cream', and use the contextual assumption that someone who has just had ice-cream has a good reason for rejecting more. In this case, the interpretation process is effect-driven.

In sum, according to relevance theory, arriving at an overall interpretation is a matter of mutually adjusting potential contexts, explicit contents and cognitive effects in such a way as to satisfy the expectations of relevance raised by the utterance.

3. Variables of exhaustion and saturation

After reviewing relevance theory, basis for an alternative explanation to the cases suggested by Costa (2005) are presented in this section. So, thinking about an apparently paradoxical aspect in relevance theory is essential: maximization of relevance and adhesion to stereotypical routines. In this task, rethinking about how reiterated or recursive application of the cognitive principle of relevance happens is required. Supposedly, recursive applying of the cognitive principle continually implies getting relevant information, in a permanently stress-state of information capture. Taken this extremely, the cognitive principle of relevance is intuitively incorrect, because healthful human beings alternate tense and non-tense states where sometimes the cognition is apparently effort-driven and sometimes is effect-driven. In this context, two variables can be evaluated: exhaustion of cognitive resources and saturation of salient stimuli.

On cognitive resources, it has to be considered that they are scarce, so that the capacity for energy investment is inhibited, when the energy resources of the individual are consumed or even sabotaged (e.g., alcohol, drugs, etc.). Thus, an individual cannot always act in a tense state, because the precocious consuming of its capacity to provide energy resources for new cognitive demands. So, if the aim of a relevance-oriented organism is optimizing cognitive effects, this optimization is constrained by the energy expenditure dispensed to achieving these effects, as in fact it is foreseen in relevance theory.

What is distinguished here is that the organisms are capable to check energy expenditures, in order to minimize, or even block extreme consuming of a strategy absolutely geared to achieving cognitive effects. When this checking fails, fatigue or stress symptoms occur, in order to delay the individual to follow this path indefinitely, sometimes, incapacitating him.

The corollary of these observations, that will be pursued in this argumentation, is that mechanisms of minimization of energy expenditure are activate each time the organism checks extreme consuming of these limited resources. In other words, the organism gets compensable cognitive effect for increasing energy expenditure until a Pareto Optimal beyond which effects do not compensate efforts. [10]

In these cases and independently of how easier it is to achieve the cognitive effects of a stimulus, the organism blocks providing resources to get them. That is, even relevance-oriented, cognitive systems operate inefficiently. This implies that the individual chooses to account for apparently irrelevant stimuli, because the energy cost to get them is compatible. Consequently, this individual stops accounting for relevant stimuli; even so, he was supposedly capable to operate them, if he was less tired.

This mechanism is identifiable when a tired individual insists on accounting for a complex subject. Even if this individual conscientiously tries to operate increasing

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[10] The notion of Pareto Optimal or Pareto efficiency was created by Vilfredo Pareto for economic questions. An economic situation is optimal in Pareto's sense if it will not be possible to improve the situation or, more generically, the utility of an economic agent without degrading the situation or utility of any other economic agent. Analogically, in the domain of the variable of exhaustion, in an optimal cognitive processing, in Pareto's sense, it is not possible to increase the achievement of cognitive effects without degrading the reserves of energy of the cognitive system. In other words, the investment in terms of cognitive costs is constrained by a threshold beyond which: a) the cognitive effects do not compensate the energy investment; and b) the energy investment degrades the reserves of energy of the system.

the energy expenditure, in the hope of getting greater cognitive effects, the organism will answer with poor effects (each time less efficient), or with attention changes to trivial stimuli that offer more promising effects (even less significant), until the exhaustion limit.

Thus, a moderator variable of the cost-benefit relation can be thought, so that, other things being equal, the more exhausted the organism is, the greater the energy expenditure will be in order to compensate cognitive effects. This minimizes cognitive efficiency or relevance of a phenomenon until reaching a Pareto Optimal.

The consideration of an exhaustion variable has two non-trivial consequences for information processing:

> a) Although an organism supposedly can increase the processing cost to get greater cognitive effects, this strategy has to be compensated by strategies of minimization of costs, even if the efficiency is also minimized in terms of cognitive effects;
>
> b) The cognitive efficiency, in terms of the optimization of cognitive effects in relation to the cost of processing, is inversely proportional to the time of energy investment to achieve these cognitive effects, so that that the cost increase implies efficiency increase only in short-term and below the Pareto Optimal.

In other words, these arguments refer to the fact of that, although relevance-oriented, the efficiency of how human beings process relevance is moderated by their energy capabilities. Since the cognitive resources are scarce and need to be replaced, tense strategies of relevance achievements must be compensated by non-tense strategies in order to save energy between the cycles of reposition. The balance of tense and non-tense activities varies from individual to individual and from situation to situation. Supposedly, the Pareto Optimal varies in the same way.

The second variable is related to processes of saturation. This variable refers to the capacity of a successively repeated stimulus sensitize the organism, so that its consideration still yields some cognitive effect that compensates the dispensed cognitive effort. In the previous section, it was mentioned that a stimulus is relevant enough when it is distinguished from a set of stimuli that the individual would have become aware of, if no stimulus had occurred. This point supports the abductive character of the cognitive principle of relevance. As the cognition tends to be geared to the maximization of relevance, a salient stimulus must be taken as relevant before being optimized. Thus, a salient stimulus can or cannot be relevant and, in affirmative

case, this relevance will be optimized, because it will invest the least processing effort possible and obtain the highest possible cognitive effects.

Previously, it was argued that the attention can be deviated for trivial stimuli in fatigue processes. Why this strategy works in an organism saving energy? Because the set of known assumptions is practically full in trivial contexts, except for some relevant aspect. This implies that the energy expenditure to get this relevance is almost none.

A set of known or factual assumptions is treated by the individual as certain or almost certain, so that he organizes his existence based on it. This implies that this set of assumptions is regarded as assured by the individual and strongly rooted in his cognition. The question of the strength of an assumption is treated by Sperber and Wilson (1986, 1995), and refers to the degree of adhesion of an individual to the truth or to the pretense truth of an assumption. In this essay, it is argued that no assumption can be considered as maximally or fully certain; even if it was obtained from a perceptual input. It is argued, here, that it is the successive reiteration of an assumption the reason for which this assumption becomes strong or more factual, until a limit in which it becomes to be treated as optimally certain or factual by the individual. This repetition is essential until a theoretical threshold of saturation beyond which a new repetition of the same assumption is no more salient and is filtered by the organism, because it becomes irrelevant. In other words, there is also a Pareto Optimal to the variable of saturation, so that a newly presented stimulus does no more sensitize relevance mechanisms, in the sense that cognitive effects do not compensate efforts for the achievement of these cognitive strengthening effects by means of reiteration.

As Wilson (2004) argues:

> Why are our perceptual systems designed to pick out bright lights, loud noises, sudden movements, novelties, changes in a familiar scene, movement towards us rather than away from us? Because these phenomena are likely to be relevant to us. Why do we fail to pay attention to each blade of grass, each drop of rain, each tick of a clock, each breath we take? Because, after a while, we have exhausted their relevance, and our perceptual systems simply filter them out.

The adoption of a variable of saturation and a threshold of saturation is important, because they can provide an explanation to the adhesion to habitual

routines by human beings, whether conscientiously or not. Although relevance-oriented, it is important that the context must be composed of the largest number of factual and stable assumptions for an organism that is saving energy resources.

The preferential form of how human beings guarantee the stability of the world is the perception of regularities in this world by means of successive reiterations. Because human beings are capable to perceive regularities, this qualifies them to be aware of relevant irregularities.

A sufficiently extensive set of factual assumptions allows lowering energy cost of the organism. Moreover, the reinforcement of an assumption is the most economic way of getting a cognitive effect. Soon, processing a new presentation of an assumption, in the context of factual assumptions, is an efficient way to energy saving, until the threshold of saturation of this newly-presented assumption.

It is worth anticipating that a consequence of the variable of saturation is using saturated (irrelevant) utterances to produce relevance effects. This strategy consists on producing an utterance low in relevance or even irrelevant, in order to deviate the audience's attention to other elements of the communication. This idea will be further developed with more details in the section dedicated to phatic utterances.

4. Seven challenges to relevance theory

Costa (2005) presents seven cases of daily communication that are embarrassing to the explicative potentiality of relevance theory. These communicative exchanges seem to defy the central notion of relevance, according to Sperber and Wilson's terms, because, from the metatheoric point of view, the notions of cost and benefit could be threatened by an undesirable heteromorphy. In this section, each case is considered on the basis of the previous sections.

4.1 Phatic contacts

According to Costa (2005), a social, caring and kind individual invests considerable time with greetings, which are redundant and little significant communicative acts from the point of view of the semantic content or transmission of

information. Although these acts start significant conversations, this does not necessarily occur.

To deal with these cases, Let us consider a person in a bus stop on a sunny, calm and pleasant afternoon, with the set of assumptions (16a-c) in his/her mind:

16a. I'll catch the bus.
16b. It's a lovely day.
16c. It's a good afternoon.

Let us consider a stranger saying one of the utterances in (17a-c):

17a. Are you going to catch the bus?
17b. It's a lovely day!
17c. Good afternoon!

Phatic utterances, specially (17c) which more clearly seems a ritualistic formula, can be analyzed under the perspective of the variable of saturation. Surely, they are utterances that exceed the saturation threshold beyond which they cannot be analyzed under the point of view of the propositions that are expressed, but as clues that deviate the attention to other elements of the interaction, and can trigger relevant conversations.

The audience's task, in any utterance processing, is identifying the speaker's meaning by means of the simultaneous elaboration of a package that consists of an appropriate context, an explicit content and a set of cognitive effects. Overt intentional offers, these ostensive stimuli are presumed as optimally relevant. According to the presumption of optimal relevance, these utterances must be: a) at least relevant enough to be worth processing; and b) the most relevant ones compatible with the speaker's abilities and preferences.

The utterances in (17a-c) seem to fail in clause (a), because: a) if the hearer is in a bus stop, obviously, he is going to catch the bus; b) if the day is lovely, he is already aware of this; and c) informatively, saying "Good afternoon" does not add anything in a context where the hearer considers that the afternoon is good. In other words, the utterances in (17a-c) are irrelevant since they do not present any cognitive effect.

Still regarding the scope of clause (a), it is worth questioning what the hearer is going to attention to, given the speaker's utterance. In cases such as in (17a-c), Wilson (2004) argues that, to satisfy his expectation of relevance, the hearer must not only pay attention to the proposition expressed by the utterance, but to other information which it makes available. If a stranger has spoken in a friendly tone, given normal contextual assumption, it must qualify the hearer to infer that the speaker wants to talk to him, that his attitude is not aggressive, and so on. Consequently, phatic utterances express a proposition low in relevance, so as to redirect the hearer's attention to other aspects of the interaction and, thus, to satisfy the hearer's expectation of relevance.

By contrast, Let us consider, given the same context (16a-c), an utterance like in (18) said by a stranger:

18. Your wallet fell on the ground.

The utterance in (18) is not characterized as phatic, because it expresses a proposition high in relevance. In this case, and in a different way of what had occurred in the set of utterances in (17a-c), the hearer's expectation of relevance is satisfied by what is said. Wilson concludes that, the less trivial the content of a statement, the more relevance the audience gets from the content of the expressed proposition of the utterance; and, alternatively, the more trivial the content of a utterance, the more the audience is forced to look at the social or interpersonal level to get the intended relevance. This, therefore, explains phatic utterances.

Finally, the fact that phatic utterances do not yield significant conversations is not related to their intrinsic characteristics. Although hearers are guided by relevance-theoretic comprehension procedure, this necessarily does not imply that they will engage themselves in significant conversations, when they are stimulated by phatic stimuli. According to relevance theory, utterances are clues on which inferential strategies work. Nor always, even if the relevance-theoretic comprehension procedure is optimally executed, the hearer's interpretation is the one that the speaker has intended. Certainly, utterances such as in (17a-c) can be followed by behaviors that do not trigger friendly conversations.

4.2 Loving speech

Costa (2005) points out that affective clichés are abundant in loving speech. The exhausting repetition of these clichés by passionate interlocutors (as in (19)) is known and trivial.

19. I love you!

According to Costa, the redundancy of these verbal exchanges is not compatible with the concept of informative relevance. Since the information is the same, there are no benefits, and the costs seem not to be compensated. However, according to the author, one does not have to assume an unexpected trend for pure redundancy in loving speech. Intuitively, these clichés have high emotional and affective involvement that would compensate the "interminable and apparently idiotic exchange". For Costa, if this explanation is correct, it introduces an undesirable heteromorphy with a linguistic cost and a psychological benefit. Consequently, emotional aspects could justify unexpected and not predictable options by the theory.

In the case of the loving clichés, in the domain of the variable of saturation, the idea that each non-saturated repetition consists on a reinforcement in direction to a Pareto Optimal can be worked out, as well as working in the same lines of the phatic utterances, that is, with the idea that they are saturated utterances (low or null in relevance) that are elaborated to deviate the hearer's attention to other aspects of the interaction in order to satisfy the expectation of relevance.

As one of the recognized cognitive effects it is the strengthening of an assumption, and relevance theory works with comparative concepts, a probably certain assumption can be strengthened by new evidences in order to be more certain after its new presentation. In cases of hypothetical expectations that are confirmed by evidence (so it is the case of expecting that the butcher's was opened to be able to buy meat for the lunch), the relationship between a probable assumption and a certain assumption is that of evident strengthening. In the case of successive repetitions of the same assumption, conciliating each new emergency of the assumption with the increasing strengthening presumption of the evidences of

this assumption is necessary. In other words, each new emergency of "I love you" yields an increment of the certainty of love for the other person.

In this direction, successive repetitions are relevant when they strengthen the degree of certainty of an assumption. Moreover, it should be highlighted that the processing cost in these cases is the lowest. Given the context of intimacy between the individuals in the relationship, each "I love you" offering will be at least relevant enough to be worth processing, because the hearer would hardly have paid attention to anything else, and this satisfies clause (a) of the presumption of optimal relevance. On the other hand, satisfying clause (b), the utterance will have been the most relevant one that is compatible with the speaker's abilities and preferences. Then, it is enough for the hearer to use the relevance-theoretic comprehension procedure and follow a path of lesser effort in computing the cognitive effect of strengthening, considering interpretations in order of accessibility, and stopping when his expectation of relevance is satisfied or abandoned.

The emerging problem of this explanation is questioning until when successive reiterations of an assumption will continue to be relevant, and assuming that there is a certainty threshold, why does the audience admit that these assumptions, even so, can be repeated and noticed.

Here, the fact that absolute certainty is a theoretic construct must be considered. Strictly speaking, nothing of what constitutes our cognitive background can be considered absolutely certain. In this direction, the concept of optimal certainty can be worked out. This notion consists of a degree of sufficient stable certainty for the human beings to deal with some information of the environment. Thus, successive repetitions of the same phenomenon can lead to a sufficiently stable condition whose effect is to make this phenomenon transparent. Consequently, admitting this threshold beyond which the perceptual systems would filter any reiteration of a loving cliché, a repetition of "I love you" would be irrelevant. [11]

So far, each new presentation of loving-clichés was admitted as an intrinsic relevant event. Thus, the notion of certainty becomes relative, and the price to pay

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[11] It is worth remembering that one can admit stressfulness in the relations. It is possible to admit that further evidence contradicts and weakens confidence in certain assumption, so that this reiteration can work as reinforcement, and, in this in case, as a rescue of a point of previous certainty.

when the event exceeds a Pareto Optimal and becomes transparent is the possibility of admitting that the new presentation can be irrelevant.

However, this question can be solved if clichés are treated as phatic utterances. In this case, a successively reiterated utterance can be low in relevance, and directs the hearer's attention to other aspects of the interaction. Here, the hearer's expectation of relevance is not related to the intrinsic propositional content of the utterance, but with aspects available by the utterance, such as emotional and affective factors. Thus, similarly to phatic utterances, the role of clichés is to maintain contact, that is, they consist of interaction keepers.

4.3 Light talking

Costa (2005) takes 'light talking' as distended events where "irresponsible commentaries are repeated with humor, without truth-weight, without any concern for consistency, or, ultimately, without any intention of optimal relevance". According to Costa, as these actions take extraordinary communicative time, it makes it possible to appeal to the concept of well-being. So, "communicative cost would be compensated by non-stressing, relaxing, that is, for the beneficial outcome of irrelevance itself", which sounds strange to relevance theory.

To take account of that criticism, clause (a) of the presumption of optimal relevance must be taken into account. According to Wilson (2004), what counts as 'relevant enough' varies both individually and circumstantially. Wilson brings out that the standards of relevance expected from a child talking to his parents, Chomsky talking to his students, a student being interviewed for university admission, among other situations, are not the same.

Light talking is a distended interaction. Much of this distension is about delimitation of common conceptual marks, absence or minimization of conflicts. Symptomatically, this happens when the interlocutors are respected as legitimate in the relationship, and it probably is an inheritance of the need for social coexistence that typifies healthful human beings. Thus, as previously stated in loving relation, the need for maintenance of the contacts plays a relevant role in these circumstances. In more familiar environments, since light talking has intrinsically distended characteristics, processing effort has a considerable decrease. Precisely because

that little relevant information exceeds threshold sufficiency, that characterizes clause (a) of the presumption of optimal relevance.

Costa alerts to irresponsibility, lack of commitment with truth and consistency in light talking, assimilating these characteristics to the notion of optimal relevance. This assimilation, however, is unfounded, because nothing in relevance theory impedes individuals to use language in a non-cooperative way. Relevance theory does not support Grice's (1975) truth principle. It is worth adding that the possibility of using language to lie does not only occur in distended conversations.

The presumption of optimal relevance is related to the expectation that an ostensive stimulus automatically creates when it is produced. An utterance (that is optimal as expected, that the speaker might have thought would be optimally relevant, or that the speaker might have thought would seem optimally relevant), since it was relevant enough to be processed and the most relevant one compatible with the speaker's abilities and preferences, will have been optimally relevant and will be treated as such, either in tense or non-tense environments.

Moreover, Costa assimilates the notion of cognitive effect to the notion of well-being, when he argues that the processing cost would be compensated by "non-stressing, relaxing, that is, for the beneficial outcome of irrelevance itself". The point, however, is that these notions are also not assimilated. A low in relevance comment, supposedly relevant or taken as relevant by the speaker, since it is part of a non-tense interaction, will be relevant enough to be processed. Therefore, either the awareness that the information is low in relevance, is supposedly relevant, but fails in being it, or is taken as relevant; the hearer's first interpretation will be that one he considers consistent with the presumption of optimal relevance. In all circumstances, the hearer's understanding will be relevance-oriented. This has nothing to do with the maintenance of non-tense states. In other words, whatever the circumstances of both tense and non-tense interactions are, the hearer's interpretation will be guided by relevance.

Another problem, however, is the quarrel on the reasons for which human beings distend or stress interactions and keep themselves in tense or non-tense relations over time. It is reasonable to assume that the larger the common or taken as supposedly common referential conceptual marks are, the lesser the processing effort and the lower the threshold above of which an ostensive stimulus becomes

optimally relevant will be. Therefore, an interview for university admission is tenser than a conversation with friends.

As cognitive efficiency depends on the economy of scarce resources and performance optimization, supposedly, survival depends on working with low cost. Thus, remaining in non-tense relations is desirable and attractive enough to be pursued. Not without reason, individuals operating in tense environments tend to have health problems. In synthesis, even though human beings work guided by relevance, they tend to do it saving energy. Successively stressful behaviors tend to yield over-consuming that minimizes the optimization of cognitive performance. Such over-consuming is undesirable in the long-term, as already recognized in our modern society.

4.4 Mass culture

According to Costa (2005), mass culture challenges relevance notion, because it is characterized by properties that contrast with the idea of low cost and high benefit: the exhausting repetition of information and pasteurization of trivial and little complex information. [12] In this case, mass culture discloses a trend to minimize the cognitive effort, and reversely, optimizing relevance. Thus, the relevance notion would be evaluated by means of a law of less effort or lower cost.

In this essay, one can agree with Costa when he states that mass culture works to minimize cognitive costs and, if so, each stimulus that exceeds the sufficiency threshold becomes optimally relevant. However, one disagrees with him when he states that the relevance notion, in these cases, sizes up exclusively for the minimization of the effort, because whatever the processing cost, the stimulus that exceeds the sufficiency threshold will be relevant. In other words, a stimulus that is sufficiently relevant is transparent for the individual whatever the limits of the cognitive effort. Therefore, it is not any ostensive stimulus that calls attention of an individual when he is concentrated in a hard task and, on the other hand, any stimulus can be relevant in a distended and known situation.

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[12] Costa (2005) understands mass culture as a "type of absolutely predominant culture where periodicals, magazines, radio, cinema, TV, etc., polarize the attention of the great masses, occupying, voraciously, all the spaces that the elitist information, or the popular manifestations could intend".

Here is the key to understand the mass communication appeal. First, mass culture constructs easy assimilation products, because they come close to the best-known events of the population. After the non-tense conditions are created, the possibility of elaborating sufficiently relevant stimuli is opened in this non-tense context, even though these stimuli would be considered low in relevance for more demanding individuals. This strategy works until the saturation threshold, beyond which the ostensive stimuli do not exceed the relevance threshold and become transparent. These are cases where there is an excessive wastage of a formula used by the media.

4.5 Telephone talking

According to Costa (2005), telephone talking does not only offer high operational costs, but economical ones as well. Nevertheless, people do not only overuse the telephone, but hold long and repetitive conversations. Costa hypothesizes that empirical researches would certainly demonstrate how little relevant the use of telephones, including cellular, are. For him, it is a consensus that telephones yield interactivity, but which does not yield relevance, except for occupied or demanding people.

Conversations mediated by equipments such as telephone, internet (e-mails, chats, blogs, etc.), among others, both synchronous and asynchronous, only reflect face to face established conditions. Indeed, the rational utilization of telephones and other interactive media is an accident, from the result of a tense control over a human tendency not for irrelevance but to the maintenance of healthful non-tense states. The same explanation given to the non-tense talking, therefore, can be applied to these cases.

4.6 Internet navigation

For Costa (2005), recent research has demonstrated that people, through the "history" of their machines, navigate the same sites. Given the wealth on the net, how

to make these observations compatible with the notion that people are guided through relevance?

The fact that people navigate the same sites reveals, again, the trend of human beings to work on steadier, more friendly and therefore more distended environments. In these environments, human beings can distend and consequently save energies. Thus, small alterations in this steadier environment acquire sufficient salience to be taken as relevant. Moreover, repetition of stimuli, for instance, when the individual surfs several sites for different versions of the same news, or when the individual watches different versions of the same news on television, meets the two moderator variables argued in this essay.

First, relevance results from small incremental jumps within the steadiest possible environment. Steadier environments result from a set of sufficiently repeated assumptions, to the point that, if a Pareto Optimal is exceeded, they become transparent. Therefore, people tend to navigate the same sites, to watch the same television programs, and to listen to the same songs.

Second, since relevant information is obtained, people tend to repeat it until the threshold beyond which this newly-presented information becomes irrelevant or transparent. In this case, only a breach of transparency, that is, a sufficiently salient stimulus which exceeds the transparency threshold, makes it possible to notice the information again. It is worth pointing out that, as information becomes transparent, it acquires resistance to contrary assumptions, explaining the trend of human beings to adhere to habits. That is, surpassing the transparency threshold paradoxically turns irrelevant a new presentation of a factual assumption, because this new presentation is combined with a tacit and guaranteed set of optimally correct assumptions. In this case, the relevance of the new presentation is exhausted, and human beings quit giving attention. Relevant information is exactly chosen against this background of transparent information. Thus, relevance is based on a set of irrelevant and therefore secure information.

4.7 Asking questions and talking about oneself

According to Costa (2005), asking questions is one of the most economic forms to generate conversation, given the low operational cost of the questions, and

the high compensation provided by the answers. Paradoxically, people prefer speaking to asking, often for expressing inopportune and undesirable opinions in a self-centered script. The author argues that this behavior is incompatible with a relevant cost-benefit relationship.

In fact, asking is a very interesting way of getting relevant information. Not without reason, small children use and abuse of that strategy. The problem is that they do it for adults for whom the world is configured either as a set of transparent and safe information or as a set of unknown information, never questioned before. As mentioned, for transparent information then be taken as relevant it is essential that the ostensive stimulus must be very strong. Children are persistent. Moreover, questions for which there is no available answer annoy adults. Generally, they lose patience, and children are systematically stimulated to give up the strategy. The school completes the task.

On the other hand, since very early, strategies of exhausting repetition of the same stimuli are common. Children exhaustingly attend the same cartoons or play the same games, until other cartoons or games stimulate new challenges. Talking about oneself must be seen as an instance of the same strategy. Human beings repeat the same information for themselves and for others to construct a set of a sufficient amount of secure information. Such information configures a cognitive background on which relevant questions can be established. When something, either external or internal, differs from this background, it becomes relevant; therefore, talking about it is essential, so that repeating the procedure, the new information becomes transparent and then is unnoticed.

5. Final considerations

The arguments in this essay point to the fact that, whichever the state, tense or non-tense, human beings tend to be guided to maximize the relevance of the phenomena to which they are submitted. This text provides two moderator variables for the effect-effort economy in the cognitive processing.

The first variable is related to the effort notion. As argued in this essay, greater cognitive investment is balanced by greater cognitive effect only in the short-term.

Taken it in the long-term, cognitive efficiency tends to work as a Pareto Optimal, so that beyond a certain threshold cognitive effects do not balance cognitive efforts.

Thus, maintaining stressful states is inefficient in the long-term. Human beings are administrators of scarce resources. So, they monitor excessive energy consuming, and tend to counterbalance tense states with non-tense states, which are marked by safer, steadier, more transparent, and little relevant cognitive environments.

The variable of saturation, which is related to both cognitive effects and cognitive efforts, is the second variable. In order to operate optimally, this essay argues that cognition needs to work in steady environments, and this stability derives from recurrent regularities of successive reiterations of the greatest possible set of assumptions. The variable of saturation, similarly, must work as a Pareto Optimal, so that there is a threshold beyond which newly presented information is no longer relevant and becomes transparent, safe, factual or optimally certain.

Both variables need to be better developed, including experimentally. However, it seems reasonable hypothesizing that relevance theory must presume an irrelevance theory. If this argument is correct, further investigations on this direction will be encouraged.

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Relevance, cognition, inference and deductive processes

Ana Ibaños

Natural language has shown to have a fascinating though frighteningly subtle structure which takes all the formal ingenuity and expertise which the linguistic and logician can bring to bear (CRESSWELL, 1988).

1. Thesis

In their attempt to explain the ostensive nature of the communicative process, Sperber and Wilson, in their Relevance Theory (1986, 1995), raise two general claims, that is:

a) Implicitly they assume that comprehension is a non-demonstrative process, that is, even with the best conditions, communication can fail, once the addressee might not be able neither to decode nor to deduce a communicative intension of the communicator and just build up a supposition based on the evidence provided by the ostensive behavior of the communicator;

b) Explicitly they assume that any information conceptually represented and available to the addressee can be used as a premise in the inferential process; that is, the inferential comprehension process is global opposed to local. If it is local, it is context free or context sensitive to a specific domain while a global process has free access to any conceptual information stored in the memory.

From these two hypotheses, the authors try to explain the core of human abilities to perform spontaneous demonstrative inferences. They presume a formal deductive process with the intent of modeling the system used by human beings in spontaneous inferences and the understanding of ordinary utterances. With natural

language connectors (and, or, if...then, etc.), also used in Classical Logic and below represented:

(1a) P ? P,
(1b) P ? Q,
(1c) ? ? P,
(1d) ? P ? Q,
(1e) Q ? P,

they argue that:

(1a) is by default derived from the introduction rule of ? that takes two arbitrary suppositions as premises (in this case P, P) and derives their conjunction as a conclusion as seen in (2)

(2)   *Input*:   (i) P
                     (ii) P
       Output: P? P

(1b) is derived by the introduction rule of ?, that takes an arbitrary supposition as premises and derives its disjunction as any other arbitrary supposition as a conclusion, seen in (3)

(3)   *Input*:   P
       Output: P ? Q

(1c) is derived by the double-negation rule

(4)   *Input*:   P
       Output: ? ? P

And so on.

What Sperber and Wilson want to demonstrate with these examples is that in a formal system, although the rules could be accessed and tested in a certain order, each rule would have to be applied every time it were accessed and its input

description were found. In other words, every and each rule above would work in a continuum to the output and the description would never stop. Thus, the authors discard the Introduction Rules whose output supposition embrace each concept enclosed in its input suppositions plus at least one more concept. They come to the conclusion that Introduction Rules have no role whatsoever in the processing of spontaneous deductive information, the processing to which the deductive mechanism is designed to describe. The only deductive rules available to use in the processing of spontaneous information (the only rules that in any interesting sense are part of the basic human deductive tools) are the elimination rules.

They illustrate their conclusion with examples of natural language such as below:

(5) The candidate to Presidency has resigned (P).
(6) The candidate to Presidency has resigned and the candidate to Presidency has resigned (P ? P).
(7) Either the candidate to Presidency has resigned or it is a bit chilly today (P ? Q).
(8) It is not true that the candidate to Presidency has not resigned ? (? P).
(9) If the candidate to Presidency has not resigned, then it is going to be warmer (? P? Q).
(10) If it is his opponent's birthday, then the candidate to Presidency has resigned (Q ? P).

The conclusions taken from (6) to (10), and others derived by introduction rules are, in an intuitive sense, trivial. Such triviality is related to the fact that they do not change the content of their input suppositions but only add arbitrary material, without analyzing or explaining the content of their input suppositions. If, by any chance, certain types of spontaneous deduction require the use of introduction rules, as in the examples below:

(11) a. If the trains are on strike and the car has broken down, there is no way of getting to work. (Premise)
b. The trains are on strike (Premise)
c. The car has broken down
d. The trains are on strike and the car has broken down – by introduction of 'and' from (b) and (c)
(12) There is no way of getting to work (Modus Ponens from (a) and (d))

Sperber & Wilson argue that there are alternative derivations such as Conjunctive and Disjunctive Modus Ponens that are in their core elimination rules

and that there are good reasons to think of them as having an important role in the processing of spontaneous deductive information. (11) and (12) could be explained by Modus Ponens rules whenever there is a need of introducing the 'and' .

Sperber and Wilson hypothesis is that human deductive mechanism has access only to the Elimination Rules and produces only non-trivial conclusions defined as follows:

(13) Non-trivial Logical Implication
A set of assumptions **P** logically and non-trivially implies an assumption Q if and only if, when **P** is the set of initial theses in a derivation involving only elimination rules, Q belongs to the set of final theses. (1986, p.97)

In other words, the deductive mechanism is a system that explains the content of any supposition submitted to it. Sperber and Wilson argue that the rules that prevail for the human deductive mechanism are not the same as those from trivial demonstrative Logic, such as the introduction of ? or of ?, but rather logic-cognitive operations of non-trivial character, with broad spectrum (taking into consideration different kinds of ostensive stimuli) and subordinated to the general principles of Relevance. According to the authors, verbal comprehension starts with the recovery of a linguistically encoded sentence meaning, which must be contextually enriched in a variety of ways to yield a full-fledged speaker's meaning[13]. Given the examples below:

(14a) Peter: Has Laura's team won?
(14b) Maria: Look at her face!

They represent a dialogue between two people that apparently know each other, and, although Maria has answered linguistically to Peter's question, it is necessary more than words for Peter to grasp her answer. Peter has to look at Laura; there is the need of a perceptual experience, in the case, a visual one, besides a linguistic one for Peter to infer an answer with a stronger supposition.

Moreover, Sperber and Wilson argue that, within the specifically communicative domain, it is rational for hearers to follow a path of least effort in

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[13] Available: http://www.dan.sperber.com/relevance_theory.htm Accessed in November 11th 2007.

constructing a hypothesis about the speaker's meaning, and that the pragmatic interpretation process is therefore genuinely inferential.

Inferences tend to follow useful paths because, we argue, all these factors are geared to the maximization of relevance (1987, p. 740)

Given the example below:

(15a) Teacher: Have you handed in your essay?
(15b) Student: I've had a lot to do recently.

According to the authors (2002), the student's answer may convey an indirect answer, in terms of *yes* or *no.* Pragmatic interpretation involves the resolution of such linguistic indeterminacies on the basis of contextual information. The hearer's task is to find the meaning the speaker intended to convey. For them, apart from the rules of elimination, presented in the form of natural deduction, Classical Logic has nothing to contribute or to be consistent with the model of Relevance Theory.

