What is a context?
Theoretical and empirical evidence

Jörg Meibauer

Although most scholars would accept that the notion of context is fundamental not only for pragmatics, but also for linguistics in general, robust theories of context are lacking. After sketching traditional approaches that suppose a scale between neutral and rich contexts, mapping aspects of this scale into components or levels of linguistic description, the notion of context in recent discussions of minimalism versus contextualism is focused. It turns out that this debate gains momentum exactly because of different conceptualisations of the notion of context. Findings from research in experimental pragmatics, especially from a psycholinguistic and neurolinguistic point of view, may help here because aspects of a context are directly investigated.

1. Introduction

One core notion in linguistic research is the notion of context. This has to do with the fact that the grammatical system of a language has the overall function to serve human communication. And communication happens in certain contexts of utterance. It could be argued, then, that a comprehensive theory of language must contain the notion of context. There is one particular linguistic subdiscipline called pragmatics that is, in a way, built around the notion of context. Or, in other words: “In pragmatics, context is everything” (Wharton 2010: 75). This is so, because pragmatics, as a separate field of research, is typically defined as a discipline that deals with context-dependent aspects of meaning.

If context is an important notion not only for pragmatics, but also for linguistics in general, then one would assume that there is at least something like a standard definition of “context”, or even a comprehensive theory of context. Far from it! While there is plethora of work pointing out aspects of the “context”, widely accepted standard definitions or theories on the context are not on the market. Of course, this could have to do with the mere impossibility to deliver such definitions or theories (context-scepticism), or with the inherent difficulties
connected with such an enterprise that in principle could be overcome (context-optimism).

In a recent paper devoted to an attack on so-called contextualists, the philosopher Kent Bach explains:

> What is loosely called “context” is the conversational setting broadly construed. It is the mutual cognitive context, or salient common ground. It includes the current state of the conversation (what has just been said, what has just been referred to, etc.), the physical setting (if the conversants are face to face), salient mutual knowledge between the conversants, and relevant broader common knowledge. (Bach 2005: 21)

While this definition certainly picks out some of the more important aspects of the notion of context, the quotation suggests that loosely pointing to some of these aspects is all one can do. This is telling in itself, because it implies that a strict definition might not be given. But how can then the current pragmatic debate between minimalists and contextualists ever be settled, when the core notion of context is left in the dark?

It goes without saying that the review of context research to be presented here will not present a solution either. Nevertheless, it may be helpful to foster the reflection on context, as will the other contributions in this volume. In the following paragraphs, I would like to focus on two aspects of contemporary context research: First, the notion of context in recent discussions of minimalism versus contextualism, second the notion of context in experimental pragmatics, especially in psycho- and neurolinguistic approaches to pragmatics.

This focus is connected with the hope that at least some of the recent results in psycholinguistic and neurolinguistic research, as well as ongoing research in clinical pragmatics (Perkins 2007, Cummings 2009), will help to clarify crucial issues in the debates on the correct semantics/pragmatics divide, the distinction between “what is said” and “what is implicated”, the code/inference distinction and other important notions that have to do with context. Thus, in one recent study by Larson et al. (2009), the distinction between “what is said” and “what is implicated” was submitted to empirical testing, with the result that participants were sensitive to this distinction indeed; moreover, an objective third-person perspective was found to enhance the participants’ abilities. A meta-study dealing with recent results is beyond the scope of this contribution, but see the volumes by Noveck & Sperber (2004), Sauerland & Yatsushiro (2009), Meibauer & Steinbach (2011) and some of the articles in this volume.

Before I will come to both of these questions, however, I would like to go into earlier approaches at pinpointing the notion of context.
2. Some classical approaches to the notion of context

The notion context stems from Latin contextus “connection, coherence”. Basically, it refers to all the aspects that are relevant for an understanding of a certain piece of text, be it written or spoken language (“discourse”). (In Germany, this term was already used in the 16th century, see Danneberg 2000.)

Among these aspects, usually the following dimensions of context are mentioned:

(1) Dimensions of context

- intratextual context (‘co-text’): the relation of a piece of text to its surrounding text;
- infratextual context: the relation of a piece of text to the whole of the text;
- intertextual context: the relation of a text to other texts;
- extratextual context (‘situational context’): the relation of a text to aspects of the situation in which the text has been produced or interpreted.

The last notion, also dubbed “communicative context” (Hanks 2009), is the one that typically is meant in pragmatics. Most researchers would share the idea that such a context contains at least a speaker/writer, a hearer/reader, a communicative act, and points in time and space.

However, the other types of context are also relevant for a comprehensive theory of context. For instance, quotation certainly is an important meta-communicative property of human languages. In essence, it is a relation of a text (the quotation) to other texts (the original utterance) (cf. Brendel, Meibauer & Steinbach 2011; for free indirect discourse, see Schlenker 2004).

