

# The complexity of context: guest editors' introduction<sup>☆</sup>

Varol Akman<sup>a,\*</sup>, Carla Bazzanella<sup>b,1</sup>

<sup>a</sup>*Department of Computer Engineering, Bilkent University, Bilkent, 06533 Ankara, Turkey*

<sup>b</sup>*Department of Philosophy, University of Turin, Via S. Ottavio 20, 10124 Turin, Italy*

Context is a criterion in settling the question of why a man who has just put a cigarette in his mouth has put his hand in his pocket.  
Paul Grice

## 1. The complexity of context

As with other widely used notions that are commonly referred to in everyday activities without much hesitation, *context* is difficult to analyze scientifically and grasp in all its different demeanors.

In our routine communicative activities, context is exploited both in production and in comprehension, and is strictly related to another problematic notion, viz. meaning. Thus Bateson (1979: 15): “Without context, words and actions have no meaning at all. This is true not only of human communication in words but also of all communication whatsoever, of all mental process, of all mind, including that which tells the sea anemone how to grow and the amoeba what he should do next.”<sup>2</sup>

---

<sup>☆</sup> We are grateful to Jacob Mey, Rachel Giora, and Dick Janney for encouragement and helpful advice.

\* Corresponding author. Tel.: +90-312-290-1537; fax: +90-312-266-4047.

*E-mail addresses:* akman@cs.bilkent.edu.tr (V. Akman); bazza@cisi.unito.it (C. Bazzanella)

<sup>1</sup> Tel.: +39-011-670-3728; fax: +39-011-812-4543.

<sup>2</sup> “I am drawing an analogy between context in the superficial and partly conscious business of personal relations and context in the much deeper, more archaic process of embryology and homology. I am asserting that whatever the word context means, it is an appropriate word, the *necessary* word, in the description of all these distantly related processes. [...] *What is an elephant's trunk?* [...] His nose [...] The trunk is a ‘nose’ by a process of communication: it is the context that identifies it as a ‘nose’. That which stands between two eyes and north of a mouth is a ‘nose’ [...] It is the context that fixes the meaning, and it must surely be the receiving context that provides meaning for the genetic instructions” (Bateson, 1979: 15).

If its complexity makes context a powerful device both in knowledge and cognition,<sup>3</sup> the same complexity and dynamism make context difficult to define and study formally.<sup>4</sup>

## 2. Various approaches

The notion of context has gained significance, and is more often resorted to<sup>5</sup> not only in disciplines where it has always played a central role (such as pragmatics, linguistics, or philosophy of language) but also in other disciplines, such as history or biology, where it is taken into account to interpret the facts/data/events/changes (cf., respectively, *l'Ecole des Annales* and Prodi, 1977).<sup>6</sup> Nowadays in every research domain—AI, psychology, neurosciences, anthropology, economics, aesthetics, sociology, etc.—the word ‘context’ is repeatedly mentioned, though its relevance and its significance with regard to the given discipline are rarely made explicit.<sup>7</sup>

Human beings are very good at using context without thinking about it.<sup>8</sup> However, problems arise when one tries to model an average behavior,<sup>9</sup> or when one tries to cope with a different cultural context that asks for different behaviors.<sup>10</sup> The analysis of components which are requested in these cases makes necessary a better understanding of what context is, how it is structured, how it changes, etc. In other words, context appears to be crucial both on the theoretical and on the applied levels.<sup>11</sup>

<sup>3</sup> “[...] It is an inherent property of human cognition to contextualize, to access information differentially in different contexts” (Sweetser and Fauconnier, 1996: 19). Concerning cognitive development, cf., among others, Light and Butterworth (1993).

<sup>4</sup> See, for example, Akman and Surav (1997), Akman and Alpaslan (1999), Kokinov (1999), Mey (1993).

