COGNITIVE REPRESENTATION AND THE RELEVANCE OF ON-LINE CONSTRUCTIONS[1]

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Abstract

In this paper, focusing on the relevance-theoretic view of cognition, I discuss the idea that what is communicated through an utterance is not merely an explicature upon which implicature(s) are recovered, but rather a propositional complex that contains both explicit and implicit information. More specifically, I propose that this information is constructed on the fly as the interpreter processes every lexical item in its turn while parsing the utterance in real time, in this way creating a string of ad hoc concepts. While hearing an utterance and incrementally constructing a context, the propositional complex communicated by an utterance is pragmatically narrowed and simultaneously pragmatically broadened in order to incorporate only the set of optimally relevant propositions with respect to a specific point in the interpretation. The narrowing of propositions from the initial context at each stage allows relevant propositions to be carried on to the new level, while their broadening adds to the communicated propositional complex new propositions that are linked to the lexical item that is processed at every step of the interpretation process.

1 Introduction

In the tradition of linguistics, most investigations tend to equate an utterance's basic proposition with its semantic representation. This perspective although theoretically attractive, can prove to be problematic with respect to its psychological plausibility (Recanati 2004). At the same time, current research in pragmatics can help offer a more realistic alternative that would allow contextual intrusions to influence the basic proposition communicated by an utterance. A suitable pragmatic framework that could provide a rich background in which to investigate propositional content without compromising the account's psychological plausibility is Relevance Theory, which has already developed a realistic approach to cognition.

This paper sets out to examine propositional content as this is constructed during utterance interpretation and in accordance with the relevance-driven comprehension procedure. To begin with, I will present the basic assumptions of the relevance-theoretic framework and, then, move on to a relevance-theoretic description of the aspects of cognition that underline the context-dependent nature of knowledge representations in our cognitive environment when it comes to verbal communication. In this way, I will introduce the basic ideas that motivate the account proposed by this paper. After discussing the relevance-theoretic notion of context, I will present a scenario of how propositional content is derived directly from the cognitive and communicative approach proposed in *Relevance* itself. In conclusion, I will

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discuss the implications the proposed account carries and suggest directions for future investigations

1.1 Relevance Theory

As a framework, Relevance Theory was received with great enthusiasm by researchers across a wide range of fields, since it provided a revolutionizing approach to cognitive pragmatics, by redefining it in terms of characterizations of relevance. In the mid 80s, Sperber and Wilson developed a framework that addresses communication as a process that involves inference in the recovery of meaning to as great a degree as encoding and decoding.

The motivation behind Relevance Theory (Sperber and Wilson 1986, 1987, 1995, Wilson and Sperber 2004) lies in the ground-breaking work of Grice in the field of pragmatics (1957, 1975, 1989). Sperber and Wilson took up Grice's central idea that communication involves not only a single level of coding and decoding – in the Saussurean meaning of *semiology* (1974), but also an inferential level that is essential in providing the hearer with the speaker's meaning. Grice had laid down a model of utterance comprehension that described the social norms that apply to communication in the shape of a Cooperative Principle and a set of maxims that people attend to when engaging in it: two maxims of truthfulness, two of informativeness, one of relevance and four of clarity.

Relevance Theory, even though highly influenced by Grice's pioneering work, redefines communication as a cognitive exercise. Sperber and Wilson hold that when we engage in communication we do not merely follow social norms that tell us how to communicate, but rather follow a specific cognitive path that makes us communicate efficiently. This path is prescribed solely on the grounds of our expectations of relevance which are "precise and predictable enough to guide the hearer toward the speaker's meaning" (Wilson and Sperber 2004:607).

Now, what makes an utterance or a general input to our cognitive environment relevant depends on a balance of cognitive effects and processing effort. Other things being equal, the more this stimulus changes our cognitive environment in a positive way the more relevant it is, and the less processing effort it demands in doing so the more relevant it is. Sperber and Wilson support the idea that relevance considerations play a central role in the way our whole cognitive system works. This is spelled out in the Cognitive Principle of Relevance they put forward:

> Human cognition tends to be geared to the maximization of relevance.

