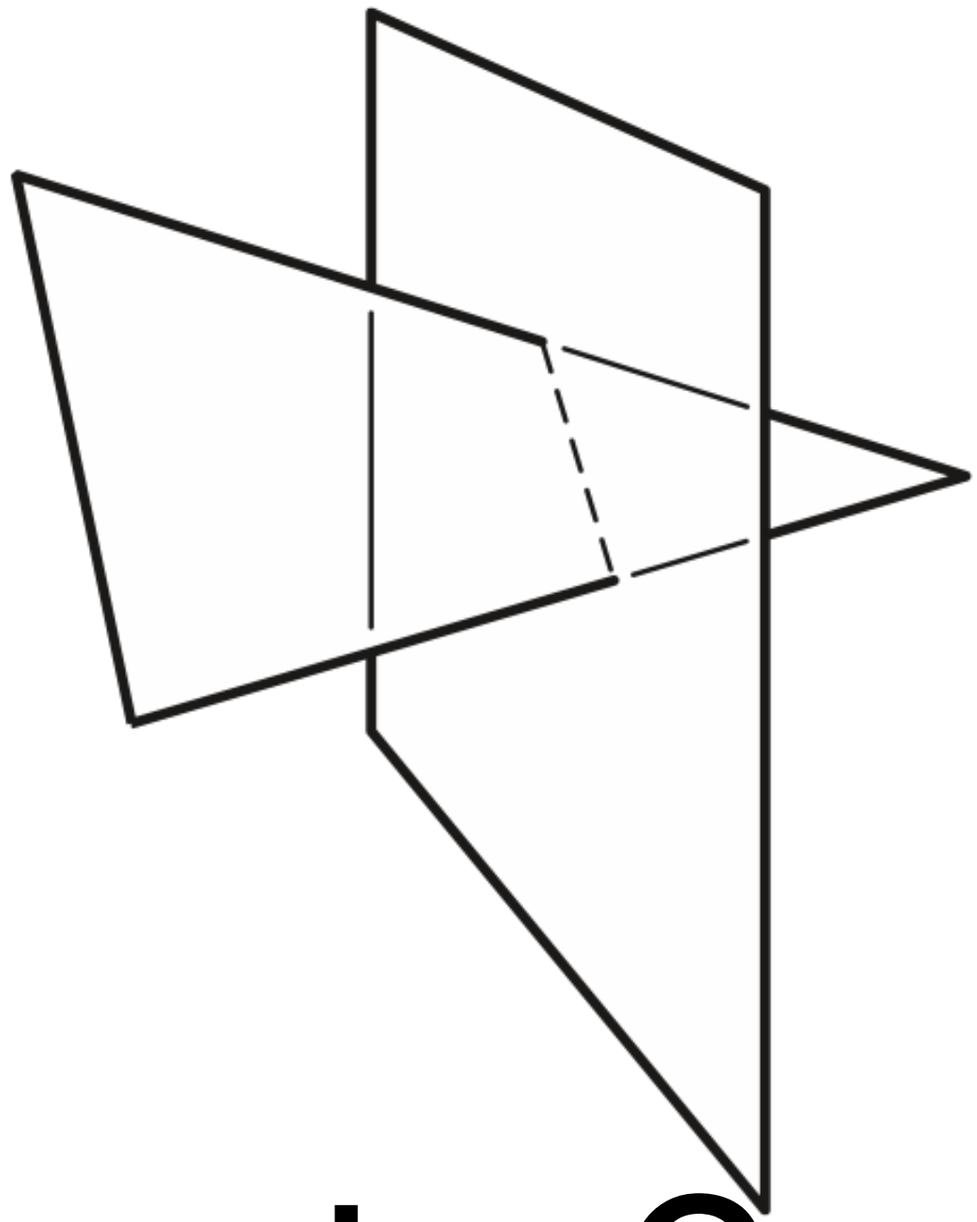


Computer Graphics

Lecture 27:
Clipping

Announcements

- Please continue not talking about the exam through Thursday at noon.
- Proposal revisions (if requested) due tonight
- FP milestone 1 is one week from yesterday!
- Line lab due Thursday 11/14 10pm (if not already completed)
- A3 due Friday 10pm
    - This is the last assignment where slip days can be used

A2 Artifact Results!

