Questions (meeting 2)

1. How much of the structure of the weak interactions was determined by pure thought?

2. At the nucleon level, the weak current is
$$\bar{\psi}_p \gamma_\mu (1 - g_A \gamma_5) \psi_n$$
Should there be a $\cos\theta_C$ in this expression?

3. At the quark level, we write expressions for the current such as
$$\cos\theta_C \, \bar{u} \gamma_\mu (1 - \gamma_5) d$$
Should there be a g_A in this expression?

4. If the quark masses were zero, what would happen to g_A?

5. If the weak axial current were conserved, what would happen to the pion decay rate?

6. If the CKM matrix were the identity, what would be different experimentally?

7. The muon produced in pion decay has definite helicity or definite chirality?

8. As a free muon with definite momentum propagates, does its chirality or its helicity change with time?