In the same spirit, they also address communication and, especially, a particular form of it, ostensive-inferential communication. As opposed to other forms of communication, ostensive-inferential communication involves two layers of intentionality from the communicator's point of view. In engaging in this sort of communication, she does not only intend to make manifest to her audience some information (*informative intention*), but she also intends to make it mutually manifest to both her and her audience that she has this informative intention (*communicative intention*). In other words, the cognitive task of pursuing ostensive communication means that the communicator does not only communicate a set of assumptions, but also her intention to share this information with her audience.

Against this background, Sperber and Wilson propose a second principle of relevance, the Communicative one, which links ostensive communication to expectations of relevance:

> Every act of ostensive communication communicates a presumption of its own optimal relevance.

According to this principle, the audience of ostensive-inferential communication always has a right to presume the optimal relevance of the input given to it. This means that it always has a

right to presume that the stimulus provided is relevant enough to be worth its processing effort, in the sense that it should provide large positive cognitive effects with minimal effort expenditure, and it is the most relevant one compatible with its communicator's abilities and preferences. On the grounds of the definition of relevance and optimal relevance, relevance theorists also suggest that the comprehension procedure follows a prescribed path:

> Check interpretive hypotheses in order of their accessibility, that is, follow a path of least effort, until an interpretation which satisfies the expectation of relevance (i.e. yields enough cognitive effects etc.) is found; then stop.

Coming back to Grice with a view to addressing utterance interpretation, another pioneering assumption of his that is important to relevance-theorists is his notion of *implicatures*. In Grice's work, the explicit meaning of an utterance is basically decoded via a code (i.e. the language system) while what an utterance implies is derived inferentially from the exact decoded content (i.e. literally what is said), after this has been retrieved, in the form of implicatures. In Relevance Theory, decoded and inferred information are not distinguished in this absolute way, since inferential pragmatic enrichment takes place also in the recovery of an utterance's explicit content, that is its explicature(s), like in the case of reference resolution. In instances of verbal communication, the interpreter of an utterance relies on inference to complete all three subtasks that will guide him to recognizing the intended meaning of the speaker's utterance. As Wilson and Sperber suggest, these subtasks involve three levels of construction (2004:615):

a. Constructing an appropriate hypothesis about explicit content (*explicatures*) via decoding, disambiguation, reference resolution, and other pragmatic enrichment processes.
b. Constructing an appropriate hypothesis about the intended contextual assumptions (*implicated premises*).
c. Constructing an appropriate hypothesis about the intended contextual implications (*implicated conclusions*).

All these subtasks involve inferential processing to a great extent, while an important feature of them is that they are not "sequentially ordered: the hearer does not FIRST decode the logical form, THEN construct an explicature and select an appropriate context, and THEN derive a range of implicated conclusions" (ibid.).

This brief introduction to Relevance Theory is by no means exhaustive. Its applications are numerous and further ideas it puts forward will be discussed in the parts to come. What needs to be addressed at this point is what the relevance-theoretic framework has to say about the way mental content is organized and accessed during utterance interpretation.

2 On the human cognitive system

This part of the paper addresses the way in which Relevance Theory assumes knowledge is represented in the human cognitive system. In their framework, Sperber and Wilson have sustained a modified Fodorian view of a modular mind (Fodor 1983)[2] along with his view that our cognitive environment consists of propositions (Fodor 1975); yet, they have, on several

[2] Even though this is of little interest for the purposes of this paper, Sperber and Wilson have since 2000 departed quite substantially from Fodor's view of central processes opting for a more modular approach to what Fodor would traditionally treat as central processes (Sperber and Wilson 2002, Wilson 2005). On other occasions, Sperber (1994, 2002) has suggested a model of massive modularity that views the mind as modular through and through with modules coming in all sizes and formats, even in the size of a concept.

occasions, criticised Fodor's views on specific cognitive issues, namely his interpretation of the frame problem[3], something I will come back to later on.

