Preface

Agents in multiagent systems are concurrent autonomous entities that need to coordinate and to cooperate so as to perform their tasks (buying items on the Internet or retrieving information, for instance). These coordination and cooperation tasks might be achieved through communication. Communication (also called 'interaction' by some authors) represents one of the main elements in multiagent systems. Without communication, agents will not be able to exchange information or coordinate with each other. Research on communication has been an established field for at least 20 years and moved from early work on protocols to direct agent communication, to communication that encompasses some human conversation patterns. Between these two points, several areas are considered in agent communication: agent communication languages, coordination, argumentation, negotiation and dialogue games, to name a few.

The first idea when editing this book was to bring together several papers on different areas of agent communication, thus offering a snapshot of the domain to newcomers. As a consequence, the book is divided into three parts.

As background, we present three seminal papers in the agent communication domain: the paper written by Cohen and Perrault about the theory of speech acts, which roots the work in FIPA ACL semantics; the paper written by Singh on different agent communication languages; and, finally, the paper written by Davis and Smith describing the Contract Net protocol which is certainly the *Escherichia coli* in the domain of communication, and is the most well-known protocol and the one most used in the literature.

The second part of this book is the main one, and depicts current work in agent communication. The chapters are classified in clusters. The first cluster is about agent communication. The second cluster presents several uses of communication such as coordination and argumentation. The third cluster focuses on protocols. As stated above, protocols are no longer the only approach to represent agent communication; the remaining cluster describes dialogue games and conversational agents.

Finally, the last part of the book considers the future of agent communication.

Some chapters were accepted papers at the AAMAS 2002 Workshop on Agent Communication Languages and Conversation Policies (ACL 2002) that I co-chaired with Frank Dignum and Jean-Luc Koning.

My hope is that this book will be useful for newcomers and students in learning agent communication.

February 2003

Marc-Philippe Huget

Agent ART Group
Department of Computer Science
University of Liverpool
UK