One classical worry with the notion of context is its apparent wideness, open-endedness and pervasiveness. This aspect is already stressed in the following quote from ca. 1798:


‘However, it may be often said that at a certain point the true sense cannot be found, because one doesn’t know all the historical facts and circumstances. In this case, I can indicate the probable sense. The so-called “explaining from the context” usually is nothing more than guessing.’ [My translation, JM]

For example, in a historical text, a certain statement should be interpreted with respect to all the relevant social, political, economical, religious etc. aspects, but
these aspects are not always known, and even if they are known it may remain unclear in what relation they stand to the respective utterance.

While one might admit that a full interpretation is not possible and a good guess at a probable sense is all that remains, modern researchers worked towards the restriction of contextual information. In the extreme, this led to the postulate of a “neutral context” or “null context”. Here is an illustration of this construct by the semanticist Jerrold J. Katz:

The anonymous letter situation is the case where an ideal speaker of a language receives an anonymous letter containing just one sentence of that language, with no clue whatsoever about the motive, circumstances of transmission, or any other factor relevant to understanding the sentence on the basis of its context of utterance. (Katz 1977: 14)

For example, if that letter contained the sentence “I will come tomorrow” then this would amount to the assertive speech act that an unidentified person would come tomorrow. But Harnish (1982) objected that this scenario is not realistic (cf. also Bach & Harnish 1979). Why should the hearer assume that an illocutionary act was realized in the first place? Without any contextual information, the hearer is at a loss with her interpretation. All real communication happens in rich contexts.

Nevertheless, there was a need to distinguish a narrow context from a wider context, and this need had to do with the distinction between semantics and pragmatics. Thus, Bierwisch (1980) draws a distinction between sentence meaning, utterance meaning and communicative sense, where sentence meaning belongs to sentence semantics, utterance meaning to the conceptual system, and communicative sense to the interactional system.

While the conceptual system operates in a narrow context, i.e. a context that allows only for the instantiation of deictic variables, the interactional system allows for the integration of wider aspects of the context, for example world knowledge or knowledge about the persons communicated with. Note that in this model, the narrow context is an integral part of the wider context.

<table>
<thead>
<tr>
<th>Semantics</th>
<th>Conceptual system</th>
<th>Interactional system</th>
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<tbody>
<tr>
<td>Truth-conditions</td>
<td>Deixis, conceptual shift</td>
<td>Illocutionary force</td>
</tr>
<tr>
<td>Sentence meaning</td>
<td>Utterance meaning</td>
<td>Communicative sense</td>
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Figure 1. Bierwisch’s (1980) three-level theory of meaning
Such a model is not suited for modelling the dynamic aspects of communication, the fact that contexts are not static but changing. Theories of context change try to capture the idea that in a dialogue, an utterance of the speaker constitutes a context for an utterance of the hearer, and so forth (cf. Roberts 2004). In this process, there arises a common ground, i.e. knowledge that is shared by speaker and hearer (cf. Clark 1996, Clark & Schaefer 1989, Stalnaker 1998). This common ground or mutual background knowledge is presupposed and may be manipulated in the course of the conversation (cf. Gauker 1998). Typically, such approaches concentrate on informational content, thus leaving out emotional and expressive features of the discourse, let alone associations of the individuals engaged in the discourse that do not find their way into the actual discourse.

Finally, in ethnographic discourse analysis, it is stressed that contexts are not given somehow, but largely constituted or constructed by the participants in the course of conversation. Numerous “contextualization clues” that are regularly used by the participants point into that direction (cf. Auer 1995, Goodwin & Duranti 2000, Bosco et al. 2004, Fetzer 2004, this volume). These devices include proxemic and kinesic information as well as linguistic information. Contextual clues are systematically related to certain “frames” that are activated by the participants, e.g. turn-taking frames. These frames restrict the interpretation of the contextualization clues. For example, discourse signals like um, yeah or the German modal particle ja help interlocutors to orientate themselves with respect to a certain context. Thus, ja refers to the fact that a certain proposition is already known to the hearer. Similarly, intonation is used to construct a context (cf. House 2006).

Not surprisingly, question-answer sequences, as a building brick of discourse, are crucial for both approaches. In dynamic approaches to discourse, answers to questions go directly into the common ground. Questions are devices that constitute a new context stage. On the other hand, questions may be seen as contextualization clues that trigger a certain turn-taking frame and set the obligation for the hearer to answer. Thus it turns out that many aspects of context are seen from different perspectives, but do not necessarily exclude or contradict each other, and there are approaches which implement the idea of social constructedness of the context into formal and computational models of discourse (cf. Akman 2000, Bouquet, Ghidini, Giunchiglia & Blanzieri 2003).