Sperber and Wilson reject the introduction rules not only to avoid the system to generate infinite or non-terminating inferences; they state that introduction rules are never used in the spontaneous processing of information. To Uchida (2007), we could interpret their claim as the stronger interpretation of the RT´s proposal. [14] According to him (2007, p. 287),

the reason for postulating this stronger hypothesis is not only alleged overgeneralization of propositions expressed by way of free enrichment. Sperber & Wilson, among others, argue that spontaneous inference should not have access to introduction rules because, otherwise, the system would generate infinite or non-terminating inferences.

2. Antithesis

This paper questions the so-called incompatibility of the demonstrative logic systems with the practical reasoning by arguing that the principles and rules of the Classical Logic are in a more flexible and broad way included within semantic and pragmatic inferences that constitute the basis of daily reasoning. The work is based

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[2] The same as it is stated in this work, Uchida questions the possibility of eliminating introduction rules in a pragmatic theory.

on the Theory of External and Internal Interfaces as proposed by Campos (2004) which states that the right approach to analyze inferential processes is dependent on the kind of interface we assume to explain concepts and phenomena.

Campos (2004) states that language can be theoretically investigated through different points of view: as a cognitive structure, as a means of thinking or a way for communicating. Each of these three concepts conveys different possibilities for its studies. If it is considered a cognitive structure, in the way of Chomsky's, it falls within the field of natural and cognitive sciences as Biology, Physics and Psychology, if it is considered in its propriety of thinking, it goes back to the logic tradition that groups together Aristotle, Frege, Russell, Montague, Davidson and others. And if it is considered as a means of communication, as Saussure long ago stated, it is within the set of Social Psychology and Semiology. Such a division constitutes what Campos (2004) considers the external or interdisciplinary interfaces of Linguistics.

On the other hand, there are the internal or intradisciplinary interfaces of Linguistics that characterize the science of human language as organized in terms of Phonetics/Phonology, Syntax, Semantics, Morphology and Pragmatics, and so on. Such sub theories [15] are partially autonomous and partially interdependent. So, if one assumes a cognitive theory of syntax, one is committed to the other disciplines within the same linguistic conception. There is going to be a mapping from one sub theory, Let us say syntax to semantics, for example, or syntax to pragmatics, etc.

Within this perspective, the approach to inferential process will be dependent on the interface considered. If we want to describe reasoning processes related with Logic, then we have to consider an argument-type built up of context-free propositions in terms of semantics of natural language and of a formal language. If we want to examine an argument-token, then we are dealing with communication interface in the utterance level in which the speaker's intention is crucial. As a matter of fact, Sperber and Wilson hold to the communication-cognition interface, leaving out the so-called trivial inference and its introduction rules. Similarly, within the linguistic sub theories, the approach of human inferential process requires relation among Lexicology, Syntax, Semantics and Pragmatics

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[15] According to Campos, personal communication, they are called sub theories in the sense that they are all part of this big label Linguistics.

Given the example of a valid inference below [16] within the semantic/pragmatic interface:

(16) Jack loves Samantha
(17) allows us to infer (18)
(18) Someone loves Samantha

Likewise, from (19)

(19) Jack loves Samantha; therefore Jack is not an insensible man.

It is possible to derive (20)

(20) Insensible men do not love.

What is necessary, as Campos points out, is to distinguish the first type of inference from the second and they need to be explained within a "friendly" interface. Whether we have a formal, cognitive or communicative model, it is possible to think of natural inferences in a way to bridge the gap between these concepts. In other words, still according to Campos (2004), it is viable to think in terms of natural and artificial inferences, separating daily reasoning from the ones that are built up (carefully processed). To accomplish a better understanding of the process, the three interfaces (Logic, Cognitive and Communicative) could be theoretically intertwined to provide interdisciplinary information. Moreover, as Levinson (1987/1989) and Bach (1994) state in terms of deductive reasoning, it is odd for a Pragmatic Theory not to accept this kind of reasoning in its foundations. [17] For them, this theory is doomed to vagueness if it only assumes a negative characteristic, that is: the processes of inferential understanding are non-demonstrative. Bach (2001) also argues that purely semantic notion is needed to account for the linguistically determined input to the hearer's inference to what, if anything, the speaker intends to be conveying in uttering the sentence.

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[16] Adapted from Campos 2004.

[17] See Ibaños, Ana. Algumas considerações informais sobre inferência. In: http://www3.unisul.br/paginas/ensino/pos/linguagem/0503/07.htm

Given what is stated above, the first aspect to point out is what we consider inference in terms of natural language. The idea of valid inference has traditionally been the main concern of logic, that is, an inference is a passage from a set of sentences called the premises to a sentence called the conclusion (Cresswell,1988:35).So if we take subject predicate sentence as (21) and (22) and the valid inference in (23),

Feynman studies Physics.
Anyone who studies Physics is a genius
Feynman is a genius.

It is easy to say that we should base our intuition in natural language sentences in terms of Logic. In order not to pursue, though, the idea that anything in natural language production would follow the deductive process of Classical Logic, we should apply the concept of *entailment* – to avoid the misleading idea that anything or everything in language ought to be bounded to true values, that is, truth conditional Logic,

So, if we argue that the correct analysis of valid inferences in natural language occurs when *A entails B in case where the inferences holds*, we can already establish that, within the logical   realm, there are other principles which are far more necessary than a deductive mechanism per se, (as RT develops its concept normally for communicative purposes). It is possible to say that this idea of entailment captures the ordinary language sense of valid inference, because from:

(24) Sagan is a bachelor

to

(25) Sagan is a man

There is no possible world in which the former is true but the latter is false.

As it was said before, Relevance Theory states that inferential processes are non-trivial and non-demonstrative, just the opposite from the tradition of Deductive Logic and its rules. Following this line of argument, TR proposes a strong hypothesis

in which   it is the case that only rules of elimination apply to daily reasoning. So, if someone has P and has also Q, they are not going to form (P ? Q) using the rule of the introduction of ? .The basic idea is that rules of introduction only add more effort to the effect (relevance may be assessed in terms of cognitive effects and processing effort).

But this has gone too far because it does not take into consideration that given argumentative needs it is always possible to use such rules. In other words, even if it is clear that we should not model our daily reasoning by the classical Logic deduction, this kind of inference naturally appears, especially in argumentative processes. Let us suppose that A knows that

(26) John went to the party. (P)
(27) Maria went to the party. (Q)
(28) Charles went to the party. (R)

At a given moment, A says *John went to the party and Maria went to the party and Charles went to the party, and there are people who dare saying that the party was not good.* This repetitive addition o P and Q and R gives emphasis to the implicature that if all these people were at the party, then it is a mistake to say that it was not good.

Similarly, if I have,

(29) John went to the bank (P)
(30) John got the money (Q)

by introducing 'and' ,

(31) John went to the bank and got the money (P ? Q)

it is reasonable to infer pragmatically that John withdrew the money at the bank. In this case, the ? introduction cannot be considered a mere rise of costs because besides the informative benefit of the propositions P and Q, we get an additional pragmatic inference that justifies the ? introduction. Such an inference was not embedded in any loose proposition; if we had done the *the* introduction in other

order, such as Q ? P, that is, John got the money and went to the bank , the inference could be that of John going to the bank to deposit the money. It is not different from the ? introduction. If I have a complex proposition such as below:

(32) The President knew about the extra money and was corrupt (P?Q)

and add to the formula the ?

(33) The President knew about the extra money and was corrupt, or The President didn't know about the extra money and was incompetent (P?Q ?? – P?Q)

I would have the pragmatic inference of either he is corrupt or incompetent once he knew or didn't knew about the extra money it is the law of excluded middle third.

We could then argue that, within a logical framework, it is still possible to be compatible with the idea conveyed by the Relevance theory in terms of non-trivial calculus generated by the very principles of Relevance. If, for example, besides the principles of propositional logic and its logical consequences defined as the relation between a set X of sentences and a sentence, we assume meaning postulates or contingent entailments or even some aspects of intensional logic, it is possible to say that *the valid inferences of the natural language will be the entailments which hold in the interpretation of the natural language meanings* (CRESSWELL, 1988:44).

3. Synthesis

My conclusion is that there is no strong reason to exclude introductory rules of traditional Logic to approach natural languages' arguments. Introductory rules are not simple redundancy in this process and the use of them is informative all through the pragmatic inferences they have as result. In other words, if, as in the gricean picture, introductory rules are not enough informative, the process of introducing them works as a violation of the Quantitative Maxim thus resulting, once more, in pragmatic inferences.

In a non-trivial reasoning, the introduction of ? or ? is justified to yield inferences and these inferences are possible to the disjunction.

It is odd that a communication theory banishes deduction from its core; the logical benefits of it pay off its use. I argue that Logic cannot be put aside from the studies of inference. It is a matter of balancing what theories have to say about human language and what we know about reasoning in general.

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Introduction: Cognitive interface

This chapter deals essentially with connections between the proposition of the Theory of Relevance (Sperber & Wilson, 1995), conceived as a model of human communication and cognition, and classical notions of textuality. [18]

The basic idea is that the model of the Theory of Relevance (TR), of an inferential nature, is the most adequate model to interpret traditional concepts of coherence and cohesion, provided the cognitivist approach is privileged. This means that, considering an interface with cognitive sciences, textuality must be analyzed by means of a cost-benefit relation, or one of economy-efficiency, so that integration of the several aspects that guarantee text unity can be explained. From this perspective, and according to the interdisciplinary interface, it is assumed that one has an adequate interdisciplinary option, as in Campos (2004). The textuality-object can be approached via communication, cognition, or also in a formal context. The present paper takes the cognitive basis of textual inferences as a backdrop.

In his work Relevance Relations in Discourse (1990), Blass starts from the theoretical perspective of Sperber & Wilson (S-W), to establish a new perspective to approach textuality, discussing in detail traditional notions of cohesion and coherence. The author stresses that the linguistic structure of the sentence determines what is being communicated only to a lesser degree, while at the same time she points out the crucial role the cognitive context plays in interpretation, through inferential strategies of the listener-reader. [19]

Following, the author states that cohesion and coherence are neither necessary nor sufficient conditions for textuality, and she hypothesizes that

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[18] These connections are studied by Silveira & Feltes (2002), in their book *Pragmática e cognição: a textualidade pela relevância.*

[19] Although some authors make a specific theoretical distinction between text and discourse, here we take a notion of text as a communicative unit, whether written or oral, verbal or non-verbal

Relevance relations - based on a balance between contextual-cognitive effects inferentially obtained and an effort to mentally process them - underlie judgment of good textual form. In a later article about logical relations in the text, Blass (1993, p. 99) emphasizes that "any perceived textual connectivity is merely a sub-product of something deeper: Relevance relations between text and context that any listener, including the discourse analyst, automatically searches". [20]

This means that the connection between utterances is often not explained in linguistic terms, in terms of semantic content, or in structural terms at different levels. Hence, notions of coherence and cohesion – understood by many theoreticians as the two main axis of textuality – does not guarantee what is usually called good text form.

In order to develop this proposition, this chapter is structurally organized in three sections. The first one presents some theoretical-conceptual aspects which support classical views of textuality. The next one deals with TR assumptions aiming to present evidence to explain this cognitive model. The third section will illustrate a counterpoint between cohesion and coherence and, on the other hand, Relevance relations, through the analysis of communicative excerpts.

1. Classical views of textuality

In classical approaches to textuality , some different theoretical views of cohesion and coherence notions can be encountered; generally speaking, however, such differences can be summarized into two approaches: cohesion and coherence analyzed as phenomena at distinct but interdependent levels, or treated at the same level (of cohesion and coherence), which comprehends both. [21]

For Halliday and Hasan (1980), for instance, as well as for Beaugrande and Dressler (1981), formal explicit cohesion-connectivity expressed in the grammar and

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[20] The notion of Relevance is conceived by S-W (1995) as a theoretical-cognitive concept supported by the cost-benefit mental relation, as explained in section 2 of this chapter

[21] In classical approaches, Halliday & Hasan (1980), Beaugrande & Dressler (1981), Charolles (1978), Schmidt (1978), Van Dijk & Kintsch (1978) stand out, among others. Most of the initial papers on textuality are based on Halliday & Hasan (1980), with reference to cohesion, and on Beaugrande & Dressler (1981), with reference to textuality factors. These authors name seven factors as responsible for textuality: cohesion and coherence (at the linguistic level), informativity, situationality, intertextuality, intentionality, acceptability (at the communicative level, in the relationship producer/receiver).

the lexis, and logical-semantic-pragmatic-coherence, not always explicit within the propositions of the text, constitute different levels of analysis, yet with interdependent relations. According to Beaugrande and Dressler, the basis for textual coherence is the continuity of sense among different kinds of knowledge activated by linguistic expressions in the text, which must be observed both for production and for comprehension of the text.

Charolles (1978), however, considers only one of these levels, namely that of coherence, but distinguishes local coherence, which occurs in an inter-phrasal mode, and global coherence, which is present in phrasal sequences. In both plans, linearity is understood as a coherence factor. The author presents four meta-rules in his model: *repetition*, related to thematic continuity in the linear development of the elements in the text; *progression*, related to the renewal of semantic load; *no-contradiction*, responsible for internal consistency of the propositions; and *relationship*, which deals with the articulation of facts expressed in a propositional way in the text. Thus, this is a model to process information in which interpretation is shaped by a specific set of rules.

Schmidt (1978), on the other hand, sees textuality as a socio-communicative structure; although he acknowledges its pragmatic nature, based on assumptions that imply the conception of the text, he maintains the notion of coherence essentially at a logical-semantic level, based on interpretation rules "as a necessary condition for efficient verbal performance at a communicative level" (p. 175). For this author, at effecting communication, textuality is not a purely linguistic category, since it takes into consideration the presence of socio-communicative criteria which presuppose social interaction connections.

Van Dijk and Kintsch (1978) present a model based on rules in which logical-semantic connectivity is fundamental for the generation process of text macro-structures. Text propositions are connected to a discourse topic from the starting notion of a semantic macro-structure, based on the notion of micro-structure and of operations they call macro-rules, that is, the way semantic representations are organized and processed in the memory. Facilitating elements of this process are *cohesion*, inserted at a local syntactic-semantic level, and *coherence*, the semantic structure of the text which is established at a global syntactic-semantic-pragmatic level.

Whether or not it is treated at distinct levels, cohesion and coherence seem to constitute the fundamental properties of textuality; in other words, the intrinsic qualities for a text to be considered as such.

With a few not significant variations, cohesion – at a formal level, as emphasized by Koch (1997) – is defined in the linguistic range as "*revealed through linguistic marks and the expression of connected ideas, of formal structures in the linguistic and superficial sequence of the text, because it is manifested in its organizational sequence.*" It can be understood as the inter-relation of linguistic elements involving inter-phrasal and sequential relations as in a net. Hence, it refers to the existence of connections among various text elements.

At the conceptual level, coherence lies within the logical-semantic range, ensuring the maintenance of the topic or subject, the semantic structure, and the development of the topic of the text, among other factors responsible for making sense. Cohesion has a role in ensuring text meaning, but it can also be seen as a pragmatic phenomenon that brings together the language and its user, involving communicative intention and contextual information. Basically, logical semantic representations and pragmatic conditions ensure connectivity and good text structuring.

Hence, the notion of coherence of a semantic-pragmatic nature arises out of the sense a text makes to the listener/reader. A simple sentence, a lively conversation, a newspaper article, a literary piece of writing, the speech of a politician, a book, an official document, the report on an event, that is, any kind of communication, regardless of its length, must have signification or, in other words, must be coherent.

Below is a brief example of cohesion relationships , established in a context through linguistic mechanisms which are observed in the grammar or the lexicon. [22]

Grammatical and Lexical Cohesion

Grammatical cohesion can be defined through nominal and verbal concordances, the order of lexical items, the logic of the verb-time system,

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[22] The examples only illustrate some of the aspects of textuality, considering there is a wide possibility of access to existing publications on this subject matter.

connectors (conjunctions), pronouns (personal, possessive, demonstrative, indefinite, interrogative, relative), adverbs (here, there, over there, over here) or similar terms, definite articles, expressions of temporal value. These are interwoven intra- and inter-phrasal relations through linguistic elements that contribute to the construction of meaning in a text. Among these cohesion mechanisms, some are exemplified in the excerpt below:

> Gilberto Amado once said that it was impossible to write without a dictionary. The statement has <u>such</u> power <u>that</u> Aurélio Buarque de Holanda included **it** as an epigraph in **his** New Dictionary of Portuguese. Etymologically originated from medieval Latin; the term "dictionary", <u>according to</u> Aurélio himself, is a collection of words in a language or the specific terms of a science or art, alphabetically displayed <u>and</u> along with **their** respective meanings [...] <u>Thus</u>, the dictionary is a guide; <u>or</u>, <u>more than</u> **that**, it is an indispensable travel companion <u>for</u> one not to get lost [reflexive in Portuguese] in the misleading pathways of silence and of communication. (Otto Lara Resende). [23]

By analyzing the highlighted terms in the text, one can see the pronouns in bold, which are elements of grammatical cohesion referring to previously mentioned words. The demonstrative pronoun "that" (line 5; "isto" – *line 6 in the text in Portuguese*) has the noun "a guide" (line 5; "*um guia" – line 6 in the text in Portuguese*). [24] This cohesion relationship is called **anaphoric pronominalization**; in this case, reference is established with preceding elements in the text.

Connectors, the underlined words in the text, establish cohesive relationships between words and clauses, and are responsible for syntactical-semantic articulations in the text; they can be represented by conjunctions or terms/expressions that have the following role: "such…that" (lines 1 and 2; "*tal…que" – line 2*) expresses the idea of a consequence; "according to" (line 3; "*segundo" – line 4)* expresses conformity, being in agreement with (with Aurélio, in the text); "and"

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[23] *Gilberto Amado disse uma vez que sem dicionário não podia escrever. A declaração tem <u>tal</u> força, <u>que</u> Aurélio Buarque de Holanda incluiu-**a** como epígrafe de **seu** Novo Dicionário da Língua Portuguesa. Etimologicamente proveniente do latim medieval, a palavra "dicionário", <u>segundo</u> o próprio Aurélio, é o conjunto de vocábulos de uma língua ou de termos próprios de uma ciência ou arte, dispostos alfabeticamente <u>e</u> com o **seu** respectivo significado [...] O dicionário é <u>assim</u> um guia; <u>ou</u>, <u>mais do que</u> **isto**, é indispensável companheiro de viagem, <u>para que</u> a gente não **se** perca nos descaminhos do silêncio e da comunicação.*

[24] Other cohesive grammatical elements highlighted in the text are:
 - pronoun "a" (line 2) refers to statement (line 2);
 - pronoun "his" (line 2) refers to "Aurélio Buarque de Holanda";
 - pronoun "their" (line 5) refers to "words and specific terms" (line 4);

- the pronoun in line 7 in the version in Portuguese is used because the verb is reflexive and it refers to "one" (line 6); the equivalent verb is not reflexive in English, so the pronoun is untranslatable.

(line 4; *" e" - line 5*) adds something to what has been said; "thus" (line 5; *"assim – line 6*) articulates a conclusion; "or" (line 5; *"ou" – line 6*) introduces an alternative to what has been mentioned before; "more than" (line 5; *"mais do que" – line 6*) establishes a comparative of superiority relation with the noun; "for" (line 6; *"para que" – line 7*) expresses an aim.

Lexical cohesion, on the other hand, can be observed in the italicized terms in the text; these terms refer to words or expressions that occurred before and which carry similar or opposite traits. In this type of cohesion, reiteration or substitution can be observed.

Reiteration is the repetition of linguistic expressions; in this case there is an identity of semantic traits as it can be seen in the four uses of the word "dictionary", for example. In general, this resource is used extensively aiming to emphasize the words and to avoid possible misinterpretation.

Lexical substitution consists of substituting a noun or verb item or phrase for another with semantic equivalence. In the excerpt above, one can observe some possible lexical substitutions for "**dictionary**": set of words in a language, as a paraphrase, and also metaphorically, a guide and indispensable travel companion.

In this way it can be observed that cohesive linguistic elements can contribute towards making a text coherent; however, coherent texts lacking cohesive elements are quite possible, as well as texts fitting cohesive frameworks may lack coherence.

Example of a text with coherence but no cohesion:

> Slippers, toilet, flush. Sink, soap. Water. Toothbrush, toothpaste, water, foam, shaving cream, brush, foam, razor, water, curtain, soap, cold water, warm water, towel. Hair cream, comb. Underwear, shirt, cuff buttons, pants, socks, shoes, tie, jacket. Wallet, change, watch, pack of cigarettes, box of matches... (Excerpt from "Closed Circuit", by Ricardo Ramos, 2000)

The excerpt above clearly exemplifies a man's daily routine in an urban environment, as he gets up in the morning and gets ready to leave home. However, the author uses nouns only, without any cohesive element between them. These words in juxtaposition, one next to the other, carry in themselves enough meaning for one to picture the actions performed: getting up, putting on slippers, going to the

bathroom, washing the face, brushing the teeth, shaving, taking a shower, combing, getting dressed, picking up the wallet, counting his coins, the watch, cigarettes… In other words, coherence is constructed through contextual information in the development of the text.

Example of a text with cohesion but no coherence:

> Man is a creative being. Creativity is inventiveness. The latter is very important in life. Also, life is very important, because scientists have studied its origin for ages. (Excerpt from a composition written by a high school student.).

In opposition to the first excerpt, this one presents cohesive elements: creative/creativity are words that maintain the same semantic axis; the latter refers to "inventiveness"; also adds the idea of importance to the expressions inventiveness and life; because explains why life is important; in its the possessive refers to life (the origin of life); for ages emphasizes the temporal aspect. However, the author starts writing about man as a creative being and ends up with the origin of life studied by scientists, that is, neither continuity of the theme nor semantic progression are observed, and the result is an incoherent text, one that makes no sense.

Considering the last two examples, Blass' (1993) position seems valid when she stresses that neither cohesion nor coherence by themselves appear to be an adequate approach to textuality, since some texts lacking formal cohesive elements succeed in conveying a coherent message, while others sound meaningless although they are constructed following patterns of lexical and grammatical cohesion. Besides, the author points out to the existence of texts that display both cohesion and coherence and yet do not consist of genuine communication, which happens, for example, in a communicative situation in which there is no contextual information necessary for comprehension. Some texts can be pointed out which are apparently incoherent but can be understood when inserted in a particular context; this is the case with humorous texts, which depend largely on contextual information of a socio-cultural nature without which they run the risk of not reaching their goal with readers/listeners. Below is one example of such texts:

A question of meanings... [25]

The UN had decided to conduct a world survey. The question was: "Please tell honestly what your opinion is about food scarcity in the rest of the world." The outcome was a disaster. It was a total failure.
Europeans did not understand the meaning of "scarcity".
Africans did not know what "food" means.
Argentineans did not know the meaning of "please".
Cubans were doubtful and asked for explanations about "opinion".
North Americans asked what "the rest of the world" meant.
And the Brazilian Congressmen are still attempting to clarify the meaning of "honestly".

According to this example, if the listeners/readers are not familiar with the characteristics attributed to the natives of each one of these countries, with a clear intention of the author who expressed them in the question, the humor of the text will definitely not be adequately perceived, nor will the criticism implicit in the last sentence.

According to Blass, therefore, cohesion is only partially responsible for the construction of sense in a text; sometimes it is neither necessary nor sufficient for the construction to be effected. Coherence, on the other hand, can do without cohesion because pragmatic factors (data of the communicative situation) and cognitive factors (conceptual structures) play a key role in establishing connections among textual components. While evaluating the role of cohesive mechanisms in the traditional approach to textuality, Blass follows Blakemore's (1987) ideas and argues that such mechanisms can be better analyzed as semantic restrictions on Relevance rather than markers of coherence. She emphasizes that these restrictions make information processing easier as they indicate the pathway to Relevance.

Having pragmatic factors responsible for textuality in mind, the traditional models approached do not explain how relevant information of the context is selected for production/comprehension of the text, nor in which way intended assumptions or hypothesis are constructed to meet the intention of the author. In general, studies which point out pragmatic and cognitive factors related to the notion of context in characterizing textuality or coherence end up in favor of a logical-semantic linking together of utterances and the participation of the context is treated by means of an assortment of pragmatic rules.

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[25] Text from the Internet, by unknown author.

This leads to the conclusion that none of the approaches presented adequately balances between description and explanation, at a psychologically plausible level, making it possible to understand how implicit content is retrieved or constructed from a set of possible interpretative alternatives.

Next is the relationship between textuality and Relevance, pointing out S-W theoretical assumptions which support Blass' view.

2. Textuality and relevance: cognitive basis of inferential processes

Based on recent studies of Psychology, one of the major elements of TR is the very concept of Relevance, of a cognitive basis, in a gradual and comparative perspective which consists of a balanced relationship between mental cost expended and the cognitive-contextual effects achieved when processing information. This concept arises from a basic property of human cognition: we normally pay attention only to phenomena-stimula that seem relevant to us, attempting to reach maximum Relevance of information – maximum cognitive benefits with minimum justifiable cost.

Such maximization property of Relevance, inherent to verbal (as well as non-verbal) comprehension, is called **cognitive principle** by S-W (1995), and it is a part of the **communicative principle of Relevance** (PR): *"Every act of ostensive communication communicates a presumption of its own optimal relevance."* (p. 158). [26] Thus, in the view of deliberate and intentional communication, the ostensive stimulus must be relevant enough to call the attention of the listener/reader, focus this attention on the intention of the communicator, and reveal this intention by triggering an inferential process in the addressee. When calling the attention of the addressee, guaranteeing that ostensive stimulus is worth being processed in an economical and efficient way, constitutes the assumption of optimum Relevance, and allows that the speaker/writer and receptor participate in the communicative act in a dynamic way, alternating their beliefs and factual suppositions to some degree.

S-W (1991, p. 544) point out that:

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[26] Although the authors explicit the enunciation of the two principles of Relevance, one cognitive and the other communicative in the Postface of the book edited in 1995, they generally refer to it as Principle of Relevance encompassing the two properties, as done herein.

> The principle of relevance differs from every other principle, maxim, convention or presumption proposed in modern pragmatics in that it is not something that people have to know, let alone learn, in order to communicate effectively; it is not something that they obey or might disobey: it is an exceptionless generalization about human communicative behaviour. What people do have to know, and always do know when they recognize an utterance as addressed to them, is that the speaker intends that particular utterance to seem relevant enough to them to be worth their attention.

From this theoretical perspective, the construction of possible interpretation hypothesis about a set of assumptions is effected through the Principle of Relevance, which guarantees the choice of the first interpretation accessible to the addressee, consistent with this Principle. [27] This pragmatic criterion of consistency is formulated as "an utterance is consistent with the principle of relevance if and only if a rational communicator might have expected it to be optimally relevant to the addressee on that interpretation" (S-W, 1995, p. 169). Of all accessible hypotheses about the informative intention of the communicator, the listener will accept the first one that was tested and judged as consistent with the principle, acknowledging the informative intention as mutually manifested and, thus, as communicative.

The Principle of Relevance has a potential for explaining how, among so many pragmatic interpretations that are compatible with the linguistic decoding of an utterance, one is chosen in the comprehension process. Innate to human cognition, this process seems to be decisive in explaining the universality of inferential processes, since it governs ostensive and intentional behavior of the communicator; in selecting assumptions and context for interpretation, it allows the addressee to arrive at the intended information with the smallest possible cost. Hence, this Principle aims to explain inferential communication as a whole, explicitly and implicitly.

This view arises from the argument that the way language is interpreted é widely universal, since it follows the same logic. Although background suppositions may vary, since knowledge of the world differs from one individual to the other, inferential strategies remain the same. That is, mechanisms of a deductive nature allow distinct listeners/readers to construct given assumptions from the relationship between linguistic code, contextual information and cognitive skills, that lead to conclusions or interpretation hypotheses in the comprehension process.

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[27] S-W point out that in order to be consistent with the Principle of Relevance, an interpretation does not have to be optimally relevant to the addressee; it simply must have sounded in this way to the communicator, as when one communicates something to someone who already knew about it.

Going beyond the code and the inferential models that follow Grice's Implicature Theory (1975), to a greater or lesser extent, authors point out that linguistically codified inputs are a basis for more complex inferential reasoning. In this complementary view of a code + inference, S-W define context as a psychological construct, at the level of mental representations made available during the interpretative process, to show in what way information processing in verbal comprehension takes place; in the process, grammatical and pragmatic processes are involved and, guided by a search for Relevance, the listener/ reader is allowed to reach what the speaker intended to communicate.

The cognitive notion of context, therefore, aims to explain how it is constructed and how the assumptions that will derive from interpretation will be chosen among a set of supposedly infinite number of possible assumptions, by means of a criterion consistent with the Principle of Relevance; this is due to the characteristic of selection and restriction of information to be utilized for comprehension. S-W also point out that the context that was accessed at the level of mental interpretations "in most cases of implicature, [the context] does much more than filter out inappropriate interpretations: it provides premises without which the implicature cannot be inferred at all" (1995, p.37).

In this theoretical model, linguistic decoding, perception, information stored in memory, and deduction constitute sources of information responsible for the strength of the assumptions that are constructed along the communicative process. For these authors, in the spontaneous inferences made in communication, deduction is a fundamental process, made up of logical rules in forming interpretation hypotheses to be confirmed by non-logical operations, with free access to information conceptually represented in the memory, through information that comes to the mind of the individuals in their interpretative thinking. These inferences are not demonstrative, since they cannot be logically proven; neither are they trivial since there are no pre-established premises for valid conclusions to be derived from.

Despite limitations resulting from standard logic for the treatment of phenomena in natural language, especially due to the strictness and formal precision of deductive calculations which abstract context and content from the premises in trivial operations, S-W mention the advantages in using the deductive rules which equip the human mind: economy in storing assumptions which can be multiplied

when processed, as well as explicitness and validity of conclusions through the possibility to judge the inconsistency of contradictory assumptions and monitor redundancies.

This consists of a computational device whose rules (essentially elimination and, therefore, interpretative) linked to concepts, severely restrict logical operations and prevent trivial re-applications when applied to the individual's assumptions and beliefs because they interpret and analyze the contents of the premises in the specific context they are found. This inferential process arises from valid conclusions by means of intuitive, qualitative and comparative judgment.

The non-trivial implications derived from the intuitive mechanism, in this computational approach to communication, are called contextual effects, and they are brought about when new information (coming in from input systems – linguistic or sensitive/perceptual stimuli) is processed in the context of old information stored in the encyclopedic memory of the receptor and resulting in a relevant assumption if previous beliefs are modified. There are three kinds of contextual effects that modify an individual's knowledge of the world: contextual implication, which gives rise to a new assumption; strengthening, which widens or strengthens existing factual assumptions; and contradiction, which eliminates the weakest (because there is less evidence) of the two contradictory assumptions.

According to Silveira (2002), when the human deductive mechanism is distinguished from the formal deductive mechanism, the authors of the Principle of Relevance create a mathematical formula of logic through a variation of the cognitive formula in practical inferences. By integrating precise and explicit formal systems of logic and cognitive systems of human psychology to deal with spontaneous reasoning (many times automatic and unconscious), S-W prevent a reductionistic position, in the same way as they do when they develop a complementary view of code and inference, viewing the former as input to trigger inferential processes.

As the pragmatic interpretation in conversation cannot be effected solely in terms of the code, textuality cannot have a solid foundation in a decoding model because of the general properties of verbal communication. Therefore, classical notions of cohesion and coherence are also inadequate and have no descriptive-explanatory power to take care of textuality if they are constructed following this code approach at a more fundamental level.

As Silveira (2005) points out, a verbal text does not usually contain all the information necessary for comprehension. In interpreting, the listener/reader must retrieve implicit elements constructing inferences through cognitive perceptual skills, in order to establish relationships between the text and his/her knowledge of the world, and be able to fill in gaps of information left unclear, in an exploratory activity aiming to effectively understand what is being heard/read. This occurs because human beings automatically aim to process information in the most effective way, whether consciously or unconsciously, in order to interact with others. This cognitive characteristic also includes the communicators when they produce their text in an ostensive and intentional way, since, according to S-W,

> The universal cognitive tendency to maximize relevance makes it possible (at least to some extent) to predict and manipulate the mental states of others. Knowing of your tendency to pick out the most relevant stimuli in your environment and process them so as to maximize their relevance, I may be able to produce a stimulus which is likely to attract your attention, to prompt the retrieval of certain contextual assumptions and to point you towards an intended conclusion (WILSON; SPERBER, 2004, p. 671).