According to Sperber and Wilson, the total of the knowledge represented in our minds partially constitutes our *cognitive environment*. More specifically, they define an individual's cognitive environment as "the set of all the facts that he can perceive or infer: all the facts that are manifest to him" (Sperber and Wilson 1995:39), in the shape of assumptions that might be either true or false. More specifically, they suggest that "an individual's total cognitive environment is a function of his physical environment and his cognitive abilities. It consists not only of the facts that he is aware of, but also all the facts that he is capable of becoming aware of, in his physical environment". (ibid.)

In this way, Sperber and Wilson manage to capture the idea that our system of thoughts, i.e. mental representations, contains not only the new information we acquire through the processing of a stimulus – might that be anything from a perceivable object in our visual or acoustic environment to an utterance that we are called to interpret, but also the information that we can acquire through the additional processing of a processed stimulus. These extra representations that are derived from originally perceived ones are as important as the latter in mental processing and can potentially be stored in our knowledge database in very much the same way as perceptually-acquired information is[4]. This view of a cognitive environment respects individuality and gives a psychologically indispensable level of subjectivity to the set of *assumptions* and *thoughts* that are represented in our mind[5].

As already mentioned before, Relevance Theory sustains the Fodorian view that our cognitive environment consists of a propositional repertoire. Thoughts, i.e. "conceptual representations", and assumptions, i.e. subjective "thoughts treated by the individual as representations of the actual world" (Sperber and Wilson 1995:2) are logical forms that have an internal structure, in the form of systematically combined conceptual meanings.

2.1 Concepts

Right from its emergence, Relevance Theory has taken up a point that is generally undisputable within cognitive science. According to Sperber and Wilson (1995:85), "it seems reasonable to regard logical forms, and in particular the propositional forms of assumptions, as composed of smaller constituents to whose presence and structural arrangements the deductive rules are sensitive. These constituents we will call *concepts*".

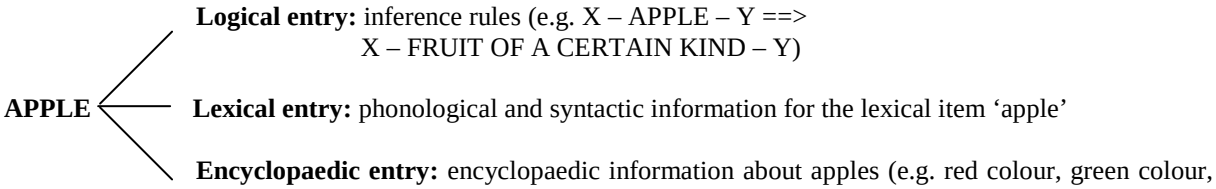
Sperber and Wilson treat concepts as "triples of entries, logical, lexical and encyclopaedic, filed at an address" (1995:92). A concept has a logical entry in the sense of a set of formal deductive rules that apply to logical forms containing the concept at hand and that produce conclusions from a set of premises. The lexical entry of a concept contains "information about the natural-language lexical item used to represent it" (Sperber and Wilson 1995:90). This information is both phonological and grammatical. Finally, the encyclopaedic entry of a

[3] Sperber and Wilson (1996) address the Fodorian Frame Problem as wrongly formulated to begin with by claiming that rational central processes would not consider all information provided as modular input, but rather a selected relevant set of them.

[4] A very good example of information that is provided on such grounds is metarepresentational information, information that maps representations over representations in the way discussed by Sperber (2000) and Wilson (2000).