Of course, the context-sceptic would think: Maybe there is not such a thing as a single coherent theory of context; maybe Gross (2001) is right in stressing that “context” is a theory-dependent term anyhow. (Think of the puzzling fact that there is no generally agreed upon notion of “sentence”, although most would agree that this is a core notion of syntactic theory.) If so, minimalists and contextualists cannot agree on what a context is, because they pursue different theoretical aims.
So the question arises whether we can define general properties of a proper notion of context? Interestingly, Gross (2001: 27–29) proposes six desiderata with respect to the influence a context can have on a sentence proposition (context sensitivity). According to him, (i) the context should “determine or fix the proposition expressed”, (ii) contexts shouldn’t be trivial, (iii) contexts should be characterized in an epistemically illuminating manner, (iv) contexts should be finite, (v) contexts should be characterized in non-intentional terms, and (vi), the characterization of a context should itself be context-insensitive. While such a list of demands is appealing, one might be hesitating with regard to the general applicability of these desiderata. For example, it is unclear whether these desiderata take into account the problem of “emergent” context features, i.e. those properties of a context that continuously develop in the ongoing discourse.

As is witnessed by many researchers, one fundamental problem in context research is how to solve the “frame problem”, i.e.

how, from all the myriad pieces of information available from memory, perception and inference, do hearers manage to converge on the single set of assumptions that yield the interpretation the hearer intended. (Wharton 2010: 75)

And, in a similar vein, it may be asked: How can we

understand which subset of the vast knowledge people have about the world, their own past, their goals, the current situation, and their interlocutors, is part of the effective interpretive background as words come in, and why. (van Berkum 2009: 308)

This is a big question related to context indeed. Let us see whether there are more simple or down-to-earth notions of context available in the debate between minimalists and contextualists.

3. Context in the minimalism-contextualism debate

Drawing the boundary between pragmatics and semantics – both being disciplines that deal with linguistic meaning – belongs to the most basic problems of modern linguistics. In recent years, a lively debate has emerged about that problem (see Ariel 2008, Bianchi 2004, Szabó 2005). Most researchers engaged in the debate relate their approaches to the fundamental work of Paul Grice, who made the by now classical distinction between “what is said” and “what is implicated” (cf. Grice 1989 [1975], Larson, Doran, McNabb, Baker, Berends, Djalali & Ward 2009).

Numerous sophisticated approaches to the question how the distinction between what is said (semantics) and what is implicated (pragmatics) should be
spelled out have been put forward. One basic idea is that semantic meaning is context-independent, while pragmatic meaning is determined by the context. Note that indexicals, reference assignment, and the resolution of ambiguities belonged to semantics, albeit these processes build on contextual information (cf. Chastain 1975, Tabossi 1989, Levinson 2004). The main mechanism how contextual information is fed into the derivation of implicatures is pragmatic inferencing. In the process of figuring out a certain implicature the hearer integrates contextual knowledge where necessary (cf. Hirschberg 1991 [1985], Levinson 2000, Meibauer 2006, Geurts 2010).

The most widely accepted type of implicature is the “conversational implicature”. According to Grice (1989 [1975]), it comes in two ways, generalized conversational implicature (GCI) and particularized conversational implicature (PCI). The following example from Levinson (2000: 16–17) illustrates this distinction:

(2) The distinction between PCI and GCI (Levinson 2000)

Context 1
Speaker A: What time is it?
Speaker B: Some of the guests are already leaving.
PCI: ‘It must be late.’
GCI: ‘Not all of the guests are already leaving.’

Context 2
Speaker A: Where’s John?
Speaker B: Some of the guests are already leaving.
PCI: ‘Perhaps John has already left.’
GCI: ‘Not all of the guests are already leaving.’

Because the implicature (‘... not all ...’) triggered by some arises in both contexts, it is relatively context-independent. Relative context-independence is the most prominent property of GCIs. In addition, GCIs are normally associated with
certain linguistic forms. For example, if someone utters Peter is meeting a woman this evening it is, because of the indefinite article, standardly implicated that the woman is not his wife, close relative, etc. (cf. Grice 1989 [1975]: 37). In contrast to GCIs, PCIs are highly context-dependent, and they are not consistently associated with any linguistic form. Note that the aptness of this distinction is denied by Relevance theorists. For them, implicatures never come as a quasi-automatic inference, cancelled if the context demands this; instead, all implicatures are steered by the main RT-principles, the First (cognitive) and the Second (communicative) Principle of Relevance (Carston 2002, 2010).

The distinction between conversational implicatures and “conventional implicatures” draws on the observation that in coordinations like Anna is rich but she is happy the truth conditions are just the truth conditions of the coordination Anna is rich and she is happy, with the exception of the contrastive meaning of but. This meaning is not truth-functional, and it is not context-dependent either; hence there is some motivation for assuming the category of conventional implicature. There are harsh opponents of this approach (Bach 1999), but there are also attempts at reviving the notion (Potts 2005, Horn 2010). While Bach (1999) argues that sentences may have more than one proposition, and there is no need of invoking a mythical notion of conventional implicature (something that is not really an implicature, to be sure!) (cf. Conrad 2011), Potts (2005) revived the notion, drawing on cases like nominal appositives, expresses like damn etc., which do not attribute to what he calls at-issue content (cf. Kaplan 1999, McCready 2010, Potts, to appear).