After presenting some of the basic assumptions of RT, which are pertinent to this study, the next section analyzes text samples.

3. Textual Analysis: a counterpoint of linguistic tradition and relationships of Relevance

As it has been pointed out, since in the communicative process comprehension combines semantic properties (through linguistic inputs) with context properties, textual analysis implies logical reasoning to come to conclusions. It is in this perspective that the examples in this section will be analyzed, in order to illustrate how textual production and comprehension are constructed by means of Relevance relationships as opposed to relationships of cohesion and coherence of traditional models of textuality

Text 1 – Writing is the art of cutting out words

01	*Who was the master in writing that produced this precious lesson?*

02　Writing is cutting out words.I spent some years believing the author of this maxim was　　　03
Carlos Drummond de Andrade. Then one day I asked the poet. I confess I was disappointed.
04　The statement looked like master Drummond's, whose prose is an example of conciseness.
05　[...] This is the case of a fish fair vendor at a British pier.
06　 The man arrives at the fair and meets his friend displaying his fish on a huge wooden tray.
07　The vendor is happy about the success of his small business. He started this business a few
08　months ago and has already been able to buy a board to announce his product.
09　 Behind the counter, on the board, is the message written　in　chalk, in　careful handwriting:
10　TODAY SELLING FRESH FISH. Then his friend asks:
11　- Is there anything you would add?
12　 The vendor read the notice again. In a discreet way the friend praised the handwriting and
13　insisted. He asked the vendor:
14　 - Do you realize every day is always today? And he added: This word is not necessary.You
15　can cut it out....
16　 The fair vendor accept the ponderation; he crossed out the adverb. The announcement was
17　trimmed: I SELL FRESH FISH.
18　 - If you allow me – said the visitor – I'd like to know if here in this fair anyone is giving
19　 fish away for free? As I see it, this is a fair, and a fair is synonymous with selling. I find
20　 the verb unnecessary. If it were my stand, honestly, I'd erase the verb. The announcement
21　became even shorter: FRESH FISH.
22　- Now tell me something: Why proclaim the fish is fresh? What brings a customer here to
23　 the pier is the assurance that all fish is fresh here. No open fair in the world sells frozen fish.
24　 And the adjective was gone too. The announcement was reduced to one single word: FISH. 25
But for a　short time. The friend　argues　that it is　despiseful　of　the clients' intelligence to 26
advertise in　block letters that this product here is fish. After all, this is obvious. Even a blind
27　can tell from the smell that this is fish ..
28　The noun was erased. The announcement disappeared. So did the board. The street　vendor
29　 sold　everything. Not even the sardine for the cat remained. And he learned a precious
30　lesson: writing is cutting out words. (*Armando Nogueira*)

As we interpret the title we are faced with a contradiction of how the verb "to write" is supposedly defined. However, the development of the text eliminates the apparently contradictory assumption, because one can notice that the author used figurative (not literal) language aiming to call attention to the fact that the context can do without the use of words in some situations; that is, the text indicates that, besides the linguistic code (the words used in the text), there are other sources of information that, if well used, generate successful communication (the term "art" semantically contributes for such interpretation). Hence, the title "Writing is the art of cutting out words" metaphorically means that human communication (whoever writes communicates something) is possible without words, and that is an art.

In line 12, the phrase "In a discreet way the friend praised the handwriting", as a response to the question asked in line 11, can lead to the following inferences in order to be understood:

S_1 – If, faced with the vendor's question about anything to be added to what had been written on the board, the friend praised the handwriting, it was because he did not want or had no means to answer.

S$_2$ – If the friend failed to answer the vendor's question, it was probably because he did not want to sound impolite with the friend by letting him know that instead of adding something to the phrase he would erase all the words.

C – If someone changes the subject instead of answering a question, it probably indicates that this person's answer would go against the interlocutor's expectations.

The construction of such assumptions follows a non-demonstrative and non-trivial calculation in S-W terms, springing from the new information (the utterance that praises the handwriting) which, as it is processed in the context of the information existing in the encyclopedic memory of the interlocutor (assumptions S1 and S2), leads to the conclusion (C) which constitutes contextual implication. In addition, there are neither cohesive nor coherent elements in this part of the dialogue since instead of answering the question and giving continuity to the discourse, the friend changes the subject breaking up the natural sequence of the conversation not to be impolite with his vendor friend. Thus, if the utterance "In a discreet way the friend praised the handwriting" were to be interpreted in solely linguistic terms, the reader would not reach the interpretation intended by the writer of the text.

The assumption (C) that the friend's reply would not meet the expectation of the interlocutor is strengthened as the development of the text confirms that he is not in agreement with the phrase on the board. It is, therefore, a plausible interpretation constructed according to information stored in the memory since, generally speaking, when someone replies to a question by introducing another topic which is not pertinent, this person is deliberately avoiding the prompted for reply.

Line 14 shows that the friend's question about the presence of the adverb "today", since "every day is always today" indicates this word is unnecessary in the message. If it were to remain, it would be possible to infer that yesterday the fish sold was not fresh, nor will be the fish tomorrow. The removal of the verb "selling" is justified (lines 18 to 20) because it is common knowledge (stored in the encyclopedic memory) that a fair is synonymous with selling; therefore this word is unnecessary.

Following, by suggesting the removal of the word "fresh" from the board (lines 22 to 23), the vendor's friend also argues that according to people's knowledge of the world, in this case a fair at the pier selling fish, fish are generally fresh.

When the friend suggests the vendor should erase the word "fish" from the board (lines 25 to 27), he argues that this information is given by a sense of smell (sensitive-perceptual stimulus) and not from the word (linguistic stimulus), which is

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stressed even further by the statement "Even a blind can tell from the smell…" This assumption presupposes the following reasoning:

S_1 – If even without reading the announcement a blind person would know fish is sold there, then this information would not come from the written word "fish".
S_2 – If the characteristic smell of fish which is distinctly perceived is enough to indicate its presence,
C – Then information comes through the sense of smell and does not require the use of words to be communicated.

The friend convinced the vendor to erase the adverb (today), the verb (selling), the adjective (fresh), and the noun (fish), by using information retrieved from the encyclopedic memory of both of them and activated by perceptual stimuli originated from the physical environment. The result of this inferential process proves intended communication was successful, since the vendor sold all the fish even without making use of the message on the board.

The analysis of the texts ascertains that, in the daily communicative process, both intentional and ostensive, constructing and extending the context (mentally through conceptual representations) yield an enhanced interpretative exploration which may include information through the physical environment, through sensitive-perceptual stimuli, through suppositions stored in the short-term memory of the listener and through the suppositions stored in the mental Encyclopedia.

According to characteristics of human cognition, it is evident that individuals resort to cognitive efficiency to interpret texts or facts, more than they do to the presence of linguistic cohesion and coherence for adequate comprehension. This analysis indicates that the manner to understand and interpret phenomena of any nature is utterly determined by what the individual already knows and believes in, that is, by their encyclopedic knowledge, beliefs and experiences.

From this, textuality – as judgment of good textual construction and also as a condition for interpretation – is built up along verbal processing with the support of contextual information rather than formal or semantic connectivity of linguistic-textual structures. These make up only one part of the input process, supplying some data of a logical-conceptual nature for the inferential phase of the comprehension of communicative phenomena which go beyond encoding and decoding messages. Hence, communicative situations in which relevant information is not linguistically

conveyed (images, gestures, silence) are problematic in approaches of discourse analysis based on cohesion and coherence, since these are generally considered property of verbal utterances or texts.

In the text below, author Hélio Schwartsman advocates the existence of a humor grammar: [28]

Text 2 - Humor

> Writer Arthur Koestler, who is responsible for the entry on humor in the Encyclopaedia Britannica, states we laugh when we perceive a clash between two codes of rules or contexts, both consistent but mutually excludent.
> For example: "A masochist is the person who likes a cold shower in the morning, therefore he/she takes a hot shower". [...] Here the fact that the individual in the joke is a masochist subverts normal logic, inverting it. It is obvious that normal logic does not coexist with its reverse. Hence the funny aspect of the joke. A variant of the same pattern, with a double inversion however, is: "A sadist is the person who is kind to the masochist". This structure makes up all the jokes. [...]

If the comprehension of the first underlined sentence in the example above were essentially dependent on the linguistic code, we would have a given contradiction, particularly in the expression "therefore", which expresses exactly the opposite in the place of an explanation of what came before, that is, the masochist likes a cold shower and, because of this, he/she takes a hot one.

However, if the contextual information "a masochist likes to suffer" is available in our minds, the meaning of the sentence is made clear, and the contradictory idea is eliminated. The statement becomes understandable in a psychologically plausible way. Then the contextual effect obtained becomes an intelligent definition of what the term "masochist" means, generating the intended humor. In S-W's terms, this is a contextual implicature which can be explained in the following manner:

> If the masochist is a person who likes suffering,
> If the masochist likes cold showers,
> Then the masochist will take hot showers.

In the double logical inversion in the second underlined sentence above, there is also an intelligent definition according to the author; moreover, it is marked with the humorous word "sadistic", whose meaning is "the person who takes pleasure in

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[28] The author holds a BA in Philosophy and is an editor of Folha de São Paulo. The excerpt is from an article published in *Folha Online* on November 18, 2004.

making others suffer". In this example again there is an apparent contradiction in linguistic terms, as one would not expect a sadist to be kind to anyone. However, if the meaning of the two words – masochist and sadist – are contextually accessible to the reader, the sentence becomes perfectly logical, by considering:

If the sadist takes pleasure in making a person suffer,
If the masochist likes suffering,
Then, by being nice to the masochist, the sadist will make the masochist suffer.

According to the assumptions of TR, analysis shows that personal contributions to the meaning must be seriously taken into consideration while interpreting utterances; by going beyond the code, comprehension is achieved through inferential processes of a deductive, non-demonstrative and non-trivial manner, which presupposes information that becomes available in the mental context. Thus, this means that textuality is not a phenomenon necessarily and sufficiently explainable at the level of linguistic-textual structures, but a processing phenomenon that takes place in the mind.

In other words, returning to Blass, in S-W's theoretical views, the semantic representation of a sentence is retrieved by a linguistic decoding process, more often than not automatic and unconscious, which is enriched by the criterion of consistency with the Principle of Relevance, through information contextually accessible. The nature of this operation explains, for instance, why one tries to construct coherence out of a text before judging it incoherent offhand.

The third example to be analyzed is a short text said to have been written by Luis Fernando Veríssimo: [29]

Text 3- Learn how to call the police

01	I have very light sleep, and the other night I realized there was someone slyly
02	walking around the backyard.
03	I got up in silence and followed the low sounds that seeped in from outside, until I
04	spotted a silhouette walking by the bathroom window. As my house is very safe, with
05	bars on the windows and doors, I was not too worried, but I was not going to let a
06	robber calmly spy in.
07	I called up the police in a low voice. I informed them of the situation and gave

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[29] This text was on the internet in 2007, and there are controversies as to its authorship. Although a large number of people say LFV is the author, other sources deny it.

08	them my address. They asked me if the robber was carrying a gun or if he was
09	already inside the house. I explained he was not, and they told me there was no police
10	car nearby to help me out, but they would send someone over as soon as possible.
11	One minute later I called again and said calmly:
12	- Hi, I called you a while ago because there was someone in my yard. No need to
13	hurry. I have shot the guy with a 12-caliber gun which I have at home for situations like
14	this one. The shot really smashed up the guy!
15	Less than three minutes later five police cars were on my street, plus one
16	helicopter, a rescue unit, TV reporters and the human rights people, who did not want
17	to miss any of this.
18	They caught the robber red-handed, and he looked around in a dumbfounded
19	way. Maybe he was thinking that it was the Police Commander-in Chief's house.
20	In the middle of the row, a lieutenant approached me and said:
21	**-** I thought you said you'd killed the guy.
	I answered:
	- I thought you said there was no one available.

This text is essentially a criticism to the attitude of the police, extended to the tv media and the representatives of civil rights organizations (lines 14 and 15); for an adequate understanding of the humor in it, several inferences can be drawn from the ostensible utterances linguistically encoded and the context of mental representations.

The attitude of the author (lines 11 to 13), calmly telling the police that they did not have to hurry any more because he had already taken care of the robber, consists of a highly ostensive stimulus leading to immediate reaction, according to the following lines: "Less than three minutes later five police cars were on my street…" (line 14).

This fact will certainly trigger an inferential process in the mind of the reader, leading to an association with the title of the text and concluding that the potential danger a supposedly common citizen was exposed to was not enough to mobilize the police, but the fact that he had informed them he had shot the robber was highly ostensive, resulting in the immediate arrival of "five police cars, a helicopter, a rescue unit…" In other words, the content of the second phone call (lines 11 to 13) represents the learning - in intentionally humorous terms - about how to effectively call the police.

Besides, there are other inferable implications in the sequence of the same paragraph: one related to tv station reporters – the media in a sensationalist character is always present at these moments – and the other one referring to the human rights organizations – those representatives of human rights are excessively

concerned with criminals in general; both implications are obtained through contextual information based on knowledge of the world, leading to a conclusion intended by the author, the comprehension of which would not take place only through the linguistic code.

When the capture of the criminal is mentioned (lines 16 and 17), the thought attributed to him also constitutes a fact contextually accessible in Brazilian reality, as it is common to find the police are very busy when it involves someone from their own professional field.

The closing statement, however, "I thought you said there was no one available" (line 21), as a response to "I thought you said you'd killed the guy" (line 19) allows us to infer that the author ironically uses the same phrasal structure to show irreverence and disbelief of the policeman's words, who had previously mentioned there were no police cars available to send over to the man's house. Inferential reasoning can be thus demonstrated:

If it was not true there was no one available at the police department to respond to the call of a citizen because there was a robber around his house,
Then the citizen also resorted to a false statement when he said he had shot the robber dead so that the police would promptly respond to his call.

The analysis demonstrates that the meaning of an utterance is heavily dependent on the context in which it is inserted, in the sense that it intervenes to adequately retrieve, through inferential processes, the intention of the author and, again, brings to light the limitations of linguistic notions of coherence and cohesion as textual production and comprehension factors. According to the TR, central cognitive processes integrate information coming from input systems (visual, auditory, linguistic, etc.) with the information stored in the encyclopedic memory for conclusions to be drawn from through the construction and confirmation of hypotheses.

In this approach to communication through Relevance, the notion on intentionality conceived by S-W turns into help for the communicator through ostensive stimulus, so that the listener/reader makes the interpretation the author intended. According to these authors, if the role of the listener/reader is so important, and if the verbal behavior of the speaker/writer is restricted by the expectation of

Relevance of the former, then in the written text such expectation must be considered as the basis for textual analysis, taking into account that communication occurs in a social and cultural context with overwhelming influences from people's assumptions about the world.

The fourth example was taken from a television program about professional activities, in which a reporter (A) interviews a young lady (B):

Text 4 – Excerpt of an interview

> A: You are blonde, tall, elegant and beautiful. Have you ever considered being a model?
> B: I adore food, I love chocolate, and I hate salad.

In this exchange, once more, cohesion and coherence relationships between the utterances can hardly be established. Such relationships do not occur at linguistic-structural or logical-semantic levels, but at pragmatic-cognitive level, of a contextual-inferential nature. In other words, processing B's reply in a context of available contextual assumptions, which are widely accessible, one can retrieve the following information from visual and linguistic stimuli:

a. Models are usually very slim in the fashion scenario nowadays.
b. In order to remain slim, many of them eat little and poorly.
c. Models avoid calorific food not to gain weight.
d. Chocolate is fattening; therefore not recommended for diets to lose weight.
e. Salads are recommended for diets due to the low number of calories foods of this nature contain.

Based on the information above, one can reconstruct the following inferential calculation:

S_1 If being slim is a requisite for models these days,
S_2 If B likes to have calorific foods that are fattening,
S_3 If B does not like salads, which contribute to keeping one's weight low,
C Then B could not be a model.

In this example, B's reply, which is not made linguistically explicit, is understood as it makes evident that in spontaneous inferences there is access to

information conceptually represented in memory; these are not local, pre-established premises but are constructed during the interpretative process for the Relevance of the information not to be lost.

Hence, by pointing out the role of the context as an objective fact that inferentially enriches the utterance, the information triggered in the encyclopedic memory has changed into premises (contextual assumptions S1-S3) which give origin to the conclusion (C) by means of a non-trivial calculation through a criterion of consistence with the TR.

The central statement of the TR is that relevance expectations generated by an utterance are precise and predictable enough to lead the listener towards the meaning intended by the speaker. The objective is to explain in cognitively realistic terms what these expectations are equivalent to, and how they can contribute to an empirically plausible approach to successful communication.

A pragmatic theory of textuality must account for the way semantic representations are retrieved, and explain disambiguities, reference attributions, resolutions of semantic indeterminacies, retrieval of implicit contents, as well as figurative interpretations, stylistic effects and illocutionary force. In other words, it must explain the interpretation of assumptions constructed through encyclopedic and episodic knowledge, cognitive skills, sensory-perceptual stimuli originated from the physical environment, etc.

To finish this illustrative analysis, the following text is a joke constructed in the context of communication problems between couples, whose backdrop is the fact that women never state clearly what they want, while men do not make any effort to understand them:

Text 5 – A joke

As the wife wanted a new sports car, she turned to her husband and said:
- Honey, soon it is my birthday... I would like to get a surprise gift, and to help you I'll give you a hint: I want something that goes from zero to one hundred and fifty in less than five seconds. It can be any color.
On her birthday she got brand-new pink bathroom scales!!!
The husband is still missing…

The joke is funny exactly because of the misunderstanding generated by the inadequate interpretation the husband made in relation to his wife's request, although it was expressed in a linguistically cohesive and coherent manner. Taking advantage of the possibility of understanding the utterance in a different way [...] *I want something that goes from zero to one hundred and fifty in less than five seconds* [...], the author of the text intentionally misunderstands the hint the wife meant to give her husband.

Consequently, instead of understanding the request meant a car – which could be explained by the theoretical assumption that an individual pays attention to what seems relevant at the moment – the husband gives her a pink bathroom scales as a present. Although inadequate in terms of the message intended by the communicator, this interpretation is psychologically plausible, since scales can also go from zero to one hundred and fifty in a few seconds, if this is someone's weight.

As a consequence of the deliberate misunderstanding (as it is a joke), it is implied that the wife is obese. Resorting to the encyclopedic information that women hate it when someone subtly suggests or explicitly states that they are overweight besides the disappointment for not getting the car, it is possible to understand the closing humorous sentence, apparently disconnected, of the text: The husband is still missing. In other words, the wife's reaction must have been so harsh that the husband had to run away, not to suffer the consequences of the disastrous present he gave her. It must be pointed out that without the appeal of the images mentally represented (a 150 kg woman) and the linguistic inputs processed in the cognitive context of the information stored in memory, which lead to the construction of the implied conclusions, one could hardly establish any coherence in the text.

Besides highlighting basic assumptions of the TR – (a) the same linguistically decoded utterance can have different interpretations in different contexts, and (b) it is a characteristic of human cognition to construct given assumptions about what meets our interests, in one way or another (in this case, the probable concern of the husband about his wife's weight) - the joke also illustrates the common fact that people listening to the same utterance, reading the same text, watching the same movie, or looking at the same photograph or the same landscape can present variables in relation to their understanding.

A pragmatic analysis of this kind enables the treatment of any type of text, whether verbal or non-verbal, to consider contextual and extra-linguistic data; although the text is the starting point, it does not necessarily contain all the information for its comprehension. The listener/reader must retrieve implicit elements, producing inferences through relationships between the text and his/her knowledge of the world, so as to fill in gaps that have not been made explicit.

3. Final considerations

A brief application of the TR to the examples presented, with emphasis on possible inferences to be constructed from ostensive stimuli in the interpretative process, seems to make it evident that, if it is textuality that makes a text out of a text, and if a text is a communicative unit, then relevance relationships, above notions of cohesion and coherence, are operational in the process of textual comprehension and production.

As it was pointed out in section 2, while cohesion and coherence establish a relationship between linguistic units (textual elements), Relevance is a relationship that is defined not only for utterances but also for assumptions (information or thought units), which can be acquired from texts, isolated sentences, from non-verbal communication or situations in which no explicit communication takes place as, for example, when silence speaks louder than words.

Returning to Blass' theoretical views (1990, 1993), following S-W (1995), the examples presented in section 3 seem to justify the author's concern about mental factors necessary for the analysis of a text, which brings her to a new approach to textuality; the reason is that if a text is not a solely linguistic notion, a theory that intends to be cognitively plausible and consistent cannot be structured in an essentially linguistic manner.

Various examples similar to those herein displayed, which could not be explained through analyses based on cohesion and coherence, are suitably treated by means of the consistency criterion of the PR, thus indicating that the TR is a pragmatic approach that accounts for the production and comprehension of texts, whichever their nature.

In this cognitive-pragmatic analysis, the text does not represent only utterances constructed according to the grammatical system of a language, but also aimed to influence the behavior of the listener/reader, changing his/her beliefs in order to exert the intended effect: please him/her, persuade him/her, frighten him/her, broaden his/her horizons, etc. Intentionality and context are, therefore, conditions that are closely related to textual production and comprehension.

Textual analyses more frequently made, which in general contemplate only formal structure and topic content, do not consider the fact that a text was produced for communication and human interaction, and inserted in a particular context. Considering that comprehension involves both pragmatic processes and inferential reasoning, text cohesion only exists if there are beliefs, wishes, preferences, and the knowledge of the interlocutors.

This study has also brought to light the adequacy and validity of the deductive-inferential mechanisms proposed by S-W in dealing with processing of information in spontaneous and deliberate communication, as well as the complexity of this phenomenon, which goes beyond the linguistic code in the interpretation process of the text. From a psychological view, of the cognitive effects and processing effort, notions of the context play a major role in explaining comprehension and changes in an individual's knowledge, arising from linguistic and sensitive-perceptual stimuli.

This makes the TR authors' non-reductionist or conciliatory position evident, as they make use of benefits and do not consider improprieties, both as the integration of formal systems – precise and explicit – with cognitive systems of human psychology to treat spontaneous reasoning, generally spontaneous and unconscious, and what regards a complementary view of code and inference, focusing the former as an often necessary input to trigger inferential processes that cannot be dissociated from the genuinely communicative phenomenon.

In such inferential processes, the PR – which is inherent to the human condition – governs the ostensive and intentional behavior of the communicator/author, making the listeners'/readers' comprehension possible as they select assumptions and context for interpretation through the assumption of optimum Relevance and of the pragmatic criterion of consistence with the PR, which implies the cost-benefit relation of the process assumptions, compatible with practical inferences.

Finally, it is important to mention that differently from other pragmatic theories that center their studies and explanations on strongly communicated assumptions, S-W's theory provides a satisfactory description and explanation about the most diverse effects of communication, allowing both indeterminance or vagueness of assumptions and success of communicative acts to be explained.

This analysis is not intended to be systematic or complete, especially since other interpretations are possible from individual's perceptual skills and knowledge of the world. However, it has allowed us to show that what we explicitly say or write is but a fraction of what we communicate. To a large extent, communication depends on the fact that human beings can retrieve implicit contextual assumptions and derive implicit conclusions, linked to the accessibility of an information context that can balance the best mental effort with the effect to be obtained from the interpretation process.

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Explicitness and explicitation in translation:
a relevance-theoretic approach

Fabio Alves

1. Introduction

This paper aims at contributing, from a relevance-theoretic perspective (Sperber & Wilson, 1986; 1995) to the study of explicitation processes in translation. The study of explicitation in translation has a long tradition in Translation Studies going back to the seminal works of Vinay & Darbelnet (1958) and Nida (1964), and encompassing two trends, one which focuses on textual features analysed as indicators of explicitation (Blum-Kulka, 1986; Baker 1993; 1996; Olohan & Baker, 2000; Steiner, 2005; Hansen-Schirra, Neumann & Steiner, 2007, among others) and a more recent trend concerned with the psycholinguistic characteristics of such processes (Séguinot, 1988; Englund-Dimitrova, 2005, Hansen, 2006; among others). However, there are hardly any studies which analyse these psycholinguistic characteristics in the light of the inferential processes involved in explicitation, and which specifically focus on the inferential processes of expert translators. This paper aims at filling this gap and, to that extent, raises the question as to which factors lead translators to deal with problems either in the level of linguistic or contextual encoding, by explicitating in their target texts passages of the source text which, from a semantic and/or pragmatic perspective, cannot be rendered on the sole basis of the linguistic encoding in the source language.

Building on the concepts of norm-governed explicitation and strategic explicitation proposed by Englund-Dimitrova (2005), the paper discusses some of the issues observed in the performance of novice and professional translators (Alves & Gonçalves, 2003; Alves, 2005; 2007) and suggests the application of the concepts of explicature and implicature postulated by Sperber & Wilson (1986; 1995) and expanded Carston (2002) to model the inferential characteristics of the translation process based on a set of decisions motivated by the relation between cognitive

effort and contextual effect as well as by the attribution of relevance geared to problem solving in translation.

2. Theoretical underpinnings

In Translation Studies the concept of explicitation goes back to the seminal work of Vinay & Darbelnet (1958) and to the authors' classification of explicitation as a stylistic resource to introduce in the target language, and consequently in the target text, meanings which are not encoded in the source language but which are likely to be deducted and/or inferred from the context or from the communicative situation. Vinay & Darbelnet inscribe the treatment of explicitation in a proposal of systematization of translation procedures organized in seven categories, identified as (1) loan (*emprunt*), (2) calque, (3) literal translation, (4) transposition, (5) modulation, (6) equivalence, and (7) adaptation. The authors' main concern is the stylistics of translation. Therefore, there is a need to explain the differences between languages on the basis of the translator's perception on how to encode elements which are implicit in the context or in the communicative situation. In this sense, the work of Vinay & Darbelnet (1958) can be seen as an anticipation of future research about the differences observed in encodings across different languages. However, the work of Vinay & Darbelnet lacks a thorough empirical basis and theoretical foundations that explain which aspects of context or communicative situation must be encoded in the target text.

Equally pioneering is Nida's (1964) initiative which acknowledges the phenomenon of explicitation and provides some empirical data from a corpus of bible translations. However, as in the case of Vinay & Darbelnet (1958), Nida's proposal lacks a more systematic approach from a linguistic and a process-oriented perspective to fully explain the phenomenon of explicitation in translation.

Recognizing the empirical and theoretical shortcomings about the phenomenon of explicitation but motivated by substantial evidence of the presence of explicitation in translated texts, Blum-Kulka (1986) proposed, on the basis of a systematic study of the phenomenon, the hypothesis of explicitation in translation. According to this hypothesis, translations tend to be more explicit than their source

text counterparts, regardless whether this increase in explicitation is imposed by differences in the linguistic systems of source and target texts or not.

Later on, Baker (1993) drew on Blum-Kulka's (1986) hypothesis and used the presuppositions and tools of corpus linguistics to compare quantitative patterns between original texts and their translations, observing the type/token ratio. Initially, Baker wanted to identify patterns which could be candidates for translation universals and, therefore, were likely to occur in any combination of linguistic pairs among natural languages. These translation universals, later renamed as translation patterns, were identified by Baker as normalization, simplification, stabilization, and explicitation. The latter category would account for the fact that translations tend to explicitate meanings even in cases when the implicit meanings construed by the source text could be reconstructed by the readers of the target text without any need for explicitation. According to Baker, due to this pattern of explicitation in translation, translated texts would be longer because of a higher number of tokens necessary to construct meaning in a more explicit manner.

From the observation of parallel corpora, built from source texts and their respective translations, Olohan & Baker (2000) went on to analyse comparable corpora, i.e., corpora made up of texts spontaneously produced in a given language and texts translated into that same language. They chose to investigate the optional use of the relative pronoun "that" in English and to contrast its occurrence in a corpus of texts spontaneously produced in English and in another corpus of texts translated into English, without any type of annotation or tagging. The authors considered the higher frequency of the pronoun in translated texts to be an indication of explicitation and attributed its occurrence to unconscious decisions made in the course of the translation process. However, Olohan & Baker did not validate this hypothesis using a theoretical framework or a methodology associated to an experimental perspective.

Approaching the same issue from a different point of view, there is a debate among scholars interested in the cognitive processes underlying translation about what kind of explicitation should be considered in order to explore the hypothesis of explicitation in translation. Séguinot (1988), for instance, suggests that phenomena of explicitation derived from characteristics of the linguistic systems in contrast should not be taken into consideration since they occur due to the constraints inherent to

these systems. For Séguinot, only explicitation processes which result from the translation process *per se* should be considered in the investigation.

Similarly, Englund-Dimitrova (2005) proposes a distinction between explicitation processes which are norm-governed and those processes which have a strategic nature. The first type of explicitation would be determined by the constraints inherent to the linguistic systems in contrast and, according to Séguinot (1988), would not be cognitively relevant for investigations about the translation process. On the other hand, processes of strategic explicitation would arise from the difficulties found by the translator to solve translation problems which go beyond the scope of the constraints imposed by the linguistic systems in contrast. Although these processes constitute the main focus of her analysis, Englund-Dimitrova (2005) does not analyse them as an instance determined by the characteristics of inferential processing, i.e., an approach that finds in Sperber & Wilson's relevance theory a theoretical framework with a strong explanatory power which is the focus of this paper.

2.1. Explicitness and explicitation

In view of the discussions developed here, it becomes clear that explicitation is a broad concept which encompasses different phenomena, including, among others, the addition of new information, reference assignment, the explanation of implicatures, etc. An interesting observation in this respect can be found in Steiner (2005) in his attempts to formalize a proposal to define a concept of explicitation which assumes the existence of an implicit counterpart in the level of text and/or discourse to the identification of a process of explicitation.

According to Steiner (2005), the notion of implicit meaning is central to the comprehension of explicitation. This meaning can be analysed either in the domain of pragmatics or in the realm of semantics. The implicit meaning in the domain of pragmatics would be linked to an interpretation which depends on a specific context. On the other hand, the implicit meaning in the domain of semantics would be conditioned by an interpretation which depends on the properties of linguistic encoding.

In a recent article, Hansen-Schirra, Neumann & Steiner (2007) advance in this proposal and defend a methodology which, at first, could seem to be reductionist in the sense of linking explicitation to a formal realization. Nevertheless, they argue that, on the basis of this methodology, all patterns of linguistic realization are considered to be only signals, instructions, to full (inter-)textual meaning. And, along these lines, the authors offer a more comprehensive view of the phenomenon of explicitation in translation.

Steiner (2005) and Hansen-Schirra, Neumann & Steiner (2007) model the notion of explicitation from a semantic perspective and, therefore, focus primarily on the properties of encoding. However, in order to avoid misunderstandings between their proposal and proposals of pragmatically oriented explicitation, the authors differentiate between *explicitness* – resulting from the semantically based properties of encoding – and *explicitation* – resulting from inferential processing per se. As such, the authors contemplate processes of explicitation which fall under the domain of semantics as well as under the domain of pragmatics.

Steiner (2005) argues that, on the one hand, the notion of implicitness is geared towards the grammar and consequently is specific for each language. It is linked to notions of types of implicitness encoded by the lexico-grammar through, among others, logic-semantic relations (conjunctions, prepositions), time, aspect, and number. On the other extreme of the explicitation cline, one finds the notions of implicitness determined by the context or the communicative situation. Hansen-Schirra, Neumann & Steiner (2007) take a clear stand in relation to distinction between semantics and pragmatics. Their theoretical standpoint places them in that part of the cline of explicitation which is closer to phenomena which, according to Englund-Dimitrova (2005), would be instances of norm-governed explicitation or, as the German authors would prefer to say, phenomena which are conditioned by the constraints of the linguistic system.

Obviously, the distinction between the domains of semantics and pragmatics made by Steiner (2005) and corroborated by Hansen-Schirra, Neumann & Steiner (2007) do not match the distinction of these domains made by pragmatists such and Sperber & Wilson (1986; 1995) and Carston (2002). This aspect is deliberately highlighted by Hansen-Schirra, Neumann & Steiner in order to avoid, from the outset, conflicting interpretations. The authors admit that there are cases in which it is

necessary to investigate the phenomenon of explicitation well beyond the phenomenon of explicitness. Steiner (2005) recognizes such a need but deliberately leaves it out of his research agenda.