[5] Subjectivity in mental representations is deemed indispensable in a psychologically realistic account of cognition because different individuals might store in their minds different assumptions for the same stimuli. As Penco argues (1999) cognitive science seems to favour "the subjective, cognitive representation of the world" (after McCarthy 1993) over "an objective, metaphysical state of affair" (after Kaplan 1989).

concept is the set of extra information that is linked to its denotation. So, for example, if you have the concept APPLE under scrutiny you can schematically represent its entries as follows[6]:



Against this background, most concepts can be represented through their triple entries. Of course, "occasionally, an entry for a particular concept may be empty or lacking" (Sperber and Wilson 1995:92). For example, a concept like BUT would not have an encyclopaedic entry, since it has no extension. Similarly, proper names may lack logical entries. Many concepts even lack lexical entries, like the concept that has UNCLE and AUNT as its subcategories and contains information that is common to both concepts (after Sperber and Wilson 1998).

Relevance Theory distinguishes between the concepts that are stored in our cognitive system and the ones that are communicated through an act of ostensive communication. The former are stable, containing all information linked to the concept in a single conceptual space. However, the concepts that are communicated as parts of, say, the propositional form of an utterance, are rather *ad hoc* concepts that are constructed on-line during the interpretation process.

The notion of *ad hoc* conceptual entities was first introduced by Barsalou (1987, 1992) in the domain of cognitive science. In his paper 'On the instability of graded structure' (1987), he suggests that individuals tend to produce different sorts of typicality rankings among the same conceptual category members when these are processed in context. Individuals will give different rankings of the same concepts when asked to do so in different situations, like in the case of their own point of view or when judging from the point of view of others. In the same way, people can construct typicality rankings for *ad hoc* categories (e.g. THINGS THAT CAN FALL ON YOUR HEAD). Through his examples, Barsalou shows that people can easily produce varying representations of the world reflecting context-dependent information they might even have never been processed beforehand in a fast and creative way (Barsalou 1983, 1987, 1993).

Following the experimental research of Barsalou, relevance-theorists suggested that the content of a concept as communicated within a context is constructed *ad hoc* out of the combination of different parts of encyclopaedic information we have stored in our cognitive system. In other words, relevance-theorists have employed Barsalou's terminology and experiments[7] to describe the end-product of a process of on-line concept construction during the interpretation process (Carston 2002, 2004, Wilson 2004, Wilson and Sperber 2004). The relevance-theoretic account of lexical meaning suggests that a lexical form maps to a conceptual address in memory, the address that links to the lexical, logical and encyclopaedic entries of a concept, and the context provides the relevant encyclopaedic information that is used with the communicated *ad hoc* concept in a selective manner. For example, let us consider the following utterance:

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[6] After Wilson 2002

[7] Barsalou's work has provided evidence mainly for the relevance-theoretic claims of conceptual narrowing that have been present since the beginning of the framework. Later, these claims were generalised to apply to broadening as well (Carston 1996).

(1) Mary wants to meet some bachelors.

The standard relevance-theoretic account would suggest that what is communicated in this utterance is a set of concepts, including an *ad hoc* concept BACHELOR*. This move is justifiable by certain assumptions communicated along with the utterance in the context of situation. From the point of view of Mary and our knowledge about her the *ad hoc* concept BACHELOR* refers to unmarried men who are eligible for marriage. In this way, the Pope would not qualify as a bachelor that Mary wants to meet. Similarly, in the situation where Mary is thinking about becoming a nun and is, thus, considering 'unweddedness', she might want to meet bachelors that have also selected to remain unwedded, by becoming God's servants of some sort, and are, therefore, not eligible to marriage.

Relevance Theory makes a clear distinction between already stored concepts that are holistic and contain specific information within interconnected conceptual spaces and concepts that are constructed on-line. What relevance theorists are now dealing with in their work in lexical pragmatics is the way in which these two 'types' of concepts are linked (Wilson 2004). In a nutshell, Relevance Theory suggests that 'the stored lexical concept provides the starting point for the on-line construction of the *ad hoc* concept which proceeds as part of the utterance comprehension process and so is constrained, as ever, by the search for an optimally relevant interpretation'.

