Title: Contextuality-by-Default, from Psychology to Quantum Physics

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Abstract: The talk is about general principles underlying dependence of random variables (outputs) on deterministic conditions (inputs) in behavioral, biological, and physical systems. Random outputs recorded under mutually exclusive input values are labeled by these values and considered stochastically unrelated, possessing no joint distribution. An input that does not directly influence an output creates a context for the latter. Any constraint imposed on this contextual dependence can be characterized by considering all possible couplings (joint distributions) imposed on stochastically unrelated outputs. The target application of these principles is a quantum mechanical system of entangled particles: the talk includes mathematical results characterizing quantum contextuality in comparison with the classical contextuality, Tsirelson contextuality, and "maximal" contextuality.