# **Context Selection and Relevance**<sup>\*</sup>

# Stavros Assimakopoulos

stavros@ling.ed.ac.uk

#### **Abstract**

Relevance Theory (Sperber & Wilson 1986, 1995) has been widely accepted as one of the most comprehensive frameworks in pragmatics. However, as in the case of most theories, it has faced criticism on several occasions. On one of them, Chiappe & Kukla (1996) argued against the relevance-theoretic framework on the grounds that it provides no solution to the Fodorian view of the Frame Problem (Fodor 1987) and accused Sperber & Wilson of disregarding the essential issue of context selection in communication. Sperber & Wilson's response to Chiappe & Kukla (1996) was that *Relevance* does not provide a solution to this problem because it does not need to do so: in their view, Fodor was wrong to formulate the frame problem in the first place. In this paper, I revise this view and present an argumentation against the Fodorian thesis on the matter. I suggest that his idea on the irrationality of the human cognitive system when it comes to context selection was rightly formulated in the first place; yet, Relevance Theory can help address this problem and account for a "rational" pattern of context selection, both with a view to general cognitive processing and in terms of utterance interpretation.

# Introduction

The seventh age [of linguistics] has yet to come, but it will doubtless arise out of the contemporary fascination with semantic analysis, and with the way the study of meaning is affected by the analysis of language in use (the study of the *pragmatics* of language). (Crystal 1971:244)

In this prophetic observation coming from the 70s, Crystal entertained the need for scientific enquiry within the field of linguistics to turn to a more focused consideration of natural language as viewed within its usage. At the same time, Grice suggested that there was "inadequate attention to the nature and importance of the conditions governing conversation" (1975:43), as a means to analyse natural language. Indeed, the era of pragmatics has arrived and the pragmatics of language is now being investigated more than ever. From a theoretical point of view, the emergence of frameworks like Relevance Theory in the 80s or the current emergence of Dynamic Syntax has instantiated much research within the domain, while the general trend tends to place pragmatic considerations of language in the foreground of linguistic enquiry.

<sup>&</sup>lt;sup>\*</sup> I am grateful to Ronnie Cann, discussions with whom generated this paper. Many thanks to Caroline Heycock, Simon Kirby, Alex Lascarides and Daniel Wedgwood for commenting on this work. Across the University of Edinburgh boundary, I would also like to express my gratitude to Deirdre Wilson for inviting me to discuss this paper as well as to Nicholas Allott, Robyn Carston, Eliza Kitis and everyone at the Relevance Research Group at UCL who commented on this work. Of course, all these commentators are not to be held responsible for any misconceptions or gaps this paper most likely contains, since it is very much still a work in progress.

However, there are still some elements of pragmatics that have not yet been clearly defined. As Levinson advocates (1983:22), "a[...] difficulty facing the definition or scope of pragmatics, is that it calls for some explicit characterization of the notion of *context*". And indeed, context is a notion of central importance to pragmatics, since in effect pragmatics is "the study of meaning which is derived from context" (Trask 1999b:124). However, it has received minimal attention in relation to its significance.

This paper sets out to describe context in a solid sense with a view to account for context selection, i.e. the way in which humans use a mere part of their context while processing a stimulus or an utterance rather than the whole of it. Entertaining an intuition that context plays a significant role in our cognitive mechanism, I propose that it must be a part of our competence, in a sense that we are predisposed to acquire, apply and select contextual information. And as Levinson has argued, for this to be true, "it [i.e. context] must consist of some abstract cognitive ability" (1983:24-25). Based on this observation, the first section of this paper puts forward an investigation of context as an abstract, yet significant notion in general human cognition. After an account of the ways context interacts with our cognitive devices, I put forth a potential analysis of how humans select what I will call their subject-matter context deducing generalised assumptions about a context-dependent mental logical system, in line with the Fodorian modularity of mind hypothesis. Then, having described context selection as a cognitive ability available to all humans, I produce a generalised description of context selection processes involved in language use, arriving at the conclusion that the human mind processes all kinds of information, both thoughts and utterances, by employing a 'filter' of relevance to all the possible contexts within which this information can be processed.