<sup>5</sup> See also the increasing number of publications on this topic in the several conferences that have taken place recently: *CONTEXT'97* in Rio de Janeiro; *ECCCS'97* in Manchester; *CONTEXT'99* in Trento, Italy; *CHI 2000 Workshop* in The Hague (2000); *CONTESTO* in Genoa (2000); *CONTEXT 2001* in Dundee, Scotland. Also see the *Context Web* site (<http://context.umcs.maine.edu>; [context@context.maine.edu](mailto:context@context.maine.edu)).

<sup>6</sup> “In any case ‘context’ should not be reduced to the territory of any one discipline or approach,” as Urpo Kovala (University of Jyväskylä) wrote in an e-mail addressed to the *Context list* (7 March 2001).

<sup>7</sup> As Urpo Kovala observed (cf. the preceding footnote): “The problem with the notion of context as a theoretical term in the humanities and social sciences is that it is very general and abstract, not very analytical. In other words, talk of context on an exclusively general manner is actually a non-contextualist endeavour!”

<sup>8</sup> “We are much more aware of contexts in practice than in theory,” reminds Scharfstein (1989: 3).

<sup>9</sup> Dey and Abowd (2000: 1) underline the relevance of context to communication in human-computer interaction: “By improving the computer’s access to context, we increase the richness of communication in human-computer interaction and make it possible to produce more useful computational services.”

<sup>10</sup> See various examples provided by Scharfstein (1989). With regards to the interesting phenomenon of metaphor, see Bazzanella (2001).

<sup>11</sup> See, for example, the treatment of contextual information (which includes the complementary encoding of speech and gesture) in *multi-media* corpora (Bosco and Bazzanella, 2001), and the different solutions which are resorted to in recently implemented systems to meet the need for a “multi-layered, multi-linked annotation, and a hierarchically organized retrieval of contextual data” (Bosco and Bazzanella, 2002).

We will not review here all the different traditions.<sup>12</sup> Nevertheless, we will highlight some aspects of this variegated matter and note details that will be analyzed in depth in the following contributions.

In *linguistics* (mainly in *textual linguistics*), the following distinction is made:

- linguistic context (more properly, *cotext*);
- extra-linguistic context.

Though the extra-linguistic context has not been individuated in detail in this perspective, the notion of *cotext* has turned out to be useful, for it helps in studying both anaphora and topic development—in other words, not only strictly textual (and cohesive) phenomena but also argumentative ones. As Walton (2000: 305) observes, with regard to the *contexts of dialogue*: “[...] the evaluation of a particular case should depend on how the argument was used at some stage of a conversation to contribute (or not) to the goals of the conversation at that stage.”

In *pragmatics*, Givón (1989) subdivides context into three major *foci*:

- the *generic focus*: shared world and culture;
- the *deictic focus*: shared speech situation, which includes deixis (Fillmore, 1997), socio-personal relations, and Speech-Act Teleology;
- the *discourse focus*: shared prior text, which includes overt and covert propositions, and meta-propositional modalities.

The *ecological* perspective, which takes also animals into account (cf. Bateson, 1979; Gibson, 1979), has underlined how perception is closely related to, and in a way constrained by, the structured environment.<sup>13</sup>

With regard to the *components* of context, Malinowski (1952), Lewis (1972), and Hymes (1974) suggest some of the relevant parameters, which have been expanded (or reduced) in the recent years. The number of components seems to be related to the determinateness or indeterminateness of context—a recurrent topic which has been discussed, among others, by Derrida (1988), Searle (1978), Coulter (1994), and Colebrook and McHoul (1996).

### 3. Definition and relevant parameters

As Penco (1999: 270) says, “there are so many different ways of using the term ‘context’ (in philosophy, linguistics, psychology, theory of communication, problem solving, cognitive science, artificial intelligence) that it would be better to speak of a

<sup>12</sup> Suffice it to mention the *model-theoretical* (cf. Lewis, Kaplan, Stalnaker, Kamp, Perry), the *linguistic, sociolinguistic, and anthropological* (cf. Malinowski, Firth, Hymes, Duranti and Goodwin), the *artificial intelligence* (cf. Akman, Brézillon, Giunchiglia), the *contextualist* (cf. Davidson, Bilgrami, Récanati), the *pragmatic and conversationalist* (cf. Fillmore, Levinson, Auer and Di Luzio) traditions.

