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Title:	The Kirkwood - dirac quasi- probability: Characterising Quantumness
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Abstract:	In quantum mechanics, complex numbers appear naturally. This is, however, in contrast to classical mechanics. But for quantum theory, they are essential! In this thesis, we study a complex quasi-probability distribution which appears in the study of quantum information, known as the Kirkwood-Dirac distribution. We attempt to understand if this distribution stores meaningful information about a quantum state and propose a formalism to quantify it. Further, we also motivate how the Kirkwood-Dirac distribution may contain information about the coherence in a quantum state. We provide considerable evidence to support this claim, by deriving a coherence quantifier from the Kirkwood-Dirac distribution. We end by summarising our findings, and discussing future work on the subject.
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