The rough picture of the major camps involved in the debate on the proper semantics/pragmatics divide is that we have the so-called “Neogriceans” on the one hand, and the “Relevance theorists” on the other. Neogriceans by and large tend to defend the conceptual value of Gricean maxims or principles (e.g., Levinson 2000, Atlas 2005, Horn 2009), while Relevance theorists argue against such maxims or principles and refer to general cognitive principles such as the Principles of Relevance (e.g., Sperber & Wilson 1995, Carston 2002).

Indeed, there are many differences in the pragmatic architecture of the rivaling camp’s approaches as well as in the coverage of empirical phenomena. But, quite surprisingly, Neogriceans as well as Relevance theorists go for the assumption that propositional structures are systematically underdetermined and therefore are in need of enrichment. These processes of enrichment are of an essentially pragmatic nature, and hence pragmatics is conceived of as being able to influence semantics.

Several terminological proposals are on the market to fix the phenomenon of pragmatically steered propositional enrichment: “explicature” (Carston 2002, Capone 2009), “impliciture” (Bach 1999, Garrett & Harbish 2007, 2008, 2009), “pragmatic intrusion” (Levinson 2000), or “intuitive content” (Recanati 2004). The
What is a context?

<table>
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<th>Sources of under-determinacy</th>
<th>Examples</th>
<th>Proposition</th>
<th>Pragmatic process</th>
</tr>
</thead>
<tbody>
<tr>
<td>multiple encodings</td>
<td>She surprised the man in the pyjama.</td>
<td>severable</td>
<td>context-dependent resolution</td>
</tr>
<tr>
<td>indexical references</td>
<td>Now I like it.</td>
<td>variable</td>
<td>context-dependent filling</td>
</tr>
</tbody>
</table>
| missing constituents         | - In the cave.  
- Super 90 is better.  
- This fruit is red. | incomplete | adding of conceptual constituents |
| unspecified scope of elements, e.g. negation | - She didn’t toast the bread with a knife in the bathroom.  
- I didn’t eat breakfast. | full | derivation of speaker-intended proposition + resolution of ambiguities + filling of variables |
| underspecificity or weakness of encoded conceptual content | The way was uneven. | full | derivation of speaker-intended proposition + adjustment of conceptual constituents |
| overspecificity or narrowness of encoded conceptual content | The room was silent. | full | derivation of speaker-intended proposition + adjustment of conceptual constituents |

**Figure 3.** Sources of underdeterminacy (Carston 2002, drawing on Gross 2001)

detailed comparison of these proposals, or, more generally, the explicit/implicit distinction, is of course on the pragmaticist’s research agenda (for “Grice’s circle”, see Kertész & Kiefer (to appear); for a critical approach, see King & Stanley 2005; for the distinction between impliciture and explicature, see Bach 2010).

Insofar as “underdeterminacy” is taken as a serious linguistic phenomenon, there is an in-built tendency of the approaches mentioned to restrict the realm of truth-conditional semantics, or to downplay its importance. According to those approaches, there are truth-conditions or logical forms for sentences, but they occur only at a certain stage in the development of the comprehensive meaning of an utterance.

The tendency sketched has of course provoked conjectures. For instance, some researchers defend a classical, minimalist approach to the truth conditions of a sentence, and consequently assume a more powerful apparatus for pragmatic interpretation (cf. Borg 2004, Cappelen & Lepore 2005, Predelli 2005). “Minimalism” is thus opposed to “Contextualism”, understood as the persuasion that context influences semantics, not only in the case of indexicals, but also in numerous further aspects (cf. Taylor 2009). Recanati (2010: 16) summarizes the minimalist picture as follows:

“Saturation” is, according to Recanati (2010: 4), defined as a pragmatic process of contextual value-assignment that is triggered (and made obligatory) by something in the sentence itself, namely the linguistic expression to which a value is contextually assigned.

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Figure 4. The minimalist picture (Recanati 2010)

Indexical variables that are contextually instantiated are a case in point. “Modulation”, by contrast, is a “free” pragmatic process, as in the case of metaphor. Recanati’s (2010) “truth-conditional pragmatics”, as a contextualist approach, says that truth-conditional processes may be affected not only by saturation but also by modulation.

However, considering further approaches, the picture is more complex. In her review of different positions in logical space, Borg (2010: 96) proceeds from the following example, taken from Travis (1989: 18–19). This example demands that you “imagine a fridge which contains only a small puddle of milk on its floor”. Then two contexts are compared (as a thought experiment, displaying a “context-shifting argument” (CSA) in the sense of Cappelen & Lepore 2005; see also (2) above):

(3) Context 1 Hugo is dejectedly stirring a cup of black coffee. Noticing this Odile says There is milk in the fridge.
Context 2 Hugo has been cleaning the fridge. Odile opens the fridge door and says There is milk in the fridge.