The proposal to study the phenomenon of explicitation from the perspective of the translator's interpretation or, according to Englund-Dimitrova (2005), from the translator's strategic behaviour, necessarily leads the discussion to the domain of pragmatics and inferential processing.

2.2 Explicitation and inference [30]

For Sperber & Wilson (1986; 1995), there are two types of inferences, namely, demonstrative and non-demonstrative inferences. Demonstrative inferences result from the application of deductive rules to an initial set of premises. Although they also entail the application of deductive rules, non-demonstrative inferences show a process which can be divided into a first phase consisting of the formulation of hypotheses and a second phase in which these hypotheses are confirmed. According to Sperber & Wilson, the processing of non-demonstrative inferences involves, at a first stage, the application of deductive rules. However, the confirmation of these rules depends on how presuppositions are processed by interlocutors.

According to relevance theory, the recognition of a speaker's intentions occur through the processing of explicatures and implicatures conveyed by an utterance, both requiring pragmatic enrichment. Carston (2002) proposes a reduction in the scope of semantics in this process and, consequently, the enlargement of the domain of pragmatics since linguistically encoded meanings crucially depend on inferential processing. These processes, in turn, depend on the context or cognitive environment, always a mental instance for Sperber & Wilson. This implies that inferential processing is not reduced to the processing of implicatures alone but also occurs in the processing of explicatures.

An explicature, term coined by Sperber & Wilson, is distinguished from an implicature by being linked to the linguistically encoded propositional form. In short,

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the distinction between an explicature and an implicature can be considered to be correlated to the Gricean distinction between "what is said" and "what is implicated". However, contrary to the semantic conception of what is said, the concept of explicature entails both a component of meaning which is linguistically decoded and a component of meaning which is pragmatically derived, resulting, for instance, from processes of utterance disambiguation, from reference assignment, and/or from the free enrichment of the constitutive elements of an utterance.

In an attempt to establish a distinction between implicatures and explicatures, Carston (2000) defines an explicature as a propositional form communicated by an utterance which is pragmatically construed from a linguistically encoded logical form. The contents of an explicature entail both linguistically decoded and pragmatically inferred material. On the other hand, Carston defines an implicature as any other propositional form communicates by an utterance whose contents consist solely of pragmatically inferred material.

The explicatures of an utterance are construed from the enrichment of a linguistically encoded logical form which expresses a given proposition. In other words, an explicature is a logical form which results from the linguistic decoding of the utterance being inferentially enriched through reference assignment, resolution of ambiguities, etc. Explicatures can also occur in the form of higher level explicatures when they are introduced, i.e., projected by a speech act or by a propositional attitude. According to relevance theory, higher level explicatures are communicated, but are not linguistically encoded.

Inferential enrichment is the process through which a logical form becomes a complete propositional form. This enrichment is guided and constrained in consistency with the principle of relevance. The logical form of an utterance is retrieved through decoding but its complete propositional form is obtained though the inferential enrichment of this logical form in consistency with the principle of relevance.

According to Sperber & Wilson (1986; 1995), a logical form is a set of well formed constituents (linguistically encoded) which are structurally capable to be submitted to certain logical operations and, as a result, can receive an attribution of truth value. When a logical form is non-propositional, it is well formed, i.e., it has logical properties. However, it does not receive a truth value since it is semantically

incomplete. When a logical form is propositional, it is well formed and semantically complete, representing a state of affairs capable of being true or false in a possible world.

Expanding Sperber & Wilson's (1986; 1995) work, Carston (2002) states that the first step in inferential processing consists of decoding uttered sentences into logical forms without any input from the cognitive context. The second step is the enrichment of the logical form with input from the cognitive context so that it becomes a proposition. The third stage consists of a series of deductions with input coming from the cognitive context as from the proposition derived from the meaning of the utterance. Consequently, for Carston there is a clear distinction between the decoding of sentences into logical forms without input from the cognitive context and its later enrichment by contextual input.

Carston (2002) explains that she call an explicature what Sperber & Wilson call a propositional form. For Carston, explicatures are presuppositions communicated explicitly by a speaker with the intention to make them manifest to a hearer. Therefore, explicatures can be more or less explicit since they involve a combination of encoded meaning and meaning which is contextually inferred, with its enrichment being guided by the principle of relevance.

Carston's proposal seems to allocate a higher value to pragmatics in the retrieval of explicatures when compared with Sperber & Wilson's definition who consider an explicature as a development of a logical form. For Carston, the principle of relevance guides the process of development of a logical form, restricting it to the domain of explicatures and resulting in: (a) a higher value allocated to the pragmatic competence; and (b) a more direct relation between the principle of relevance and the processing of explicatures. Carston (2006) also argues that the resources of the linguistic code cannot encode thoughts. Therefore, she suggests that pragmatics in fundamental in communication processes, and, probably, even more fundamental than language itself.

2.3 Processing explicatures and implicatures

According to the presuppositions of relevance theory, one of the forms to process explicatures is encoded in language and can be observed in the distinction

between conceptual and procedural encoding. On the one hand, conceptual encoding conveys expressions used to describe the world. Its function is to contribute to the truth value of utterances and to the confirmation of hypotheses in the course of inferential processing. On the other hand, procedural encoding conveys instructions and/or constraints on language processing. Its function is to limit the number of explicatures and implicatures to be considered in the processing of an utterance while they guide the hearer towards the cognitive effects intended by the speaker. Instead of describing the world, as conceptual encodings do, procedural encodings constrain the hearer's search space, rendering communication more efficient and less subject to misunderstandings.

The main presupposition of relevance theory is that participants in a communicative situation follow a process of understanding which can be summarized as follows: (i) follow the path of least effort to compute cognitive effects, (ii) consider interpretations (resolution of ambiguities, possible contexts, etc.) in order of accessibility, (iii) stop when your expectations of relevance are fulfilled. This process is based on the basic principle that human cognition is geared to find and use information which is potentially relevant to human beings. The principle of relevance can be defined as a cost-benefit relation and its benefits are cognitive/contextual effects. The cost is the necessary processing effort to achieve these effects. The greater the cognitive/contextual effects achieved, the greater the relevance; the least the effort required, the greater the relevance.

2.4 Types of explicitness and explicitation in translation

In this section, building on the initial discussion about explicitation in translation, we intend to revisit the concepts of explicitation postulated by Englund-Dimitrova (2005) and to contrast them with the differentiation between explicitness and explicitation proposed by Steiner (2005) and by Hansen-Schirra, Neumann & Steiner (2007). From a relevance-theoretic perspective, we intend to reflect further on the role played by inferential processing in the analyses of explicitation in translation.

As previously discussed, when dealing with the distinction between implicature and explicature, Carston (2002) points out that an explicature is a propositional form communicated by means of an utterance and pragmatically construed from a logical

form which is linguistically encoded. Therefore, the content of an explicature result from amalgamation of linguistically decoded and pragmatically inferred material. As such, we could argue that, in the case of translation, while processing an explicature, the translator produces a series of deductions stemming from the cognitive context as well as from the proposition derived from the meaning of the utterance. According to Englund-Dimitrova`s (2005) classification, we could argue that the processing of explicatures would, in the case of translation, lead the translator to produce a norm-governed explicitation, complying with what Steiner (2005) and Hansen-Schirra, Neumann & Steiner (2007) call explicitness, i.e., a type of processing resulting from the semantically based encoding, even if it has been enriched contextually.

On the other hand, considering that an implicature can, in turn, be defined as any other propositional form communicated by an utterance whose contents consist entirely of pragmatically inferred material, we could argue that the processing of implicatures in translation would be a case of strategic explicitation according to the classification proposed by Englund-Dimitrova (2005). For Steiner (2005) and for Hansen-Schirra, Neumann & Steiner (2007), this type of processing would be a pragmatic explicitation resulting exclusively from inferentially driven processes.

We believe that such an approach contemplates both explicitation processes which fall under the scope of semantics, in the form of norm-governed explicitation, and explicitation processes observed in the domain of pragmatics, in the form of strategic explicitation.

While producing a series of deductions or, in the scope of this paper, a series of translation alternatives, translators metarepresent the linguistic input conveyed by the source text (Gutt, 2005). According to Gutt (2000a), a translation consists primarily of establishing an interpretive resemblance between correlated passages (units) in the source and target texts. To achieve that goal, Gutt (2000b) suggests that translators must process in parallel linguistically encoded items as well as the communicative cues related to them. Therefore, contextual enrichment would be needed in the processing of both explicatures and implicatures.

We must remember that, by considering that an explicature evolves from the contextual enrichment of the logical form, Carston (2002; 2006) seems to allocate a stronger role to pragmatics in the processing of explicatures, entering territory traditionally occupied by semantics. Consequently, the distinction made above is

delicate and presupposes, as stated before, the allocation of a higher value to the pragmatic competence and a more direct relation between the principle of relevance and the processing of explicatures. In this paper, we intend to apply the classification proposed by Englund-Dimitrova (2005) to some translation examples in order to illustrate the relation between explicature and implicature, and also between explicitness and explicitation. To start off the discussion, we present below a first step in this direction.

3. Exploring explicitations: in search of an analytical model

Building on the theoretical discussion about the role of linguistic encoding in explicitation processes in translation, be them either norm-governed or strategic, it is important to revisit Gutt's (2000a) work and his remarks that the works of Blakemore (1987) and Blass (1990), among others, revealed that certain elements in language encode "processing instructions" which guide hearers as to how the linguistic input intends to be relevant. Gutt (2000b) also advocates in favour of the importance of communicative cues in this process, highlighting that the identification of such cues can only occur in relation to the role they play while guiding hearers towards the intended interpretation envisaged by the speaker. According to Gutt, merely structural or text-linguistic comparisons fall outside the envisaged scope of such processes. For him, communicative cues are abstractions of concrete linguistic properties observed in texts which must be supplied by means of different linguistic forms in the target texts.

Alves & Gonçalves (2003) analysed the role played by conceptual and procedural encoding in the performance of novice translators. We believe that their analyses can contribute, from a relevance-theoretic perspective, to start off the discussion about the distinction between norm-governed and strategic types of interpretation. In Alves & Gonçalves (2003) the first sentence of a 54-word text portraying Osama bin Laden published in 2001, two months after the September, 11 incident, described him in his youth, around 1998, as follows:

> (1) By 1998, the year of the U.S. Embassy bombings in Africa, he had acquired the lean, wolfish look of a revolutionary.

The analysis of the translation processes of four novice translators carried out by Alves & Gonçalves (2003) revealed the following renderings into Portuguese for the utterance conveyed in (1)[31].

(2) Em 1998, o ano do bombardeio na embaixada americana na África, ele se tornou um revolucionário mais magro e mais exótico.
[*In 1998, the year of the bombing in the American Embassy in Africa, he became a thinner and more exotic revolutionary.*]
(3) Em 1998, quando a embaixada americana na África sofreu atentados a bomba, ele tinha o visual magro e agressivo de um revolucionário.
[*In 1998, when the American Embassy suffered bomb attacks, he had the thin and aggressive look of a revolutionary.*]
(4) Por volta de 1998, ano em que ocorreram os bombardeios da Embaixada Americana na África, ele já tinha a aparência esbelta e selvagem de um revolucionário.
[*Around 1998, year when the bombings to the American Embassy in Africa occurred, he had the slender and wild look of a revolutionary.*]
(5) Em 1998, quando as embaixadas dos Estados Unidos na África foram bombardeadas, adquiriu o gosto, a face selvagem de um revolucionário.
[*In 1998, when the American Embassies in Africa were bombed, he acquired the taste, the wild face of a revolutionary.*]

Alves & Gonçalves (2003) argue that the four novice translators showed difficulties in dealing adequately with instances of conceptual and procedural encoding present in the English source text. Revisiting their analyses in the light of Englund-Dimitrova's (2005) classification, we have noticed that the four novice translators used strategic explicitation to circumvent problems related to the linguistic processing of the segment under scrutiny, mostly when rendering of attributive relations conveyed by adjectives related to Osama bin Laden, rendering him "more exotic", "more aggressive", and "wilder", through processes of strategic explicitation.

These results were corroborated by the analysis carried out by Alves & Magalhães (2004) who dealt with a larger group of novice translators using the same source text. On the basis of a process-oriented analysis, Alves & Gonçalves (2003) and Alves & Magalhães (2004) concluded that novice translators have difficulties in dealing with instances of conceptual and procedural encoding and, in the course of their translation processes, show an idiosyncratic behaviour in which the attribution of relevance is supported mostly by assumptions available in their cognitive

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[31] The gloss translations from (2) to (5), (7), (8), (13) to (24), (26), (28) and (29) are provided to enable readers to follow the examples discusses in this paper. They are not meant to be actual translations into English.

environments, discarding an in-depth analysis based on structural and textual aspects of the source text and their contextual implications.

Likewise, the analysis of the translation processes of professional translators showed interesting characteristics concerning their performance in issues related to either norm-governed or strategic explicitations. In Alves (2005) and Alves (2007), these analyses highlight the idiosyncratic nature of several decisions made by translators and to the prevailing role that the translators' cognitive environments seem to play in problem solving and decision making, quite often in detriment of aspects related to linguistic encoding. We shall have a look at these processes using the following example:

(6) According to MessageLabs, a Cheltenham-based virus filtering firm [which reported about 30,000 infected messages in 115 countries, the propagation rate of BugBear.B almost doubled every hour throughout the morning.][32]

Comparing the translation made by a Brazilian professional translator with the rendering given by a Spanish professional translator, we have observed the following:

(7) Segundo a MessageLabs, uma companhia com sede em Cheltenham, EUA, que produz filtros contra vírus, [...]
[*According to MessageLabs, a company with headquarters in Cheltenham, USA, which produces filters against virus*] [...]
(8) Según la empresa de protección antivirus MessageLabs, con sede en la zona de Cheltenham [oeste de Inglaterra], […]
[*According to company for antivirus protection MessageLabs, with headquarters in the Cheltenham area, Western England,*] [...]

Besides discussions about the inferential processing observed among novice and professional translators when dealing with the same linguistic input, the discussion about inference and explicitation take us to the decision made by the Brazilian translator locating the headquarters of the company MessageLabs in the USA while the Spanish translator located it in the western part of England. Throughout their translation processes both translators used external support to find

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[32] Source: Bugbear – Email virus strikes in new form. Text written by Stuart Mill and published in *The Guardian* on 6 June 2003. The part between brackets will not be considered in the analysis.

out that there are two geographic references to Cheltenham, both identified under the same name. The translators must necessarily choose one of them.

Alves (2007) points out that, apparently, this geographic information would not be absolutely necessary to generate a strong contextual effect. However, Alves observes that all professional translators who took part in the study felt the need to explicitate the geographic location in the course of their translation processes, even when it was later removed from the final target text. The performance of the two translators in (7) and (8), independently of the results achieved, was very similar in process-oriented terms in order to solve the problem. The concern with the geographic location in (7) and (8) points to a tendency towards a potentially redundant strategic explicitation by the translators in detriment of favouring a perhaps more relevant norm-governed explicitation.

In the light of the evidence found in the above-mentioned study and in view of the problems identified in these translations, we suggest that the distinction between norm-governed and strategic explicitation can be adopted as a starting point to map the inferential processes of translators. Drawing on Gutt's remarks about the role of linguistic encoding and the importance of communicative cues, we intend to contribute to the discussion proposed by Steiner (2005) and by Hansen-Schirra, Neumann & Steiner (2007) to advance in the differentiation between explicitness and explicitation in translation.

Based on the distinction between norm-governed and strategic explicitation, we intend to illustrate, from a relevance-theoretic perspective, issues related to the processing of conceptual and procedural encoding in translation. In order to do it, we shall use an example from the novel "A Hora da Estrela" [The Hour of the Star] by Clarice Lispector and its respective translations into Spanish, English and German[33]. As a starting point, we shall consider the following passage:

(9) – Por que é que você me pede tanta aspirina?
[*Why is it that you ask me for so much aspirin?*]
(10) – É para eu não me doer.
[*It is for me not to hurt me.*]

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[33] The author wishes to thank Adriana Pagano for suggesting the example used in this section, for providing the references to the English, German, and Spanish translations, and for valuable remarks concerning instances of linguistic use in Portuguese, English, and Spanish.

The following rendering was observed in the translation into Spanish:

(11) – ¿Por qué me pides tantas aspirinas?
[*Why do you ask me for so many aspirins?*]
(12) – Es para no sentir el dolor.
[*It is for me not to feel the pain.*]

We could say that in (11) the Spanish translator assumes that "tanta" is an adjective which quantifies the noun "aspirina" and, therefore, the translator deliberately explicitates the plural which was not realized in the Portuguese source text, perhaps because he assumed that "aspirina", in its collective form, had to be explicitated in Spanish. It does not seem to be a norm-governed explicitation since Spanish would equally accept a translation rendered as "¿Por qué me pides tanta aspirina?" [*Why do you ask me for so much aspirin?*]. In this case, according to Englund-Dimitrova (2005), we could perhaps classify the translation as an instance of strategic explicitation. However, only by means of a careful observation of online translation processes, in conjunction with retrospective protocols, could we elucidate the path followed by the translator to arrive at the decision conveyed by (11). Nevertheless, we must bear in mind that linguistic evidence observed in the translation product can be instrumental in the formulation of hypotheses which can guide empirical-experimental research.

Continuing with the analysis, we note that the translation of (9) into English seems to follow a different line:

(13) – Why are you always asking me for aspirin?
(14) – To stop the pain.

Following the same line of reasoning, we could say that in (13) the English translator assumes that "tanta" has an adverbial function and, instead of referring to the noun "aspirina", the translator uses the lexical item to modify the verb, explicitating the action of repeatedly asking for aspirin. At first, we could assume that this is a strategic explicitation and that the translator's decision is idiosyncratic. However, the translator into German seems to have followed a path similar to the one taken by the English translator. This is illustrated by the following examples:

(15) – Warum bittest du mich so oft um Aspirin?
[*Why do you ask me so often for aspirin?*]
(16) – Damit ich mir nicht weh tue.
[*So that I do not hurt myself.*]

In (15) the translator assumes, in a similar manner to what was observed in (13), that "tanta" has an adverbial funcion. Likewise, the translator chooses to modify the verb and to explicitate the temporal repetition of the action of asking for aspirin. The observance in (15) of the same process registered in (13) suggests that there may be something in the linguistic encoding of the Portuguese source text that, in relevance-theoretic terms, could be an indicator of procedural encoding, perhaps in the form of a double encoding that conveys the following idea in Portuguese:

(17) – Por que é que você me pede tanto tanta aspirina?
[*Why is it that you ask me so much for so much aspirin?*]

It is relevant to note that the translations into German and English follow a similar direction whereas the Spanish translation chooses a different path, explicitly quantifying the number of aspirin tablets. If we extend the analysis to other structures similar to (9), we could arrive at examples such as

(18) – Por que é que você bebe tanto?
[*Why is it that you drink so much?*]
(19) – Por que é que você come tanto?
[*Why is it that you eat so much?*]

In (18) and (19) "tanto" is, without doubt, an adverb which modifies the verbal process and is a frequent construction in Brazilian Portuguese. If we add another element to the present discussion, we could have a sentence such as

(20) – Por que é que você come tanto chocolate?
[*Why is it that you eat so much chocolate?*]

In (20) "tanto" can be realized both as an adjective or an adverb. The ambiguity can be solved, among other factors, by the prosody used by the speaker to guide the hearer in terms of ostensive-inferential behaviour and to generate a metarepresentation of the utterance which, supported by an effort-effect relation

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guided by the principle of relevance, can solve the problem of attributing relevance either to the quantity or to the frequency of the lexical item.

In the relation between cognitive effort and contextual effect postulated by relevance theory, speakers and hearers would tend to realize and interpret the utterance comparing it, for example, with:

(21) – Por que é que você bebe tanto água?
[*Why is it that you drink so much* (gender + M) *water* (gender + F)*?*]
(22) – Por que é que você come tanto fruta?
[*Why is it that you eat so much* (gender + M) *fruit* (gender + F)*?*]

Although grammatically possible, the utterances realized by (21) and (22) are not frequent constructions in Brazilian Portuguese. In terms of frequency of language use, the choice of "tanta" appears to be an alternative to deal with the nouns "água" (water) and "fruta" (fruit) whose gender is feminine and to avoid duplicating the quantifier. After all, in terms of effort and effect, it would be more effortful to process the following sentences:

(23) – Por que é que você bebe tanto tanta água?
[*Why is it that you drink so much* (gender + M) *so much* (gender + F) *water* (gender + F)*?*]
(24) – Por que é que você come tanto tanta fruta?
[*Why is it that you drink so much* (gender + M) *so much* (gender + F) *fruit* (gender + F)*?*]

Returning to examples (9), (13) and (15), it is possible to argue that the use of the adjective "tanta", identified grammatically by the feminine gender marking to an adverbial function, is the result of a norm-governed explicitation, i.e., guided by the patterns of frequency in language use and by a kind of processing guided by the principle of relevance which aims at maximizing of the relation between cognitive effort and contextual effect.

We do not intend to explain the use of "tanto"/"tanta" in terms of a linguistic description of Brazilian Portuguese. Our aim is to investigate why the translators into English and German showed a similar behaviour which is quite different from the decision made by the Spanish translator. Again, the online monitoring of the

translation in conjunction with retrospective protocols would be instrumental to elucidate how the translators arrived at the decisions conveyed by (13) and (15).

Furthermore, we could also argue in favour of the possible identification of a double encoding which, in line with the decision made by the Spanish translator in (11) could lead to realizations in English and German as:

(25) – Why are you always asking me for so much aspirin?
(26) – Warum bittest du mich so oft um so viel Aspirin?
[Why do you ask me so often for so much aspirin?]

Hipothetically, in consistency with the relevance, the realizations in (25) and (26) are grammatically possible in English and in German. As such, they are candidates to renderings in which the adverbial reference would be eliminated in favour of keeping the adjectival reference. This would lead to translation alternatives which would be similar to the Spanish rendering in (11) as shown in the following examples:

(27) – Why are you asking me for so much aspirin?
(28) – Warum bittest du mich um so viel Aspirin?
[*Why do you ask me for so much aspirin?*]

According to the presuppositions of relevance theory, we could argue that (9a-g) can be metarepresentations of (9)[34]:

(9a) – Por que é que você me pede tantas aspirinas?
[*Why is it that you ask me for so many aspirins?*]
(9b) – Por que é que você sempre me pede aspirina?
[*Why is it that you always ask me for aspirin?*]
(9c) – Por que é que você sempre me pede tanta aspirina?
[*Why is it that you always ask me for so much aspirin?*]
(9d) – Por que é que você sempre me pede tantas aspirinas?
[*Why is it that you always ask me for so many aspirins?*]
(9e) – Por que é que você está sempre me pedindo aspirina?
[*Why is it that you are always asking me for aspirin?*]
(9f) – Por que é que você está sempre me pedindo tanta aspirina?
[*Why is it that you are always asking me for so much aspirin?*]
(9g) – Por que é que você está sempre me pedindo tantas aspirinas?

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[34] The gloss translations into English from (9a) to (9g) are not meant to be translations of the examples in Portuguese. They are used to enable readers to gain access to the suggested metarepresentations.

[*Why is it that you are always asking me for so many aspirins?*]

Consequently, these examples explain, in hypothetical terms, the translations rendered in (11), (13) and (15) as resulting from a choice made among several other possible alternatives which take into consideration the specificities of linguistic encoding ant the role of communicative cues.

Refining the analysis, we observe that an indicator that may have contributed to the process of solving the translation problem presented in (9) may be related to the role played by contextual information. In "A Hora da Estrela", the main character never asks for many aspirin tablets at once; on the contrary, she asks for an aspirin tablet at a time and does so repeatedly. The habitual action of taking aspirin and constantly asking her interlocutor for some more, once appropriately contextualized in the novel, emerges as a possible instance of contextual encoding (Gonçalves, 2003) which guides the process of decision making of the English and German translators. This can account for the renderings observed in (13) and (15).

Building on Carston (2002), we could state that, taking into consideration a possible ambiguity in the procedural encoding of the utterance, the English and German translators enriched the explicature observed in (9) on the basis of the contextual encoding conveyed by the novel itself. In this case, the role of pragmatics would increase significantly in the process of reference assignment and, consequently, in the inferential process which leads, through the enrichment of the explicature, to decision making in translation.

In this line of reasoning, (13) and (15) would be instances of norm-governed explicitation whereas (11) could be considered to be a strategic explicitation which did not take into account all the possibilities of procedural encoding observed in (9) nor the contextual encoding conveyed by the character's trajectory in the course of the novel.

Continuing with the discussion developed here, we can examine the answer to the question raised in (9) and rendered in (10) as "É para eu não me doer". This is a construction with a low level of frequency in terms of language use in Brazilian Portuguese and shows characteristics related to oral speech with regional traits. In terms of linguistic encoding, (10) also conveys the idea of "machucar-se", "ferir-se" [to hurt oneself], in the sense of causing oneself physical harm. Additionally, (10) also

conveys the idea of "não sentir dor" [not having pain], "não sofrer" [not suffering]. From a relevance-theoretic perspective. We could say that the explicature in (10) guides the hearer, by means of communicative cues, towards the possible contextual effects intended by the speaker`s ostensive behaviour. Expanding the scope of the communicative intention in (10), we could say that the communicative cues suggest, among other alternatives, the following metarepresentations[35]:

(10a) – É para não ter dor(es). [*it is for not have pain(s)*]
(10b) – É para não sentir dor(es). [*it is for not feel pain(s)*]
(10c) – É para parar a(s) minha(s) dor(es). [*it is to stop my pain(s)*]
(10d) – É para não machucar. [*it is not to hurt*]
(10e) – É para não me machucar. [*it is not to hurt me*]
(10f) – É para eu não sofrer. [*it is for me not to suffer*]
(10g) – É para eu não sofrer demais. [*it is for me not to suffer too much*]

By rendering the passage as "es para no sentir el dolor" in (12), the Spanish translator removes from the utterance the communicative cues which indicate that the passage has a lower frequency in terms of language use with characteristics of regional speech, creating a metarepresentation perhaps close to (10a). In this case, in line with Englund-Dimitrova (2005), we could classify the translation in (12) as an instance of strategic explicitation with the addition of "sentir" as a verbal process and the presence of "dolor" as a noun being used as a replacement for the verbal process realized by "doer". However, only through the online monitoring of the translation process in conjunction with retrospective protocols could we elucidate the path taken by the Spanish translator to arrive at the decision conveyed in (12).

Continuing with the analysis, we observe that the translation of (10) into English, rendered in (14) as "to stop the pain", seems to follow a tendency similar to the rendering in (12), with the translator removing from the utterance the communicative cues which indicate that the passage has a lower frequency in terms of language use with characteristics of regional speech, perhaps closer to the metarepresentation conveyed by (10a).

In short, it is interesting to observe that part of the explicatures and implictures conveyed by "é para eu não me doer" were discarded both in Spanish, "es para no

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[35] The gloss translations into English from (10a) to (10g) are not meant to be translations of the examples in Portuguese. They are used to enable readers to gain access to the suggested metarepresentations.

sentir el dolor", and in English, "to stop the pain". On the one hand, we could argue that the Spanish translator showed a tendency towards strategic explicitation both in (11) and in (12). On the other hand, the English translator seems to have preferred a norm-governed explicitation in (13), taking into consideration both the procedural encoding and the available communicative cues. However, in the translation rendered in (14), the English translator abandons the tendency to favour norm-governed explicitation and seems to choose a strategic explicitation in "to stop the pain".

The German translator, in turn, seems to process the passage rendered in (16), "damir ich mir nicht weh tue", through the observance of instances of procedural encoding enriched by communicative cues. The following examples can be contrasted:

(16) – Damit ich mir nicht weh tue.
(29) – Damit es mir nicht weh tut.

The construction in (29) has a high frequency in German. On the other hand, (16), "damit ich mir nicht weh tue", has a lower frequency in terms of language use. Considering that (10), "é para eu não me doer", is not a frequent occurrence to be correlated to (29), it could suggest that the interlocutor refers only to ways of reducing physical pain. As such, a stronger metarepresentation would be "damit meine Schmerzen aufhören", i.e, in English, "so that my pains stop" or, even closer to (14), "to stop my pain(s)", which can be correlated to the metarepresentation observed in (10c), also similar to the English translation, "to stop the pain".

It is relevant to note that "damit ich mir nicht weh tue" seems to transfer the physical pain to the future and, although grammatically possible in German, it shows a much lower frequency in terms of language use[36]. In the expression of pain in German, there is a great difference between "weh tun", usually associated to an external source acting on the physical body, and "Schmerzen haben" which points to a subjective perception stemming from an inner, organic perspective. However, if the interlocutor wants to make reference to a more figurative pain, to an emotional pain, "damit ich mir nicht weh tue" may present itself as a better alternative, once it is

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[36] The author wishes to thank Ulrike Schröder for helpful remarks about instances of language use in German concerning the examples discussed in this section.

adequately corroborated by the contextual situation, just as it happens in the context of the novel "A Hora da Estrela".

As such, (16) seems to convey two simultaneous characteristics: it is a construction with a lower frequency in terms of language use in German and suggests that the pain is internal, emotional. Adequately contextualized, the assumptions linguistically encoded in (10) are likely to be metarepresented by hearers in the translation presented in (16).

Refining the analysis, as observed in (13) and (15), an indicator that may have helped the German translator in the process of solving the translation problem in (10) could be related to the role played by contextual information. In "A Hora da Estrela", the main character has a life experience full of privations, frustrations as well as physical and emotional sufferings. Once adequately contextualized, this experience throughout the novel emerges as a possibility for contextual encoding (Gonçalves, 2003) which guided the decision making processes of the German translator and would account for the rendering observed in (16).

Again, drawing on Carston (2002), we could state that, observing a possible ambiguity in the procedural encoding of the utterance, the German translator enriched the explicature in (10) by observing the communicative cues and by drawing on the contextual encoding conveyed throughout the novel. In this case, as previously observed, the role of pragmatics would increase significantly in the process of reference assignment and, consequently, in the inferential processes which lead to decision making in translation. In this line of reasoning, (16) would be a norm-governed explicitation, a deliberate shift to generate a stronger contextual effect and, consequently, a greater interpretive resemblance for the utterance conveyed by (10).

Concluding the brief analysis developed here, the selected examples seem to point to a tendency towards strategic explicitation by the Spanish translator both in (11) and in (12). In turn, the English translator seems to show a tendency towards a norm-governed explicitation in (13) and towards a strategic explicitation in (14). Finally, the German translator appears to have a more systematic behaviour, diametrically opposed to the Spanish translator, and shows a tendency towards norm-governed explicitations both in (15) and in (16).

Finally, this exploratory analysis seems to point in the direction of explicitation processes which are either strategic or norm-governed. The latter would fall under the scope of processes of explicitness, as defined by Steiner (2005) and Hansen-Schirra, Neumann e Steiner (2007). They would also be correlated to what Carston (2002, 2006) would consider to be an inferential processing which is pragmatically construed from a propositional schema (logical form) and resulting from an amalgamation of linguistically decoded and pragmatically inferred material in the level of the explicature.

One must bear in mind, however, that the present analysis has a hypothetical nature and lacks empirical validation carried out from a process-oriented perspective. In order to check experimentally this line of reasoning, we suggest, in our final remarks, a methodology for the annotation of process data with a view to empirically assessing instances of explicitation in translation.

4. Final remarks

In view of the tendencies observed in the analyses carried out in the previous section, the processing of explicatures and implicatures will lead, as a rule, to instances of explicitation, either norm-governed or strategically driven. In order to verify it empirically, we suggest mapping the generation of cognitive/contextual effects resulting from inferential processing by translators through the annotation of a significant amount of process-driven *corpora* as a way of assessing types of explicitation in translation. To achieve that end the process data stored in the CORPRAT database (*Corpus* on Process for the Analyses of Translations) at the Laboratory for Experimentation in Translation (LETRA) at the Federal University of Minas Gerais, Brazil, can be used as a source of input.

According to Hansen-Schirra, Neumann & Steiner (2007), corpora based studies present, as a rule, a methodological gap between higher level hypotheses and lower level indicators used to validate these hypotheses. By adopting higher level indicators, the exploration of *corpora* can yield a great deal of authentic data with a high level of ecological validity. The disadvantage of this methodology is that it provides data obtained in retrospect. On the other hand, experiments can offer a better insight into cognitive processing and, to a certain extent, to online translation

processes. However, experiments can only be carried out in a smaller scale and in artificial conditions.

