Lecture F1 Mud: Formation of Lifting Flow
(6 respondents)

1. **Why is $\vec{\xi} = \nabla \times (\vec{V} + \Delta\vec{V})$ the same as $\vec{\xi} = \nabla \times \vec{V}$?** (1 student)
   Since $\Delta\vec{V}$ was defined to be a constant everywhere, $\nabla \times (\Delta\vec{V}) = 0$. A uniform added velocity has no effect on vorticity or circulation.

2. **What's the mechanism of the vortex shedding?** (1 student)
   Basically, the Kutta condition. The boundary layer fluid can't flow around the sharp trailing edge, so it peels off as a vortex sheet, thus carrying its vorticity away from the airfoil.

3. **What happens when the airfoil decelerates?** (1 student)
   The Pset sort of addresses this.

4. **What if the circuit is big enough to include the initial vortex?** (1 student)
   Not a problem. The circuit's Γ is still conserved when a new starting vortex forms. Airfoil + shed vortex circulation doesn't change. Universe continues to function properly.

5. **Where do we get Xfoil?** (1 student)
   You can download `xfoil.exe` from `http://raphael.mit.edu/xfoil` . I suggest following the sample session commands. It becomes fairly natural with a bit of practice.

6. **No mud** (1 student)