The view that I will be employing in this paper is that all communicated concepts are in effect *ad hoc* concepts. This move should be justified within the general picture of the relevance-theoretic framework. The linguistically encoded stored concept that is triggered by the utterance of a lexical item points to some space in memory within which the interpreter needs to look for relevant information against the context in which he is processing the utterance. The relevance heuristic should lead him to select the most easily accessible part of this information that will provide adequate cognitive effects. In this way, the information communicated by each lexical item in an utterance does not correspond to the whole of the stored concept's information but is constructed *ad hoc* by the interpreter in the manner prescribed by the relevance-theoretic comprehension procedure.

2.2 Propositions

Having addressed conceptual content, a discussion of propositional content seems indispensable at this point. As already noted above, against the background of Relevance Theory, propositions are logical forms that constitute structured sets of concepts. In light of the previous treatment of concepts, it is clear that when it comes to utterance interpretation, propositional content comprises structured *ad hoc* concepts[8].

An important aspect of utterance interpretation that was underlined by Sperber and Wilson in *Relevance* is that the recovery of explicatures and implicatures occur on the fly. As put forth in the identification of the subtasks involved in the utterance comprehension process, interpretation takes place in a time-linear manner. This should have direct implications for the examination of an utterance's communicated propositional content.

Firstly, the proposition communicated by an utterance is constructed on-line by the hearer. This challenges the traditional view that equates the basic proposition communicated by an utterance with its semantic representation. Taking up the relevance-theoretic account of

[8] A point that needs to be put forth here is that there is a distinction between what a proposition is with respect to cognition and what a proposition is with respect to communication. The latter, which is in the centre of attention in this paper, is an outcome of the interpretation process that is constructed on-line, while the former is stored in our cognitive system and has a relatively stable content.

meaning construction makes this basic semantic representation of a given utterance a mere template upon which pragmatic enrichment takes place. In a psychologically plausible account of utterance interpretation, the hearer parses and interprets an utterance in a left-to-right time linear way. While the hearer processes the utterance one step at a time, lexical item by lexical item, he is enriching the semantic content of each communicated concept against a context. This occurs dynamically and the hearer would not necessarily wait up to the end of the utterance to engage in any processing. Sperber and Wilson assume that "logical forms, like syntactic forms are trees of labeled nodes" (Sperber and Wilson 1995:205). By parallel arguments to the ones that want syntactic labels to generalize over grammatical categories, logical labels categorise conceptual representations of different types. As Sperber and Wilson argue (1995:206), by association to syntactic anticipatory hypotheses the hearer may make, he can easily make anticipatory hypotheses for the logical categories that are to appear before they do[9]. Consequently, at any point during interpretation the hearer both entertains specific expectations about what is to follow and can amend his previous choices in constructing the propositional content of an utterance.

Accordingly, in utterance interpretation, explicatures and implicatures are constructed on the fly as well. Inferential processing occurring to this effect takes place at the same time as the decoding of the utterance's content. What is suggested again by this view is that what an utterance communicates is constructed dynamically. Essentially, what a hearer constructs successively in interpreting an utterance is not a basic proposition upon which further conclusions (in the shape of higher-order explicatures or implicatures) are inferred, but rather a propositional complex that contains both explicit and implicit propositions.

In this sense, an utterance's basic proposition is redefined to its pragmatically enriched semantic content. This would ultimately mean that what the hearer has at the end of an utterance's interpretation is a structured set of *ad hoc* concepts, i.e. an *ad hoc* basic proposition, which communicates a certain set of additional propositions (thoughts) about the explicit and implicit information conveyed by the utterance.

3 Communicated propositional content

Having established the aspects that a psychologically plausible account of communicated propositional content needs to respect, a rather straightforward picture of the way in which propositional content is constructed in utterance interpretation presents itself. A final point that needs to be noted is that the construction of an utterance's propositional content always occurs against a context. So, before moving on to the account of how an utterance's enriched basic proposition is constructed, it is important to introduce the notion of context in Relevance Theory.

