

**Extra Credit#2 (Optional). Due Weds 5/4.**

1. (3pt.) Explain two differences between quantum logic and classical logic.
2. (3pt.) In your own words, explain why the union of two linear subspaces is not in general the same as their linear span.
3. (4pt.) In the Many Worlds interpretation, all possible outcomes of every physical interaction always occur. So there's a world in which you ate cereal for breakfast this morning, and there's a world in which you ate a bagel, and there's a world in which you prepared for class, and another in which you came ill-prepared, *etc.* Consider how knowledge of all these myriad worlds might affect the moral decisions we're typically faced with in society. If you know that all these worlds exist, if there's in fact a world in which you just cheated on your philosophy of quantum mechanics midterm and got away with it, and one in which you didn't, why go to the trouble in *this* world of abiding by the rules? You'll always have "duplicates" in other worlds who are right-minded, moral citizens. Does knowledge of all the many worlds abrogate our moral responsibilities in this world? Why or why not?