Due Tuesday 6 October 2015, by 5pm in Nicholson 447

(You are allowed to work with no more than two collaborators as long as you write down who your collaborators are. No late assignments will be accepted. Please be sure to download the latest version of the notes before starting the homework.)

This assignment has a first part and a second part.

First part: Exercises in **http://www.markwilde.com/qit-notes.pdf**:

3.6.1, 3.6.3, 3.6.4, 3.7.6, 3.7.9, 3.7.12, 3.8.1, 3.8.2, 4.1.1, 4.1.3, 4.1.4, 4.1.11, 4.1.16

Second part: The following exercise:

1. Suppose that it is possible for a tripartite state ρ_{ABC} to exist such that $\text{Tr}_B\{\rho_{ABC}\}$ is equal to a maximally entangled state and such that $\text{Tr}_C\{\rho_{ABC}\}$ is equal to a maximally entangled state. Show using the teleportation protocol that it is impossible for such a state to exist, because it would lead to a violation of the no-cloning theorem. (The fact that one system cannot be maximally entangled with two separate parties is known as monogamy of entanglement, or if you're a negative person, you could call it the "no promiscuous entanglements" restriction.)