Honorable Mention

Nic (4 votes)

Honorable Mention

Nic (4 votes)

2nd Place (3-way tie)

Mila (5 votes)

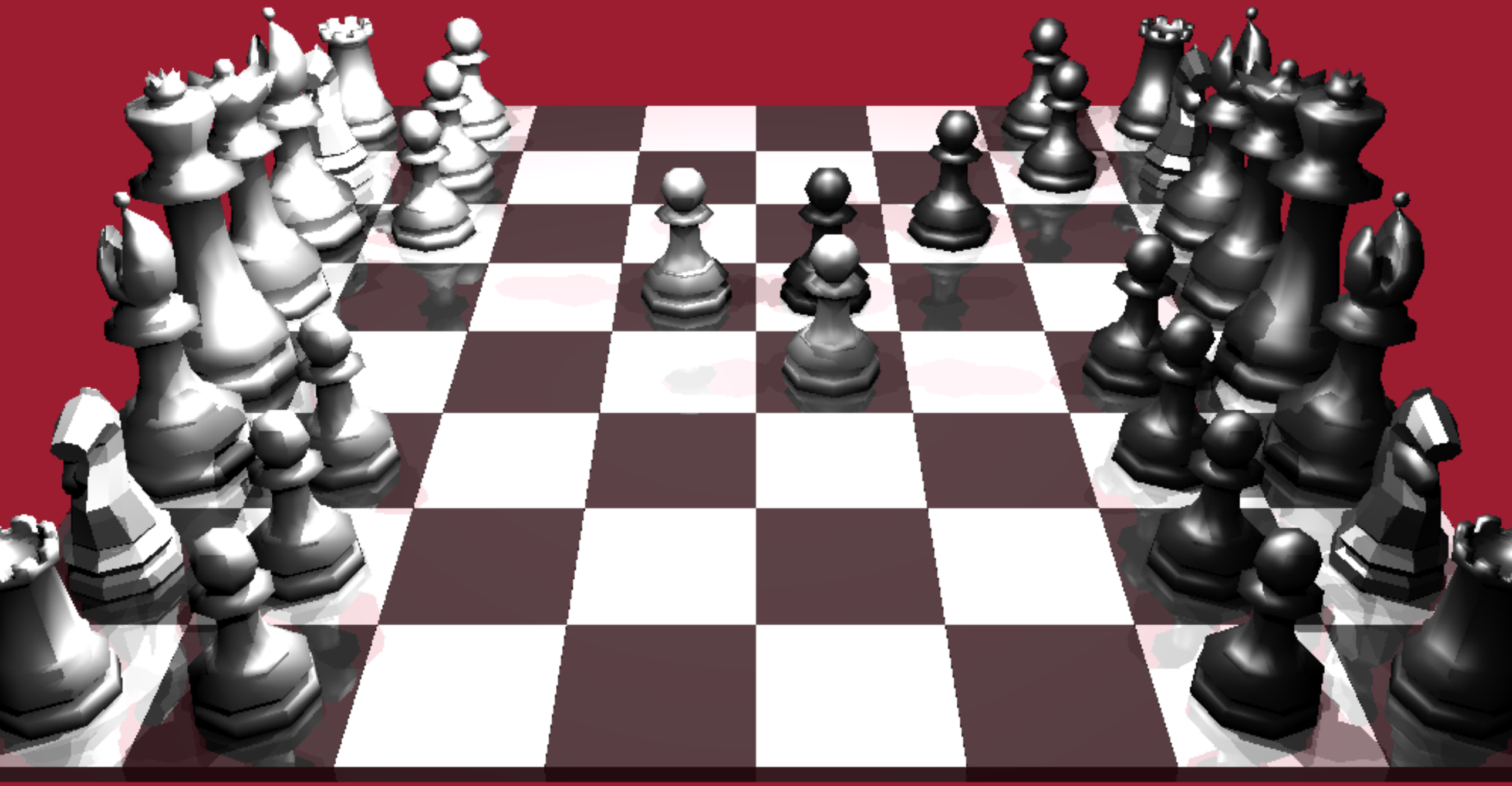
2nd Place (3-way tie)

Konnor (5 votes)

2nd Place (3-way tie)

Konnor (5 votes)

2nd Place (3-way tie)