# A general cognitive conception of context

What is context? It can be argued that raising such a question poses a philosophical rather than empirical problem: Is context ultimately definable as a single notion within a single domain of enquiry? As a scientific term, context is mainly identifiable as a notion that comes straight from the field of linguistics and, more specifically, its subfield, pragmatics. However, what context represents is merely an object of linguistic enquiry. If we were to define context as a general dynamic notion rather than a specific term denoting something in linguistics we would easily see that it lies behind every aspect of our human nature.

#### **Defining context as a superordinate notion**

In his paper on *Objective and Cognitive Context* (1999), Penco discusses these two types of general context as put forward by Kaplan (cf. Kaplan 1989) and McCarthy (cf. McCarthy 1993) respectively. In his discussion (1999:271), Penco pinpoints the difference in the two original accounts of context in the descriptions provided for Kaplan's "objective' or 'metaphysic' (ontologic) theory of context" (a) and McCarthy's "subjective' or 'cognitive' (epistemic) theory of context" (b) as follows:

The two different conceptions can be summarised as follows:

(a) context is a set of features of the world, we can express as: <time, place, speaker,...>

(b) context is a set of assumptions on the world, we can express as: <language, axioms, rules>

Therefore, the two definitions of contexts treat:

- [a] context as an objective, metaphysical state of affair.
- [b] context as a subjective, cognitive representation of the world.

These two accounts are indeed plausible, but there is much doubt about whether we can actually identify objective context effectively. Penco (1999:280) successfully addresses this doubt and proposes that we can actually integrate objective context into cognitive:

[...] the objective context is, most of the times, the context we *recognize* as objective. We know both that there is some objective reality and that we might get it wrong. To describe an objective context as such, independent of a cognitive one, is therefore a risky enterprise. Any attempt to define it in an absolute way is misleading, because it takes a description - given always inside some theory or cognitive context - as an objective unrevisable description. Objectivity is always a result of our interaction, not a datum [...]

It is true that even though we assume that there is one, objective context is subject to some personal opinion and some description that might differ from individual to individual. So, in order to define context as a superordinate notion we need to employ this doubt of subjectivity to the notion of an objective context that does exist but cannot be objectively recognised.

A definition that incorporates this feature of context without doubting its universality is the one put forward by Giunchiglia (1993, in Penco 1999:271), i.e. context is "a theory of the world which encodes an individual's perspective about it".

At this point, one could easily argue that there are of course certain elements of our environment that constitute a some what objective context, like 'flowers' or 'cars' or '6 o'clock', but these are merely conventions that are agreed upon by all humans. The term *convention* is used widely here to denote the elements of our contextual knowledge that are common to most people (not merely by convention as such) and includes social conventions (e.g. In Greece, job appointments to public organisations are considered to be better than their equivalents in the private sector), as well as epistemic findings (e.g. Gravity) and common knowledge about the world (e.g. Scotland is a region of the United Kingdom), and refers to certain notions that could always be subject to change.

### **Developing an individual (cognitive) context: perception**

A question that will help arrive at a more complete conception of context seems to raise itself: How do we ultimately develop our context? The answer to this question needs to be provided within the general theoretical background on human cognition. To this effect, the idea of *perception* in its broad meaning within the modularity of mind hypothesis will be employed. According to the Fodorian picture of the mind (cf. Fodor

1983), when there is a stimulus that generates a need for mental processing at a cognitive level, modules are instantly activated and send signals of conceptual data to the central processing unit of the mind. This unit, which is a highly intelligent cognitive "apparatus" of the mind, processes all the information that was sent to it. The outcome of this processing is perception and the creation of new mental representations or metarepresentations through extra processing.

This notion of *perception* easily accommodates the way humans develop their contextual environment at all times of their life and in this general account includes the development of representations of both tangible items in our environment and of less tangible elements such as feelings, beliefs or other representations that affect our behaviour. The *stimulus* that causes perception might include all kinds of data from exposure to the mathematical concept of p to the warm hug of a mother and generates perception according to which we are provided with contextual information for our individual representation of the world. This term is used here, however, not only to denote elements of our physical or psychological environment, but also the outcome of a processing that might lead us to some extra processing as an original stimulus<sup>1</sup>.