In line with Alves (2003), we support the use of online data by means of a combined use of data gathering tools targeted at both product and process. We believe that these data have the potential to offer significant empirical evidence to account for the phenomenon of explicitation in translation. We suggest that the annotation of process-driven corpora be made in accordance with the following categories: (i) conceptual encoding; (ii) procedural encoding; (iii) contextual enrichment; (iv) processing effort [high, medium or low, including pause times and types of support]; (v) attribution of relevance when processing demonstrative inferences [application of deductive rules] and non-demonstrative inferences [formulation and confirmation of hypotheses]; (vi) generation of cognitive/contextual effects [strong, medium, and weak]. By means of a set of annotated process events, we assume to be possible to retrieve, through data mining, chains of process data in the cline between decoding processes, contextual enrichment, processing effort, the type of inference (demonstrative or non-demonstrative) and the contextual effect derived in this process. We expect this proposal for annotation based on concepts postulated by relevance theory to allow for the mapping of the translation processes along the several phases of the inferential process, always guided by the principle of relevance.

As a way of conclusion, we hope that through such an empirical-experimental approach the investigation of the abilities of inferential comprehension among expert translators will contribute to the study of their abilities of linguistic decoding/encoding. As an approach analogous to the proposals made by Steiner (2005) and by Hansen-Schirra, Neumann & Steiner (2007), we hope to contribute, from an inferential perspective, to a better understanding of the phenomenon of explicitation in translation as well as to a better understanding of the differentiation between explicitness and explicitation, a fundamental distinction in an approach which aims at modelling the translation process in view of a possible computational interface.

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**Reassessing the concept of competence
using a relevance theory approach**

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In the last decades, the concept of competence has been established by the modular approaches to cognition and language (Fodor 1983; Chomsky 1980). One can roughly state that this approach postulates *competence* as a result of a phylogenic pre-configuration that leads to the activation of innate module sets, which would be responsible for the realization of various observable cognitive, bio-mechanical and interactive phenomena, *i.e.* one's *performance*. Generally speaking, this approach states that an individual can only perform a certain task or a set of actions if he/she has internalized the appropriate competence(s). On the other hand, the connectionist approaches to cognition (*e.g.* Elman et al. 1996) postulate that competences and cognitive processes in general take place by means of the progressive building of neuronal networks and stabilizing their processing routines, which result, among other things, from the stimuli received and the individual interaction history.

In this chapter, I intend to review the notion of competence, drawing on a broader, systemic approach, adopting the theoretical and epistemological foundations of connectionist approaches, taking into account some recent works on the subject (Gonçalves 2003; Alves & Gonçalves 2006; 2007; Rothe-Neves 2007) and focusing especially on translation/translator's competence, in which I have become more closely interested of lately. In addition, I will draw on some of the concepts and principles of Relevance Theory (Sperber & Wilson 1986/1995; RT henceforth) which can be considered consistent and promising when approaching these issues.

In short, I will expand the modular notion of inner *competence*, which is the counterpart to observable *performance*, arguing for the non-detachability between cognitive and social-interactive phenomena, which are essential domains in the constitution of any competence. These issues have been discussed as the

theoretical part of a research project entitled *Assessing translation students' competence: an empirical-experimental study*, carried out at the Federal University of Ouro Preto, Brazil, included in a cooperative project, UFMG-UFOP/FAPEMIG 8763, entitled *Translation Competence: the role of declarative and procedural knowledge for translation students' education*.

Rethinking the concept of competence

Rothe-Neves (2007) develops a very consistent discussion on translation competence. He challenges the adequacy and utility of considering competence as underlying knowledge. He points out the lack of precision in the use of the term and the tendency to use it as performance result, especially in literature on translation studies, since many works take, to evaluate translation competence, culturally established parameters instead of underlying knowledge proper, usually inaccessible through the empirical methods available. Thus, Rothe-Neves argues that, more than circumscribing the underlying competence components, research in the area draws on socially-defined patterns to describe the constitution of translation competence. Therefore, he concludes that this competence is better defined as performance result, challenging the underlying knowledge approaches, which are fairly frequent in the modular theories of language and cognition. Then he postulates the supremacy of the social-cultural frame of reference over that of the cognitivist for establishing competence patterns.

Alves and Gonçalves (2007) improved Gonçalves's (2003) translation competence model, built on connectionist approaches to cognition (*e.g.* Elman et al., 1996). They adopted a complex, systemic notion of competence that articulates cognition and social-interaction. Although the main focus of that model is cognitive, they postulate that its development and very functioning is dependent on the stimuli and set of interactions faced by the individual. In agreement with them, I understand the separation between these two domains (cognition and social-interaction) as being mainly due to methodological issues and to the respective theoretical object definition, but they are necessarily interdependent and complimentary in describing and explaining translation phenomena and defining the expert or competent translator (used here as synonyms).

The model under scrutiny highlights the complexity and multi-functionality of the components of translation competence and their non-detachability from the social-cultural patterns for the profession. An important aspect in this model is its systemic or network-like nature in explaining the development of translation competence, which would indicate a very complex behavior for translation tasks. Therefore, translation competence is seen as componential, that is, composed of different components or sub-competences, which must be adequately articulated in order to bring out expert behavior.

As regards sub-competence articulation, Ericsson et al (1993) point out the importance of *deliberate practice* for building up any kind of competence (expertise). Departing from the notion of synergy between declarative and procedural knowledge, one may note that the development of certain specific competences must go further than just automating (or "proceduralizing") certain aspects of declarative knowledge, and also further than making explicit/conscious certain aspects of procedural knowledge. In short, it is not enough to have exclusively theoretical or practical knowledge in an area. To become a competent or expert professional, it is necessary that one articulates these two levels of knowledge, that is, creates synergy between them in order to reduce the cognitive and physical effort required to accomplish certain tasks, making them less cognitively and corporally effort-consuming and more efficient in terms of the results desired.

Robinson (1997), Hurtado Albir (1999), Schäffner & Adab (2000), Kiraly (2000), PACTE (2003), among others, have discussed the role of theoretical and practical components (declarative and procedural knowledge) for developing translator's competence. Apparently opinions are polarized, with some defending the supremacy of either category for developing this competence. However, as mentioned above, Alves and Gonçalves (2007) highlight the importance of articulating not only these two kinds of "knowledge", but also other cognitive levels to achieve translation competence, giving emphasis to meta-cognition.

Adopting Gonçalves's (2003) research work as reference, and its latest developments (Alves & Gonçalves 2007), the research project *Assessing translation students' competence: an empirical-experimental study*, carried out at the Federal University of Ouro Preto, has reviewed some concepts of competence in order to reformulate them and create a coherent hierarchy applying this model of translation

competence. However, to consistently present the reformulation in question, it is necessary first to examine, even briefly, some aspects of Alves and Gonçalves's model.

Drawing on connectionist approaches to develop their model, Alves and Gonçalves (*op. cit.*) state that the cognitive system is made of minimal units (nodules and connections), which are analogous to the nervous system – neurons and synapses. Differently from the modular conception of mind, which explains cognition as the triggering of innate structures (modules), connectionism postulates the construction of neuron networks by means of multiple stimuli received from the environment, leading to a process of routine stabilizing in various parts of the nervous system; these routines can be described as certain competences or sub-competences. The principle of cognitive system development follows the gradual increment and reinforcement of some connections, on the one hand, and, on the other, the weakening of others, always responding to the stimuli and interaction history experienced by the individual. With this gradual development, some sub-networks become progressively more stable, and, because of a highly automated routine processing, they are described as modules by the modular approach. The model in focus highlights two directions for cognitive development: the first one centrifugal, that stabilizes processes that are highly recurrent by reinforcing the respective connections and activating certain sub-networks; the second is centripetal, representing the increment of complexity and broadening of some cognitive networks, that reflects the development of more complex cognitive faculties that will eventually lead to meta-cognition. Thus, the network is continuously expanding, on the one hand, towards "proceduralizing", by means of routine reinforcement, and, on the other, towards broadening declarative knowledge up to meta-cognition, which implies the creation of more complex sub-networks, with broader activation areas involving more conscious and longer processes.

In terms of application, this model leads us to review the rigidity of the constitution of competences as simply a phenomenon derived from the activation of genetically formed modules. However, a competence is not defined by the attachment of a series of modules that are strictly configured, that accept restricted stimuli and produce equally restricted responses; it is characterized much more as a dynamic process of articulation of sub-networks in the cognitive system, whose own

processing provide feedback and modify their internal configurations and their patterns of reply, aside from the fact that these processes and configuration depend on the interactions of the individual with his physical and socio-cultural environment.

It has been found, however, that in this conception the construction of a cognitive system not only occurs as a function of a phylogenic predisposition, but also by means of the individual's interactions with his/her socio-cultural surroundings. Thus the construction of competences, of necessity, will be dependent as much on socially defined patterns as on the structural limits biologically defined for the human species. In light of this perspective, I would propose here, as do Alves and Gonçalves (2007), that the construction of competences is a phenomenon that is at the same time both cognitive and social-interactive, and which possibly expands the proposal of Rothe-Neves (2007) mentioned above.

The search for complementarity between the cognitive and social-interactive domains does not have a merely conciliatory or intermediary character, but is the result of the observation that the conceptualization of competence from only one of these does not provide responses sufficiently satisfactory for the understanding of the respective phenomena or its practical application.

At this point, I will present an attempt to formulate a definition of competence derived from the discussion above. We can say, therefore, that **competence is characterized by the constitution of cognitive and sensory-motor routines that: 1) derive from the biological structure of the individual and from the set of interactions between this individual and his/her environment; and (2) they produce a set of behaviors that are historically based and socially-culturally valued.** Consequently**,** a competence is constructed from socio-cultural and historical patterns, which are organized and structured cognitively from biological restrictions and the history of interactions that have been experienced. That is, when we work with questions relative to competence, one cannot ignore the strict link and complementarity between these two domains.

In order to define translator's/translation competence, in a manner congruent with the general concept proposed above, I would cite Alves, Magalhães and Pagano (2000: 13), who postulate that this competence is "all knowledge, abilities and strategies that the successful translator possesses and which lead to an appropriate exercise of the translating task." This definition is adopted by Gonçalves (2003) as a

general translation competence, being understood as a complex and multi-functional system that must be adequately developed and articulated in order to produce a competent/expert translation performance.

As a central component to translation competence (*specific translation competence)*, the model of Alves and Gonçalves (2007) uses as a base the pragmatic mechanisms attributed to the RT framework referred to as *deductive device.* Thus, they understand that the specific translation competence

> is directly proportional to the production of contextual effects generated from two counterpart translation units (one in the source language and the other in the target language) and is also directly proportional to the overlapping of the two sets of effects, that is, the maximisation of their interpretive resemblance. (Alves & Gonçalves 2007: 43)

In this fashion, translation processes follow some of the pragmatic principles present in intra-lingual communication, as, for example, the search for optimization or cognitive productivity, by means of the maximization of the effects and economy of effort, in conformity to that postulated by RT, which I will discuss further in the next section.

In the following, I will show the diagrams proposed by Alves and Gonçalves in order to describe and present the principals discussed above.
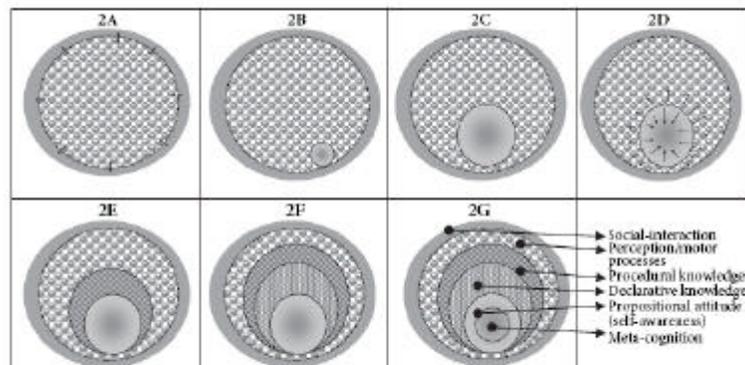

Figure 2. The development of cognition based on connectionist principles.

(Alves & Gonçalves 2007: 45)

In the diagram above, the authors describe the development of the cognitive system drawing on connectionist principles. The development of the layers reflect the history of the interactions and are characterized by the progressive and repeated

reinforcing of connections in various sub-systems (or sub-networks), the weakening of others, principally as a result of disuse, and the articulation of complex sub-networks, creating systems of skills, knowledge and competences. The model creates a hierarchy of the levels of cognitive complexity – the more internal the level, the more complex and conscious the processes. Departing from diagram 2G, which is the representation of the mature cognitive system, the authors have inserted those sub-systems that would be the most relevant for translation, proposing, therefore, the configuration of the general competence of the translator (or general translation competence) in the diagram reproduced below.

(ST = source text; SL = source language; SLTU = source- language translation unit; TLTU = target-language translation unit; TL = target language; TT = target text; KAT = knowledge about translation; PP = psycho-physiological components; INST = instrumental sub-competence)
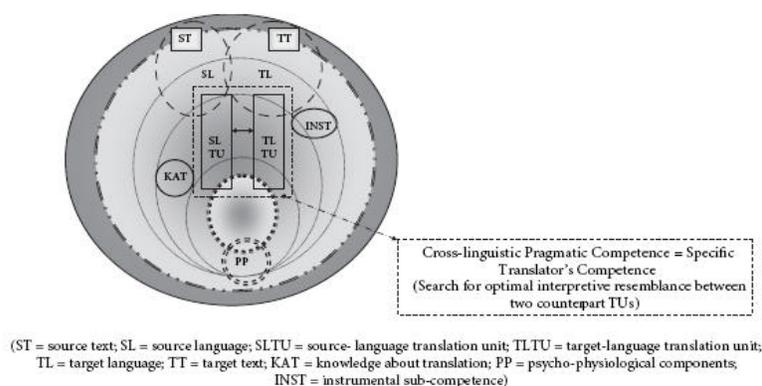
Figure 3. Cognitive modelling of translator's competence.

(Alves & Gonçalves 2007: 46)

In this diagram, the authors place the rectangle at the centre of the process or translation competence, defining it as *specific translation competence*, or pragmatic inter-lingual competence (a specialization of the *deductive device* of RT). They also emphasize that the contextualization process and the search for the best *interpretive resemblance* between reciprocal translation units (one in the source language and the other in the target language), implemented here, are essential for translation.

With this, we begin to see that certain operational principals of RT are congruent with a connectionist perspective of cognition. I will not develop here a detailed discussion of the implications and particularities of the model under discussion, but will limit myself to pointing out the characteristics that point to the structure of RT as a consistent possibility to describe and explain questions relative to competence, in general, and, more specifically, to translation competence.

In the next two diagrams, the authors present two prototypes of translation competence: "narrow band" and the other, "wide band". In these cases, the

development of translation competence is attributed to the amplification of the sub-competences and its appropriate articulation. Aside from this, the importance of specific translation competence is highlighted (derived from the pragmatic "module" or *deductive device),* with the argument that this must be developed towards meta-cognition, in order that the translator expands his possibilities of contextualization, and , thus, optimizes the processes of attribution and evaluation of the *interpretive resemblance* between the reciprocal translation units.
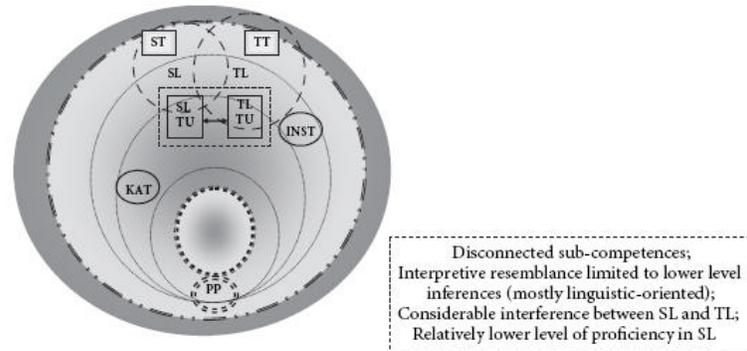

Figure 4. The Narrow-Band Translator.
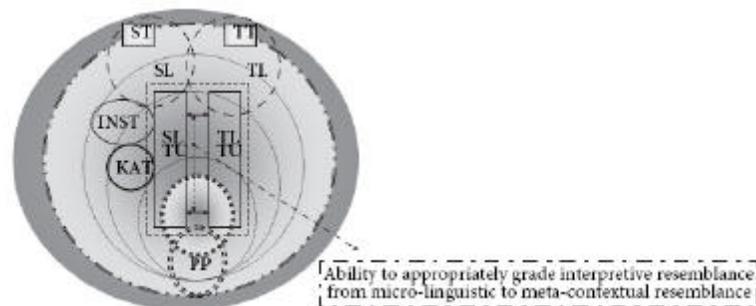
(Alves & Gonçalves 2007: 51)

Figure 5. The Broadband Translator.

(Alves & Gonçalves 2007: 52)

As can be seen, the difference between the two prototypes of translation competence is of necessity due to the low developments of the sub-competences, of the low articulation between them, and, principally, to the low amplitude of specific translation competence which is restricted to the levels of linguistic equivalence/correspondence between the translation units, not achieving adequate levels of contextualization, when we compare the "narrow band" translator with that of the "wide band."

Having emphasized relevant aspects of Alves and Gonçalves's (2007) model of translation competence with regards to the questions in discussion in this chapter, I will next examine several principles of RT which have been shown to be potentially applicable and fruitful for a reformulation of the concept of competence.

The applicability of RT to studies on competence.

Sperber and Wilson (1986/1995) present a theory which seeks to describe and explain human communication from both the linguistic-pragmatic and the cognitive perspectives.

In relation to the first, they emphasize the processes of utterance production and interpretation that depend, on the one hand, on codification and decodification, and, on the other hand, on inferences. In other words, they question, on the one hand, the presumed total communication of information, postulated by the code model, and, on the other, the extreme counterpoint of interpretation that is entirely free and individualized, without any codified parameter. Therefore, communication will always be relative – the greater the *mutual manifestation* between the *cognitive environments* of the interlocutors, the more appropriate *contextual effects* are realized and the greater the success that communicative interaction will have. With regards to the cognitive perspective, RT suggests a principle of productivity that displays a great congruence with other biological phenomena – *the principle of relevance.* This principle presupposes that, in order to develop the cognitive system of the individual, with the aim of improving his adaptation to the milieu, it is necessary that the production processes of new knowledge follow a rule of economy, which would be the production of abundant (or minimally sufficient) *contextual effects* with the minimum cognitive effort necessary. Each time that insufficient effects are produced or that the effort exceeds a determined limit, the stimulus that unleashes the process in question will be considered of little or no relevance, in the first case, or, in the second, the process will be interrupted or postponed, for reasons of economy and the preservation of the system.

Principally making use of the cognitive perspective adopted by RT, the model of Alves and Gonçalves (2007) links several concepts and postulates of this theory with those of the connectionist approaches as explanation, as we succinctly see

above. It is important to emphasize that RT uses the modularist approach to cognition as an epistemological basis. Nevertheless, in the view adopted here, its structure shows a significant congruence with connectionist principles. In relation to the model of Alves and Gonçalves, the explaining principle of RT which establishes the process of amplification of the *cognitive environment* of the individual, differently from the modular vision, presupposes the gradual reinforcement or weakening of the determined *assumptions* (information or knowledge) by means of a history of experiences that confirm or negate its truth value. However, a determined piece of information cannot be simply considered true or false, but will have a variable *truth force* for RT. This description much more fits the connectionist conception of cognition, in that the repetition of the determined cognitive processes reinforces certain connections and weakens others.

At this point, it is also important to mention another work of the same authors (Alves & Gonçalves 2006) in which are discussed similarities between several postulates and principles of the connectionist approach and the hypothesis of massive modularity, developed by Sperber (2002; 2005) and Sperber and Hirschfeld (2007). Questioning classic modularity, in which the cognitive system is divided into two large sub-systems (modules and the central processor), massive modularity proposes that cognition operates exclusively from modules, not requiring a central processor – hence the proposition of a massively modular system. With this, Alves and Gonçalves (2006) argue that the supposed "radicalization" of modularity converges on various connectionist functions, which end up positioning RT still closer to these approaches.

Returning to the translation competence model under discussion (Alves & Gonçalves 2007), RT directs its focus to the functioning of the pragmatic "module" in the cognitive system (the *deductive device* of RT*),* which is responsible for the contextualization processes in communication, these being applied to translation by the model under discussion. This pragmatic "module" articulates the various sub-competences necessary for the realization of the translator's tasks. Conforming to what has been presented above, this model proposes that the amplification of the translator's competence must be due, principally, to the following factors: amplification of pragmatic competence in the direction of meta-cognition, amplification of linguistic competences in the work languages, amplification of the

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sub-competence of (theoretical) knowledge about translation, of the instrumental-professional sub-competence, and psycho-physiological factors, as well as appropriate articulation between all of them. In relation to this last aspect, it is not simply enough to increase the sub-competences in an autonomous fashion: it is, in fact, necessary that this is carried out in an integrated manner.

Interpreting the proposition, for the development of translation competence, it is necessary that the so-called procedural knowledge together with the declarative are amplified in an articulated manner, with pragmatic competence as the linking element, referred to in the model as specific translation competence.

Having, then, explored the points of convergence between connectionist approaches to cognition, RT and the translation competence model of Alves and Gonçalves, aside from proposing a rediscussion of concepts of competence, I will present in the next section the proposal for the hierarchization of competence developed in the research *Assessing translation students' competence: an empirical-experimental study,* undertaken at UFOP

A Proposal for the hierarchization of competences

Given that the model of translation competence under discussion presupposes a hierarchization of cognitive processes, as I have shown above, and taking into account that the constitution of a determined competence involves the articulation of different cognitive levels, as well as its integration with social-interactive phenomena, the translation competence research group of UFOP developed a proposal for hierarchization of competence systems, especially focusing on the competence of the translator.

The cognitive levels described in the model of Alves and Gonçalves, conforming to diagram 2G, reproduced above, include: perception/motor processes, procedural knowledge, declarative knowledge, propositional attitudes and meta-cognition. The order of these levels, from the most external to the most internal, reflects the progressive increase in the complexity of the system, resulting in complexes of greater sub-networks, with more interconnections, which operate in a less automatic form (with weaker and less stabilized connections in comparison to the more external layers) and, for this reason, more conscious. In virtue of this

hierarchic complexity for the cognitive processes it has been decided to consider sub-categories which include the other levels, aside from procedural and declarative knowledge, traditionally mentioned in the description of a competence.

Thus, we can state that the sub-competences or sub-systems such as languages, for example, principally involve procedural knowledge (especially when the individual displays fluency in the same), but also includes various perceptual-motor level processes. It is important to highlight that I am approaching language in a restricted sense that does not include pragmatic processes. However, we categorize the processes relative to perception, motor processes and procedural knowledge as **skills,** a label appropriate for the various descriptions of these phenomena in the currents of cognitive psychology and psycholinguistics. In this fashion, language, in the strict sense, is a **skill,** which indicates *a doing / acting knowledge* that generally requires less conscious effort. Obviously, there exists the possibility of someone who knows a language in a theoretical or metalinguistic sense, without being fluent in the same; in this case, we have an explicit **knowledge,** and not a **skill,** although the first can contribute to a later development of the latter.

At the third layer of diagram 2G of the model reproduced above is found declarative knowledge, which characterizes a type of explicit, conceptual knowledge that normally can be expressed verbally. The sub-networks whose processes occur at this level are categorized simply as **knowledge.** The proponents of the model under discussion argue that it is necessary to have a procedural base in order that the system begins to construct its declarative knowledge, which reflects certain development stages of the individual. However, after attaining certain stages, it is possible and even recurrent that the level of **knowledge** also contributes to the development of **skills.** In other words, there are situations in which "theoretical knowledge" can contribute to the development of "practical" skills. Again referring to the work of Ericsson et al. (1993), it can be seen that the synergy between these levels will increase the degree of competence in relation to a set of activities (professional, sporting, etc.)

The level of propositional attitudes points to the constitution of sub-networks responsible for taking decisions, identifying and solving problems. The concept of *propositional attitude* is examined in the description of RT and approached by other pragmatic theories, the attribution of value (to like, detest, ignore, etc.) to propositions

or information processed by the individual. That is to say, from each proposition or piece of information processed is generated an evaluation of its implications for cognitive or biological development, even in subliminal form. Given these characteristics, we categorize this level as **strategies.**

The most central level, that of meta-cognition, involves extremely complex processes that depend on the articulation of various other levels. This was categorized as the **meta-knowledge** level.

Touching on the model presented, we can establish that the so-called pragmatic "module", which is distinguished as the specific translation competence in a bilingual and bicultural context, occupies various levels of the cognitive system, beginning with procedural knowledge (**skills**), and able to ideally arrive at meta-cognition (**meta-knowledge).** As a function of this insertion into different levels of cognitive processing, we decided to label the systems of this type as **capacities.** Thus, capacities would be complex sub-systems that vary from more automatic levels to more conscious ones. The advanced development depends on the adequate articulation of these cognitive levels, or on the synergy between them, in the words of Ericsson et al. (1993).

Therefore, the categorization proposed here for the components of a competence include **skills, knowledge, strategies** and **meta-knowledge,** hierarchically presented in relation to its cognitive complexity. Aside from these, I have included a super-category, that of **capacities,** which involves the articulation of two or more previous categories, as is the case of what in the model of Alves and Gonçalves is referred to as specific translation competence.

Possible deployments and applications

The categorization proposed above can produce several theoretical deployments and didactic applications. Touching on theoretical questions, given that the *Principle of Relevance* defines the mechanism for the pragmatic "module" (for RT, *deductive device,* for Alves and Gonçalves, specific translation competence, and, now, **translation capacity),** it is important to evaluate its pertinence and productivity in the description of cognitive phenomena in general and, more specifically,

translations. In the didactic field, it is necessary to reflect on the validity and applicability of this proposal for the development of translation competence.

In the field of theoretical discussion, the process of seeking and assigning the best *interpretive resemblance* between two reciprocal translation units, described as a cognitive principle for a translation in the model in discussion, can acquire greater or lesser amplitude, depending on the degree of competence or expertise of the translator: in conformity with the description of Alves and Gonçalves, less experienced translators tend to look for an *interpretive resemblance* in the more procedural levels (linguistic), not verifying the more complex inferential deployments that the processing of a determined unit can generate. Yet the more experienced translator develops more and, generally, better inferences, which will favor the increase in the probability of an *interpretive resemblance* taking into consideration the parameters of adequacy and correction that are socio-culturally defined. However, the **translation capacity**, bilingual and bi-cultural employment of **pragmatic capacity,** works from the *Principle of Relevance,* seeking to contextualize and compare reciprocal translation units, making them develop in the direction of more complex processes, which would be **meta-knowledge.** This is not to say that the professional translator must always seek the meta-cognitive level of processing; it is known that, in large measure, he will find himself in a state of flow. What must be done is the development of the capacity to identify situations in which it is necessary to direct the inferential process to those levels that are deeper (meta-knowledge). This capacity is described in a very illustrative form by Robinson (1997), when he states that the experienced or competent translator knows when to leave this state of flow ("auto-pilot"), "setting off the alarm bells" and entering into a state of attention.

This process is unquestionably complex, but has been already approached by Alves and Gonçalves (2006), in working with the concept of *salience,* proposed by Sperber (2002). These authors, comparing connectionism and massive modularity, suggest that the *Principle of Relevance* shows a pattern of functioning that is not only quantitative, but also qualitative, in that the assumptions selected for an inferential processing are activated by its *salience*, which would be its attachment to determined external or even internal inputs, and the evaluation of the effects of its processing will reveal much more than just the quantity, but especially its congruence with established social-interactive patterns. However, the parameters to evaluate the

quantity and quality of *contextual effects* produced throughout an inferential process are not self-referential in the cognitive system, but are constructed from external patterns. When the level of **strategies** does not recognize *contextual effects* that are minimally sufficient (quantitatively and qualitatively), there would be an interruption of the process going through the state of flow and a move to that of attention/awareness, in which the system will search for more and better effects so as to arrive at a coherent result.

In view of these arguments, it would seem that establishing the category **capacity** is useful in the sense of submitting to a defined procedural nature – in the case of **pragmatic capacity,** there would be processes of production of *contextual effects* and of evaluation of its resemblance in relation to correlated entities – but that can vary in terms of intensity/profundity. In studies of pragmatics, and also in RT, discussion commonly occurs about the distinction between inferences that are demonstrative and non-demonstrative, local and global, inductive and deductive, which indicates the spectrum of complexity involved in inferential processes, some being more rapid and automatic and other slower and requiring greater effort and cognitive monitoring. For this, the proposition to describe and explain the pragmatic "module" or *deductive device* as a **capacity**, in terms of the explanation above, demonstrates itself to be pertinent, once that it is demonstrated to occupy various levels of the cognitive system, being more than a type of procedural knowledge (**skill**), automatic and unconscious, as some would claim, but yet not limited to the level of declarative knowledge, where, supposedly, the explicit logico-deductive processes occur. However, the understanding of the inferential processes throughout this spectrum of various cognitive levels, that is to say, as a **capacity,** would seem to make those questions relative to competence more consistent and better defined.

In relation to the possible forms of didactic application, it can be argued that the levels of **skills** and **knowledge** require distinct didactic-pedagogical methodologies for their development. Generally **skills** require the automation of routines, through practical exercises which reinforce selected connections of the cognitive system, facilitating the activation of connections and nodes involved in the routines in question. This is the case for the work languages (here, **linguistic skills**) and the professional-instrumental sub-competence, which involves dexterity in the use of tools and reference material. In relation to **knowledge**, these are constructed

or manifest themselves in a more explicit way, by means of statements, albeit mental. It is common to question, in some sectors of activation, the utility of certain aspects of **knowledge** – what is does it matter for me to know, for example, that water boils at 100 degrees Celsius at sea level? It is important to emphasize that, independent of its utility, what defines this cognitive category is the fact that it is explicit and can be verbalized. Meanwhile, much (theoretical) **knowledge** that, in principal, does not have a practical application in the life of a person, later, becomes significant when "proceduralized" or becomes unconscious from a recursive application in concrete situations. In the case of translation, it would seem that the route is more complex, now that the translator, like many other professionals, must also create procedures for some aspects of knowledge, increasing his speed of work, but, on the other hand, must seek some forms of **meta-knowledge** in situations in which the contextualization and the evaluation of *interpretive resemblance* between the units of translation are not satisfactory.

In relation to **strategies**, their development, in a first approach, seems to be related principally to the procedural level, given its automatic character in many cases. Thus, we would consider that strategies would be a type of **skill.** Nevertheless**,** I understand the development of **strategies** from the point of view of integration or, in the terms of Ericsson et al. (1993), from the synergy between the previous levels. As Robinson suggests, this would be the level where the "alarm bells" go off, in cases of incoherence or incongruence, or when the "lights " of relevance light up when we arrive at satisfactory *contextual effects.* From this hypothesis, the development of **strategies** would depend on the integrated development of **skills** and **knowledge.**

In touching on **meta-knowledge,** I believe that its development is based on the progressive amplification and articulation of **knowledge** networks**.** Although **meta-knowledge** can be theoretically taught, it is necessary that they are linked in a coherent form to other constructions of cognitive sub-networks in order to effectively comprise a competence. However, a mark of competence or expertise in a determined professional area is also observed by means of certain forms of **meta-knowledge,** by the capacity of description and explanation of certain mechanisms or processes in this area. Corroborating this argument, we have the work of Sun (2001)

who observes how the capacity of explanation and explicitation of certain phenomena speed up and optimize the learning process.

Finally, in relation to the **translation capacity**, it seems that its amplification derives from the development and articulation of other levels. Therefore, this **capacity** is "fed" by an increase in *knowledge about translation,* the work languages *linguistic **skills***, the *instrumental **skills*** and the *psycho-physiological factors.* The latter, by being expanded by different cognitive levels, also have a profile of **capacity.**

Final remarks

In this chapter, I have attempted to discuss and reformulate the concept of competence, focusing on translator's competence, departing from the ideas presented in the work of Gonçalves (2003) and Alves and Goçalves (2007) in the ongoing research project *Assessing translation students' competence: an empirical-experimental*, at the Federal University of Ouro Preto. I have challenged the traditional modularist proposition (Fodor, 1983; Chomsky, 1980) of *competence* as underlying knowledge, genetically configured and acting as the base for *performance*. I have argued that the competence-performance opposition is not productive in the description of phenomena relative to language and translation and I have adopted the systematic approach to translator competence proposed in the model of Alves and Gonçalves (2007).

