

# From Technological Design to Quantum Uncertainty: Info-Gaps and Indeterminism

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## Abstract

The following questions underlie this lecture:

- Why do engineers commonly specify performance requirements as inequality constraints?
- Why is sub-optimal behavior persistent in highly uncertain competitive evolution?
- How can quantum indeterminism be reconciled with the concept of natural law?

In this talk we discuss theorems asserting that, under severe uncertainty, a robust-satisficing decision has a better probability of survival than a best-model outcome-optimizing decision. These theorems are based on non-probabilistic info-gap decision theory, which provides a quantification of Knightian uncertainty. We discuss applications of info-gap decision theory to engineering design, animal foraging, the Ellsberg paradox, and quantum uncertainty.

## References

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More references, links to international workshops on info-gap theory, and other sources, can be found on my website: <http://www.technion.ac.il/yakov>