<sup>13</sup> In addition, the visual interference (e.g. foreground/background, optical illusions, and ambiguous figures) is contextual (cf. *Gestalt theory*).

‘family-resemblance’ concept.”<sup>14</sup> The notion of context is a complex one, and several components should—and have been—focused upon over the years by scholars in various theoretical frameworks.

If we adopt a *prototype model* (Rosch, 1978), we could better individuate two points of attraction around which the various notions of context seem to converge:

- a *local* point,<sup>15</sup> which is related to the structural environment. It is activated and constructed in the ongoing interaction as it becomes relevant (Sperber and Wilson, 1986), and is eventually shared by interactants;
- a *global* point, which refers to the given external components of the context. It includes knowledge and beliefs, and the general experience resulting from the interplay of culture and social community.<sup>16</sup>

A *local* notion of context has recently gained the upper hand especially in the conversationalist approach, where its flexibility and its resilience have been repeatedly stressed: “Contrary to the monolithic and unidirectional notion of context which was often used in the early (post)-structuralist approach to context, the notion of contextualization suggests a flexible notion, a context that is continually reshaped in time” (Auer, 1992: 21).

While we undoubtedly need a local notion of context, a *global* notion of context must not be neglected either. According to the broad pragmatic tradition (the one that draws on linguistics, philosophy of language, and ethnomethodology), context is viewed as a unification of several established parameters which play a role in the selection of language activities and in the apprehension of meaning. The two levels, local and global, combine in providing a background for establishing reference to the external world and for understanding *intended meaning* (Grice, 1989): in other words, in taking both explicit and implicit knowledge (i.e., inferential processes, implicatures, presuppositions) into account. More specifically:

- the *global level* corresponds to *a priori* features and to sociolinguistic parameters such as age, status, the social roles of participants, the type of interaction, time and space localization. This information is independent of the ongoing conversational interaction.
- the *local level* corresponds to parameters that are selected because of their relevance and activated by the ongoing interaction itself (e.g., the kind of

<sup>14</sup> An ‘embracing’ definition is the following one by Scharfstein (1989: 1): “Context is that which environs the object of our interest and helps by its relevance to explain it.”

<sup>15</sup> *Local* and *global* were proposed by Bazzanella (1998), but this ‘double contextualization’—though it does not cover the same objects/phenomena/data—can be found in other proposed taxonomies as well. See, for instance, the aforementioned distinction between cotext and context; and additionally Penco’s (1999) *objective* context (that is, the metaphysical state of affairs) and *cognitive* context (that is, the cognitive representation of the world).

<sup>16</sup> We will limit ourselves here to human–human interaction. For an *ecological* approach to the problems of multi-modal communication in human–computer interface, see De Angeli et al. (1999).

action being performed, gestural deixis, focusing). This information closely depends on the ongoing conversational interaction.

On a linguistic level, an adequate coding of context on both the global and the local levels—a coding which takes multi-modal<sup>17</sup> features into account—may be useful in:

- delimiting inferential games;
- disambiguating a wide range of deictic expressions;<sup>18</sup>
- solving the problem of the indeterminacy of spoken language.

Actually, a well-defined and articulated notion of context is required not only to provide for the indeterminacy and implicitness of spoken language in the process of comprehension and production,<sup>19</sup> but also in other domains, e.g., in perception, which “[...] presupposes context in deriving meaning from experience” (Light and Butterworth, 1993: 3), in computational linguistics, in biology (Prodi, 1977), reasoning, decision-making, problem solving, learning, etc.

