Change List for “On the computational complexity of detecting possibilistic locality”

Abstract:

* GHZ changed to “Greenberger, Horne, Zeilinger”
* “quantitatively” -> “qualitatively”
* Added sentence: “We consider…”

Introduction:

* “thorny issue”-> “cornerstone of debate about the foundations of the theory”
* “this property” -> “nonlocality”
* added brief explanation of steering
* corrected citation for Einstein’s letter to Schroedinger
* extended explanation of a “Bell experiment of the classic form”
* As suggested by referee, mention the result of Avis *et al*.

Background:

* This section is almost entirely new and provides a more in-depth explanation of the background concepts of the paper, as suggested by one of the referees. While some content has been usurped from other sections to improve the flow of the paper, most is original and so I will refrain from listing changes here.

The Locality Decision problem and incompleteness of Hardy’s paradox

* Tweaked presentation of a problem instance to one of a function, per introduction of such in the background section.
* Added more explanation of the workings of the generalised Hardy paradox. Rather than weigh the paper down with explanation of the paradoxical probability result, I decided to remove it; I do not think that the amount of extra explanation for the result is worth it.
* Cut sentence “we can quickly see…”

(2,3)-PossLoc is NP-complete:

* “It is easy to see”-> “we can see”
* Added sentence “we will demonstrate…”, outlining the structure of the proof to come.
* Changed definition of robust satisfaction to precisely match that of Abramsky, Gottlob, and Kolaitis.
* Per referee suggestion, 0-valid 3-Sat is defined by itself.
* Added sentence “now, we will demonstrate” to improve logical clarity.
* Added sentence “We can now verify that…” explaining a part of the proof structure that was previously unclear, per referee reports.
* Added reference to paper by Ham as suggested, noting that one lemma in particular can follow from one of the results in her paper, which was developed parallel to this one.

Quantum realisation

* Substantial rewording of initial sentence.
* Changed one equation to a Figure.
* One figure changed to explicitly label the positive and negatively labelled literals, per referee comment.
* Removed reference to “generalised Hardy paradox” in favour of “novel possibilistic nonlocality scenario”.
* Added sentence “for diagrammatic clarity…”
* Explained “opposite sense”.
* Added comment about techniques of Lucy Ham.