While the utterance of Odile was the same on both occasions, the truth value may be different. On the first context, what was said was false, in the second context what was said was true. The point is that milk must be “enriched” in some way such that it denotes “milk in a bottle that can be used for coffee”, etc. (Note in addition a fact not mentioned by Borg, namely that in the first scenario the utterance would be interpreted as an advice, while in the second scenario, it would be interpreted as a reproach.)
Borg (2010) sketches the following five approaches to the semantics/pragmatics divide:

(4) **Five approaches to the semantics/pragmatics divide** (Borg 2010)

- Minimal semantics
- Indexicalism
- Contextualism
- Added parameters
- Occasionalism

“Minimal semantics” is the view that (formal) semantics deals with truth conditions (of propositions) which reflect the compositionality and hence the syntactic structure of a sentence. The only syntactically relevant context-sensitive elements are the indexicals, so that Minimal semantics is not totally context-free. Aspects of meaning that are not captured by truth conditions are handled by pragmatics. Note that Grice (1989 [1975]) is a minimal semanticist according to this sketch. Others include Borg (2004) and Cappelen & Lepore (2005).

“Indexicalism” differs from Minimal semantics “by expanding the amount of syntactically licensed context-sensitivity in our language” (Borg 2010: 98–99). Thus, it might be argued that there are further “hidden” indexicals over and above the usual ones, or that our understanding of what an indexical is must be widened. Such positions are ascribed to Stanley (2000, 2005a, b).

“Contextualism” is the view that pragmatic principles are active in the determination of truth conditions. Thus it is denied “that the route to semantic content runs exclusively via syntactic content” (Borg 2010: 99–100). Proponents of such an approach are researchers like Levinson (2000), Sperber & Wilson ([1986] 1995), Carston (2002), Jaszczolt (2005), Recanati (2010).

The “Added-Parameters-Approach” “treats contextual material (in at least some cases) as contributing to the parameters against which a proposition is assessed for truth or falsity” (Borg 2010: 100). For instance, with respect to context-sensitive predicates like *rich* or *tall*, one could assume that there are different contextual parameters added in the truth-evaluation of sentences like *Jill is rich* and *Jake is tall*: Depending on this parameters *Jake is tall* may be true on one occasion, and false on another. Thus, “Nonindexical Contextualism” holds that such sentences do not have context-invariant propositions (MacFarlane 2007, 2009).

Finally, “Occasionalism” rejects the “idea of ‘filling out’ a linguistically expressed content to get to the complete content the speaker had in mind, for this kind of context-independent content is non-existent” (Borg 2010: 103). Occasionalism is the radical view (in the tradition of the late Wittgenstein) that there is no such thing as a context-independent meaning. All meanings are intimately related.
to contexts, because they arise only in contexts. Even if utterances were enriched (as in the case of missing constituents), the sort of enrichment (say the underlined material in *I didn’t eat breakfast this morning*) is in need of contextual interpretation, too (cf. Travis 1989).

Discussing weaknesses and strengths of these approaches, Borg (2010: 103) suggests that “it is really the old warhorses of formal semantics and use-based theories of meaning which remain standing”. I would like to add that with the advent of experimental pragmatics, some of the typical battles of the “border wars” (Laurence Horn) will be enriched with more empirical substance.

Let us take stock: Context, it seems, is indeed a theoretical notion, as far as different theoretical approaches to the semantic-pragmatic interface are concerned. All the major issues – whether there is a difference between the said and the implicated, between GCI and PCI, between implicature and explicature/impliciture, between conversational implicature and conventional implicature, giving rise to battles not only between Neogriceans and Relevance Theorist, but also between Contextualists (including Neogriceans and Relevance Theorists) and Minimalists – have to do with certain notions of context.

Finally, I will go into an interesting aspect of the notion of implicature, which is so important for modern views of the semantic-pragmatic interface. Note that there is one single test in the literature which is used by all researchers alike, namely the cancellability test (defeasibility test). Its rationale may be explained in the following fashion:

(5) **Cancellability**

If there are two meaning aspects *x* and *y*, and *y* may be cancelled while *x* may not, then *y* is pragmatic in nature, while *x* is semantic.

In a recent article, Weiner (2006) argues that there are cases of implicature where the cancellability test fails. Here is a story provided by Weiner (2006: 128) that is intended to prove the point:

Suppose that Alice and Sarah are in a crowded train; Alice, who is obviously able-bodied, is sprawled across two seats, and Sarah is standing. Sarah says to Alice, “I’m curious as to whether it would be physically possible for you to make room for someone else to sit down.” The implicature is that Alice should make room. It is extraordinarily unlikely that Sarah really is curious about whether Alice is physically capable of moving, since it is mutually obvious that she is capable.

Thus, as Weiner points out, Sarah has flouted Grice’s first maxim of Quality. But the implicature may not be cancelled:
Suppose now that Sarah adds, ‘Not that you should make room; I’m just curious.’ This has the form of an explicit cancellation of the implicature. Nevertheless, the implicature is not cancelled. Sarah is still suggesting, even more rudely, that Alice should make room. (Weiner 2006: 128)

And with her second remark, she flouts the first maxim of Quality again. One could also argue that, by her second remark, Sarah reinforces the implicature instead of cancelling it.