# **Applications of context: inference**

Having established a position on context development, it is rather imperative to analyse context applications as well. The necessity of such an argumentation is stressed out by Edmonds, who, in his paper on *The Pragmatic Roots of Context* (1999), underlines the importance of connecting context learning with context application as the only way to successfully account for context. And what Edmonds recognises as context-dependent application involves inference. It can be argued that a simplification of the applications of context to mere inferences is both viable and justifiable. Context lies behind our every action, decision or belief. And it is straightforward that we take actions, make decisions or end up believing in things because of our gift for *logical reasoning*<sup>2</sup>. And traditionally logical reasoning systems are based on some theory of inference; a standard inference rule – i.e. modus ponens – is based on the idea that provided *P*, and that "*P* implies *Q*" (*P*  $\rightarrow$  *Q*), we can infer *Q*.

In an attempt to identify what logical reasoning involves and how it is generated we need to assume that it comprises a set of *inferential processes*, as most literature on the field proposes (cf. Davis 1983). An adequate description of general inferential process can be traced in Sperber & Wilson's *Relevance* (1986, 1995):

An *inferential process* starts from a set of premises and results in a set of conclusions which follow logically from, or are at least warranted by, the premises. (1995:12-13)

<sup>&</sup>lt;sup>1</sup> as observed typically in deductive reasoning situations.

<sup>&</sup>lt;sup>2</sup> Logical reasoning as used here includes all kinds of reasoning the human mind is capable of carrying out (causal reasoning, deductive reasoning etc.).

These premises used in making an inference are identified by Sperber & Wilson as our logical reasoning's context<sup>3</sup> (1995:15-16) for that specific processing. This last idea not only suggests that what Fodor called mental processing can in effect be context-dependent, but also that when processing a thought we do not use the whole of our contextual information to do so, but rather employ a specific subset of our general subjective context. When we process a stimulus this subset of our context defines the way in which it is going to be perceived – or to that end disregarded. What we need to accept, howe ver, is that all mental processing is goal-oriented. It would be rather reasonable to assume that when we process a stimulus we usually do so with a view to produce an outcome, with some sort of intention<sup>4</sup>.

# **Context selection**

It follows from the previous section that there must be a factor that governs our choice of the contextual subset – i.e. what we will address as *subject-matter context* from now on – we will employ to perceive a single general stimulus. One of the first philosophers to identify this factor was Dewey (1991). "Thinking, according to Dewey, is a process of enquiry in which a confused, obscure or conflicting situation is transformed into a determinate one" (Ekbia & Maguitman 2001:158). This determinate situation is, in this account, an element of our perceived subjective context. What Dewey considers to be the factor that leads us though processing to this element is *relevance*:

The existence of the problematic situation to be resolved exercises control over the selective discrimination of relevant and effective evidential qualities as means. (Dewey 1991, in Ekbia & Maguitman 2001:159)

It is quite straightforward that we choose the contextual subset that will be employed in the processing of a specific stimulus in terms of relevance. From common experience, it makes a lot sense to say that we process what is relevant to us (stimulus that leads to perception as opposed to disregarded stimulus) by employing a subset of our cognitive context that is relevant to the stimulus in our inferential processing.

#### **Defining relevance**

Hence, what needs to be provided is a definition of relevance in this broad sense, one that will account for the constant change of our cognitive context and its subjective nature. This definition can be located in Sperber & Wilson's Relevance Theory. Before providing it, however, we need to present the idea of *contextual effect* as put forward by

<sup>&</sup>lt;sup>3</sup> In *Relevance* these premises are examined in terms of producing inferences for the specific task of utterance interpretation (context of utterance interpretation). Thus, they are dealt with as constituting "a psychological construct, a subset of the hearer's assumptions about the world" (Sperber & Wilson 1995:15). Therefore, the total 'set of assumptions about the world' constitutes an individual's general context. Generally speaking, Relevance Theory considers this superordinate context to be our general cognitive environment following the Fodorian tradition and uses context to describe what I will refer to as *subject-matter context*, i.e. a subset of what our general cognitive context that is used in different situations. <sup>4</sup> An assumption proposed by the theory of planning (cf. Bratman 1987) as essential in reasoning.