This model draws on the assumptions of the connectionist approaches to cognition and uses the structure of RT to describe the composition of the system of sub-competences for translation. I would propose that, despite the modular view of RT, its descriptive and explicative framework of pragmatic and cognitive phenomena brings it closer to connectionism. The *Principle of Relevance*, as an explicative mechanism for the cognitive phenomena involved in language and translation, also demonstrates great congruence with the postulates of connectionism, revealing processes of regulation and optimization of relations between cognitive effort and effects in the construction of the knowledge systems of the individual (his *cognitive environment).*

Having observed a coherent and consistent proposal in the model of translation competence under discussion, the research group on translator's competence of UFOP, in the theoretical aspects of their work, decided to propose a framework for the competence systems that display a correlation with the hierarchy seen in this model. Thus, in a form congruent with the cognitive levels proposed in the model of Alves and Gonçalves (2007), we decided to use the following categories in the hierarchization of sub-competences: **skills, knowledge, strategies** and **meta-knowledge,** proceeding from the most automatic to the most complex and explicit one. Aside from these, we proposed the creation of a super-category, that of **capacities**, which encompasses more than just one cognitive level and is developed from the synergetic articulation between the respective levels. Specific translation competence would be, then, a type of **capacity**, having in view the cognitive range involved in the process of search and optimization of *interpretive resemblance* between the reciprocal translation units in the translating processes.

I have also argued that such a hierarchization of the components of competence, in particular that of the translator, can make theoretical contributions toward the understanding of correlated cognitive phenomena, as well as indicate possibilities for didactic application in the training of a translator. In this case, future research could test the application of different didactic-pedagogical methods in the training of translators with the aim of anchoring its relationship to the different levels of sub-competences proposed above.

Despite being in its initial stages, the proposal in question opens the road for reflection on the conceptualization of *competence,* indicating that the phenomenon is not a specialization that is genetically pre-configured, but, much more, is a construction of cognitive sub-networks in congruence with the social-interactive phenomena experienced by the individual. In this form, a competence cannot be conceived as a simple activation of pre-structured modules. There is much more corroboration for the connectionist perspective, which explains with greater appropriateness the variability and idiosyncrasy of the competent behavior of professionals in the same area of activity – especially that of translation.

Finally, I will end the present discussion arguing that the ideas and proposals presented here have a character that is eminently theoretical, but the research work in progress at UFOP will begin the treatment and analysis of the data obtained

empirically-experimentally, which will allow for a deeper study of the questions presented above.

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Legal translation in the light of relevance theory

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Introduction: indeterminacy of meaning in translation

The lack of equivalence of meaning in languages brings about serious difficulties for the act of translation in any area. However, it is in the area of legal translation that it becomes utterly problematic for the consequences of missing the 'right' meaning may turn out to be disastrous. In their search for faithfulness, scholars claim that legal translation should be rendered the most direct way possible. In order to achieve this directness it is suggested that the translation be oriented towards the source text rather than the target text.

The present paper will analyze the translation of contracts and discuss the difficulties in ensuring faithfulness in a realm that presents innumerous asymmetries. Evidences of the mismatches in legal concepts will be given in order to claim that a total direct translation approach is an untenable task. Moreover, it will be argued that the translation of contracts must not be seen as a mere choice between orientations, namely source text versus target text, for it does not shed light on the process. A different theoretical framework that sees legal translation as being faithful not because of its equivalence to the source text but rather, because of its **interpretive resemblance** to the source text will be proposed.

The theory that will provide us with the tools for this is **Relevance Theory** (SPERBER; WILSON, 1986, 1995), since it is capable of helping translators understand some of the cognitive processes involved in the transfer of meaning from one language into another. Within the relevance theoretical framework, the notion of interpretive resemblance (cf. GUTT, 1991, 2000) will be the suggestion to help cope with the problem of lack of equivalence. By adopting some of the constructs of the theory such as the concept of **optimal relevance** and suggesting strategies based on the notion of **concept loosening, concept narrowing** and **echoic use of concepts** the present paper will attempt to bring a solution to this problem.

1. Legal translation: source text or target text approach?

The fact that there is lack of complete equivalence between two languages brings in serious consequences for the act of translation in any realm; nevertheless, it is in the legal translation area that it becomes an issue of utmost importance, since scholars claim that with this type of text the translation should be rendered in the most direct way. In order to do so, the translator must orient the translation towards the source text (ST) rather than the target text (TT); other authors argue in favor of the other orientation, among them Francophone translators in Canada. [37] Generally speaking, the consensus is that literary translations should lean toward the target culture, whereas non-literary ones should be source-culture oriented, since they should seek equivalence.

The paradox posited here regards the number of mismatches in terms of legal expressions when considering different legal systems. In the case of Brazil and the US, this occurs mainly because each legal system evolved from a different origin: the American from the *common law system* whereas the Brazilian from the *civil law system*. The acknowledgement of this fact leads us to the conclusion that the view of a translation being seen as a mere choice between orientations, namely ST versus TT, or literal versus free does not shed light on the process of translating legal contracts. On the contrary, it proves that these traditional views do not suffice and that a different framework is called for. Moreover, the problem of indeterminacy of meaning calls for a different perspective of seeing the translational act: a perspective that will cause a shift in the approach of translating based on a code model to a cognitive-pragmatic one.

One of the first cognitive-pragmatic models that have attempted to account for implied meanings was Grice's **Cooperative Principle** (1975). According to the linguist, speakers should follow some Maxims of Conversation in order to guarantee successful communication: "Make your conversational contribution such as is

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[37] Francophone translators are incorporating an increasing number of civil-law drafting practices into the French texts of Canadian federal legislation as a means to compensate for differences between the legal systems and the languages. (See SARCEVIC, 1998).

required, at the stage at which it occurs, by the accepted purpose or direction of the talk exchange in which you are engage (1975, p. 45)."

Grice argued that the Maxims may be obeyed or disturbed, and disturbance may take the form of flouting or disobeying the rules in a motivated, deliberate manner. This is the basic mechanism by means of which an utterance is used to convey more than it literally denotes: thus implicatures are likely to arise or be intended whenever a maxim is flouted. Grice (1985) illustrates his theory with a series of dialogs where he shows violations of maxims. For example, the next dialog adapted from Grice (1975, p. 51) shows how the exchange appears on the surface to violate the maxim of relevance:

A: Paul doesn't seem to be involved emotionally lately.
B: He's been going to New York a lot.

However, if we follow the assumption of the Communicative Principle and assume that B is being cooperative, it goes without saying that B is being informative, truthful, relevant and clear. Therefore, B may intend to implicate that he believes that Paul has a girlfriend in New York or has too much to do in New York that he will not find the time to have a girlfriend.

Baker (1992) argues that Grice's Cooperative Principle and its maxims cannot account for how we arrive at a conversational implicature since the notion of implicature is often indeterminate and can be open to several possible interpretations, which may or not be intentional on the part of the speaker. This fact would necessarily complicate the task of the translator, who could eliminate certain possible interpretations of the original. According to Baker the translator "may even inadvertently give rise to other interpretations which are not derivable from the original text" (1992, p. 228).

Still another limitation of applying Grice's notions has to do with the fact that he was not primarily concerned with written text. On the contrary, he restricted his comments to a small set of spoken exchanges, namely, question/answer sequences. Baker (1992) calls attention to the fact that his focus on speech makes it difficult to relate his theory to written communication. Nevertheless, she believes that Grice's views have important applications in translation and she proposes to "play down the

inadequacy on Grice's theory of implicature in terms of its application to written discourse in order to explore its general relevance to translation'" (1992, p. 225).

These issues raise important questions for translation theory, especially when the translator is involved in solving cross-cultural aspects that carry asymmetries in the ST and TT. The hypothesis widely accepted in pragmatically-oriented theories of translation is that the more language-bound the rules governing the performance of any implied meaning, the lower the degree of translatability (BLUM-KULKA, 1981). [38]

The problem raised by the search of equivalence between ST and TT is addressed by the theories of implicit meaning but it is still unresolved. What should the translators do when they face a situation when there is lack of determinacy both in the level of text and in the level of lexicon as in the case of legal translation, specifically contracts?

For this reason let us now turn to an alternative view of inferential processes in communication aiming at a refinement of Grice's theory so that it fits the object of analysis presented here. The hypothesis raised here is that this alternative view might shed some light into the case of indeterminacy in translation and help the translator choose what orientation to take in the translation of contracts: source text or target text approach?

2. Relevance theory and translation

The claim of the cognitive linguists who have offered an expansion to Grice's theory is that the inferential process the speaker/hearer goes through depends not just on the notion of mutual knowledge. Sperber and Wilson (S&W), in their book called *Relevance Theory* (1986) question Grice's concept of context established *a priori* and change it to a notion of context that is established *a posteriori*, since the assumptions are manifested to speaker and hearer during the process of communication. Gutt (1991, 2000), after S&W, proposed an application of relevance theory (RT) to the studies in the area of translation in an attempt to prove that a pragmatic/cognitive approach can better account for the unsolved gaps in traditional

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[38] For examples of mismatches in the performance of the illocutionary act of Apologizing in English and Portuguese that may result in translation difficulties, see Perna (1992, 2002).

approaches to translation studies.

As we have seen in the previous section, Grice suggested an inferential model for communication based on the notion of implicature. This inferential process would explain what has traditionally been called explicit and implicit content of messages. His model suggested that the inferences were derived thanks to an agreement of cooperation between speaker and hearer, which he called Cooperation Principle. In order to recognize speaker's and hearer's intentions, both interlocutors would rely on a notion that is crucial: that both interlocutors share the same **mutual knowledge**. This notion is the basis of all models that are concerned with successful communication: i.e., successful interpretation of an utterance implies that all the contextual information must be not only known by speaker and hearer but, most important of all, mutually known.

While this notion may seem obvious, it is an opinion not shared by S&W, who believe that **context** cannot be understood as information mutually known. According to them, one of the limitations of this hypothesis is that it imposes a certainty condition in relation to mutual knowledge, mainly on the contextual assumptions involved. In RT context is not seen as part of the external environment of the communication partners but rather as part of their assumptions about the world. In other words, the interpretation of an utterance is based on the hearer's assumptions rather than the actual state of the world. As S&W put it:

> A context in this sense is not limited to information about the immediate physical environment or the immediately preceding utterances: expectations about the future, scientific hypotheses or religious beliefs, anecdotal memories, general culture assumptions, beliefs about the mental state of the speaker, may all play a role in interpretation (1986, p. 15-6).

Costa (1984) points out that mutual knowledge includes: (a) the utterance (linguistic context); (b) the lexicon and the grammatical structure that determine the presence of elements that indicate non-conventional meaning within the utterance and the dependence of (possible context); and (c) the conversation itself (real context). Moreover, the pragmatic features of context must be considered, namely (d) its relation to the utterance; (e) the fact that mutual knowledge is partial – it is worked

out whenever a new utterance is produced; and (f) the propositions represented by linguistic entities.

But how can speakers guarantee that the conversation will be adequately understood if it is not guaranteed that people share the same cognitive environment? It is generally known that each person has unique information about the physical environment (which is retrieved from memory) besides the information that can be retrieved from the preceding utterances in the conversation, and that these two sources of information determine the inferences hearers make. Considering this complexity, how do we know what is the *potential* context of an utterance?

According to S&W, this is a crucial problem for pragmatics. If speakers intend an utterance to be understood in a specific way they must expect the hearer to be able to come up with a context that will match the interpretation that they wish. A misunderstanding would be the result of a mismatch between the context envisaged by the speaker and the one actually used by the hearer.

In RT, what determines the different degrees of accessibility of contextual assumptions is the amount of **effort** required to retrieve them in a given act of communication. One of the factors that make inferential communication feasible is this very sensitivity to the processing effort. As Gutt puts it: "It seems that communication, no doubt like many other human activities, is determined by the desire for optimization of resources, and one aspect of optimization is to keep the effort spent to a minimum" (2001, p. 28). In short, in order to assess the degree of relevance of a piece of information we have to resort to two factors: (1) its contextual effects in a given context and (2) the processing effort involved in achieving contextual effects. The assumption will be **optimally processed** when such balance is achieved.

This **optimal relevance** must be sought through information found in accessible extensions of the context, whether these involve encyclopedic memory, short-term memory or environment. A speaker wishing to communicate will naturally assume that the hearer can derive adequate contextual effects without spending too much effort. As S&W show, relevance theory yields hypotheses about the way thoughts follow one another, and about the points at which the individual might turn to the environment in search of relevant information.

At this point we already have all the necessary and sufficient conditions to define the notion of relevance following Sperber and Wilson (1986, p. 125):

(i) An assumption is relevant in a context to the extent that its contextual effects in this context are large.
(ii) An assumption is relevant in a context to the extent that the effort required to process it in this context is small.

It is possible to notice from the above definition that both factors at play, namely effects and effort, are context dependent and that the notion of relevance itself is also context-dependent.

According to Gutt (2000), an utterance must achieve adequate contextual effects and pose no unjustifiable effort on the hearer when attempting to achieve these effects. If the hearer is imposed to unnecessary effort [39] he may be in need of more contextual effects to compensate for this lack. Let us illustrate this with an example adapted from Gutt:

(1) Do you remember John Smith, the one who we picked on at High School? I met him today.

The speaker of (1) is compensating for a possible lack of reference on the part of the hearer by introducing the utterance with information that will save processing cost for him, rather than if she had just uttered (2):

(2) I met John Smith today.

In these circumstances, (1) would be consistent with the principle of relevance whereas (2) would not. Hjort-Pederson (1989), in her studies addressing the principle of relevance in legal translation, claims that it is the communicator's responsibility to express himself in such a way that he does not violate the principle of relevance. As an illustration she offers the following example of formulaic speech taken from a will written in Danish and translated literally into English:

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[39] According to Gutt, effort leading to a search in the encyclopedic memory and short-time memory may hinder successful communication.

(3) The undersigned hereby draws up the following will.

However, as Hjort-Pederson puts it, an English-speaking testator performing the same act would make use of the following utterance:

(4) I hereby declare this to be my last Will and Testament.

If the translator chooses the ST orientation, thus presenting to the addressee an utterance that he will not recognize in his own speech community (3), he will be imposing an extra processing effort on the part of the addressee. It therefore goes against the second condition of the principle of relevance (condition ii). However, RT states that the gratuitous effort demanded to process (3) is justified if it is compensated by increased contextual effects (condition i). Therefore, following the RT framework, the hearer will expect that the processing of (3) will add something to his set of assumptions that (4) will not, and that this 'something' is crucial for the communication to take place. According to Hjort-Pederson, this exemplifies the cost-benefit relation in the principle of relevance.

Our claim here is that in legal translation the factor that should guarantee relevance is the increase in benefit. Legal translation should aim at achieving the intended legal effects since its success will be measured by the results it will have in practice, therefore the processing cost the translator will place on the addressee should not be lessened at the expense of benefit. In other words, the processing cost may be high if it guarantees a maximum benefit, which in the case of legal translation and in special, translation of contracts, is the intended legal effect. Therefore, **optimal relevance** in this case will convey the meaning of **legal effect**. No matter what the orientation the translation of international contracts takes (ST or TT-oriented) it shall bear legal effect in both languages.

In order to guarantee legal effect the notion of equivalence will need to be revisited so as to account for the indeterminacy of concepts in the different legal systems. For this purpose the next section will introduce a different perspective of seeing equivalence, namely, the one of **interpretive resemblance**.

3. Interpretive resemblance in ostensive communication

In the RT framework, a stimulus is a phenomenon that has the aim of accomplishing contextual effects. Therefore, it follows that someone who wishes to produce a specific cognitive effect must produce a stimulus that should reach its intended effect when optimally processed. S&W call this behavior an **ostensive** behavior, since it "makes manifest an intention to make something manifest" (1986, p. 49). They claim that showing someone something is a case of *ostension* the same way as human intentional communication is.

Having defined what S&W mean by *ostension*, let us now discuss the **interpretive use** behavior. The authors assume that every utterance is an interpretive expression of a thought of the speakers, what it represents and how. A mental representation, like any other containing a propositional form can be used descriptively or interpretively. When speakers are describing a state of affairs in the real world, they are using a descriptive representation, whereas when they are interpreting some thought or utterance they are using an interpretive representation. As S&W put it:

> Any representation with a propositional form, and in particular any utterance, can be used to represent things in two ways. It can represent some state of affairs in virtue of its propositional form being true of that state of affairs; in this case we will say that the representation is a description, or that it is used *descriptively*. Or it can represent some other representation which also has a propositional form – a thought, for instance – in virtue of a resemblance between the two propositional forms; in this case we will say that the first representation is an interpretation of the second one, or that it is used *interpretively* (1986, p. 228-29 italics as in the original).

What can be concluded from the above is that what is said does not necessarily have to be identical to the full interpretation a hearer will arrive at. Rather, as W&S (1988) claim, what is said frequently bears **interpretive resemblance** to the required interpretation. The authors define interpretive resemblance as follows: "Two propositional forms *P* and *Q* interpretatively resemble one another in a context *C* to the extent that they share their analytic and contextual implications in the context *C*" (1988, p. 138)."

By analytic implications they mean the interpretation that follows from an utterance alone, without the use of context. For instance, 'Mary is Sue's sister'

analytically implies 'Mary is a female sibling of Sue's'. When two propositions share both implications, W&S (1988) claim that one is a *literal interpretation* of the other.

Since RT is concerned with communication alone and not translation, in order to have the definition of interpretive resemblance above applied to the translation situation, Gutt (2000) suggests a need to reformulate it so as to take account of cases where P and Q are utterances processed in different contexts. For him, the crucial point is the sharing of analytic and/or contextual implications. He claims that since these implications are assumptions, it follows that interpretive resemblance is the sharing of assumptions.

Gutt also suggests that if we consider that the main purpose of utterances is to convey the set of assumptions that the communicator intends to convey, it seems reasonable to define interpretive resemblance between utterances in terms of assumptions shared between the intended interpretations of these utterances.

Gutt (2000, chapter 5) attempts to show how the relevance theoretic view of translation as interlingual interpretive use can serve as a framework for a theory of translation. He means that 'an utterance interpretively resembles an original' since the principle of relevance comes across as a presumption of **optimal resemblance**:

> What the reporter intends to convey is (a) presumed to interpretively resemble the original - otherwise this would not be an instance of interpretive use - and (b) the resemblance it shows is to be consistent with the presumption of optimal relevance, that is, is presumed to have adequate contextual effects without gratuitous processing effort (2000, p. 106).

According to Gutt, the principle of relevance would thus constrain a translation not only in terms of what it should convey but also in terms of how this should be expressed. In terms of resembling the original, he argues that this should be done so as to make it adequately relevant to the audience, that is, to offer sufficient contextual effects. Similarly, in terms of the way it should be expressed, he suggests it be expressed in such a manner that it will yield the intended interpretation without putting the audience to unnecessary processing effort.

Gutt claims that both processes are determined by context, since the principle of relevance is context-dependent. For him these conditions are enough to guide the translator in his process of translation. He argues that much of the literature on translation offers guidance that is very specific circumstance, addressing mainly what

he calls 'communicative clues'. These are stylistic properties that guide readers to the interpretation intended by the communicator and arise from semantic representations, syntactic and phonetic properties, semantic constraints on relevance, formulaic expressions, onomatopoeia, dialect and register, among others. In his opinion, these communicative clues prove of some value in the practice of translation; however, they are of no help in terms of giving clues of how the translation should be rendered and only RT is capable of such an enterprise.

Gutt further develops his discussion of translation by distinguishing between direct and indirect translation. For him, direct translation is one that provides the same communicative clues as the original. This notion is derived from the idea of direct quotation. For the notion of direct speech quotation to make sense in cases of interlingual communication, it is necessary to focus not on the exact words and structures used but rather on communicative clues. A requisite of direct translation is that the success of any attempt to communicate the original interpretation will require that this target language stimulus be processed using the context envisaged by the original author. For Gutt, the way to know that two utterances in language A and B share all their communicative clues is by checking whether they give rise to the same interpretation when processed in the same context. According to him, this conclusion means that "[...] the notion of direct translation is dependent on interpretive use: it relies, in effect, on a relationship of complete interpretive resemblance between the original and its translation" (2001, p. 170).

Indirect translation, similarly to direct translation, is covered in the relevance-theoretic framework as an instance of interpretive use. For this reason, Gutt claims that this position allows for a *unified account of translation*, since both direct and indirect translation are instances of interlingual interpretive use. His main argument here is that the choice of whether the translation should be direct or indirect is not theoretically significant since both kinds are processed by the same principles of communication, and the distinction between the two is purely theory-internal. Even though there is no theoretical need for a translator to follow one or the other approach consistently, what he has to bear in mind is that unexpected deviations from a given approach can lead to mismatches in the cognitive environment, thus posing a risk to communication.

Gutt's suggestion of adopting a notion of interpretive resemblance rather than a notion of equivalence is a solution for the difficulty posed by the problem of indeterminacy in the translation of legal texts. Since many legal concepts are asymmetrical there is no way the translator can guarantee total equivalence in the ST and TT. Moreover, the problem in choosing between a ST or TT-oriented translation is not a problem anymore, since in the search for interpretive resemblance both direct and indirect translation are processed by the same principles of communication.

In the next section we will see another way of addressing the effects of interpretive resemblance as proposed by Sequeiros (2001). The notions of *concept narrowing, concept loosening* and *echoic uses of concepts* are offered as a way of encoding what was communicated in the ST and for coping with the mismatches.

4. Concept narrowing, concept loosening and echoic uses of concepts

Sequeiros (2001) offers another perspective of addressing the effects of interpretive resemblance. He claims that the discrepancies that arise in translation can be explained if we consider the effects of interpretive resemblance between what is encoded and what is communicated. In other words, the translator chooses to encode his interpretation of the source concept (the proposition of the original) instead of what was encoded originally, thus the ST and TT will bear discrepancies. Following Wilson (1993), Sequeiros presents three ways in which what is communicated by a concept may depart from what it encodes, namely **concept narrowing**, **concept loosening** and **echoic uses of concepts**. Sequeiros explains each of them, first in a monolingual perspective and then he successfully applies them to examples in literary translations from Spanish into English. [40]

Concept narrowing, which may also be called **enrichment**, can be understood as the application of a concept that describes an extension of general entities to convey a more restricted set of entities. When uttering a certain set of domain, the speaker really means a subset of this domain. This can be illustrated by the example in (15), after Carston (1996):

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[40] Sequeiros presents three types of interpretive resemblance and argues in favor of a fourth resemblance possibility, which he names *concept widening.*

(5) He wears rabbit.

The addressee will naturally narrow down the noun *rabbit*, which encodes the meaning of *rabbit stuff*, and enrich the concept it encodes to *rabbit fur*. Thus, according to Sequeiros (2001), "the *use* of a concept picks out only those entities to which it is *relevant* to apply it" (2001, p. 198) This narrowing process is seen in the translation process, when the translator has to enrich the linguistic content of the ST in order to convey the total propositional content of the message in the TT, otherwise the translation would not be rendered successfully.

Sequeiros offers as an example of concept narrowing in translation the following translation from Spanish, taken from a short story (from Lawaetz, 1972, p. 180-1):

(6) El agua salía hirviendo, y eso compensaba la falta de sol y de aire.

The water in the tap was boiling hot, and this compensated for the lack of sunlight and fresh air.

According to Sequeiros the word at issue in the Spanish original is *aire*, which literally means *air*. The translator opted to narrow the meaning from *air* to *fresh air* since the intended communication was not that there was no air at all in the hotel room (2001, p. 200).

The process of **concept loosening** or **broadening** is opposed to the previous one and according to Carston (1996), this phenomenon has only been accounted for inside the RT framework and is mostly ignored by other views of pragmatics. It can be defined as using a concept that is less-than-literal, i.e. as sharing some logical and contextual implications with the original. This is a case that covers metaphorical talk, such as (7):

(7) That child is really rotten.

In the case of *rotten*, the semantic feature of *not sound* would not be considered, whereas the feature *misbehaving*, which pertains to its encyclopedic

property, would remain. According to Sequeiros, "loose uses of concepts can give rise to discrepancies between source and target text " (2001, p. 205)."

For an example of a legal term that is narrower in Portuguese but broader in English let us consider the case of the term *prevarication*. According to Black´s Law Dictionary *prevarication* is "the act or instance of lying or avoiding the truth; equivocation". On the other hand, in Portuguese the term *prevaricação* conveys a very narrow concept in that it describes a specific crime, i.e., "an act committed by a public officer who acts contrary to the law and to the duties of his office for his/her own interest", according to Aurélio Dictionary of Portuguese Language. When translating from English to Portuguese the translator will have to rely on a narrowing strategy so as to include only what applies to the concept in Portuguese, namely the specific meaning of *breach of trust by public officer* or *violation of duty*.

The third process in which what is communicated by a concept may depart from what it encodes is by means of **echoic use** of language. To use a concept in an echoic way is to attribute its concept to someone else, and not to commit yourself with the truth or description of some state of affairs in the world. In the following dialog adapted from Sequeiros (2001) we can see an example of echoic use:

(8) A: What did Bob say?
B: You've passed the red light.

We can interpret B's response in two different ways: either we assume that B is warning A about something or that B is reporting on what Bob had said. In the first case B is using language in a descriptive way, warning A about the traffic violation, thus describing some state of affairs. In the second case, B is using it echoically when reporting it and simply committing himself to the faithfulness of the report rather than with its truth, thus his utterance is interpretively resembling what Bob had said.

In terms of applying this notion to translation Sequeiros gives example of the use of loan words in the TT, for the target culture lacks the term in its public lexicon. For instance, the word *joint venture* is still widely used in Portuguese since the attempts to translate the expression have still been controversial. The use of the loan word in the TT will be considered as an echoic use of the concept, since it is as if it were reporting the concept from the ST.

Sequeiros' point of view is very close to Sarcevic's (1997), since she also claims that translators have to aim at a pragmatic perspective of equivalence where the propositional content of the ST must be present in the TT. We can understand from this argument that the translator must identify the interpretive resemblance between what was encoded in the ST and what was really communicated, so that the target text conveys the concept that was communicated. What follows from this is that literal translation is only possible when the propositional content of the ST interpretively resembles the propositional content of the TT. If not, adaptations must be made so as to compensate for any conceptual differences that might hinder the right interpretation of the propositional content of the ST.

As a consequence, it seems that the translator is in need of certain guidelines which may help him decide when he is to adopt a TT or ST-oriented approach in order to guarantee the same propositional content. The suggestion is the use of an algorithm that will guide the translator in his plight to choose between a direct or indirect translation of a certain passage of a text, in order to ensure an optimal relevance for the addressee. This algorithm will be called Relevance Ensuring Test:

> (9) (i)Translation should be literal (ST oriented) if and only if both languages share the
> same concepts (mental lexicon) and expressions (public lexicon).
> If (i) fails then translation should be indirect (TT oriented).
> If either (ii) or (iii) apply, test is failed:
> (ii) text would give incorrect meaning in TT.
> (iii) text fails to give meaning in TT.

In the case of situation (i), there will be no major problems thanks to the symmetries in both SL and TL, therefore the translation may be ST oriented. However, in cases (ii) and (iii) the asymmetries will result in the translation having to be TT-oriented in such a way that in (ii) the translating resource could be either by means of **concept narrowing** or **concept loosening**, whereas in (iii) it would have to be rendered by means of **echoic use** of language. As Gutt claims, both direct and indirect approaches will be instances of interlingual interpretive use since both are processed by the same principles of communication.

The next section will attempt to show that in terms of legal language very few cases present equivalence across different legal systems and due to this it is hardly ever possible to use a direct translation approach, contrary to what the literature in

legal translation recommends. The paper will mainly address instances when the translator will be faced with mismatches and will have to rely on an indirect approach in cases where (ii) or (iii) above would apply.

5. Indeterminacy in translating legal texts

> Interpreters and translators shall faithfully and accurately reproduce in the receptor language the closest natural equivalent of the source-language message, without embellishment, omission or explanation (*Code of Professional* Responsibility *for Interpreters*, 1990, p. 1).

The statement above is not necessarily incorrect; however, concerning the difficulty of determining what equivalence in translation means, it seems that the statement above is simplistic, to say the least. The notion of equivalence is problematic in translation in general since it has never been defined in a rigorous way, but it is especially problematic when this notion is required as a *sine qua non* condition for the translation of legal documents. Nonetheless, different translation scholars have defended the use of linguistic equivalents in legal translation as the only acceptable mode of translating.

According to Sarcevic (1997), legal translators cannot be expected to use natural equivalents of the target legal system that are identical with their source terms because there is "inherent incongruence of the terminology of different legal systems" (1997, p. 235). However, she claims it is perfectly legitimate to require that they use the 'closest natural equivalent' of the target legal system, in other words, the term that most closely convey the legal sense of the source term. Nonetheless, she adds that this is a very hard task.

Acknowledging that there are different legal systems obligatorily leads us to the conclusion that there are concepts in some legal system that may not have correspondence in some other system. Each country has its own legal language representing the social reality of its specific legal order. As Sarcevic puts it: " Due to different usage of terminology in common law and civil law countries as well as differences in the socioeconomic and political structures of the countries in question, the extent to which the legal terminology of one language corresponds in meaning to that of another language is restricted" (1985, p. 128).

As Sarcevic claims "it no longer suffices for translators to merely identify the closest corresponding equivalents in the source and target legal systems" (1997, p. 149). What translators really have to aim at in their search for equivalence is a pragmatic perspective of equivalence, in which the propositional content of the ST must be present in the TT. In order to do so the translator will have to compensate for any conceptual differences that might endanger uniform interpretation and application of the propositional content and this can only be attained if he identifies the propositional equivalence between what was encoded in the ST and what was really communicated, so that the target text conveys the concept that was communicated. Only then will the TT interpretively resemble the ST and thus be legally effective.

Mismatches present in the Brazilian and North American legal system may hinder the translator from conveying the relevant propositional content present in the ST to the one in the TT. Without the adequate contextual effects it may be impossible to convey this relevant propositional content in the TT. Optimal Relevance in the realm of legal translation will then take a new perspective: the translation may only be considered optimally relevant not only if it guarantees the balance between the contextual effects and processing effort but also if it guarantees the relevant legal effect. In other words, the guarantee of the intended legal effect may result in increase of contextual effects, in order to have the processing effort reduced. To illustrate this let us take the example of the legal term *prevarication*. In English, the term has a much broader concept since it encompasses any instance of lying or avoiding the truth. In Portuguese, on the other hand, the term *prevaricação* has a narrower scope: it is a specific crime committed by a public officer who violates his/her duties. Since it is a false legal cognate, the result of using *prevaricação* in Portuguese to convey the meaning of *prevarication* in English would lead to ambiguity in Portuguese and thus impose increase of processing cost, for the reader would not have the necessary contextual clues to interpret the term adequately. In this case the legal effect would not have been attained, unless the translator provides extra contextual effects so as to narrow the scope of the term to encompass just the meaning of *breach of trust by public officer*.

The claim put forward here is that in legal translation the balance between processing cost and contextual effects shall not just guarantee optimal relevance but

also the relevant legal effect. In other words, the legal translator will have been successful if he is able to **interpretively resemble the relevant legal effect**.

As examples of discrepancies in legal language in English and Portuguese are too numerous for us to create an exhaustive list, a few illustrations will be shown below to make our point and address the notions of concept loosening, concept narrowing and echoic uses of concepts to attempt to solve these asymmetries of meaning in the language of contracts.

One example of the process of loosening the concept in the TT (in the present example the ST is Brazilian Portuguese) can be seen below, where the expression *realizou um aporte à* (10) was translated for *has contributed to* (11):

(10) Antes da Data do Fechamento, a Vendedora realizou um aporte à Sociedade de todos os ativos fixos relacionados no Anexo 1.
(11) Prior to the Closing Date, the Seller has contributed to the Company all fixed assets listed in Schedule 1.

In the TT, the use of *has contributed to* conveys a much broader meaning as <to give (money, time, knowledge, assistance, etc.) along with others to a common supply, fund, etc., as for charitable purposes>. According to Black´s Law Dictionary, in a more specific sense it is used in the language of insurance law as *contribution* being <the method of distributing liabilities, in case of loss, among several insurers whose policies attach to the same risk>. The verb *to realize* in corporate law means <to convert noncash assets into cash assets>; therefore, to *realize a supply* in English carries the same propositional content as *realizar um aporte* in Portuguese. Thus, there is no reason why the translation could not have been rendered literally since there is the possibility to do so. Since the propositional meaning of *realizar um aporte* has not been conveyed in the TT, the translator has failed to communicate the full thought of the original. He has opted for loosening the concept by communicating just some but not all implications derivable from the literally encoded concept. This choice, therfore, has resulted in losses for the level of optimal relevance in the TT, since there is no need to use the concept loosening strategy. The loss of relevance here implied in loss of legal effect, for the English translation has failed to convey the total propositional content of the ST.

In the case just mentioned, the very same concept could be encoded in both cultures, yet the loosening and narrowing phenomenon is generally called for when there are partial asymmetries in concepts between the two cultures. Since there is symmetry between the concepts, the translation should have been oriented towards the ST and rendered as (12):

(12) Prior to the Closing Date, the Seller **realized a supply of all fixed assets** listed in Schedule 1 in favor of the Company.

The next example shows a case of an attempt to render the translation in the most direct way in the search of faithfulness to the ST (13-14); however, unlike the example just given in (10-12), in the following example there is asymmetry in the meaning of concepts, which calls for the use of a loose concept in the TT:

(13) Todos os pagamentos estabelecidos no presente Contrato **serão efetuados** no Brasil, em moeda brasileira.
(14) All the payments set forth in this Agreement **will be effected** in Brazil, in Brazilian currency.

The loosely used concept in (14) does not convey the propositional content of the ST, because the verb *to effect*, which means <to produce as an effect; bring about; accomplish; make happen; achieve; realize; fulfill and perform> cannot be used with the noun *payment* although it can in Portuguese. The addressee will necessarily be involved in extra processing efforts in order to infer that the meaning here is related to payment, since in English *to effect a payment* represents a collocation problem. For this reason, the attempt to render the translation literally has hindered the notion of optimal relevance. In the case here, the translation should have been oriented towards the TT for there is a lack of symmetry between the concepts in the ST and TT. Had this been done, the translation of (13) would have been rendered as (15) and would sound more idiomatic:

(15) All the payments set forth in this Agreement **will be made** in Brazil, in Brazilian currency.

As we have just seen, adjustments can be made in search of a closer interpretive resemblance to the ST, by resorting to strategies such as concept loosening and narrowing. Nevertheless, prior to employing these strategies, the translator has to determine the propositional content of the ST and attempt to communicate it in the TT. If an asymmetry between concepts in ST and TT is identified, then the translator may resort to the loosening/narrowing strategies, in which the TT will have to add or reduce information so as to achieve a successful translation and thus be optimally relevant. Only by granting optimal relevance in this perspective will the translator guarantee relevant legal effect. As has been suggested before, the translator may apply the Relevance Ensuring Test to decide when to choose between a ST orientation or TT orientation. If the test fails the translation should be TT oriented. In case the text gives incorrect meaning in the TT, it has been suggested that the translator resort to the strategy of loosening and narrowing the concepts. However, if text fails to give meaning in the TT the suggestion is to resort to an echoic use of language.

Now let us illustrate the last type of discrepancy between what is encoded and what is communicated, which involves echoic use of language. In the specific case of translation, an echoic use may be defined as the use of a loan or *calque*, when there are no public representations (words) for the concept in the TT culture. The advice given by scholars in this situation is that the translators use the loan word and, if it is not totally accepted in the TT culture, he should provide a definition together with this loan, either in a paraphrase form or in a footnote. An example of a loan can be seen in (16-17) below:

(16) The sale of advertising space on the X **Site** by means of **banners**, **pop-ups** and the like (Media Sale) shall be made by the Company.
(17) A venda de espaço publicitário do **Site** X, na forma de ***banners***, ***pop-ups***, etc. (Venda de Mídia) será feita pela Empresa.

Except for the fact that the loan words have been written in italics in (17) to specify that they are calques, there was no need to further explain the meaning since both author and addressee share the same concept. In this case, the processing cost for the addressee is balanced by the contextual effects because he is familiar with this specific jargon. However, in the next example, this is not the case:

(18) Each and every **pageview** generated through access to the site, whether made through the portal or directly through the domains, shall be accounted for both the portal and the site.

(19) Todo e qualquer *pageview* **(audiência)** gerada pelo acesso à página, seja ele feito pelo portal ou diretamente através dos domínios, será contabilizado tanto em favor do portal quanto do site.

The translator has introduced the loan word but has added a parenthetical definition to explain its meaning; otherwise, the effort in processing the information would have been too high and would thus have hindered communication. After such a parenthetical definition, the loan word can be used without further reference to its meaning.

To sum up, in the framework proposed here relevance rather than equivalence becomes the key word. Optimal relevance will assume here the new perspective of relevant legal effect, in other words, the legal translator will have reached optimal relevance if he is able to interpretively resemble the relevant legal effect of the ST in the TT.

6. Final considerations

Although it is claimed among scholars that legal translation should be rendered literally for the sake of faithfulness to the original, it has been shown that equivalence in legal terminology is a controversial issue, since there are serious conceptual differences between legal systems. Legal translation is not merely the translation into a different language but translation into a different legal system. In the case of translating contracts in English and Portuguese, if the translator were to choose terms and formulaic expressions exclusively from the legal system of the ST, he would be referring to the 'wrong' legal system. As a consequence, this would lead to confusion on the part of the reader, since he would tend to approach the text from his own frame of reference.

The present paper has attempted to show that there are a number of mismatches in terms of legal expressions and concepts when considering different legal systems, thus the search for literalness does not shed light on the process of translating legal contracts. The claim here is not that literalness is not possible, since there are cases when the translator may render the translation of a particular term in

a direct way, due to the fact that both legal systems share that very concept. However, when there is a mismatch of concepts in both languages, it has been shown that traditional techniques of translation practice do not suffice and that a different framework is called for.

It has been claimed that the principle of relevance will guarantee the success of the translation as long as the notion of optimal relevance is achieved. Optimal relevance in the present paper assumes a broader scope since it not only encompasses the cost vs. benefit relation of communication as proposed by S&W (1986, 1995) and Gutt (1991, 2000), but expands it to a status so as to grant legal effect to the translation. In this new perspective optimal relevance will be attained if the TT interpretively resembles the relevant legal effect.

An algorithm has been suggested so as to guide the translator in deciding when to choose between a ST orientation or TT orientation to ensure optimal relevance. This algorithm called Relevance Ensuring Test should be applied to define the orientation of the translation:

> (i) Translation should be literal (ST oriented) if and only if both languages share the same concepts (mental lexicon) and expressions (public lexicon).
> If (i) fails then translation should be indirect (TT oriented).
> If either (ii) or (iii) apply, test is failed:
> (ii) text would give incorrect meaning in TT.
> (iii) text fails to give meaning in TT.

In case the test fails and the translation has to be TT oriented, the translator is advised to rely on pragmatic strategies rather than solely syntactic ones to come up with the 'closest equivalence'. In order to achieve this, it has been argued that the principles of relevance theory will better account for the choice of the best technique of translating: the translator will seek a way of interpretively resembling the propositional form of the ST and opt between loosening or narrowing a concept in the case of partial sharing of concepts in the ST and TT legal systems or opt for echoic use of concepts in the case where there is no expression (public lexicon) for that concept in the TT legal system.

Because globalization has been increasingly demanding freer movement of people, goods and capital, legal translation will more and more affect all of us in one way or another. International trade and the elaboration of contract cannot function

without legal translation and the success of a business deal depends on a well-translated contract. For this reason, the concern of the present paper has been to show that the difficulties in translating contracts may be somewhat solved if these difficulties are worked out pragmatically rather than just by resorting to conventional means of translation.

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Cognitive Linguistics and Relevance Theory: perspectives for the construction of an interface theory for inferences

Heloisa Pedroso de Moraes Feltes

1 Introduction

The present text is oriented towards a reflection constructed from the following set of questions: [41]

(i)   If Relevance Theory is founded on a modular mental architecture with autonomous levels of logical-formal syntactic representations, a propositional-compositional semantics and a pragmatics of an inferential-computational nature;

(ii)   If the Principle of Relevance, as a property of cost-benefit economy, operates cognitively and communicatively bound to a model according to (i);

(iii)   If embodied Cognitive Linguistics, represented by the Neural Theory of Language, operates in the sense of dealing with cognitive structures in terms of a connectionist, parallel-distributed mind/brain architecture, with syntactic, semantic-pragmatic categories in a *continuum*;

(iv)   If Cognitive Linguistics, by means of the Neural Theory, still admits a computational level operationally and circumstantially; and

(v)   If Cognitive Linguistics, and Neural Theory in particular, operates with some kind of compositionality;

(vi)   Would it be possible to build an interface theory that, utilizing the Principle of Relevance, could contribute to the implementation of a compositional-computational level for inferences in a connectionist-based architecture?

The answer that is sought is directed towards:

(a)   Finding in the (methodological) Partial Autonomy Hypothesis by Harder (1999) elements for strengthening the descriptive adequacy of embodied Cognitive Linguistics, avoiding certain problems caused by the syntax-semantics-pragmatics continuism;

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[41] This discussion is part of the research program in Logic and Natural Language of the Graduate Program in Letters at the Pontifical Catholic University of Rio Grande do Sul – PUCRS. The text presented here is a summarized version of a more detailed argumentation that is under construction.

(b)   Raising the hypothesis of a Relevance Theory rebuilt as an interface theory based on the Principle of Relevance – a principle capable of surviving at a computational level without committing to a modular architecture.

Based on these inquiries, the aim is to provoke a discussion that surpasses the level of the theories in themselves, towards a broader metatheoretical reflection. The set of problems regarding epistemological ruptures and the incommensurability of the theories is found almost dramatically in this discussion.

The need to make connections between theories or disciplines has been pointed out by various authors. For example, Darden and Maull published in 1977 the article ***Interfields theories*** and, according to Bechtel (1988), the motivation of the authors in developing a theory called "Interfields theories" originates when researchers recognize that the phenomena in which they are interested are connected to phenomena "situated" in other disciplines, requiring, to answer their questions, the drawing of necessary connections between the phenomena. The ambition of this theory is to offer "a more useful tool for understanding cross-disciplinary inquiry". Moreover, the idea is to have as a final product "a theory that spans fields not two theories related by a derivation relation" (p. 99). As Bechtel claims: "This reflects the fact that researchers commonly are not interested in showing how one theory can be derived from another but only in the connections between the phenomena in the two fields" (p. 99).

According to Bechtel (1988), the Interfields Theory does not aim to derive a theory from another, but, first, aims to identify relations among the phenomena studied by the fields of investigation. By 'field' Darden and Maull mean

[1.1] an area of science consisting of the following elements: a central problem, a domain consisting of items taken to be facts related to that problem, general explanatory factors and goals providing expectations as to how the problem is to be solved, techniques and methods, and, sometimes, but not always, concepts, laws, and theories which are related to the problem and which attempt to realize the explanatory goals (DARDEN e MAULL, 1977, p. 44 apud BECHTEL, 1988, p. 97).

As for the evaluation of theories, which is, ultimately, our central question, Bechtel claims:

[1.2] The evaluation of theories often depends on judging the coherence of their ontological assumptions. Theories that make inconsistent ontological assumptions, or

ones that contemporary researchers find unacceptable, are criticized in much the same way as theories that make false empirical predictions. Yet, in some way empirical criteria must be applicable if ontological issues are to be settled. The link between ontological issues and empirical inquiry stems from the fact that although ontological issues often play a role in developing a particular kind of research program, the ability of such a research program to produce a progressive tradition of theorizing often affects subsequent judgments about the adequacy of the ontological position underlying the program (BECHTEL, 1988, p. 11).

What is proposed here in terms of an "interface theory" is similar to Bechtel's position regarding "reformatting a theory in a different ontological framework":

[1.3] From the collective experience of attempting to develop accounts of nature, we can evaluate whether particular ontological positions are likely to be satisfactory, or will lead to unsolvable problems. When we recognize that certain assumptions are likely to produce problems, we can anticipate them. Sometimes these very problems can be avoided by reshaping the theory within a different ontological framework. Then, in order to avoid the problems, it is useful to take seriously the ontological commitments being made and to reformulate hypotheses in a framework that will avoid the problems (BECHTEL, 1988, p. 11).

However, instead of adopting an interfields theory, the following proposal by Campos (2007), takes the first steps towards the construction of a Theory of Interfaces, for two reasons, which, from our point of view, differentiate the latter from the former approach: (a) it operates not only between disciplinary regions (external interfaces), but in intradisciplinary regions (internal interfaces); (b) it operates not only to "solve problems" that can be identified in these regionalities, but goes further, to effectively build new theories. [42]

Campos (2007) maintains that Linguistics should be inserted in an area of interdisciplinary relations, and that human language, its object, should be seen as constituting a set of properties determined by intradisciplinary relations between phonology, morphology, lexicology, syntax, semantics and pragmatics. On the other hand, the more general level of the phenomenon of language can only be captured by interdisciplinary relations, given that language, Campos claims, involves, at least, cognitive, formal, social and cultural aspects. In his words:

[1.4] Perhaps an account already organized by the spirit of approximating the systematic knowledge of this century, may clarify the inter/intradisciplinary context. We will call such an account the Theory of Interfaces. The metatheoretical interfaces are

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[42] The researcher Jorge Campos da Costa is referred to as Campos as well as Costa, respecting the references made in the respective publications.

constituted of interdisciplinary relations while the theoretical interfaces are constituted of intradisciplinary relations. Thus, Linguistics and Communication, Linguistics and Cognition and Linguistics and Computer Sciences, etc., are metatheoretically brought together – they are the interdisciplinary relations. Analogously, within Linguistics, Phonology, Morphology, Lexicology, Syntax, Semantics and Pragmatics come close – these are the intradisciplinary relations. Both are sets of interdependent relations. Interdisciplinarity and intradisciplinarity are construed in a scientifically interactive manner. It is a metascientific strategy that describes and explains how the two sets of relations work and that overcomes the apparent conflict between specific descriptions and general explanations, in the present case, at the level of language. […] (p. 346-347).

On interdisciplinary and intradisciplinary relations, Costa defends the following:

[1.5] Today, after a millennial history of reflections about language, it is inevitable to walk into interdisciplinary relations that, before anything else, lead to the inquiry of the validity of a scientific knowledge whose specificity is not compatible with that of other areas which also dispute aspects of the same object. Given what is said about language in the scope of external communication, it seems inappropriate to think that one says something inconsistent with what an investigation about language in the brain describes. Along these lines, it seems implausible that artificial languages from computer sciences be totally different from our own, since the former are inspired by the latter. Once this connection is inevitable, we must build productive interfaces (p. 348).

Based on this justification, the interface is characterized by the author:

[1.6] Here we have the core issue of the whole discussion: interface, at a serious level of interdisciplinarity, is not about purely superficial connections, in terms of information exchanges and reciprocal promises. That should be considered just the first step. The next is that of formatting common objects of investigation, whose nature emerges from the result of previous promises. Therefore, it is not about translating interdisciplinarity as some activity in which a discipline uses another one for its own interests. On the contrary, a discipline maintains its specific tasks and, when it enters into interdisciplinary relations, it becomes an interactive association of a third object, resulting from this interdisciplinary merging. This proposal we will call strong interdisciplinarity. And we call weak interdisciplinarity when there is an exchange of interests but with no such merging and no new object.

In the specific case of relations between Linguistics and Cognitive Psychology, the focus of our interest, the author clarifies:

[1.7] Parallel to these interdisciplinary relations, we necessarily pose the question of intradisciplinary connections. If a discipline is a set of sub-theories, how are such sub-disciplines considered in the program of investigation?
To answer it even in a generic way, let us suppose an interdisciplinary research of Linguistics with Cognitive Psychology.
In this case, Syntax, Semantics and Pragmatics, as branches of Linguistics, should be related among themselves and, at the same time, to the sub-theories of Cognitive

Psychology, which investigate, for example, the language module in the brain. The theories are interdisciplinarily linked and the sub-theories of both disciplines, intradisciplinarily linked. In this context, it seems as though the interface investigations become truly indispensable. Indeed; to ignore the interdisciplinary relations is to go against the contemporary tendencies of bridging knowledge, and to ignore the intradisciplinary relations is to do blind specialization. Evidently, theories that have formalisms adequate to the interfaces become privileged. In an era in which the brain and computation are two of the most powerful interdisciplinary and intradisciplinary constructions, the Language Sciences are at the center of scientific activities, especially because language seems to be the most privileged access to the inner core of the mentioned constructions (p. 348-349).

Various mistakes are generated when certain phenomena situated at different levels – in this case, for example, at logical, syntactic, semantic, pragmatic or discursive levels – or in different domains – in this case, for example, linguistic, cognitive and sociocultural – or even in fields of differentiated application, are analyzed without an adequate metatheoretical investigation. Costa (2004) meticulously demonstrates the need for a distinction between *type-fragments* and *token-fragments*, in the treatment of the notion of "contexts". Without a doubt, what Costa proposes is the need for different ontologies (constructs at the metatheoretical level which are assumed as being the case in a given perspective of analysis) for different approaches, each with its own set of strengths (power) and weaknesses (restrictions). Costa (2006) demonstrates, with a wealth of examples, in turn, the treatment of the connective 'And/&' (and 'OR/？'), presenting their logical-linguistic properties in their inferential function in formal and informal arguments (a) at the external interface between Linguistics and Propositional Logic, and (b) at the internal interface between Semantics and Pragmatics. Costa formulates a series of extremely relevant questions, but we highlight some considerations relative to the topic of discussion in his article which are useful for our own reflection in a broadened view. At one point, he claims:

(i) It is possible and desirable to build a semantic/classical logic interface under the penalty of having to assume that natural language connectives, in the case of 'AND', do not have a truth-functional basis, which would mean radically and implausibly severing meaning from truth;

(ii) The arguments of a certain antiformalist tradition present poorly established conflicts between 'AND' and '&', improperly mixing the semantic/logic interface with the pragmatic/communication interface;

(iii) Until there is proof to the contrary, natural language connectives differ from their logical counterparts only by the fact that they are situated at the two recently cited interfaces, each one different in nature. The former has at its core the inferential process in monotonic arguments – in line with scientific

languages – while the latter has as its core communicative discourse – in line with daily language. In this perspective, a semantic/pragmatic interface can be constructed with logic, and a semantic/pragmatic interface with communication. In the first hypothesis, the interests are formal; in the second, they are communicative. Both connections are relevant for the theory of meaning in natural language and the heavy burden is on those who try to use the latter as an argument against building the first, justifying the (theoretical?) desire to empty the semantics/pragmatics of natural language of a minimal logical base as a support for rationality and the very expansion of meaning, which is rich, but for some reason, non-chaotic (COSTA, 2006, p. 282. With adaptations).

From this citation, some fundamental steps are highlighted for a study "at the interfaces":

(a)   construction of interfaces;
(b)   evaluation of arguments that mix interfaces; and
(c)   treatment of phenomena created according to the purposes of each domain.

The present reflection does not intend to deal with such exact phenomena or cases. Highly specific cases demonstrate, through examples, the potential of a theory based on the construction of interfaces with respect to descriptive-explanatory consistency and adequacy; at the same time, they reveal how complex the undertaking of creating interfaces between two theories as models can be, since the external interfaces are more extensive. In the case in question, based on the models of Relevance Theory and Cognitive Linguistics/Neural Theory, we are faced with more radical epistemo-methodological incompatibilities. A new ontology, on the metatheoretical level of a possible Interface Theory, would have to account for:

(a)   ontologies originating from commitments, on the one hand, with some version of the modularity of the mind thesis; and, on the other, with some version of connectionism;
(b)   ontologies originating, on the one hand, from autonomous levels for logic, syntax, semantics and pragmatics; and, on the other, from non-autonomous levels and in *continuum*;
(c)   ontologies originating, on the one hand, from a strongly computational model; and, on the other, from a computational component more connected to its operational value than with its "empirical reality";
(d)   ontologies originating, on the one hand, from a strongly compositional model for logic, syntax and semantics; and, on the other, from a compositional model in which syntax, semantics and pragmatics remain interwoven.

In this sense, certain theses of Relevance Theory would acquire, hypothetically, an extraordinary metatheoretical value, in the sense of establishing the very "perspective" of the approach: (i) what is ostensive, for the analyst, according to his purposes?; (ii) what context is created based on the theoretical-methodological assumptions classified as relevant? (iii) in terms of optimal relevance, what can be derived, with the maximization of cost-benefit, in ontological terms (at the metatheoretical level), in the sense of guaranteeing an expressive and relevant number of implications with a minimum number of constructs and operations?; (iv) what are the procedures that should be established to verify the plausibility of the derived implications?

These speculative inquiries make a double role for Relevance Theory evident: the general role that certain principles acquire as part of the "interfacing" operation, in a way that applies to Philosophy of Science itself; and the role of being an object of analysis, like one of the theoretical models at the interface (and of the interface).

2 Relevance Theory and mental functionalism [43]

Relevance Theory is built on a version of mental functionalism, specifically about a classical architecture of cognition, constituted of encapsulated modules and a central processor, in the terms of what Jerry A. Fodor has been proposing since *Modularity of the Mind* (1983). [44] We assume here that this commitment affects the entire program of future investigation of Dan Sperber and Deirdre Wilson in the sense of making the theory conceptually more precise and consistent, as well as empirically strengthened. Relevance Theory is a theoretical model that is applied to the inferential processes of human communication, but is, above all, a theory that proposes a way in which the human mind works. In this sense, its hypotheses are primordially related to a model of the mind and, from there on, a model about how we cognitively and communicatively derive inferences based on determined utterances.

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[43] A synthesis of theses is presented here of Relevance Theory which serve strictly a localized discussion. Without a doubt, based on a more global view of the theory it would be possible to raise various other points (theses, hypotheses or arguments) in which we could anchor, more extensively and profoundly, our reflections.

[44] Mental functionalism is reviewed by Feltes (1998, 2003).

This commitment with mental functionalism is found explicit in the following passages:

[2.1] First, we implicitly assumed that the process of inferential comprehension is non-demonstrative: even under the best of circumstances, we argued, communication may fail […].
"Second, […] we assumed that the process of inferential comprehension is 'global' as opposed to 'local': where a local process (e. g. deductive reasoning from fixed premises or auditory perception) is either context-free or sensitive only to contextual information from some set domain, and a global process (e. g. empirical scientific reasoning) has free access to all conceptual information in memory (1995, p. 65).

[2.2] A distinction between 'central' processes and 'input', 'perceptual' or 'peripheral' processes is assumed in much of current cognitive psychology. Roughly speaking, input processes are relatively specialized decoding process, whereas central processes are relatively unspecialized inferential processes. […] In particular, we will argue that the inferential tier of verbal comprehension involves the application of central, unspecialized inference processes to the output of specialised, non-inferential linguistic processes. It seems, then, that our undertaking – and the whole pragmatic enterprise if our understanding of it is correct – should fall (and we use the word advisedly) under Fodor's First Law of the Nonexistence of Cognitive Science, which goes, 'the more global… a cognitive process is, the less anybody understands it' (Fodor 1983:107) (1995, p. 65-66).

[2.3] Following Fodor (1983), we see the mind as a variety of specialized systems, each with its own method of representation and computation. These systems are of two broad types. On the one hand there are the input systems, which process visual, auditory, linguistic and other perceptual information. On the other hand there are the central systems, which integrate information derived from the various input systems and from memory, and perform inferential tasks.
We assume that each input system has its own method of representation and computation, and can process only information in the appropriate representational format. […] One of the functions of the input systems is to transform 'lower level' sensory representations into 'higher level' conceptual representations, which are all in the same format regardless the sensory modality from which they derive. It is because they operate over such modality-neutral conceptual representation that the central processes can integrate and compare information derived from the various input systems and from memory (1995, p. 71-72).

In the period in which the second edition of ***Relevance*** was published, the debate on massive modularity was already taking place. The massive modularity thesis is that in which human cognition consists of, as a whole, autonomous computational mechanisms, specific to each domain. Sperber (1994) argues in favor of the modularity of thought or massive modularity. For Sperber, "freedom of thought":

[2.4] implies that one particular modular picture cannot be right: Imagine a single layer of a few large mutually unconnected modules; then an information treated by one module won't find its way to another. If, on the other hand, the output of one conceptual module can serve as input to another one, modules can each be

informationally encapsulated while chains of inference can take a conceptual premise from one module to the next and therefore integrate the contribution of each in some final conclusion (p. 49).

In this sense, the modularity of Fodor (1983) is extended to inside the central processes.

Fodor (2000), however, argues that the massive modularity thesis is a priori incoherent. He localizes two problems: (a) the "input problem": a modular system assumes non-modular processes; and the "really real input problem": at an empirical level, it is necessary to know how the mind responds selectively and rationally to external stimuli, which would be possible to the extent that one could detect "psychophysically that mechanisms of perceptual analysis are prima facie good candidates for modularity" (p. 78). [45]

In other scenarios of debates, the treatment of the modularity thesis has also been the object of philosophical discussions and experimental research. For example: along more general lines, it is necessary, according to Bishof (1997), to distinguish 'locality' from 'modularity'. According to the author, these terms are utilized interchangeably; however, he claims, though related, they imply different things. In the first place, modularity is an abstract attribute of a system (e.g. a mechanism of information processing), which says how information is processed and is related to a topological structure: "In the case of brain organization, modularity tells us something about the connectivity; that is, there is strong interconnectivity within modules and only weak connectivity between modules" (p. 516). On the other hand, the locality says how the information processing is physically done and is related to a geometric structure: "locality implies that nearby locations compute similar functions (or contribute in computing the same function)" (p. 516).

Based on this distinction, the author defends a "weak" modularity for the parallel-distributed neural models (PDP) or computational neural networks (CNN),

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[45] See the discussion by Collins (2005) on the argumentation by Fodor (2000) against massive modularity. Collins argues that: "[…] there is no *a priori* input problem for *massive modularity*." And announces the plan of his argumentation: "Fodor's dilemma will be diagnosed as resting upon an unsupported claim about the relationship between the concepts of a given module's domain (the area it can output answers about) and the representations that may potentially excite or activate the module. There does remain, however, a genuine – *a posteriori*, empirical – input problem which Fodor highlights, but this problem does not selectively apply to massive modularity – it is a problem for everyone. Thus, we shall agree with Fodor that there are a number of outstanding deep problems to do with massive modularity; we shall disagree in thinking that these problems are solely empirical, not *a priori*." (p. 2).

which does not imply encapsulated information "which is not biologically plausible" (p. 156). Para Bishof, there are strong arguments in favor of locality, but not necessarily in favor of modularity:

> [2.5] for example, most connections are of short range and connect to nearby neurons. The minimum cost principle […] implies that in order to minimize connection length and maximize transmission time similar functions should be computed by neurons adjacent to each other. Following this line of argument we can say that if the cognitive architecture is modular, then it has to be local. Of course the reverse is not necessarily true. (p. 516).

The author claims that there has been a recent change in the area of computational neural networks: from unstructured network topologies to more structured networks (modular and hierarchical). The main reason for this change comes from computational arguments: "faster training, better scaling behavior, improved generalization ability, and robustness and fault tolerance". (p. 516) The improvement of these modular/hierarchical network capacities can be attributed to the reduction of "(spatial or temporal) crosstalk" – conflicting information in the network. Modularity would be a way, according to the author, of overcoming this problem. However, here it is not about a modularity that implies informational encapsulating, like the classic proposal of Fodor (1983). Bishof poses the following question:

> [2.6] What does the hypothesis of information encapsulation imply for brains and computational neural networks? Its key component is that the product of computation within one module only becomes available when the computation is finished. Imagine a neuron (or a set of neurons) that communicates with other modules. To realize the previous requirement this neuron cannot fire during the processing of the module; therefore it cannot participate in the computation of the module. Further, some additional neural machinery (e.g., inhibitory interneurons) is necessary to hinder this neuron from firing. Only when the computation inside the module is finished is the neuron allowed to fire. From this argument one can see that information encapsulation is an unrealistic assumption for brains because resources (neurons) are wasted and the minimum cost principle is violated (p. 516).

Upon placing these exemplars of debates in perspective, it is verified that the question of modularity is not resolved even within Relevance Theory, and that, consequently, the model of 1995 is, still, a proposal under construction.

However, the core of Relevance Theory remains intact: it is founded on the Principle of Relevance, which, in the 1995 version, is presented in the following format:

[2.7] Relevance to an individual (classificatory)
An assumption is relevant to an individual at a given time if and only if it has some positive cognitive effect in one or more of the contexts accessible to him at that time.
Relevance to an individual (comparative)
Extent condition 1: An assumption is relevant to an individual to the extent that the positive cognitive effects achieved when it is optimally processed are large.
Extent condition 2: An assumption is relevant to an individual to the extent that effort required to achieve these positive cognitive effects is small. (p. 265-266).

The theses that sustain the Principle of Relevance are of a cognitive nature:

[2.8] Human cognition tends to be geared to the maximization of relevance" (p. 260)

and of a communicational nature, known as the Communicative Principle of Relevance or just 'Principle of Relevance':

[2.9] Every act of ostensive communication communicates a presumption of its own optimal relevance" (p. 260).

Relevance, in turn, is conceived as a property of cognitive processes of input:

[2.10] Relevance is not a commodity; it is a property. What is it a property of? By our definition, it is a property of inputs to cognitive processes. It can be a property of stimuli, for example, which are inputs to perceptual processes, or of assumptions, which are inputs to inferential processes. Stimuli, and more generally phenomena, are found in the environment external to the organism; assumptions, which are the output of cognitive process of perception, recall, imagination or inference, are internal to the organism. When we claim that human cognition tends to be geared to the maximization of relevance, we mean that cognitive resources tend to be allocated to the processing of the most relevant inputs available, whether from internal or external sources. In other words, human cognition tends to be geared to the maximization of the cumulative relevance of the inputs it processes. It does this not by pursuing a long-term policy based on computation of the cumulative relevance achieved over time, but by arbitrations, aimed at incremental gains, between simultaneously available inputs competing for immediately available resources." (1995, p. 261)

The inferential derivation process, according to Relevance Theory, is summarized by the authors themselves as follows:

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[2.11] We regard verbal communication, then, as involving two types of communication processes: one based on coding and decoding, the other on ostension and inferences. The coded communication process is not autonomous: it is subservient to the inferential process. The inferential process is autonomous: it functions in essentially the same way whether or not combined with coded communication […]. The coded communication is of course linguistic: acoustic (or graphic) signals are used to communicate semantic representations. The semantic representations recovered by decoding are useful only as a source of hypotheses and evidence for the second communication process, the inferential one. Inferential communication involves the application, not of special-purpose decoding rules, but of general-purpose inference rules, which apply to any conceptually represented information." (1995, p. 175-176).

So that the cognitive mechanisms can operate in the sense of deriving inferences deductively, another hypothesis is essential: the conceptual representations should have logical properties:

[2.12] Conceptual representations must have logical properties: they must be capable of implying or contradicting one another, and of undergoing deductive rules. However, not all properties of a conceptual representation are logical properties. A conceptual representation is both a mental state and a brain state. As a mental state, it can have such non-logical properties as being happy or sad. As a brain state, it can have such non-logical properties as being located in a certain brain at a certain time for a certain duration. (1995, p. 72)

[2.13] Let us abstract away from all these non-logical properties, and call the remaining logical properties of a conceptual representation its logical form. It is in virtue of its logical form that a conceptual representation is involved in logical processes and enters into relations such as contradiction or implication with other conceptual representations. […] In essence we will argue that for a representation to be amenable to logical processing, all that is necessary is for it to be well formed, whereas to be capable of being true or false, it must also be semantically complete: that is, it must represent a state of affairs, in a possible or actual world, whose existence would make it true. We take it that as incomplete conceptual structure can nevertheless be well formed, and can undergo logical processing.
"Let us say that a logical form is propositional if it is semantically complete and therefore capable of being true or false, and non-propositional otherwise. (p. 72)

[2.14] The deductive processing of information has much of the automatic, unconscious, reflex quality of linguistic decoding and other input processes. What distinguishes the deductive system from the input systems is that it applies to conceptual rather than to perceptual representations: that is, to representations with a logical or propositional form. What distinguishes it from other central systems is the type of computation it performs. (p. 83).

From this hypothesis on the logical properties of conceptual representations, derives a broader hypothesis on "what is language":

[2.15] In the broadest sense, a language is a set of well-formed formulas, a set of permissible combinations of items from some vocabulary, generated by a grammar. In a narrower sense, a language is a set of semantically interpreted well-formed formulas. A formula is semantically interpreted by being put into systematic correspondence with other objects: for example, with the formulas of another language, with states of the user of the language, or with possible states of the world. A language in this narrower sense – the one we will use – is a grammar-governed representational system. (1995, p. 172-173)

[2.16] Language is not a necessary medium for communication: non-coded communication exists. Nor is it necessarily a medium for communication: languages exist which are not used for communication. However, language is a necessary attribute of communicating devices. Two devices capable of communicating with each other must also be capable of internally representing the information communicated, and must therefore have an internal language. In the case of ostensive-inferential communication, this internal language must be rich enough to represent the intentions of other organisms, and to allow for complex inferential processes. (p. 174)

Moreover, other more general hypotheses about human cognition are found in passages such as:

[2.17] We assume, then, that cognitive mechanism have evolved in small incremental steps, mostly consisting in the selection of a variant that performed better at the time than other variants that were around. There are many ways in which one variant of a biological mechanism can perform better than others. There may be qualitative difference in the type of benefits that different variants produce; or the difference may be quantitative, as when the same benefit can be achieved to a greater degree, or at a lower energy cost. (1995, p. 261-262)

[2.18] We assume too, that human cognition is the joint product of many specialized mechanisms […]. Each mechanism contributes its qualitatively different benefits, in the form of cognitive effects. For each, there has been pressure towards cost-benefits optimization.
All these cognitive mechanisms taken together constitute the cognitive system. The efficiency of the cognitive system as a whole depends on how its various sub-mechanisms are articulate with one another, and how the resources of the system are shared among them. Articulation and allocation of resources must be such as to maximise the likelihood that the most relevant available information will be processed in the most relevant way. (1995, p. 262).

3 Cognitive Linguistics and the embodied mind

Cognitive Linguistics, differently from Relevance Theory, does not accept the Modularity Thesis, or a classical symbolic architecture. [46] This approach can be attested by Langacker (1999), according to the following citations:

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[46] See Feltes (2007) for a review on classical architectures and on the embodied mind.

[3.1] [L]anguage is not a discrete and separate psychological entity, and […] a "linguistic system" is neither static nor clearly delimited. (p. 21)

[3.2] What we posit for language must also be psychologically plausible. While linguistic constructs and descriptions have to be posited and justified on linguistic grounds, they ought to be broadly compatible with what is known from psychological studies, and linguistic claims must at some point be confronted with actual psychological evidence. Linguistic descriptions should not be shielded from such findings by a priori assertions of strict modularity, encapsulation, competence versus performance, and so forth (p. 15).

The embodiment of the mental is manifested, on the other hand, based on the defense that

[3.3] Such factors – anatomical, physiological, perceptual, neurological, genetic – determine and constrain the range of our abilities and the quality of our mental experience. Most obviously, they define a range of possible speech sounds and the parameters for their characterization. They likewise define and structure conceptual space (the base for meaning and grammar). What we posit for language ought to be plausible from the biological perspective (LANGACKER, 1999, p. 15)

Lakoff e Johnson (1999), in turn, characterizes human reason in the following terms:

[3.4] Reason is not disembodied, as the tradition has largely held, but arises from the nature of our brains, bodies, and bodily experience. This is not just the innocuous and obvious claim that we need a body to reason; rather, it is the striking claim that the very structure of reason itself comes from the details of our embodiment. The same neural and cognitive mechanisms that allow us to perceive and move around also create our conceptual systems and modes of reason. Thus, to understand reason we must understand the details of our visual system, our motor system, and the general mechanisms of neural binding. In summary, reason is not, in any way, a transcendent feature of the universe or of disembodied mind. Instead, it is shaped crucially by the peculiarities of our human bodies, by the remarkable details of the neural structure of our brains, and by the specifics of our everyday functioning in the world.
Reason is evolutionary, in that abstract reason builds on and makes use of forms of perceptual and motor inference present in "lower" animals. The result is a Darwinism: Reason, even in its most abstract form, makes use of, rather than transcends, our animal nature. The discovery that reason in evolutionary utterly changes our relation to other animals and changes our conception of human being as uniquely rational. Reason is thus not an essence that separates us from other animals; rather it places us on a continuum with them.
Reason is not "universal" in the transcendent sense; that is not part of the structure of the universe. It is universal, however, in that it is a capacity shared universally by all human beings. What allow it to be shared are the commonalities that exist in the way our minds are embodied.
Reason is not completely conscious, but mostly unconscious.
Reason is not purely literal, but largely metaphorical and imaginative.
Reason is not dispassionate, but emotionally engaged (p. 4).

Cognitive Linguistics, as Sweetser (1999) claims, "has radically changed our understanding of semantics", such that what has emerged is "a semantics which is attempting to be cognitively realistic" (p. 133). It is in this context "of what is cognitively realistic" that compositionality in semantics has been strongly discussed. The author affirms:

[3.5] I do not know any linguists who see semantics as intrinsically non-compositional, although there may possibly be philosophers or literary critics who hold such a view. Linguists all agree, and so does the average lay person, that the reason The cat stole the hat means something different from The cat ate the hat is that stole and ate make different contributions to the interpretation of the whole, and that those contributions are systematically related to the usual conventional ranges of interpretations of eat and steal in other possible uses by English speakers (p. 133).

However, Sweetser goes on with her exposition more critically:

[3.6] We may disagree about major related issues: for example, the extent to which idioms are processed compositionally [...]; the extent to which it is important to talk about meanings of syntactic constructions; the relationship between "semantic" and "pragmatic" components of a linguistically conveyed message; the relationship between linguistic interpretation and general reasoning processes of context-based inference; or the assessment of what proportion of everyday utterance-content is produced and processed by accessing already-present routines, as opposed to by brand-new composition of elements (p. 122).

And she concludes: "But the basic fact of compositionality remains, and remains also for more apparently complicated cases than those involving cats, hats, and mats." (p. 133).

Some examples mentioned by the author are taken up here.

(1) *I put the pencil on the desk*.
(2) *I put the pencil in the pencil-sharpener*.

Upon processing (1), it is understood that the entire pencil was placed on the desk; in (2), on the other hand, it is understood that only the writing end of the pencil was inserted into the sharpener. The understanding of (2) depends on what Langacker (1991) denominated the contextually relevant "active zone", which is taken as a referent of the phrase *the pencil*. This means that we are referring to parts

of an object or referent, such that the phrase *the pencil* makes different contributions to the meaning of the sentence as a whole.

Example (3), below, brings even more complexity to the interpretation process. It deals with an adjective phrase (A) which is adjoined to a noun (N):

(3) A-N Phrase: *Intellectual sleeping pills*

The phrase referred to in (3) would be utilized to make reference to sermons. What we have in this example is a case of metaphoric blending. *Intellectual* is an adjective which specifies a series of mental spaces, structured by frames. Briefly, there is a generic space (not specified by the author), an input space 1 for [*sleeping pills*-NOUN] as the physical domain; an input space 2 for [*sermons*] as the intellectual domain [ADJECTIVE]; and a blending space for [*sermons as sleeping pills*]. It can be said that the listener would interpret the phrase in (3) by mixing the space of sleeping pills with the space that involves an intellectual activity, by creating a metaphoric blend in which *pills*, mapped from sermon, would cause physical inactivity or unawareness caused by the sermon. [47] Being a unidirectional mapping, in which

[3.7] *sleeping pill* can refer to a sermon (as construed via this unidirectional blending process), but *sermon* would be unlikely to refer to a sleeping pill, via this set of metaphorical mappings. This means that, what the right contextual help from space-blending, an accessible conceptual active zone of *sleeping pill* is sermons, an entity indeed appropriately elaborated by *intellectual* (SWEETSER, 1999, p. 146).

The author concludes that this type of treatment for the Adjective-Noun phrase is, at the same time, unified, compositional and sufficiently flexible to account for real data. And she says:

[3.8] Without invoking mechanisms such as metaphor or frames, we would either have to give up on the claim that there is any general principles about combining the semantics of adjectives and nouns in a modification construction, or give up on the compositionality itself (p. 155).

Sweetser cautions:

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[47] This is merely one way of understanding this blend, since it is possible to treat it in terms of a metonymy-metaphor *continuum*, which would lead to a much more complex blend.

[3.9] If formal semantics can claim to be heir of the generative tradition in placing a high value on minimal theoretical apparatus, it cannot (on actual inspection of the data) simultaneously claim to maintain a principle of regular semantic compositionality. While there are plenty of non-compositional, or incompletely compositionality, aspects to linguist semantics – no linguist would want to treat all idioms as fully compositional – nonetheless compositionality is a basic and pervasive aspect of linguistic semantics, and cannot be adequately described without adequate description of the categories to be combined (p. 155).

[3.10] A genuinely plausible theory of semantic compositionality cannot be based on a few cases which logicians find convenient, with the assumption that it can be extended some day to handle the rest of the data. It has to deal with the immense combinatorial complexity of everyday constructions in real languages, as used by speakers engaged in the linguistic construction of mental space structure within a rich context. […] This doesn't mean our theory has to be uneconomical. It will surely be a richer and more complex theory of semantic categorization and combination than many formal semantic ones, but this added complexity will involve cognitive structures and processes which are necessarily part of any plausible theory of cognition in general: fuzzy and prototype-structured categorization, salient instances, metaphorical and metonymic links, frames, active zones, roles and values, mental spaces and so on. There is of course no global parsimony to the exclusion of these factors from linguistic semantics, if they are real aspects of the cognition underlying language. Our theory can certainly still follow Occam's razor, in the sense that we should not posit unmotivated structure for its own sake, but rather do so as needed to account data (p. 155).

[3.11] […] it seems to me almost impossible to construct an adequate theory of meaning which is simultaneously objectivist and regularly compositional. Less flexible meaning units will simply not produce the range of actual compositional meanings, by regular composition (p. 156).

Sweetser's ideas represent, here, prototypically what researchers in Cognitive Linguistics have been discussing about compositionality. Cases like:

(4) Red Apple

(5) Red Ball

serve to demonstrate, for example, that there are cases in which the active zone can already be a conventional construction with a predefinition of overlapping meanings of nouns and adjectives: in (4) it deals with the exterior of the fruit, the color of its peel; or in (5) of a zone to be built by context: the color of the ball, a red stripe on the surface of the ball (which has a background of another color) or even to refer metonymically to a ball that belongs to a team whose uniform is red. In (5) blending operations are necessary.

Moreover, Sweetser's discussion clearly reveals the problems created between the intradisciplinary and interdisciplinary areas. Specifically, a compositionality whose commitment is found in "real data", in how certain phrases are understood cognitively, and a compositionality whose commitments are found in another context of discussions. Therefore, ontologically, it can be said of phrases and of phrasal composition, but the ontologies are situated in various metatheoretical universes that deal with different "problems". To extend compositionality, in one case, would come up against how, in natural language, meanings are understood, given a certain psychophysiological and cognitive reality, in real situations of (neural) processing; in another case, it would mean accounting for a large quantity of phenomena, but without such an empirical commitment being involved. From this derives that, whatever the treatment, there are various fields of application of the models and, therefore, not mutually exclusive per se. On the other hand, to admit a mere complementariness would mean running into the misconceptions that Costa (2004, 2006) deals with.

3.1 Processing neural information

The Neural Theory assumed here is developed by Feldman (2006) as a model about which one could initiate a discussion on how inferential processes, which indubitably have a place in the way our mental/cerebral functions, are treated as a non-modular and not strictly "computational-symbolic" perspective, following, instead of this, a version of connectionism. Here are some central theses of this approach:

[3.1.1]The brain is constantly active, computing inferences, predictions, and actions with each evolving situation. There has been enormous evolutionary pressure toward brains that can respond fast and effectively in complex situations. For example, a common housefly can sense changes in air currents and quickly shift directions, which is why fly swatters have holes (2006, p. 5).

[3.1.2] Because language is complex, linguists have traditionally broken its study artificially into "levels" or "modules" given names such as phonetics, phonology, morphology, syntax, the lexicon, semantics, discourse, and pragmatics. Most linguists specialize in the study of just one level or at the border between two adjacent subfields. Such focused studies have told a great deal about language and are still the norm.
However, real language is embodied, integrated, and multimodal. When your doctor asks you to lift your leg, your understanding involves a rich interaction among many neural systems. There is systematic structure to how all these components fit together

to constitute language. The rule or patterns of language are called constructions, and these integrate different facets of language – for example, phonology, pragmatics, semantics, and syntax. A request construction might specify a grammatical form an intonation pattern, pragmatic constraints, and the intended meaning. When your doctor asks you to lift your leg, all of these features are involved (p. 9).

[3.1.3] The macroscopic properties of mind and language arise […] from the microscopic properties of neurons, and the mechanisms of neural signaling, neural adaptation, and neural growth (p. 49).

[3.1.4] [M]ental connections are active neural connections. There is every reason to believe that ideas, concepts, and the like are represented by neural activity, The exact circuitry involved is uncertain, but it suffices for us to assume that some stable connection pattern is associated with each word, concept, schema, and so on (p. 91).

This approach is not as radical as it may seem at first sight when keeping in mind that Cognitive Linguistics has, in several of its perspectives, opposed the idea of "computation". The Neural Theory, which has been accepted by Lakoff and Johnson (1999) as well, establishes a computational level based on an "operational" criterion:

[3.1.5] A description of any mental ability [...] must be reducible to the connectionist level and thus to the brain […]. But the connectionist level is still messy, so we also need a computational level, providing a fairly traditional way to describing structures in terms of features-value pairs (FELDMAN, 2006, p. 288).

Based on this, Feldman argues:

[3.1.6] Neuroscientists speak of neurons as processing information and communicating by sending and receiving signals. They also talk of neurons as performing computations. In fact, neural computation has become the standard way to thinking about know the brain works. But neurons are just cells, tiny biological entities that are alive and function by means of chemistry. Why can we say that neurons process information and perform computation? (2006, p. 16).

[3.1.7] But before we turn to neural information processing, we need to understand more about information processing in general and its use in computational modeling. Computer programs are the primary tools in formulating and testing theories of brain function and behavior (2006, p. 20).

[3.1.8] - Understanding language about perceiving and moving involves much of the same neural circuitry as do perceiving and moving themselves.
- Neural computation links our experience of hearing and speaking to the experience of perception, motion, and imagination.
- So we need to know more about neural computation to understand language. (2006, p. 5)

This computational level, however, comes up against fundamental theses of (embodied) Cognitive Linguistics, like the semantic-pragmatic *continuum*:

[3.1.9] The embodied neural theory of language provides an alternative story on multiple Word meaning that is much simpler and seems intuitively plausible. Each word can activate alternative meaning subnetworks […]. These subnetworks are themselves linked to other circuits representing the semantics of words and frames that are active in the current context. The standard neural best-fit matching mechanism activates additional related concepts as part of choosing the most appropriate meaning. The meaning of the relevant circuitry: contextual, immediate, and associated (2006, p. 287).

For the sake of exemplification, this computational level makes use, for the study of grammar, of ECG – *Embodied Construction Grammar.* [48] An (adapted) example can be provided to demonstrate the formal nature of this computational design. In (6), there is a verb and its construction; in (7), the design of a clause that expresses predication, in a structure with the constituents that describe directed movement:

(6)
Lexical construction: Strolled
Subcase of: Verb of Movement, Past Perfective Regular
Form: "stroll+ed"
Meaning: WalkX [executive scheme]
Parameter roles:

Velocity	?	slow
Tense	?	past
Aspect	?	dynamic

(7)
Construction: Self-directed Movement
Subcase of: Movement clause
Constituents:
movA: NP
actV: Verb of movement
locPP: spatial PP
Form: move < action < direction
Meaning: Scheme of self-movement

move	?	movA
action	?	actV
direction	?	locPP

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[48]   ECG, citing Feldman, was initiated by Bergen and Chang (2005). Here "construction" is the basic unit of this grammar – always a pair of linguistic form and meaning. And the embodied part of this construction regards the fact that "the semantic part of a construction is composed of various types of embodied schemes – image, dynamic force or action schemes" (p. 289).

In (7) there is the semantic specification (SemSpec) that originates from, for example: "Harry strolled to Berkeley."

So, by admitting that some computational level is still necessary, we find ourselves in an opportune exploratory position, for the Neural Theory as well as for the possibilities of creating an interface between ECG and Relevance Theory. Through (6) and (7) it is possible to glimpse a tenuous methodological path – yet to be explored – to broaden the discussion on the hypothesis of partial autonomy.

According to Feldman (2006) concepts like RED and expressions like "stone bridge" and "stone lion" evidence that "semantic theory needs rules to combine meanings that do not depend on grammatical form which are used in a given case" (p. 285). He takes the example

(8) Red fire engine

In (8), Feldman affirms, there is a small puzzle: what is the meaning of 'red' that is somehow combined with 'fire engine' in the naming of a particular shade? In this case, the shade is not the same as that referred to in, for example: "red face", "red sky" or "red hair". By the "mechanisms" of Neural Theory, the shade that would be chosen is that which provides the stronger neural response. The justification is that:

> [3.1.10] From our embodied neural perspective, the context-dependent meaning of "red" is natural; the activation of two words together causes the brain's neural best-fit mechanism to settle on the most coherent overall pattern involving alternative concepts nameable by those words in the current context (p. 286; emphasis mine).

This citation resonates with the citations [3.6], [3.7], [3.8], [3.10] and [3.11] relative to the discussion put forth by Sweetser (1999). The same applies to the discussion of example (9) below.

In

(9) Red Guard

there is a case of conceptual integration or blending, that becomes an item of the vocabulary by evoking a complex frame only weakly related to the original meanings of each element, in the case of 'red' and 'Guard'. Feldman probably refers to the "Red Guard" of the Bolshevik Revolution (1917), a term generated from "Red Army". The reference is about the colors of the communist movement. Other movements in Finland, Hungary and Bavaria utilized this designation. The expression, therefore, results in a complex blend, probably with metonymic processes. In determined contexts, this expression would demand complex inferential processes for its more relevant interpretation.

In (10) and (11):

(10) Stone lion.
(11) Stone bridge

the examples raise a situation that seems more debatable.

For Feldman, in these cases, (10) and (11), the adjectives would deny essential features of the nouns that they modify, such as *artificial, fake*, *imitation* and *toy*, which would involve the intentions of people who use the object (*bridge* and *lion*). This way, the author affirms, "additional modifiers operate this way for some objects, but not for others" (p. 286). What he means to say is that *stone lion* (10) is not a lion, able to be characterized as *imitation* or *toy*, and that *stone bridge* (11), on the other hand, is still a bridge. From this results the question of how the meanings are combined. At first, Feldman takes up the widely accepted theory that words have multiple fixed meanings: *word senses*. In this approach, all meanings reside in words, and the rules of grammar only specify which combinations of words are permitted – in a perspective of syntactic autonomy. That is:

> [3.1.11] According to this view, the meaning of any combination of words can be determined by first detecting what meaning of each word is involved, and then use the appropriate rule for each word meaning. Like this. We understand stone lion as something that refers to something made of stone in the form of a lion (p. 286).

Disputing this approach, Feldman raises some questions of contextual use related to example (10) that lead to a potentially infinite number of word senses that could become necessary:

(a)   Should there be for each animal name another sense that covers objects in the form of a lion?

(b)   And what to say about other animal attributes used in a usual manner in a "non literal" sense: size, habitat, aggressiveness, strength?

(c)   Should there also be separate word senses for toy lions, fake weapons, etc.?

(d)   And how to proceed regarding the contextual uses like *stone lion* referring to a lion sitting on a stone, or one that ate a stone, etc.?

Feldman's (2006) answer is that the embodied neural theory of language provides an alternative about multiple word meanings that is, according to him, simpler and intuitively more plausible. This response is found in citation [3.1.9].

It is possible, already, to determine, in this citation, that it seems plausible that some version of the Principle of Relevance, if a cognitive or specifically neural property, is found implicitly embodied in the functioning of the networks or subnetworks of the neural patterns. But, the most critical, is that the referred mechanism of association operates in a way to account, simultaneously (by neural activations and co-activations), for semantic and pragmatic processes, such that the continuity already referred to by Harder (1999) is expressed there also. Moreover, how such circuits are activated and how they generate inferences relevant for the "choice of the most appropriate meaning" is not a topic developed in the theory or in others in the scope of the neurosciences. [49]

Take the example "stone lion" in a conversational context:

(12)

A: How has Peter been behaving as the director of the company?

B: Peter is a stone lion.

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[49]   This is not specifically a problem "of" the theory, but of the state of the art of the theoretical and experimental studies in the Cognitive Sciences and Neurosciences. In citation [3.1.5], Feldman himself admits that the connectionist models are still not satisfactorily developed.

Which are the inferences likely to be derived and how would they be derived, utilizing only the operational language of Neural Theory, according to the passages highlighted in (iv)? **B** utilizes a metaphorical language whose interpretation is highly dependent on the context of which the question formulated by **A** is a constituent part. How do the subnetworks connect to other circuits and how are determined frames activated in the context in question? How does the neural pattern operate to adjust the best mechanism of association which would activate the additional related concepts as part of the choice of the most appropriate meaning? How is the meaning of a word in context captured by the joint activity of the whole relevant circuit: contextual, immediate and associate? These questions are, certainly, very audacious when taking a single citation as a provoking element, but they are all questions that, with the development of the neurosciences, deserve an answer.

One aspect becomes problematic not only for Neural Theory, but also for Relevance Theory: what have studies in neuroscience on memory revealed about how it works? Edelman and Tononi (2000) claim that:

[3.1.12] In a complex brain, memory results from the selective matching that occurs between ongoing, distributed neural activity and various signals coming from the world, the body, and the brain itself. The synaptic alterations that ensue affect the future responses of the individual brain to similar or different signals. These changes are reflected in the ability to repeat a mental or physical act after some time despite a changing context, for example, in "recalling" an image. It is important to indicate that by the word act, we mean any ordered sequence of brain activities in a domain of perception, movement, or speech that, in time, leads to a particular neural output. We stress repetition after some time in this definition because it is the ability to re-create an act separated by a certain duration from the original signal set that is characteristic of memory. And in mentioning a changing context, we pay heed to a key property of memory in the brain: that is, in some sense, a form of constructive recategorization during ongoing experience, rather than a precise replication of a previous sequence of events. (p. 95)

[3.1.13] If we consider all the different kinds of connections that can operate simultaneously in the brain, we must go to a space of higher dimension […]. By extending the process to any number of dimensions, one can, at least figuratively, see how a dynamic nonrepresentational memory may work.
Such a memory has properties that allow perception to alter recall and recall to alter perception. It has no fixed capacity limit, since it actually generates "information" by construction. It is robust, dynamic, associative, and adaptive. If our view of memory is correct, in higher organisms every act of perception is, to some degree, an act of creation, and every act of memory is, to some degree, an act of imagination. Biological memory is thus creative and not strictly replicative (p. 101).

What the authors denominate as "constructive recategorization" becomes, if the experiments are valid, a problem for any computational level.

4 Is some compatibility possible?

Harder (1999) claims that Cognitive Linguistics does not establish a clear distinction between competence and performance, being a usage-based model, without any distinction between language, on the one hand, and human experience, on the other; it also does not make a distinction, according to him, between cognitive and biological phenomena, because "language is grounded in the human body, and because all skills can be seen as mediated by neurological patterns (which can be modeled by increasingly sophisticated connectionist simulations)". From Harder's point of view, such phenomena are treated in a *continuum*. One of the most important features of "continuism" in Cognitive Linguistics is the explicit preoccupation in using "language as a window on cognitive structures generally, so that that one can move freely and gradually from facts about language to facts about human cognition and further on to facts about human life generally" (p. 196).

Despite the important findings of the research based on continuity, Harder points out that

> [4.1] a central fact about the relationship between related domains: cognitive facts are partially autonomous of brute facts; linguistic facts are partially autonomous of experiential facts; syntactic facts are partially autonomous of facts about the meaning of elements and social facts are partially autonomous of mental (HARDER, 1999, p. 196).

By the partial autonomy it would be possible to capture an integrated picture of syntactic, semantic and pragmatic phenomena and, in our point of view, evaluate the role of a(n) (interface) theory of inference, like Relevance Theory, in which the Principle of Relevance and co-dependent concepts could be operationally rebuilt in the epistemological framework of Cognitive Linguistics, providing the bases for the systematic treatment of the inferential processes involved mainly in metaphoric and metonymic processing and blending operations, metaphoric or otherwise.

Harder's preoccupation is concentrated on dealing with the question about what types of things exist in the world in the context of Cognitive Linguistics, raising an ontological and methodological question. Before simply denying "continuity", the author wants to discuss it more carefully based on an explicit orientation towards an

ontology based on partial autonomy. This is understood, as presented in [4.1], based on the assumption that cognitive facts are partially autonomous of brute facts; syntactic facts are partially autonomous from facts about the meaning of elements, and social facts are partially autonomous from mental facts.

Partial autonomy has the merit of accepting the need for separate levels of analysis within the context of a global continuity. This is, however, about a complex, but essential concept, claims Harder, not only in Linguistics, but in Cognitive Science. To accept different levels of organization would present some advantages for Cognitive Linguistics, as in the case of including, more explicitly, social facts as a specific ontological level in its world view. Harder argues that

> [4.2] A notion of partial autonomy would provide the best way of capturing the integrated, semantically based picture of syntax that is favored in functional and cognitive linguistics, while explicitly leaving room for those less than direct correspondences between syntactic patterns and item meaning which autonomists tend to draw the wrong (1999, p. 218).

Placing the question on the level of linguistic description of meaning as an interactive function, Harder says that it is known that language is used in social interactions, but one of the aspects to be considered is "the nature of and the relation between meanings" (p. 211). The other aspect is the "status of syntax as a component that makes possible the automatic and efficient integration of fragments of meaning in meanings of utterances as a whole" (p. 211).

Remembering, always, that Cognitive Linguistics is a young science, discussions like that which Harder provokes, defending the thesis of partial autonomy as an ontological-methodological contribution to this science in recent construction should not be neglected. It pursues, in our understanding, a kind of conciliation between the extreme autonomy of the generativists and the functionalists (like Fodor) and the ontological "flattening" which, we cannot deny, exists in Cognitive Linguistics, in that which the author calls continuism in Cognitive Linguistics, which horizontalizes, in a continuum, the specifically linguistic, cognitive and social facts.

From our point of view, the partial autonomy hypothesis could be seen as acting at a metatheoretical level under operational and, why not, normative criteria. Based on this, it would be possible to create a "scenario" of possible localized ontological correlations which would "break" the continuity inherent in the biological,

sociocultural (broadly experiential), communicational factors with which Cognitive Linguistics operates epistemologically and methodologically. Based on this, an architecture would be created which is likely to incorporate more explicit interface relations. Between them, an interface for a Pragmatics would operate based on some of the theses of Relevance Theory. Foundational incompatibilities with this theory, such as the hypothesis of some model of modularity, the linear sequentiality of the derivation processes of deductive inferences by computational mechanisms and operations, the treatment of propositional attitudes and, by consequence, the whole process of raising assumptions by input processes and cognitive or contextual effects (inferences) as outputs (cf. [2.1], [2.2], [2.3], [2.12], [2.13], [2.14], [2.15] e [2.16]), could be "dismantled" and "rebuilt" in a new, hypothetical, format of language in terms of neural activations and co-activations (cf. [3.1.1], [3.1.2], [3.1.4] e [3.15]). This way, "one" Relevance Theory would be generated as an Interface Theory whose descriptive and explanatory adequacy would be evaluated by its empirical success in the treatment of at least one relevant set of semantic-pragmatic phenomena.

At this interface, the metatheoretical-ontological framework would necessarily involve:

(i)   Commitment to cognitively "realistic" compositional constructions (cf. [3.5], [3.6], [3.10] e [3.11];

(ii)   Commitment to an operational computational level (cf. [3.1.6], [3.1.7] e 3.18]), in a connectionist model;

(iii)   Commitment to the operational partial autonomy between syntax/semantics/pragmatics (cf. [4.1] e [4.2]);

(iv)   Commitment to the Principle of Relevance (cf. [2.7], [2.8], [2.9] e [2.10])

In (i) it is explicit that the interface is created in favor of Cognitive Linguistics. For (ii), a more robust proposal is necessary for the computational level, until now weakly developed. However, this computational level can be the object of an interface theory, in favor of connectionism in Cognitive Linguistics. Commitment (iii) implies that the Hypothesis of Partial Autonomy is also better developed, and can also be the object of this possible interface theory.

5 Final considerations

Raising the perspectives for the construction of an interface theory for inferences, taking two theoretical models still under construction can lead to the conclusion that it deals with a very precocious initiative. However, these "in progress" models perhaps can count on the benefits of a project like that of Costa for the Theory of Interfaces, also under construction. The Theory of Interfaces, initially imagined to deal with recalcitrant problems about the structures and functioning of natural language in already established domains and about historical misconceptions, could become more ambitious. It has the potential of embracing the peculiar characteristics with the phases of extraordinary science, in Kuhnian terms, being maintained at this level. "Normal science" always returns to its neopositivist encapsulation, cyclically closing its "paradigmatic" boundaries. The maximum ambition of such a theory is not to be a kind of "methodological wastebasket", but to be part of a Philosophy of Science or an Applied Epistemology.

Taking into consideration what Campos (2007) defends in [1.7], that a discipline is a set of subtheories, constituting, then, subdisciplines, the set of problems can be extended to an even more complex level: disciplines are built in "bunches" of theoretical models, in which subdisciplines proliferate according to the epistemological framework in question. In this case, in Cognitive Linguistics, given the claims by Harder (1999), there are no delimited subdisciplines for Semantics and Pragmatics, for example, and the grammatical models remain in the Syntax-Semantics-Pragmatics. The Neural Theory of Language is a theoretical model among others in the scope of Cognitive Linguistics. Even so, it is at this angle that the Partial Autonomy Hypothesis would aid in the building of formally more adequate programs of investigation. Campos (2007) is correct in claiming that in the relation between Linguistics and Cognitive Linguistics (and perhaps more strongly with the Neurosciences), neural (brain) and computational (mind/brain) structures and processes are the strongest inter- and intradisciplinary constructions. In both cases, however, theories and programs of investigation are too young and diversified to have some guarantee of success, whether to talk of relations of complementariness and intersections, or of implementations (from one level to another).

It seems that a path of "jumps" has been followed: the possibilities of a theory or program of investigation in fields of application are observed. If successful in a given field of application, proceed to a "metatheoretical reform" oriented towards this

or that field of applicability. This way, fields of application with a high degree of specialty gather, in a utilitarian manner, theories adapted for their purposes. Obviously, it deals with an operation at an interface. Though, with a Theory of Interfaces, it is not the proliferation of adapted theories that is pursued, but, under a principle of economy, theories more adequately formalized so that their ontology and metatheoretical framework can account for a broad range of intra- and interdisciplinary relations, including their fields of application, calibrating descriptive and explanatory adequacy.

If, on the one hand, as Sweetser (1999) claims, in [3.10], the nature of the (empirical) data can affect the global principle of parsimony of a theory or discipline, this does not mean that Occam's Principle is forgotten. It should be kept in mind that empirical commitments motivate the construction of the ontological body and erect the metatheory. This way, the methodological question about what (ontologically) are such empirical data and how they themselves are categorized (as types) remains, avoiding the ad hoc treatment of tokens of raw data. The point is: the categories of phenomena to be dealt with are built in a Theory of Interfaces, in the spirit of objects being constructed at the interfaces.

If inferential processes are a category of phenomena to be examined, at the interfaces the types of inferences that can be examined at that constructed interface should be determined. Or even more radically, which phenomena will be considered as "inferential".

In Cognitive Linguistics, from analogical inferences to deductive inferences, there is a set of possible type-inferences to be identified and better understood. For Relevance Theory, a theory of non-demonstrative deductive inferences, a provocative question is raised (keeping in mind, for example, the way in which metaphoric utterances are treated by the theory): are such inferences originally deductive or are they "reconstructed" in a kind of deductive argument, a fortiori, based on the mechanisms proposed by the theory? This question is itself an interface question. Why? It is about an "interactive" question formulated by an objective of the investigation: a theory is examined "from a given perspective" so that it can be (a) put to work with another theory at an unproblematic interface, without going through a metatheoretical reconstruction process; or (b) evaluated and reconstructed metatheoretically in favor of one side of the interface; in this case, in

favor of Cognitive Linguistics which is committed to "empirical data" about the structuring of the workings of human cognition (/brain).

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