Indeed, in very many cases, explicit cancelling “by the addition of a clause that states or implies that the speaker has opted out” (Grice 1989 [1975]: 39), e.g., by the addition of statements like but not p or I do not mean to imply that p, is, to say the least, not quite plausible. That the speaker was in fact ironical or metaphorical, etc. is mutually known to both participants, because the speaker has made clear that this was his intention.

But, of course, there is the possibility of cancelling by an imaginable alternative context where the implicature does not arise in the first place. Thus, “contextual cancelling” is given, “if the form of utterance that usually carries it is used in a context that makes clear that the speaker is opting out.” (Grice 1989 [1975]: 39).

Blome-Tillmann (2008: 159) accepts the difficulties with explicit cancelling pointed out by Weiner. But for the former, it is not an argument against cancellability altogether, because explicit and contextual cancelling are related. For every context, where explicit cancelling does not work, there is a possible contextual alternative where it does.

Jaszczolt (2009) attacks this proposal in turn. According to her, explicit and contextual cancellation belong to different levels of language description that should be kept apart. Directed against Weiner (2006) and Blome-Tillmann (2008), she argues that “a particular scenario on which an implicature cannot be cancelled cannot ever constitute a counterexample to cancellability tout court” (p. 263–264). Moreover, Jaszczolt worries about the fact that explicit cancellability is a problematic criterion for those working with authentic discourses, and that it is hard to separate it from repairs. And finally, she points out that Grice “himself did not regard cancellability as a decisive criterion in distinguishing implicatures” (p. 267), for example, when “using a word or form of words in a loose or relaxed way” (Grice 1989 [1975]: 44).

Note in addition that there is some dispute over the question whether explicatures are cancellable. This is what Carston (2010) assumes, while Burton-Roberts (2010) and Capone (2009) argue against this claim. According to the former, neither explicatures nor PCIs are cancellable. The only type of enrichment, where explicit cancelling makes any sense are GCIs. Examples of PCIs showing cancelling are better understood as cases of clarification.
I conclude from this discussion that there are indeed cases where explicit cancelling is not possible. But this appears to have no repercussion on the general notion of implicature, where at least contextual cancelling should be possible. Thus, to imagine a plausible context or refer to a particular authentic context remains an important methodological tool in pragmatic argumentation. However, on a more cautionary note, one might ask how this imagination of a plausible possible context may be controlled. Neither the description of such a context usually is complete, nor can it be guaranteed that authors and readers agree on the details of such an imaginary context.

4. Context in experimental pragmatics (psycholinguistics)

Those researchers that believe in the constructive nature of a situational context argue that speakers, hearers and bystanders may have different perspectives of the utterance situation (see Recanati, Stojanovic & Villanueva 2010). Thus, there are individual constructions of what the situational context is that only partially overlap. Hence it is tempting to invoke a psychological notion of context, i.e. where the individual perspective on a context may be approached and made manifest.

With the advent of experimental pragmatics this became indeed an important approach to the study of context. Experimental pragmatics, as I understand it, is the application of psycholinguistic and neurolinguistic methods to the exploration of pragmatic phenomena. When the focus is on experimental research into the semantics-pragmatics distinction, we may very well speak of “experimental pragmatics-semantics”, thus alluding to the fact that research into experimental pragmatics necessarily is involved in reflecting semantics, too.

As a quick glance into the seminal collection edited by Noveck and Sperber (2004) shows, experiments have been run with regard to pragmatic phenomena as diverse as reference, felicity conditions, scalar implicatures, irony and metaphor (see also Sauerland & Yatsushiro 2009, Meibauer & Steinbach 2011). But another look into the Handbook of Pragmatics (Horn & Ward 2004) or the Cambridge Handbook of Pragmatics (Allan & Jaszczolt 2012) shows that there is still much experimental ground to cover.

It is not by mere chance that experimental pragmatics profits from experimental psycholinguistics, especially with regard to language acquisition. Research into language acquisition has a strong focus on elicitation studies, and it is in the study of research into pragmatic development (and impairment) where the two strands of research, experimental pragmatics and research into pragmatic development, meet. Indeed, it appears as if the appeal of the new research paradigm is due to this
particular constellation, as the numerous studies on the acquisition of scalar implications impressively show (cf. Katsos 2012, Meibauer 2012).

In experimental settings, there is the methodological requirement to control for influences from the context. In particular, there is a need to strictly distinguish between grammatical and lexical knowledge on the one hand, and contextual and encyclopedic knowledge on the other hand. Context may matter in two dimensions: First, the context of the experimental setting, second, the context evoked by test materials, e.g. the vignettes presented to the test persons in truth value judgment tasks.

