Questions???

- I know you've got some, so ask!

- You've got a pretty tough assignment.

- We've covered a lot of stuff
  - rotations
  - projections
  - clipping
  - hidden surface removal
 - color

Administrivia

- Check your roster entry
  - make sure you're there and everything is spelled right (if not email adamb@cs)
  - check that your webpage and picture load alright (you might need to set permissions)

- If you haven't started the assignment you're probably screwed.

- Read the textbook!!! Prof. O'Brien assumes you're doing the reading and leaves stuff out of his lectures. You should have read 1-7, 11.1, 11.2, 16, 17, 18.

When do you clip?

- Three options:

  1. In world coordinates using the six planes that bound the truncated viewing pyramid

  2. In the 4D transformed space before the homogeneous divide

  3. In the transformed 3D space with respect to the six axis-aligned planes
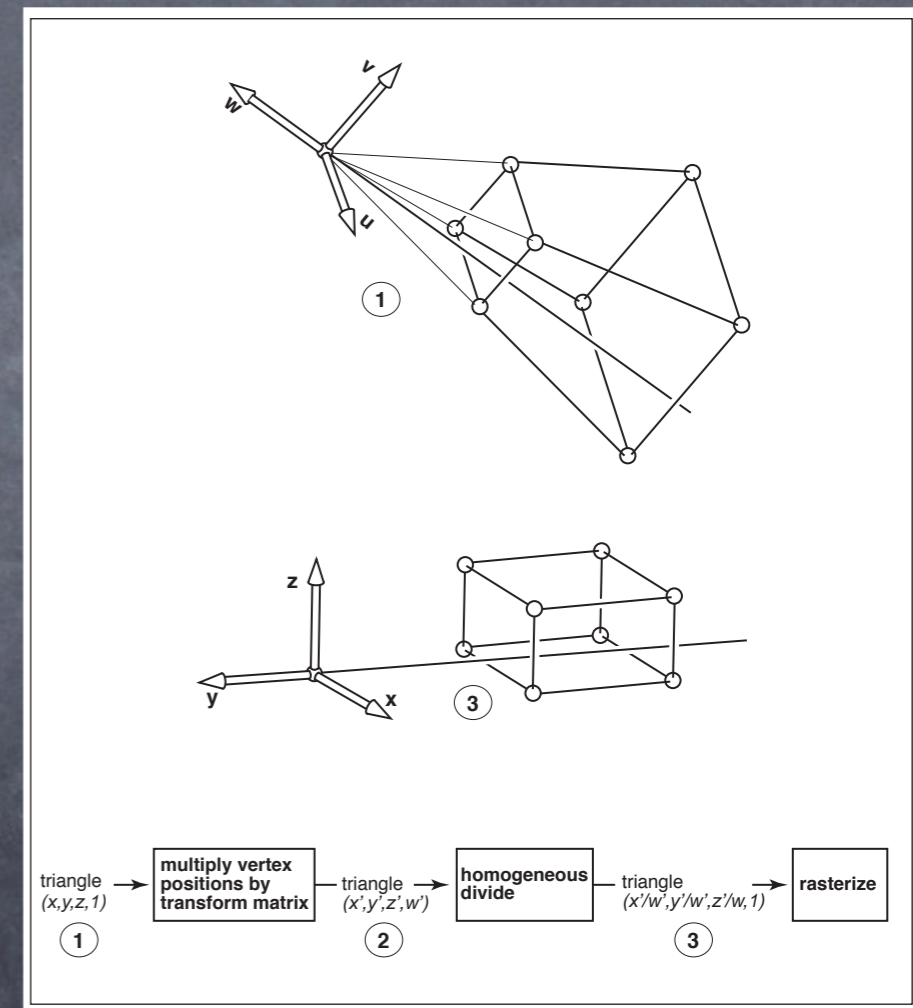
Option 3: After the Divide