3.1 Context in Relevance Theory

In *Relevance*, Sperber and Wilson provide an insightful definition of context that respects its subjective nature and is general enough to accommodate the variety of information context contains in every situation (1995:15-16):

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[9] Relevance Theory has little to say about this, but a formal account that incorporates relevance-theoretic assumptions in its theoretical premises, Dynamic Syntax (Kempson et.al. 2001), makes extensive use of this idea. Dynamic Syntax holds that when a hearer interprets an utterance, parsing it one lexical item at a time, he entertains specific expectations about what is to follow in the utterance. This is clearly illustrated in cases of routinisation (Purver et.al. to appear):

(e.g.) Ruth: What did Alex give to
Hugh: Eliot? A teddy-bear.

> A context is a psychological construct, a subset of the hearer's assumptions about the world. It is these assumptions, of course, rather than the actual state of the world, that affect the interpretation of an utterance. 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 cultural assumptions, beliefs about the mental state of the speaker, may all play a role in interpretation.

It is clear from this description that, in the relevance-theoretic framework, context is not a metaphysical concept, since it does not contain information about 'the actual state of the world', but rather information about an individual's representation of the world in the sense of a 'private logbook' or 'an ego-centred map'. In *Relevance*, Sperber and Wilson discuss context to a considerable extent (1995:132-142). In their discussion, they discard the classical view that in the interpretation of the utterance the context is given and predetermined. In a luminous discussion of what this case would entail, they reach the conclusion that such a view of context would ultimately require the whole volume of our cognitive environment to be the context of the interpretation of a single utterance. Resolving this impossibility they suggest that "the context used to process new assumptions is, essentially, a subset of the individual's old assumptions, with which the new assumptions combine to yield a variety of contextual effects" (1995:132). And this subset is selected on-line while the interpretation takes place. However, even though they have been criticised for not doing so (Chiappe an Kukla 1996), Sperber and Wilson never explicitly discussed the way in which we selectively construct a context when interpreting an utterance.

Against this background, in previous work on context selection (Assimakopoulos 2003), I have entertained the idea that an utterance's context is selected automatically by the same heuristic that mediates the construction of its explicature(s) and implicatures, the relevance-driven comprehension procedure. Within the spirit of the Cognitive Principle of Relevance, I have proposed that relevance considerations mediate the process of selecting a set of assumptions against which an utterance is to be processed and comprehended, a line that will be maintained for the purposes of this paper too.

3.2 Constructing an utterance's propositional complex

At this point and in the dynamics discussed in the previous parts, it would be interesting to see how an utterance's basic proposition in the sense endorsed by this paper is constructed on-line as each lexical item[10] of the utterance is interpreted in turn.

At the outset of the interpretation process there is always an initial context present to the hearer before the utterance is produced. This is a set of propositions that are not tested for cognitive effects with respect to this utterance up to the point when the first lexical item is uttered. In a dialogue this context would minimally be the propositional complex expressed by the previous utterance.

With the utterance of the first lexical item a subset of propositions is selected in a relevance-driven manner from the initial context. Along with this set, more propositions are triggered by the new concept that is introduced and added to the context in which the hearer interprets the utterance. All these propositions will be again tested for relevance as more lexical items are

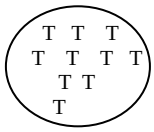
[10] I will assume that a lexical item is a lexical chunk (either a word, an idiom etc) that carries a homogeneous meaning in its premises. "It is clear that we can use and understand far more words (in the morphological sense) than we have learned. As soon as one learns the word *stay*, the words *stayed*, *staying* and *stays* all come for free" (Bloom 2000:16). For the purposes of this paper I will take up a rather simplistic notion that connects conceptual information with the meaning of a word as a whole. I believe that morphology would have more to say about this, but will not attend to it as of now.

processed in turn. Again, some of these propositions will be abandoned and new ones will be tested for relevance against the context of the utterance up to the point where the utterance ends.