Sperber & Wilson. According to them, some assumption has a contextual effect when its 'elaboration', in terms of its being used while processing, can *modify* some element in our cognitive context. This modification can occur "in the form of an erasure of some assumptions from the context, a modification of the strength of some assumptions in the context, or the derivation of contextual implications" (Sperber & Wilson 1995:117). Of course, this modification does not include the augmentation of a null context. That is, when we claim to have a contextual effect we mean that we have some kind of change in our general context that will lead us to achieve our subject-matter goal, rather than a mere thought that will be added up to our general context without leading it to change.

So, here is Sperber & Wilson's definition of Relevance:

Relevance An assumption is relevant in a context if and only if it has some contextual effect in that context. (Sperber & Wilson 1995:122) Extent condition 1: an assumption is relevant in a context to the extent that its contextual effects in this context are large. Extent condition 2: an assumption is relevant in a context to the extent that the effort required to process it in this context is small (1995:125)

In the subject-matter of this investigation the notion of 'assumption' corresponds to the subset of our cognitive context that is employed in the process of perception of a stimulus. Thus, what leads us to *context selection* is an analogy of benefit (contextual effects) and cost (processing effort). We choose a subset of our context in which we process a stimulus, if this *subject-matter context* can help 'modify' our general context to some extent without requiring too much processing effort to locate. And what is meant by processing effort is the effort needed to trace this subject-matter context within our general cognitive context.

It seems that from all the representations that constitute a person's cognitive context, there is a part of the information most readily available for processing. In the case of a disaster, are our most beloved ones alright? In the case of my deciding to write a paper on something, is my supervisor going to like my idea? etc. These bits of information are the ones that require the least processing effort to recall and use as subject matter context. They are ultimately the ones that we will employ first as subject-matter context within the same conceptual space, up to the point we will have adequate cognitive effects. And this priority of processing effort considerations to cognitive effect testing is indeed in line with the position Relevance Theory takes on the matter. According to Carston (2002:45), the interpretation of an utterance is carried out as follows:

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 is found; then stop.

#### Context selection, the frame problem and relevance

Looking at context selection from a dynamic relevance-theoretic perspective can help resolve the frame problem, which was introduced by McCarthy & Hayes (1969) and taken up by Fodor (1987). The frame problem constitutes a much-debated issue in cognitive science, and the largest obstacle in specifying context selection principles (cf. Chiappe & Kukla 1996). According to Fodor, this problem is "Hamlet's problem: when to stop thinking" (1987:140), the problem of how to identify which facts are "computationally relevant" (1987:145) in terms of context selection. What Fodor argues is that "modular cognitive processing is ipso facto irrational", since it arrives at conclusions "by attending to less than all the evidence that is relevant and available" (1987:139-140). Following the frame problem, Chiappe & Kukla have strongly criticised relevance theory in that it cannot account for context selection, which "is not merely a side issue, [but rather ...] a *central* issue [: ...] what is at stake is nothing less than an explanation of how our inferences during verbal comprehension manage to be rational" (1996:530). And Sperber & Wilson's reply to this criticism, is that they never purported to solve this problem, because it was wrongly formulated in the first place. However, they assume that in mental processing, "we often do consider some of the environmentally relevant information [...], but never all of it" (1996:530). But, can there be no way of defining how we rationally choose this environmentally relevant information instead of the other, or is this cognitive process irrational on the whole?

In order to solve this puzzle we need to have a look at a more dynamic notion of relevance as dealt with within Relevance Theory. An attempt to adapt Carson's model of utterance interpretation to context selection can provide significant results. When a stimulus triggers our mental system, it is forced to select a subject-matter context within which it will process it, following a path of least processing effort. Thus, the first subject-matter context, in terms of memory recollection, feeling recognition, belief tracking or a combination of some or all of the above, that is most accessible and satisfies the need for large contextual effects will be employed to achieve our potential intention. Let us examine an example Sperber & Wilson put forward in their reply to Chiappe & Kukla's criticism:

You [i.e. Jenny] have invited Granny for dinner and you wonder what main course would most please her. Osso bucco, you decide, remembering that she likes Italian food, raves about the Capri restaurant whose specialty is osso bucco, and has complained that you always serve her kedgeree. Reasonable enough, but don't you have, after all these years, much more evidence of Granny's likes and dislikes? Didn't she, for instance, once say that you couldn't find good veal any more? And yet here you are, processing the veal shanks, and not all these further bits of further information. (Sperber & Wilson 1996:530)