Now it appears that where no explicit context is given, test persons tend to construct a more or less fitting context. And even if an explicit context is given, it is hard to control for all aspects of knowledge that may go into a judgment. For instance, in one experiment dealing with scalar implicatures triggered by the French quantifier *certains* (scale: <tous, certains>), children and adult controls were asked whether they agreed with the utterance in (6) (cf. Noveck 2001, Experiment III).

(6) Some giraffes have long necks.

“Logical” children reacted with “yes”. Possibly, they reasoned that even if all giraffes had long necks, it is at least true that some have long necks. Thus, 89% out of 31 children aged 7–8, and 85% out of 30 children aged 10–11 agreed. In contrast, “pragmatic” adults answered “no”. For them, it would be underinformative to answer yes, because, as far as they know, all giraffes have long necks. From 15 adults, 41% agreed.

But it seems that it is expert knowledge that matters here. What, if children were not more logical, but more cautious in comparison to the adults? After all, there could exist some giraffes (e.g., a certain species, or baby giraffes) that have (relatively) short necks indeed. And even some adults may have entertained such thoughts. More generally, then, it may be asked whether and to what extent expert knowledge influences the generation of pragmatic inferences.

In subsequent studies, contexts were more or less enriched in order to control for contextual knowledge. In Papafragou & Musolino (2003), where the Greek quantifier *meriki* (scale: <oli, meriki>) was tested, the focus was on felicity instead of truth:

If preschoolers, unlike adults, cannot readily infer the pragmatic nature of the task, and are not given adequate motivation to go beyond the truth conditional content of the utterance, they may readily settle for a statement which is true but does not satisfy the adult expectations of relevance and informativeness. (Papafragou & Musolino 2003: 269)
In their acting out-Experiment 1 using truth value judgment test methodology, children were shown three toy horses which were about to jump over a toy fence. When all horses had jumped over the fence, a puppet commented on that event with, e.g. *Some horses jumped over the fence*, and children were asked whether the puppet “answered well” (focusing on felicity). Adults rejected the puppet’s statement in 92.5% of the time, whereas 5-year-olds rejected the puppet’s statement only in 12.5% of the time. But while the relevant context is explicitly given here, the wider context, including the authority of the puppet commenting on the scenario, may have influenced the results. This possibility, however, was denied by the authors, since control items yielded fitting results (p. 268). (This corresponds to the objection that it might be easier to agree to a statement than to reject it.)

Nevertheless, it appears that evaluating utterances of a puppet character is different from spontaneously describing a scenario. Obviously, the introduction of a puppet character is intended to more easily invite children to give answers. This, however, presupposes that children are able to understand the utterances of the puppet character in relation to the scene displayed.

Admittedly, this experimental design (except for the puppet character) comes close to a neutral context, because the relevant information is evident to the participants. But it may be questioned that this is a natural discourse situation, where it is typical that part of necessary information is backgrounded or has to be inferred. In a “neutral” situation, where all the evidence is present, participants may wonder why questions concerning an evident fact are asked at all. In this case, observation of authority (after all, the researcher *must* have a reason for asking questions) might take over and influence the results.

In sum, then, it appears that experimental designs cannot do without representing rich contexts, because participants usually react to such rich contexts and are at loss when forced to act without them. If “neutral” contexts are demanded, participants try to create contexts on their own (Guasti et al. 2005: 684–85). And even if it is assumed that participants are able to construct a “neutral” context, the use of certain language materials “can create their own context through a variety of presupposition triggers and information-structure triggers”, as Breheny et al. (2006: 445) stress.

Note that, under one recent hypothesis, it is neither the ability of children to calculate implicatures nor the insufficient observation of the context that matters, but simply an incomplete lexical entry for *some*, lacking any relation to the stronger alternate *all* (Guasti et al. 2005 – the “Enriched Lexicon Hypothesis”). While this hypothesis of insufficient lexical learning has some plausibility, it may be asked what type of contexts children have to come across in order to acquire more adult-like lexical entries. That types of contexts are able to influence children’s choices...
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has been shown in experimental settings where children were exposed to face-threatening scenarios (cf. Bonnefon, Feeney & Villejoubert 2009).

Katsos (2009) reports on ongoing research with the aim of comparing children and adults with regard to their ability to derive GCIs versus PCIs (cf. Katsos 2012). Underinformative utterances (U-utterances) involved <all, some> as well as contextually given (ad hoc) scales, for instance when the fictional character Mr. Caveman would say *The dog painted the triangle* where the dog painted the triangle and the heart (cf. Katsos 2009: 61). The results pointed into the following direction: “children rejected utterances to the same extent, regardless of the type of expression” (Katsos 2009: 63). However, 7-years-olds rejected U-utterances with ad hoc scales more often than with the <all, some> scale. The types of responses show “that U-utterances with *some* evoked more straightforward rejections than U-utterances with ad hocs, but only in the adult group.” (Katsos 2009: 66). This is consistent with the assumption that for adults there might exist more contextual input that leads to privileged interpretations. Or, from the perspective of children, they might be operating under a principle of charity, reflecting their lacking experience with context types demanding the computation of certain scales like the Horn scale (Katsos 2009: 69).

