Paper #2 Assignment. Due Thursday May 7.

Instructions:

(a) Choose one of the following topics and respond to it in an essay of no less than 5 pages (not including title page and bibliography) and no more than 7 pages. Your essay should be typed, 10- or 12-point, double-spaced and spell-checked. Please submit an ecopy of your paper to the link in the Assignments folder in the NYUClasses website for the course.

(b) Your essay should conform to the Paper Guidelines on the unofficial course website:
http://faculty.poly.edu/~jbain/physinfocomp/paper_guidelines.pdf
You should be familiar with these guidelines from the first essay assignment; but if not, take a minute to read through them.

(c) Your essay must include a bibliography that minimally lists at least one relevant source. (Relevant sources are listed after each topic question, and can be found on the unofficial course website). Your essay must use this bibliography as a source to cite for all claims and quotes you attribute to authors. (Don't list the lecture slides and/or lecture notes in your bibliography.)

(d) As with the first essay assignment, your essay will be graded solely on its content, and not on spelling/grammar. If you have trouble with spelling and/or grammar, Tandon's Writing Center is still available to students with online help with constructing essays:
https://nyupoly.mywconline.com

1. Assess the physical possibility of Malament-Hogarth spacetimes and their relevance to the concept of computability.
(Relevant sources: EN93, H94, Stanford Encyclopedia of Philosophy article "Supertasks".)

2. Explain in detail how a configuration of simple infinity Turing machines operating in an AD spacetime can solve the decision problem for 1st-order arithmetic. Discuss the significance of this for standard accounts of what computers can and cannot in principle do.
Relevant sources: H94, Stanford Encyclopedia of Philosophy articles on "Supertaks" and "Computation in Physical Systems".)

3. Is quantum information different from classical information? Why or why not?
(Relevant sources: B04, T04, T08, RP00, Stanford Encyclopedia of Philosophy articles on "Quantum Entanglement and Information" and "Quantum Computing".)

4. Can the Clifton-Bub-Halvorson Theorem be viewed as solving the measurement problem? Can it be viewed as an adequate interpretation of quantum mechanics?
(Relevant sources: B04, T08.)