In this case, Jenny's mental system processes her thoughts in relevant subject-matter contexts up to the time that they locate one that satisfies relevance, in the sense of producing positive cognitive effects. The sequence of her thoughts can be roughly<sup>5</sup> illustrated as follows:

<sup>&</sup>lt;sup>5</sup> In the sketch of Jenny's thoughts the concepts incolved are in fact many more than the ones presented here and far more complex, in the sense that it is quite difficult to isolate every single stimulus in Jenny's mind. Thus, we can examine stimuli and subject-matter contexts by groups. They might even include thoughts on perceptions of 'make dinner', which in the subject-matter context in which it is processed would mean 'cook something'. These considerations, however, do not pose any obstacles in this general argumentation.



In this account of context selection the factor that governs Jenny's choice of context is relevance. This assumption might sound empirically correct, but can also be accounted for in theoretical terms. We search for a context that will be accessible without too much effort expenditure and will satisfy our 'goal', whether that involves the interpretation of a stimulus, the making of a decision or the undertaking of an action. When we reach the first context that can produce contextual effects we stop, having satisfied our need to modify our cognitive context (new context to be processed: I am having Granny over for dinner tonight). The intuitive idea behind this can be identified in a legitimate generalisation of a Wilson & Sperber's idea on relevance of a proposition in a context in one of their early writings on relevance (1986:55):

[...] relevance is achieved when the addition of a proposition [= a general stimulus, in our case] to a context modifies the context in a way that goes beyond the mere incrementation of that context with the proposition itself and all its logical implications.

According to this idea, the fact that 'kedgeree would not please Granny' and all its implications are added to Jenny's personal context, but do not modify it in a way that will end Jenny's quest for relevance in perceiving which dish would please Granny (goal to be fulfilled in Jenny's processing). Hence, all this mental processing is justifiable in terms of relevance as the driving force of the mental context selection mechanisms, and a 'rational' pattern of context selection can be accounted for.

## **Context selection in utterance interpretation**

Turning to utterance interpretation now, this pattern of context selection can be employed in a more explicit way, since instead of dealing with abstract thoughts and concepts, we have to deal with explicit and implicit levels of meaning that can be pinpointed with greater ease.

What I will examine at this part is context selection in linguistic communication and in particular in produced language interpretation. I will refer to this idea of produced language as *utterance*, using the term to denote all instances of language production, both spoken and written. In the following parts of the paper, I will try to configure a notion of context selection in linguistic communication as such.

In terms of utterance interpretation, when we are presented with an utterance we can decode its elements<sup>6</sup>, but what we ultimately need is to infer its meaning – what can be described as the goal of linguistic communication itself. If we follow the same reasoning as in the previous sections, we will come to the conclusion that when we mentally process this utterance we do so by employing subject-matter context rather than the whole of our context. As Sperber and Wilson have suggested, an utterance's context can be illustrated as (1995:15-16):

[...]the set of premises used in interpreting [it] [...] A context is the psychological construct, a <u>subset</u> of the hearer's assumptions about the world [...] [It] 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.

What needs to be identified, at this point, is how we select the subject-matter context for interpreting an utterance and what this ultimately includes.

For the purposes of a description of context selection in utterance interpretation I will employ the relevance-theoretic approach to utterance interpretation. With a view to utterance interpretation and disambiguation, the relevance-theoretic framework makes use of the theory of implicatures. As follows from the theory of implicatures, when what is expressed (=explicature) is what is meant, the addressee accepts it as it is. However,

<sup>&</sup>lt;sup>6</sup> We normally recognise its verb or subject and recognize the sounds and words it contains.

when what is expressed hides a different meaning from what is communicated, the addressee can make a number of assumptions on what is possibly meant (=implicatures). In the latter case, the first interpretation of the utterance the addressee finds satisfying in a specific context, is the interpretation s/he accepts as optimally relevant. According to relevance theory, an utterance can either communicate some strong meaning in the form of an explicature, a strong implicature or "a wider array of weaker implicatures" (Carston 2000:88). As already argued, in the first two cases we perceive the explicature or implicature, whereas in the last case we test each implicature following a path of least processing effort and stop processing them when we reach the first one that satisfies our need for relevance, that is provides us with sufficient positive cognitive effects. This whole process is totally mechanistic and leads us to interpreting an utterance in the same way we perceive a stimulus in Fodorian terms.