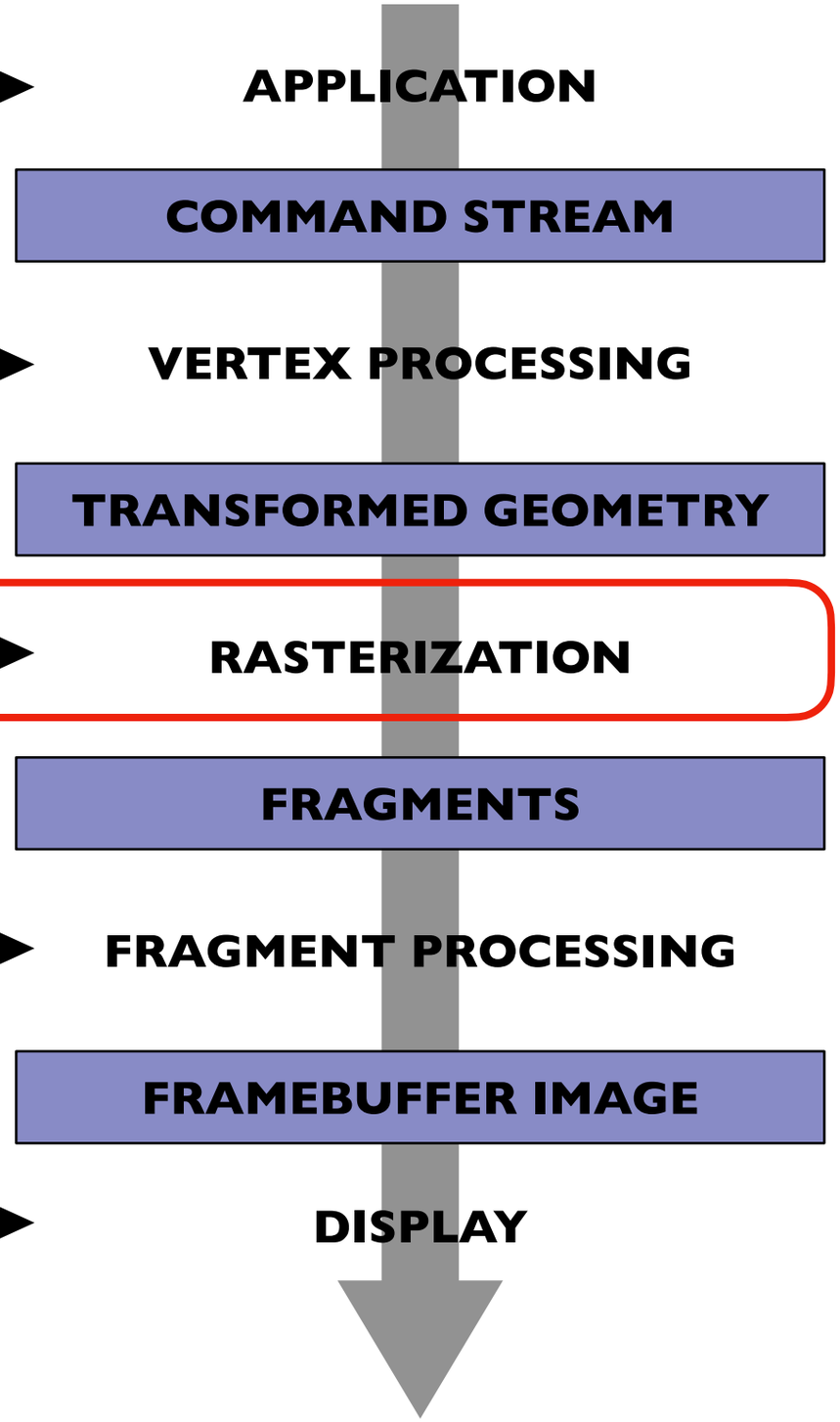
Jonas (5 votes)

1st Place

Dylan (7 votes)