I will try to illuminate what is still a quite blurry picture by use of an example utterance and the propositional complex its production makes the hearer to construct:

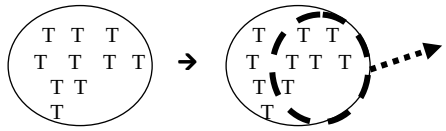
(2) John loved the smell of Mary.

To begin with, there is an initial context S_i present before the uttering of the first word. This context consists of propositions T[11] that are linked to whatever provided cognitive effects prior to the hearing of this utterance – that is something in the physical environment or even a previous utterance the hearer just processed.



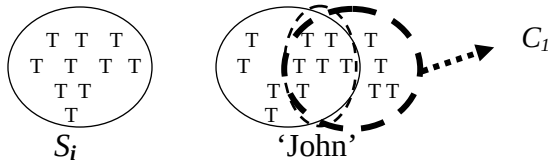
S_i

Upon hearing the first word, *John*, the hearer begins his interpretation. The conceptual address for JOHN is, thus, triggered in his mind. The whole set of this concept's information is activated but not yet tested for cognitive effects. The hearer selects the relevant propositions from S_i that are likely to be included in the final propositional complex (C_n) denoting the meaning of this utterance. These propositions are relevant since they should provide large cognitive effects with respect to S_i.



S_i 'John'

Accordingly, at the same time, new propositions about JOHN that are not included in S_i, namely contextual information about John that is readily available in the hearer's cognitive environment and can provide rich cognitive effects, get added to the list of propositions that might be intended to get communicated by this utterance(C_1). At the same time, the context in which the utterance is processed is augmented to include these propositions as well. Discarded propositions from S_i would be kept in a buffer that would allow their easy re-activation.

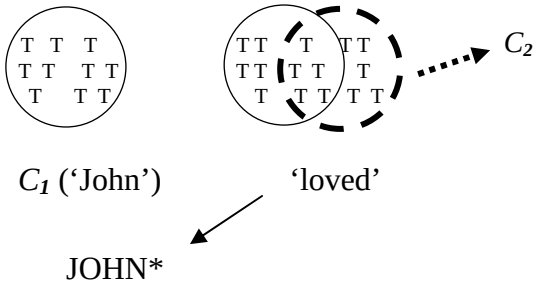


S_i 'John'

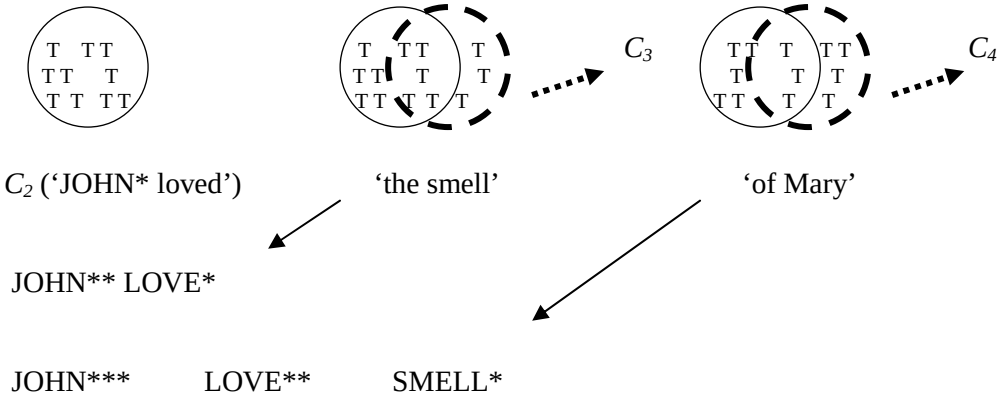
On the hearing of the second word another conceptual address is activated and propositions linked to its content are constructed. In a manner similar to the way C_1 has been selected, a new complex of relevant propositions C_2 is constructed. Relevant propositions from the previous context are carried over to C_2, while new ones triggered by LOVE in the now accordingly augmented context that are deemed relevant are added up to it. In this way an *ad hoc* concept JOHN* is constructed. This concept is *ad hoc* because it contains only the information about John that is relevant to this utterance's interpretation and potentially

[11] T is used conveniently to represent thoughts, since these are logical trees in light of Sperber and Wilson's suggestion that Dynamic Syntax developed formally.

information that will be included in the final propositional complex that will denote the utterance's meaning.