The context in which we process a specific utterance is derived in terms of our mechanistic device for meaning retrieval, which is generally the hearer's goal in cases of communication. So, we have to select a subject-matter context, a subset of our cognitive context to perceive the communicated meaning. As in general subject-matter context, the factor that governs utterance context retrieval should again be relevance.

In this account, I assume that utterance context has two dimensions: a mere linguistic one and an extra-linguistic one. This assumption is a rather empirical one and is derived from the fact that in order to perceive a linguistic product we need to both perceive its chunks of coded linguistic signs and its meaning in terms of contextual effects that will modify our general context.

Since subject-matter context retrieval is relevance-driven, we also need to assume that our utterance's context selection needs to be low in processing effort expenditure, as follows from the definition of relevance. Taking also into account that the answer to the question 'When do we need to stop thinking?' is when the contextual effects of our interpretation are large and the processing effort minimal, a possible account of utterance context<sup>7</sup> retrieval can be proposed.

It is fairly reasonable to assume, as relevance theory does, that we begin processing an utterance from its explicature. This is justifiable due to minimal processing effort expenditure. What we have just heard is right there in front of us; why bother trying to find some other context to analyse it?

But what does this explicature include? From a first look, it contains all the coded content of the utterance. All the words, sounds, and structures that are included in it. Customarily, the propositional form of an utterance includes temporal assignment and pronominal reference, in terms of anaphora or cataphora, as well. These can indeed provide us with some very interesting data for processing<sup>8</sup>. Accordingly, drawing focus to an element in the utterance in both structural or phonological ways can provide for a subject-matter context for utterance interpretation without having to go beyond explicature. Following Engdahl's argumentation (1999) on focus and dislocation, we can

<sup>&</sup>lt;sup>7</sup> The term *utterance context* is employed to denote the subject-matter context for a specific utterance.

<sup>&</sup>lt;sup>8</sup> For example, Crystal (1997:173) accounts for some possible intonations of southern British English 'no' as a hearer's response and in a special case of 'no' intonation, it is ultimately "asking the speaker to carry on". Consider two partners, one responding to the other in this way during an intimate mo ment. The original speaker processing this utterance in its explicature's context will perceive this 'no' as a 'yes' in this intonational context; there is no need for him to carry on processing this utterance anymore, for his context has been modified, to the end that his task has been fulfilled, he realises that he can carry on what he does.

easily identify intonation and structural variability as prescribing an explicature-oriented subject-matter context in the utterance "he said WHAT?" as opposed to "what did he say?".

However, in addition to the mere propositional form of an utterance, an explicature also contains other elements as well. This notion of *higher-order explicature* was first introduced by Carston (1988) and is extensively discussed by Wilson and Sperber (1993) and Carston (2002). Carston herself provides an interesting example. In the interpretation of the utterance "she gave him her key and he opened the door" (1988:158) the PP 'with the key' is not included in the propositional form of the utterance but is communicated as part of the explicature. This explicature ultimately allows for logical connections between referents included in the propositional form of an utterance and their representation in our minds. But, how can these logical connections be restricted to a small set of subject-matter information available to the specific context alone?

To this effect, let's look more closely to the notion of *permanent semantic memory* (cf. Atkinson & Shiffrin 1968). Our mental semantic memory includes our mental representations of *concepts* and provides for a conceptual space where contextual information related to the lexical items we employ can be provided. Givón (2002) employs this *referential accessibility* of context with respect to describe contextually derived information as such. In his examples, we can see a more dynamic application of what is proposed by conceptual inferences as part of a higher-order explicature with a view to utterance context retrieval (2002:181):

<u>The Gods</u> must be angry.  $\rightarrow$  a religion <u>Daddy</u> is home!  $\rightarrow$  a family

This idea revolutionises our approach to context selection in utterance interpretation. Picking up from where we left our argumentation, the first stage of processing of an utterance employs the explicature's context.