Graphics Pipeline: Overview

you are here



3D transformations; shading

vertex shader

conversion of primitives to pixels

in GL: magic; done for you

blending, compositing, shading

fragment shader

user sees this

Rasterization: Overview

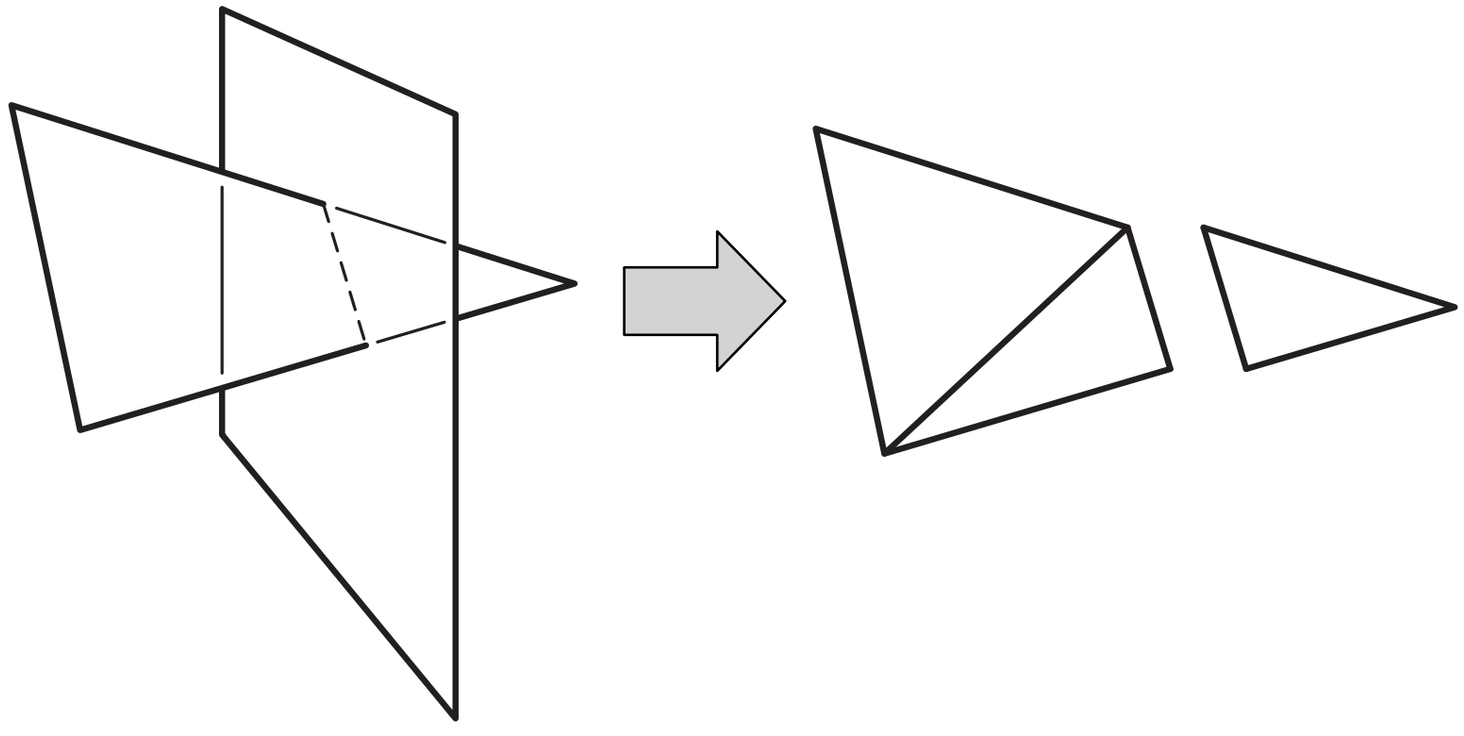
- 7(!?) weeks ago: rasterizing triangles
- 1 week ago: z buffering, backface culling
- Last time: rasterizing lines
- Today: **clipping**

Clipping

- Rasterizer tends to assume triangles are on screen
  - particularly problematic to have triangles crossing the plane $z = 0$
- After projection
  - clip against the planes $x, y, z = 1, -1$ (6 planes)
  - primitive operation: clip triangle against axis-aligned plane

Clipping a triangle against a plane

- 4 cases, based on sidedness of vertices
  - all in (keep)
  - all out (discard)
  - one in, two out (one clipped triangle)
  - two in, one out (two clipped triangles)



Exercise: Write pseudocode to do this.

- 4 cases, based on sidedness of vertices
  - all in (keep)
  - all out (discard)
  - one in, two out (one clipped triangle)
  - two in, one out (two clipped triangles)