

## **Intentions, Belief, Common Ground and Communication in Humans and Machines**

Intentions (including Gricean intentions that these intentions be recognized) play an important part in both the planning and understanding of communicative behavior. Some behavior, such as indirect requests or cooperative responses can hardly be understood without recourse to such concepts. However, the relationship between such attitudes and communication is a complex one, in which intentions and intention recognition are neither necessary nor sufficient for communication and are in some cases precluded for successful communication. We will present a view on which intention adds more meaning to communication when it can be ascribed, but is not basic to the communication process. From this view we also taxonomize different types of dialogue acts depending on presence or absence of different (ascribed) mental and social attitudes. We then use this perspective to analyze human-machine dialogue, in which a machine takes on conversational roles typically held by humans. We claim that it is reasonable (and perhaps necessary) to ascribe mental attitudes to machines engaging in dialogue, and such attitudes share some but not all of the properties of human attitudes. Such dialogues have added complexity in that one must also consider the intentions and other mental attitudes of the system designer and perhaps the system (in a multi-agent system) as well as those of the individual agent.