The same scenario applies for all words with conceptual content in the utterance up to the point where the interpretation of the final lexical item occurs and the utterance's explicature(s) and implicatures are fully constructed.



At the end of processing the whole utterance, the concept MARY will again be adjusted to the ad-hoc concept MARY* that communicates the specific property of having a smell that is loved by John. The propositional complex C_5 ultimately contains the total of the explicature(s) and implicatures the hearer has constructed with respect to utterance (2). In effect, the basic proposition of the utterance is this complex that is communicated by it, which is pragmatically derived.

3.3 Propositional content adjustment: narrowing and broadening

It is obvious in this treatment of propositional content that at every stage of its adjustment there are two processes that go on; one of narrowing and one of broadening. After discussing each one, I will entertain the possibility of symmetrifying both of them, by proposing that both processes are processes of narrowing.

As already discussed above, at the beginning of the interpretation and upon hearing the first lexical item of the utterance, the hearer begins his interpretation by selecting from an initial context the propositions that are relevant to the concept communicated by the item just uttered. This selection is the result of narrowing the initial contextual space in the search for relevance. At the same time this selection takes place, another set of propositions appears to the foreground of the processing. This is the set of propositions the utterance of the lexical item introduces. Again these propositions are tested for cognitive effects in search of relevance against the initial context augmenting it. A relevant set of them is again added up to the initial propositional complex that comprises candidates for the utterance's meaning. In

this way, the potential propositional complex is broadened to accommodate more propositions introduced by the new lexical concept that is communicated.

In the tradition of Carston on concept narrowing (Carston 1996, 2002), I will too suggest that this broadening and narrowing of propositional content illustrates essentially a case of pragmatic narrowing. It is obvious that the heuristic that causes contextual adjustment is relevance. In a way, even if the propositional space in which cognitive effects are searched is large there is always a need to make it as small as possible in order to save effort. So, even when the propositional complex is augmented, the relevance heuristic imposes that not an exceedingly large number of new propositions will be added up to it, which in a sense narrows down the number of potential candidates for inclusion in the complex.

4 Conclusion

Any realistic account of communicated meaning is required to take into account the fact that interpretation is a dynamic process that enables pragmatic enrichment to occur automatically along with linguistic decoding. This paper has put forward a cognitive account of the way knowledge is accessed when context-dependent processing of an utterance takes place. The dynamic characteristic of this approach is that it rejects the semantic view of propositional content. Pragmatic enrichment occurs at most levels of cognitive processing and evidence from cases of on-line meaning construction places context-dependency and especially, as expected through the first principle of relevance, relevance considerations to the centre of cognition. While engaging in utterance comprehension, the hearer interprets each lexical item in turn constructing an enriched basic proposition on-line. At the end of an utterance's processing, this basic proposition is a structured set of *ad hoc* concepts that also contains all the information (thoughts, in the shape of explicatures and implicatures) that is deemed relevant at that stage against the context of the utterance.

No matter how speculative the nature of this system might seem at this point, it manages, along with all the other tenets of Relevance Theory, to provide the starting point for a potential outline of a generative system for pragmatic competence. Contrary to Chomsky's reservations that an attempt to build a theory of pragmatic competence "yields computational systems of hopeless scope, compelling us to try to formulate what amount to 'theories of everything' that cannot possibly be the topic of rational inquiry" (Stemmer 1999:399-400), the relevance-theoretic approach to the way contextual constraints mediate cognitive computation seems to succeed in capturing the way mental processing occurs providing the foundations for a generative system of communicative competence.

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