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Chapter; 4. Robots that have language; 1. The cognitive consequences of having language; 2. Meaning as co-variation between sounds and nonlinguistic experiences; 3. Classes of linguistic sounds; 4. Language helps human beings to categorize their environment; 5. The invention of language; 6. Asymmetries between language production and language understanding; 7. Robots that count and measure; 8. On the limits of our robots that have language

5. Robots with a mental life1. Mental life as the self-generation of sensory inputs; 2. Mental images; 3. Robots that predict; 4. Predicting and anticipating; 5. Evaluating the predicted consequences of one's actions; 6. Freedom of the will; 7. Predicted sensory inputs replace missing sensory input; 8. Other consequences of the ability to predict; 9. Talking to oneself; 6. Social robots; 1. There is no social robotics today; 2. Living together; 3. Why not live together; 4. Socially damaging behaviours and how to contain them; 5. Why live together: Groups as information centres

6. Living in small communities and living in large communities7. The social environment is very different from the non-social environment; 7. Robotic families; 1. Genetic families and social families; 2. Mothers and daughters; 3. Grandmothers; 4. Sisters; 5. Males and females; 6. Homes; 7. Conclusions; 8. Robots that learn from other robots and develop cultures and technologies; 1. Learning from others; 2. The cultural emergence of behaviours; 3. Staying near to others in order to learn from them; 4. Should adolescents learn from adults or from other adolescents?

5. The evolution of artefacts

Sommario/riassunto

This book is for both robot builders and scientists who study human behaviour and human societies. Scientists do not only collect empirical data but they also formulate theories to explain the data. Theories of human behaviour and human societies are traditionally expressed in words but, today, with the advent of the computer they can also be expressed by constructing computer-based artefacts. If the artefacts do what human beings do, the theory/blueprint that has been used to construct the artefacts explains human behaviour and human societies. Since human beings are primarily bodies, the art
