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**Contextuality: a benchmark for “quantumness” in theory and experiment**

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An ontological model for a quantum experiment is a purported explanation for the probabilities we see. Non-contextual models are particularly compelling because they never offer two different explanations for the same observations. I will review these notions and argue that the impossibility of non-contextual models is a good way to rigorously define “genuine quantumness”. Two examples of phenomena whose “quantumness” have been debated are “anomalous weak values” and “logical pre- and post-selection paradoxes”. I will outline how their incompatibility with non-contextual models clarifies why both defy compelling classical explanation. A related idea is to use contextuality to certify that an experiment has achieved quantum coherence without requiring a full characterization. To this end I will present a simple yet robust non-contextuality inequality that can be violated with a single qubit. (The work on pre- and post-selection paradoxes was done in collaboration with with Matt Leifer.)