#### 4. This issue

Papers in this special issue were written upon invitation. They were then subjected to the usual refereeing process of the *Journal of Pragmatics*. While we have attempted to cover almost all important areas in which context is employed as a conceptual apparatus, our coverage is clearly limited in scope.<sup>20</sup> Accordingly, instead of a general updated overview of the use of context in every conceivable specific field (let’s say the state-of-the-art of interdisciplinary research on context: a colossal/impossible enterprise!), we will offer the readers of this special issue an introduction to the problems involved in the study of context by way of eight papers encompassing eight different areas. These are (in alphabetical order): artificial intelligence, bilingualism, child development, cognitive science, conversation analysis, neuroscience, philosophy of language, and pragmatics. Our goal is to propose a multi-faceted view of context, and to stimulate further investigations of this fertile topic, which permeates our lives.

In the light of our preceding caveat, several approaches and problems that are related to context are not dealt with here. To cite a few, the “grassroots” approach (Edmonds and Akman, 2002); context and literature; contexts of perception; contexts

<sup>17</sup> Comprehension is attained in a multi-modal way, and several contextual features are involved in this process (Bazzanella, 2002).

<sup>18</sup> Deictics, which refer to the external world, are widely used and cannot be understood on purely verbal grounds.

<sup>19</sup> We agree with Kay (1997: 48) who maintains: “In the view advanced here, pragmatic force is frequently part of literal meaning.”

<sup>20</sup> An earlier survey emphasizing formal theories of context can be found in Akman and Surav (1996).

of social action (Fetzer and Akman, 2002); etc. do not receive much emphasis (although various articles touch on similar problems, albeit tentatively).

The special issue opens with a contribution by the Editor-in-Chief, Jacob Mey, whose “Context and (dis)ambiguity: a pragmatic view” is a timely paper very much in the spirit of the *Journal of Pragmatics*. Adopting a socially conscious stance, it argues against decontextualized and disambiguated expressions, which are often cited to exclude other feasible interpretations. Mey’s charitable position is in fact aimed towards achieving just the opposite. He argues that by a re-contextualization, influenced by social factors, the viewpoints of those who are in need of freedom (the dissenters, the oppressed, the poor) are better expressed. To paraphrase his dictum, facts do not speak for themselves; it is only through social agents<sup>21</sup> (who contextualize them in a way to correspond to their convictions) that the facts are permitted to speak. This is a paper that speaks with compassion and argues convincingly.

The next two papers touch upon and analyze theoretical or conceptual problems having to do with context. Daniel Andler’s paper, “Context: the case for a principled epistemic particularism,” studies context from the perspective of cognitive science but readers will notice that this is a paper rich in its philosophical observations too. Andler notes the crucial role context plays in so-called situated cognition. He thinks that cognitive science gave, in studying context-sensitive processes, a particularly appealing model of contextual effects. He suggests, on the other hand, the need for furnishing good explanations of how intelligent agents are able to deal with context as successfully and effortlessly as they do.

John Perry offers a glimpse of his theory of utterances in his contribution “Predelli’s threatening note: contexts, utterances, and tokens in the philosophy of language.” Discussions of context in this area of philosophy invariably converge on indexicals and demonstratives. Perry’s goal is to discuss some threatening examples produced by Stefano Predelli against David Kaplan’s now classical logical account of demonstratives. Readers familiar with Perry’s mastery of semantic/pragmatic problems from his landmark *Situations and attitudes*, co-authored with the late Jon Barwise (Barwise and Perry, 1999), or *The problem of the essential indexical* (Perry, 2000) will find some interesting material here to ponder on.

Three papers report and evaluate experimental empirical findings. Eva Wiberg takes a detailed look at contexts of bilingualism—and second language acquisition—in her paper “Interactional context in L2 dialogues.” Her testbed consists of the dialogues of advanced nonnative speakers with a native speaker in the context of making future plans and giving route directions. It is observed that the nonnative speakers resort to various interactional strategies to sustain a dialogue, where both macro- and micro-context play a significant role.

Per Linell and Daniel Persson Thunqvist, in “Moving in and out of framings: Activity contexts in talks with young unemployed people within a training project,” investigate the various nested and complex activity contexts of simulated job interviews

<sup>21</sup> On a related note, the reader is referred to Akman (2000) for an appraisal of context as a social construct.

within a particular social environment. They use insights from Conversation Analysis, but they also take a critical stance with respect to how CA treats concepts like context, frame, activity type, and genre. Having recently authored *Approaching dialogue* (1998), Linell has previously made many useful observations regarding talk and context.

