

## Preface

Optimality theory as used in linguistics (Prince & Smolensky, 1993/2004; Smolensky & Legendre, 2006) and cognitive psychology (Gigerenzer & Selten, 2001) is a theoretical framework that aims to integrate constraint based knowledge representation systems, generative grammar, cognitive skills, and aspects of neural network processing. In the last years considerable progress was made to overcome the artificial separation between the disciplines of linguistic on the one hand which are mainly concerned with the description of natural language competences and the psychological disciplines on the other hand which are interested in real language performance.

The semantics and pragmatics of natural language is a research topic that is asking for an integration of philosophical, linguistic, psycholinguistic aspects, including its neural underpinning. Especially recent work on experimental pragmatics (e.g. Noveck & Sperber, 2005; Garrett & Harnish, 2007) has shown that real progress in the area of pragmatics isn't possible without using data from all available domains including data from language acquisition and actual language generation and comprehension performance. It is a conceivable research programme to use the optimality theoretic framework in order to realize the integration.

Game theoretic pragmatics is a relatively young development in pragmatics. The idea to view communication as a strategic interaction between speaker and hearer is not new. It is already present in Grice' (1975) classical paper on conversational implicatures. What game theory offers is a mathematical framework in which strategic interaction can be precisely described. It is a leading paradigm in economics as witnessed by a series of Nobel prizes in the field. It is also of growing importance to other disciplines of the social sciences. In linguistics, its main applications have been so far pragmatics and theoretical typology. For pragmatics, game theory promises a firm foundation, and a rigor which hopefully will allow studying pragmatic phenomena with the same precision as that achieved in formal semantics.

The development of game theoretic pragmatics is closely connected to the development of bidirectional optimality theory (Blutner, 2000). It can be easily seen that the game theoretic notion of a Nash equilibrium and the optimality theoretic notion of a *strongly* optimal form-meaning pair are closely related to each other. The main impulse that bidirectional optimality theory gave to research on game theoretic pragmatics stemmed from serious empirical problems that resulted from interpreting the principle of *weak* optimality as a synchronic interpretation principle.

In this volume, we have collected papers that are concerned with several aspects of game and optimality theoretic approaches to pragmatics.

The first paper about *Optimality-Theoretic Pragmatics* (Blutner and Zeevat) gives an overview about the application of OT to the domain of pragmatics. It reviews the three basic views – Relevance theory, Levinson’s theory of presumptive meanings, and the Neo-Gricean approach –, and it gives an optimality-theoretic restructuring of their core ideas. Further, it illustrates how bidirectional OT accounts for the synchronic and the diachronic perspective on pragmatic interpretation.

The second paper, *Optimality-Theoretic Pragmatics Meets Experimental Pragmatics* (Blutner), is discussing recent findings concerning the psychological reality of optimality-theoretic pragmatics. Further, the paper seeks to close the gap between experimental pragmatics and neo-Gricean theories of pragmatics.

Based on research by Smolensky and Gärdenfors, the paper entitled *Neural Networks, Penalty Logic and Optimality Theory* (Reinhard Blutner) is discussing the potential of OT as a theory that overcomes the gap between symbolic and neuronal systems. In the light of the proposed logical analysis notions like recoverability and bidirection are explained, and likewise the problem of founding a strict constraint hierarchy is discussed. Moreover, a claim is made for developing an “embodied” OT closing the gap between symbolic representation and embodied cognition.

The role of evolutionary strategies and signalling games for the development of natural language constructions is discussed in a joint paper by Tom Lentz and Reinhard Blutner (*Signalling Games and Optimal Constructions*). This paper is a reworking of an earlier squib written in Dutch.

Michael Franke’s contribution (*An Epistemic Interpretation of Bidirectional Optimality Based on Signalling Games*) is concerned with an epistemic interpretation of bidirectional optimality in terms of beliefs and strategies of players in a signalling game. In particular, the author demonstrates that strong optimality can be linked to an unsophisticated belief formation. Weak optimality, on the other hand is shown to correspond to higher-order iterated best response reasoning with an even more severe limitation on the belief formation process of agents.

In their paper *History and Grammaticalization of “doch”/“toch”*, Henk Zeevat and Elena Karagjosova compare the Dutch particle “toch” with the German pendant “doch”. As first noted by Doherty (1985), this comparison leads to a paradoxical question: If the sentence is presented with stress on “toch”/“doch” the conditions of use become the opposite from the same sentences with the stress removed. Zeevat and Karagjosova provide a new, historically based explanation of the paradox.

The paper by Anton Benz (*Outline of the Foundations for a Theory of Implicatures*) is an investigation into the foundations of the optimal answer approach as developed in (Benz, 2006; Benz & v. Rooij, 2007). It interprets the speaker’s signalling and the hearer’s interpretation behaviour as an objective natural regu-

larity. As natural regularity, communication can be described by causal Bayesian networks (Pearle, 2000). Benz uses this representation for explicating the notion of *common natural information*. From this notion, a general definition of implicature is derived. In the second part of the paper, this framework is extended to communication with efficient clarification requests and noisy speaker strategies.

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