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Autore	Busemeyer Jerome R.
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processing using quantum information theory; 11. Can quantum systems learn? Quantum updating; 12. What are the future prospects for quantum cognition and decision?.

Sommario/riassunto

Much of our understanding of human thinking is based on probabilistic models. This innovative book by Jerome R. Busemeyer and Peter D. Bruza argues that, actually, the underlying mathematical structures from quantum theory provide a much better account of human thinking than traditional models. They introduce the foundations for modeling probabilistic-dynamic systems using two aspects of quantum theory. The first, 'contextuality', is a way to understand interference effects found with inferences and decisions under conditions of uncertainty. The second, 'quantum entanglement', allows cognitive phenomena to be modeled in non-reductionist ways. Employing these principles drawn from quantum theory allows us to view human cognition and decision in a totally new light. Introducing the basic principles in an easy-to-follow way, this book does not assume a physics background or a quantum brain and comes complete with a tutorial and fully worked-out applications in important areas of cognition and decision.