Kristine M. Yont, Catherine E. Snow, and Lynne Vernon-Feagans examine the impact of a contextual point of departure for child development in their paper “The role of context in mother–child interactions: an analysis of communicative intents expressed during toy play and book reading with 12-month-olds.” Their aim is to determine whether situational contexts of mother–child activities (i.e., book reading vs. toy play) bring about variations in the language skills of children. A main finding of the authors is that contextual differences cause very young children to exhibit differences in language use and syntax.

Finally, two papers report wide panoramas of contextual reasoning as encountered in two experimental areas. Paolo Bouquet, Chiara Ghidini, Fausto Giunchiglia, and Enrico Blanzieri’s paper, “Theories and uses of context in knowledge representation and reasoning,” studies context from the point of view of AI. It divides theories of context into two types: those that regard context as a handle to subdivide the world into manageable parts, and those that see context as a local theory interfacing with other local theories. Each type of theory has its natural uses, and the authors exemplify this point by addressing problems such as generality in AI (McCarthy, 1987), propositional attitudes, and knowledge integration. An interesting observation of Bouquet et al. has to do with the assorted uses of context in disciplines dealing with knowledge representation and reasoning as opposed to other disciplines such as natural language semantics, cognitive science, and philosophical logic. The essential use of context in the former area is to achieve fruitful representations of a given problem, whereas indexicality has traditionally been the chief concern of the latter disciplines.

Alexa Riehle’s paper, “Neuronal correlates of context-related behavior,” scrutinizes contexts from the angle of neuroscience. Its dictum is a commonsense one: the same stimulus might give rise to a variety of responses depending on the embedding situation. Can we then study context-related behaviors and their underlying neuronal correspondents? Riehle selects examples from the visual and motor apparatuses to examine external and internalized contexts.

## 5. Conclusion

In his brilliant monograph, Scharfstein (1989) contends that the problems encountered with context are in general insoluble.<sup>22</sup> He explains why this notion lays an intellectual burden on us that, while remaining inescapable, can become so heavy

---

<sup>22</sup> In the same vein, Givón (1989: 76) claims: “One must, finally, own up to the existence of an irreducible residue, a recalcitrant escape clause concerning the open-endedness of ‘context’. This residue can never be fully captured, however exhaustive and refined one’s taxonomy may be.”

that it destroys the understanding it was created to further. Is this really so? Well, we also think that context sometimes poses insurmountable difficulties, but at the same time we hope that the papers in this special issue help contribute towards a better understanding of context and thus towards a less pessimistic outlook vis-à-vis this key concept.

