Lecture F14 Mud: Normal Shock Waves, Speed of Sound

1. **What does "h.o.t." mean?** (1 student)
   Higher Order Terms. Stuff like $d\rho\, da$, du^2, which become neglible relative to $d\rho$ or da in the infinitesimal limit.

2. **What are the small-shock equations used?** (1 student)
   For determining the speed of sound a, like we did in class. Also for describing the propagation of sound waves in general.

3. **What in the infinitesimal-wave analysis becomes invalid for finite waves?** (1 student)
   The assumption of isentropic flow becomes invalid. Also, the speed of sound a is the speed of weak waves. Finite shock waves travel at a greater speed $V_s > a$.

4. **Confused about different frames when looking at the shock.** (1 student)
   Tough to go over without a board. Maybe in recitation.

5. **Does the bow shock cause high drag on a blunt nose at supersonic speeds?** (1 student)
   Yes! That's why supersonic airplanes have pointy noses. Re-entry vehicles are blunt for several reasons, one of them being the fact that high drag is desirable for slowing down during re-enetry.

6. **What does "breaking the sound barrier" mean?** (1 student)
   Not much, nowadays. Before 1945, this "barrier" was considered as a technological barrier, rather than something the pilot had to "break".

7. **No mud** (4 students)