Even if the explicature itself can provide us with adequate contextual information as a subject-matter context itself, what happens if this information does not 'modify' our general context, in terms of cognitive effects? As argued previously, we will stop looking in subject-matter contexts when the stimulus achieves contextual effects in a subjectmatter context. What happens with utterance interpretation is, then, that in lack of contextual effects satisfaction through explicature, we proceed to implicatures. However, in what utterance context do we process possible implicatures? Yet again, relevance provides the answer. Hence, the need for minimal effort expenditure forces us to analyse possible implicatures in the explicature subject-matter. The idea of conceptual referential accessibility in the subject-matter context of the higher-order explicature, gives the potential subject-matter contexts in which we test implicatures by mere assumption of conceptual reference. These subject-matter contexts will be found within the conceptual space of the words/phrases used in the utterance. Thus, the context in Givón's examples for utterances would force us to first test implicatures within the subject-matter of religion or family for the specific utterances.

If again no contextual effect is gained, we have to test implicatures within the utterance contexts of the conversation's immediately preceding utterances expanding the utterance context up to the point where we gain a contextual effect. This would be a valid

move in relevance-theoretic terms, since as Sperber & Wilson argued in an early elaboration on relevance (1982:76), when interpreting an utterance "there is [...] an initial context which consists of the interpretation of the immediately preceding utterance in the conversation or the text". So, if the most accessible utterance context (the explicatures and implicatures provided with the utterance we have at hand) does not suffice to trigger large cognitive effects, we opt to process the utterance in the most accessible utterance context after that (that is, we expand the context to incorporate the context of the immediately preceding utterance). From this point on, we continue accessing preceding utterances' contexts up to the point where one preceding utterance's context recollection requires too much processing effort, which leads to miscommunication. We, then, either disregard the speaker's utterance or ask for clarification to make more subject-matter contextual information accessible.

At this final point, a schematic representation of context selection processes involved in linguistic communication can be outlined:



# **Concluding Remarks**

This paper presented a proposal of a possible solution of the problem of context selection in both general thinking processes and utterance interpretation. Starting from a general conception of context within the human cognitive capacity, it was shown that mental processing is a highly context-dependent activity. Having established a cognitively and psychologically plausible account of context, we were led to the problem of context selection: There is no empirical reason for us to apply the whole lot of our contextual information every time we process a thought; that would be intellectually exhausting. Thus, relevance, as put forward by Sperber & Wilson, was identified as the sole determiner of the way in which we select subsets of context, i.e. subject-matter contexts, for each different processing. The main feature of the thesis that is proposed in this paper, however, is its hypothetical nature since both the conclusions drawn in this paper and the theoretical frameworks that were implemented are based on intuitions on human cognitive mechanisms as well as the fact that it generates more questions regarding an explicit exposition of the way context selection mechanisms work, than answers to the problem of context selection as such.

#### **References:**

- Atkinson, R.C. & Shiffrin, R.M. (1968) 'Human memory: A proposed system and its control processes', in Spence, K.W. & Spence, T. (eds) *The Psychology of Learning and Motivation* (volume 2). New York: Academic Press.
- Bratman, M. (1987) *Intention, Plans and Practical Reasoning*. Cambridge, MA: Harvard University Press.
- Carston, R. (1988) 'Implicature, Explicature, and truth-theoretic semantics', in Kempson,
  R. (ed.) *Mental Representations: The Interface between Language and Reality*.
  Cambridge: CUP pp.155-181.
- Carston, R. (2000) 'The relationship between generative grammar and (relevance-theoretic) pragmatics', in *Language & Communication* 20: 87-103.
- Carston, R. (2002) *Thoughts and Utterances: The Pragmatics of Explicit Communication*. Oxford/Malden: Blackwell.
- Chiappe, D.L. & Kukla, A. (1996) 'Context selection and the frame problem', in *Behavioral and Brain Sciences* 19: 529-530.
- Crystal, D. (1971) Linguistics. Middlesex: Penguin Books.
- Crystal, D. (1997) *The Cambridge Encyclopedia of Language (Second Edition)*. Cambridge: CUP.
- Davis, M. (1983) 'The prehistory and early history of automated deduction', in Seikmann, J. & Wrightson, G. (eds.) Automation of Reasoning (volume 1). New York: Springer-Verlag 1-28.
- Dewey, J. (1991) 'Logic: The Theory of Inquiry', in Boydston, A. (ed.) *John Dewey: The Latter Works*, 1925-1953 (volume 12). Carbondale: Southern Illinois University Press.
- Edmonds, B. (1999) 'The Pragmatic Roots of Context', in in P. Bouquet, P., Serafini, L., Brézillon, P., Benerecetti, M. &Castellani, F. (eds) Modeling and Using Context: Second International and Interdisciplinary Conference, CONTEXT'99, Trento, Italy, September 1999, Proceedings. Berlin/Heidelberg: Springer-Verlag 119-132.

- Ekbia, H.R. & Maguitman, N. (2001) 'Context and Relevance: A Pragmatic Approach', in Akman, V., Bouquet, P., Thomason, R. &Young, R.A. (eds.) Modeling and Using Context: Third International and Interdisciplinary Conference, CONTEXT, 2001, Dundee, UK, July 27-30, 2001, Proceedings. Berlin/Heidelberg: Springer-Verlag 156-169.
- Engdahl, E. (1999) 'Integrating pragmatics into the grammar', in Mereu, L. (ed) *Boundaries of Morphology and Syntax*. Amsterdam: John Benjamins 175-194.
- Fodor, J.A. (1983) Modularity of Mind. Cambridge, MA: MIT Press.
- Fodor, J.A. (1987) 'Modules, frames, fridgeons, sleeping dogs and the music of the spheres', in Garfield, J. (ed.) *Modularity in Knowledge Representation and Natural Language Understanding*. Cambridge, MA: MIT Press 25-36.
- Giunchiglia, F. (1993) 'Contextual Reasoning', in Epistemologia 16: 345-364.
- Givón, T. (2002) 'Toward a neuro-cognitive interpretation of 'context', in *Pragmatics* and Cognition 9: 175-201.
- Grice, H.P. (1975) 'Logic and Conversation', in Cole, P. & Morgan, J.L (eds.) Syntax and Semantics volume 3: Speech Acts. New York: Academic Press 41-58.
- Kaplan, D. (1989) 'Afterthoughts', in Almog, J., Perry, J. & Wettstein, H. (eds.) *Themes* from Kaplan. Oxford: OUP 565-614.
- Levinson, S.C. (1983) *Linguistics*. Cambridge: CUP.
- McCarthy, J. & Hayes, P.J. (1969) 'Some Philosophical Problems from the Standpoint of Artificial Intelligence', in *Machine Intelligence* 4:463-502.
- McCarthy, J. (1993) 'Notes on Formalizing Context', in *IJCAI* '93 *Proceedings of the thirteenth international joint conference on Artificial Intelligence*. Palo Alto: Morgan Kaufman 555-560.
- Penco, C. (1999) 'Objective and Cognitive Context', in P. Bouquet, P., Serafini, L., Brézillon, P., Benerecetti, M. &Castellani, F. (eds) Modeling and Using Context: Second International and Interdisciplinary Conference, CONTEXT'99, Trento, Italy, September 1999, Proceedings. Berlin/Heidelberg: Springer-Verlag 270-283.
- Sperber, D. & Wilson, D. (1982) 'Mutual Knowledge and Relevance in Theories of Comprehension', in Smith, N.V. (ed.) *Mutual Knowledge*. London/ New York: Academic Press 61-85.
- Sperber, D. & Wilson, D. (1986/1995) *Relevance: Communication and Cognition*. Oxford/Malden: Blackwell.
- Sperber, D. & Wilson, D. (1996) 'Fodor's frame problem and relevance theory', in *Behavioral and Brain Sciences* 19: 530-532.
- Trask, R.L. (1999) Language: The Basics (Second Edition). London/New York: Routledge.
- Wilson, D. & Sperber, D. (1986) 'Inference and implicature', in Travis, C. (ed.) *Meaning and Interpretation*. Oxford/New York: Basil Blackwell 45-75.
- Wilson, D. & Sperber, D. (1993) 'Linguistic form and relevance', in Lingua 90: 1-25.