## References

- Akman, Varol, 2000. Rethinking context as a social construct. *Journal of Pragmatics* 32, 743–759.
- Akman, Varol, Alpaslan, Ferda Nur, 1999. Strawson on intended meaning and context. In: Bouquet, P., Serafini, L., Brézillon, P., Benerecetti, M., Castellani, F. (Eds.), *Modeling and Using Context (Proceedings of CONTEXT'99)*. Lecture Notes in AI 1688. Berlin, Springer, pp. 1–14.
- Akman, Varol, Surav, Mehmet, 1997. The use of situation theory in context modeling. *Computational Intelligence* 13, 427–438.
- Akman, Varol, Surav, Mehmet, 1996. Steps toward formalizing context. *AI Magazine* 17, 55–72.
- Auer, Peter, 1992. Introduction: John Gumperz's approach to contextualization. In: Auer, P., Di Luzio, A. (Eds.), *The Contextualization of Language*. Amsterdam, Benjamins, pp. 1–37.
- Barwise, Jon, Perry, John, 1999. *Situations and attitudes (expanded reissue)*. Stanford, CSLI Publications. (original version: MIT Press/Bradford Books, Cambridge, MA, 1983).
- Bateson, Gregory, 1979. *Mind and Nature: A Necessary Unity*. New York, Dutton.
- Bazzanella, Carla, 2002. The significance of context in comprehension: The 'we case'. *Foundations of Science* 7, 239–254.
- Bazzanella, Carla, 2001. Metaphor and context: some issues. In: Kronning, H. (Ed.), *Langage et référence: mélanges offerts à Kerstin Jonasson à l'occasion de ses soixante ans*. *Studia Romanica Upsaliensia* 63. Uppsala, Acta Universitatis Upsaliensis, pp. 39–49.
- Bazzanella, Carla, 1998. On context and dialogue. In: Cmejrková, S. (Ed.), *Dialogue in the Heart of Europe*. Tübingen, Max Niemeyer, pp. 407–416.
- Bosco, Cristina, Bazzanella, Carla, 2002. Contextualization in spoken language corpora. In: Pusch, C.D., Raible, W. (Eds.), *Romanistische Korpuslinguistik: Korpora und gesprochene Sprache (Romance Corpus Linguistics: Corpora and Spoken Language)*. Tübingen, Gunter Narr, pp. 19–30.
- Bosco, Cristina, Bazzanella, Carla, 2001. Context and multi-media corpora. In: Akman, V., Bouquet, P., Thomason, R., Young, R.A. (Eds.), *Modeling and Using Context (Proceedings of CONTEXT 2001)*. Lecture Notes in AI 2116. Berlin, Springer, pp. 417–420.
- Colebrook, Claire, McHoul, Alec, 1996. Interpreting understanding context. *Journal of Pragmatics* 25, 431–440.
- Coulter, Jeff, 1994. Is contextualising necessarily interpretive? *Journal of Pragmatics* 21, 689–698.
- De Angeli, Antonella, Romary, Laurent, Wolff, Frederic, 1999. Ecological interfaces: extending the pointing paradigm by visual context. In: Bouquet, P., Serafini, L., Brézillon, P., Benerecetti, M., Castellani, F. (Eds.), *Modeling and Using Context (Proceedings of CONTEXT'99)*. Lecture Notes in AI 1688. Berlin, Springer, pp. 91–104.
- Derrida, Jacques, 1988. In: Graff, G. (Ed.), *Limited Inc.* (S. Weber, trans.). Northwestern University Press, Evanston.
- Dey, Anind K., Abowd, Gregory D., 2000. Towards a Better Understanding of Context and Context-awareness. Presented in the CHI 2000 Workshop on The What, Who, Where, When, and How of Context-Awareness, 1–6 April 2000, The Hague.
- Edmonds, Bruce, Akman, Varol, 2002. Editorial: context in context. *Foundations of Science* 7, 233–238.
- Fetzer, Anita, Akman, Varol (Eds.), 2002. *Contexts of Social Action (special issue)*. *Language and Communication* 22(4)
- Fillmore, Charles J., 1997. *Lectures on Deixis*. CSLI Lecture Notes 65. CSLI Publications, Stanford.
- Gibson, James J., 1979. *The Ecological Approach to Visual Perception*. Houghton Mifflin, Boston.
- Givón, Talmy, 1989. *Mind, Code and Context: Essays in Pragmatics*. Lawrence Erlbaum, Hillsdale, NJ.
- Grice, H. Paul, 1989. *Studies in the Way of Words*. Harvard University Press, Cambridge, MA.

