Homework exercises for Kyoto course:

1) Let M_0 be a *-subalgebra of $\mathcal{B}(\mathcal{H})$ and M its weak closure. Show that there is a projection $p \in M$ such that $p \in M_0''$, $m \mapsto mp$ is a weakly and strongly continuous isomorphism and Mp is a von Neumann algebra on $p\mathcal{H}$.

2) Show that $L^\infty([0,1])$ is equal to its own commutant (is "maximal abelian") on $L^2([0,1])$.

3) Use the ideas in the lecture to prove Goldman's theorem-that a subfactor of index two is the fixed point algebra for an action of $\mathbb{Z}/2\mathbb{Z}$.

4) Show that the trace of any word on the e_i's is determined by the Temperly-Lieb relations and the Markov trace relation.

5) Calculate the Jones polynomial of a $(2,n)$ torus link (i.e. the closure of $\sigma_1^n \in B_2$).

6) Make the following links into closed braids: