9 Appendix

Our best theories are not only truer than common sense, they make far more sense than common sense does.

David Deutsch, *The fabric of reality* (1997)

The first section of this Appendix is devoted to quantum theory. It contains an informal, often popular, overview and discussion of several basic issues of quantum physics. It is written mainly for those in computing with (almost) no knowledge of the subject. Exposition is therefore necessarily without many details needed if one wants to be (fully) precise. For more the reader is referred, for example, to Peres (1993), Bub (1997), Jammer (1966), Penrose (1990, 1994) and Lindley (1996)—ranging these references, roughly, from more technical to more popular. They mainly influenced presentation of the section.

Section 9.2 presents some basic concepts and results of Hilbert space theory in more detail than in Section 1.4 and it contains additional subjects.

The third part of the Appendix, on the book web pages only, contains in Section 9.3 a survey of the basic concepts, models and results of the complexity theory. This part is oriented mainly towards people outside of computing with (almost) no knowledge of the computation and complexity theory. Section 9.4 contains additional exercises and Section 9.5 additional historical and bibliographical references.