- Hymes, Dell H., 1974. *Foundations in Sociolinguistics*. University of Pennsylvania Press, Philadelphia.
- Kay, Paul, 1997. *Words and the Grammar of Context*. CSLI Lecture Notes 40. CSLI Publications, Stanford.
- Kokinov, Boicho, 1999. Dynamics and automaticity of context: a cognitive modeling approach. In: Bouquet, P., Serafini, L., Brézillon, P., Benerecetti, M., Castellani, F. (Eds.), *Modeling and Using Context (Proceedings of CONTEXT'99)*. Lecture Notes in AI 1688. Springer, Berlin, pp. 200–213.
- Lewis, David, 1972. General semantics. In: Davidson, D., Harman, G. (Eds.), *Semantics for Natural Language*. Reidel, Dordrecht, pp. 169–218.
- Light, Paul, Butterworth, George (Eds.), 1993. *Context and Cognition: Ways of Learning and Knowing*. Lawrence Erlbaum, Hillsdale, NJ.
- Linell, Per (Ed.), 1998. *Approaching Dialogue: Talk, Interaction and Contexts in Dialogical Perspectives*. John Benjamins, Amsterdam.
- Malinowski, Bronislaw, 1952. The problem of meaning in primitive language. In: Ogden, C.K., Richards, I.A. (Eds.), *The Meaning of Meaning: A Study of the Influence of Language upon Thought and of the Science of Symbolism*. Routledge & Kegan Paul, London, pp. 296–336.
- McCarthy, John, 1987. Generality in artificial intelligence. *Communications of ACM* 30, 1030–1035.
- Mey, Jacob L., 1993. *Pragmatics: An Introduction*. Blackwell, Oxford.
- Penco, Carlo, 1999. Objective and cognitive context. In: Bouquet, P., Serafini, L., Brézillon, P., Benerecetti, M., Castellani, F. (Eds.), *Modeling and Using Context (Proceedings of CONTEXT'99)*. Lecture Notes in AI 1688. Springer, Berlin, pp. 270–283.
- Perry, John, 2000. *The Problem of the Essential Indexical and Other Essays (expanded reissue)*. CSLI Publications, Stanford, CA. (original version, 1993, Oxford University Press, New York).
- Prodi, Giorgio, 1977. *Le basi materiali della significazione*. Milan, Bompiani.
- Rosch, Eleanor, 1978. Principles of categorization. In: Rosch, E., Lloyd, B.L. (Eds.), *Cognition and Categorization*. Lawrence Erlbaum, Hillsdale, NJ, pp. 27–47.
- Scharfstein, Ben-Ami, 1989. *The Dilemma of Context*. New York University Press, New York.
- Searle, John R., 1978. Literal meaning. *Erkenntnis* 13, 207–224.
- Sperber, Dan, Wilson, Deirdre, 1986. *Relevance: Communication and Cognition*. Harvard University Press, Cambridge.
- Sweetser, Eve, Fauconnier, Gilles, 1996. Introduction. In: Fauconnier, G., Sweetser, E. (Eds.), *Spaces, Worlds, and Grammar*. University of Chicago Press, Chicago, pp. 1–26.
- Walton, Douglas, 2000. Conversational logic and appeals to emotion. In: Plantin, C., Doury, M., Traverso, V. (Eds.), *Les Émotions dans Les Interactions*. Presses universitaires de Lyon, Lyon, pp. 295–312.

**Varol Akman** is professor of Computer Engineering at Bilkent University, Bilkent, Ankara, Turkey. Prior to joining Bilkent, he held a senior researcher position with Centrum voor Wiskunde en Informatica (1986–1988), and a visiting position with Universiteit Utrecht (1985–1986), both in the Netherlands. During the period 1980–1985, Akman was a Fulbright scholar at Rensselaer Polytechnic Institute, Troy, New York, where he received a Ph.D. degree in computer and systems engineering. Akman's current research is in two areas: contextual reasoning (especially indexicals) and the Internet (especially social implications).

**Carla Bazzanella** is professor of General Linguistics in the Faculty of Letters and Philosophy at the University of Turin, Italy. Earlier, she was a research fellow at the University of Pavia (1976–1983) and the University of Turin (1983–1991), where she began teaching Philosophy of Language in 1991. Bazzanella's current research is mainly in two areas: dialogue/context and emotions. She has published the two edited collections *Repetition in dialogue* (Niemeyer, Tübingen, 1996) and, together with Pietro Kobau, *Passioni, emozioni, affetti* (McGraw-Hill, Milan, 2002), as well as the monograph *Sul dialogo: contesto e forme di interazione* (Guerini e associati, Milan, 2002).