Seems like the easiest because the planes are simple and efficient to evaluate

In fact its the most problematic because of the discontinuity at zero depth
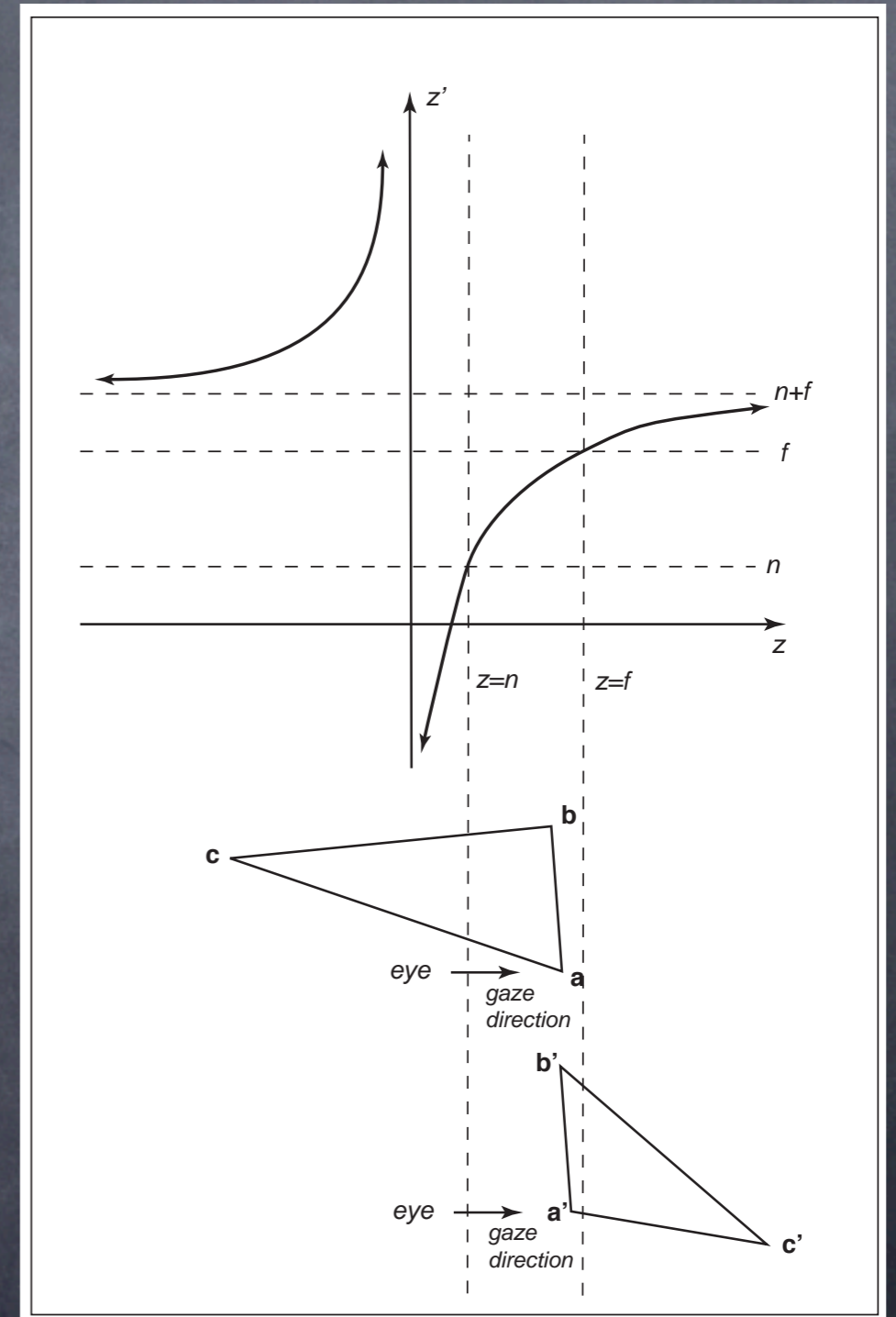
Option 1: In the Beginning

- A little tricky to do because you're clipping against the planes which bound the truncated viewing pyramid. These planes are somewhat arbitrary and complicated to represent.

- We can find the planes by performing an inverse transform of the 8 vertices of the transformed view volume.

- Avoids performing transforms of non-visible polygons.

Option 2: Homogeneous Coordinates

The "right" answer--at least the one usually used.

Like option 3, the planes are simple.

The clipping must be done in 4D, but its not so bad.

The Graphics Pipeline

Display Traversal → Modeling transfor-mation → Trivial accept/reject → Light-ing →

→ Viewing Transfor-mation → Clip-ping → Division by w and mapping to viewport →

→ Hidden Surface Removal Rasterization Shading → Frame Buffer