Thus one can suspect that the previous experiences of participants, their knowledge with regard to context types (or genres), their flexibility to recall, interpret and construct actual as well as possible contexts, may play a hitherto underestimated role.

5. Conclusions

Usually it is stressed that models such as in Figure 4 are *not* models of computation. However, the idea that something (e.g. a certain pragmatic process) takes place before something other happens (e.g., a truth condition becomes salient) invites speculations on the localness or globalness or the “default” character of processes. In Noveck & Sperber (2007) the idea is sketched that experimental findings on the costliness of derivations might lead to arguments concerning the aptness of GCI- versus Relevance-theoretic models (see also Bott & Noveck 2004, Noveck & Posada 2003, Katsos 2012).

But the projection of findings on computational costs onto models of semantics-pragmatics interface is by no means easy (see Peleg, Giora & Fein 2004, Schumacher, this volume). In particular, as I have tried to show, it is not clear how context (a given or imagined context, an emerging context, etc.) influences the results.
In classic pragmatic conceptions of the context, a time variable was introduced in order to account for indexicals, but time as a factor in language production and interpretation has not been taken seriously. Recent ERP studies show that time is a very important property of context. In his review of recent neuropragmatic research, van Berkum (2009) shows that extra-sentential factors like (i) the prior text (the “co-text”), (ii) the identity of the speaker and even (iii) the value system of the comprehender all affect the so-called N400, a negative electrophysiological deflection emerging after 250 ms after presenting a cue and peaking at 400 ms.

According to van Berkum (2009: 303), what unites these results is that they have to do with so-called “readiness”, i.e. “the timely availability of plausibly relevant information”. This information is retrieved from long-term memory and is sensitive to the current mental representation of the context in the interpreter’s mind. From his review of these ERP-results, van Berkum (2009: 295–297) develops his MIR model, MIR abbreviating “multiple-cause intensified retrieval”. Elements of this model are (i) the intensified retrieval of stored conceptual knowledge, (ii) in particular, contextually disfavoured features or relevance signals, and (iii) multiple causes for expectations stemming from the interpretive background. As far as I see, this does not amount to a new theory of contextual interpretation. But what is impressively shown is how very sensitive language production and interpretation is with regard to (contextual) information from different levels of cognition. Maybe the distinction between semantics and pragmatics, explicature and implicature, GCI and PCI is of conceptual worth, but this is not directly reflected in computational costs or N400-effects.

Coming back to our question on how context is conceptualized in the debate on the right semantics/pragmatics distinction, I finally would like to add two aspects. To me it seems that a notion of “pragmatic productivity” is needed. Pragmatic productivity tells us something about the likelihood to come across typical or standard contexts. For instance, if an adult individual has experienced many contexts where the implicature some +> not all was necessary, but only some contexts where some if not all was required, then this experience could guide this individual in her interpretation. Since children are not so much experienced as (some) adults are, it might be reasonable for them that they tend to stick to “clear” cases.

The notion of productivity can be transferred from the study of word formation, where it relates to the use of morphological patterns (cf. Bauer 2001). It has a synthetic aspect, in that it measures the likelihood of a speaker’s use of a certain morphological pattern when coining complex words; and it has an analytic aspect, since the amount of existing words following a certain pattern is evidence for (possibly past) productivity. Despite ongoing change in the productivity of morphological patterns, speakers are aware of the degree of productivity, and hearers are sensitive to it when interpreting utterances.
By and large, this picture applies to the use of pragmatic patterns, as in the case of (generalized) conversational implicatures, too. Since certain implicatures are triggered in certain situations more often than in other situations, these implicatures tend to get associated with these situations, leading to sort of “standard situations”, both from the perspective of speaker and hearer. Standard situations may be conceived of as those types of situations where the use of a certain pragmatic pattern is productive. Since (many, if not most) adults are more experienced with these standard situations than children, a certain uniformity of dealing with productivity can be expected.

Note in addition that Giora (2012: 156), in her discussion of the notion “salience”, points to the fact that salient word meanings and meanings of fixed expressions may also play a role in utterance interpretation. Hence salient meanings of items inviting scalar implicatures may give rise to expectations on standard situations.

What is also lacking, is a comprehensive theory of speaker’s and hearer’s knowledge as related to context and the situation of utterance (see, from different angles, Bouquet, Ghidini, Giunchiglia & Blanzieri 2003, Davis 2007, Bach, to appear, Schumacher & Meibauer 2012). “Contextual knowledge”, or “salient mutual knowledge between the conversants, and relevant broader common knowledge”, as in the introductory quote from Kent Bach in Section 1 above, are notions often encountered in the description of context, yet often they are used in a naïve manner, without any footing in epistemological theories. Thus, the often observed effects of misunderstanding and “guessing” what the context is (see the quote from Wolf in Section 2) might have to do with psychological and/or epistemic uncertainty (lack of certain knowledge) with respect to the intended or “right” interpretation.

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