

# Supplement to Lecture 21

## Anti-aliasing

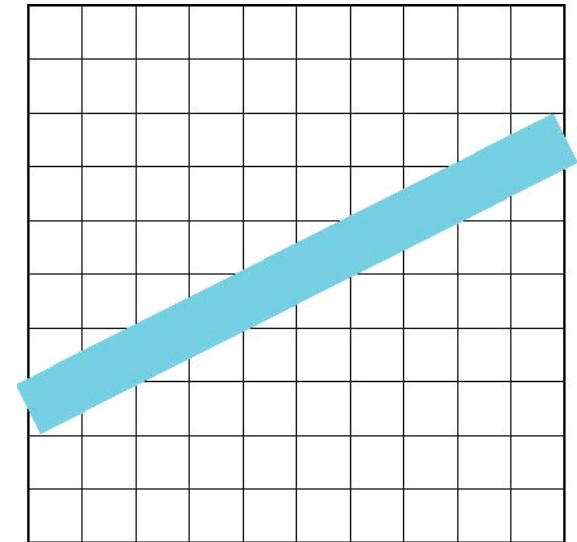


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Notes and figures from *Angel, Schreiner: Interactive  
Computer Graphics, 6<sup>th</sup> Ed., 2012* © Addison Wesley  
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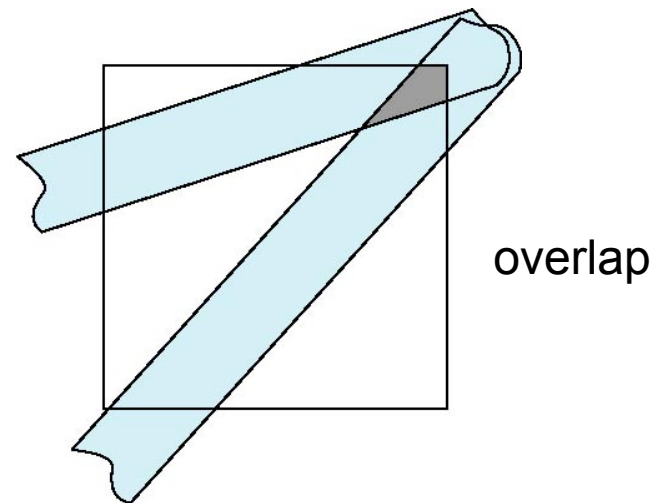
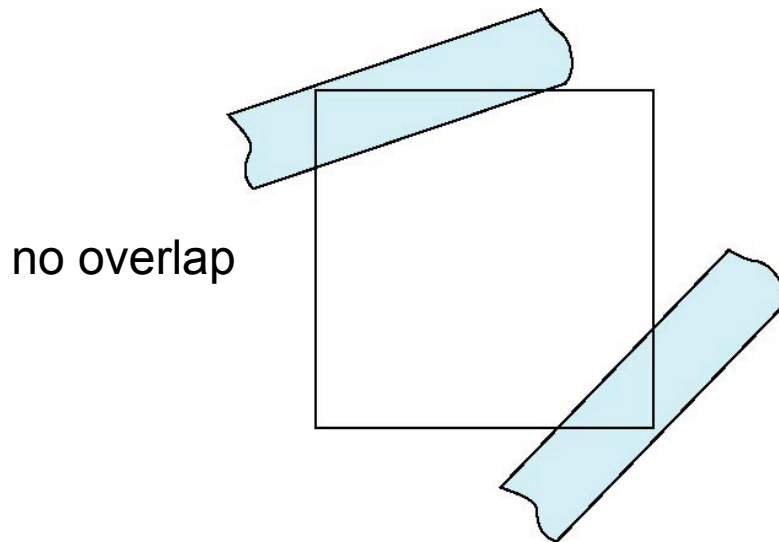
# Line Aliasing

- Ideal raster line is one pixel wide
- All line segments, other than vertical and horizontal segments, partially cover pixels
- Simple algorithms color only whole pixels
- Lead to the “jaggies” or aliasing
- Similar issue for polygons



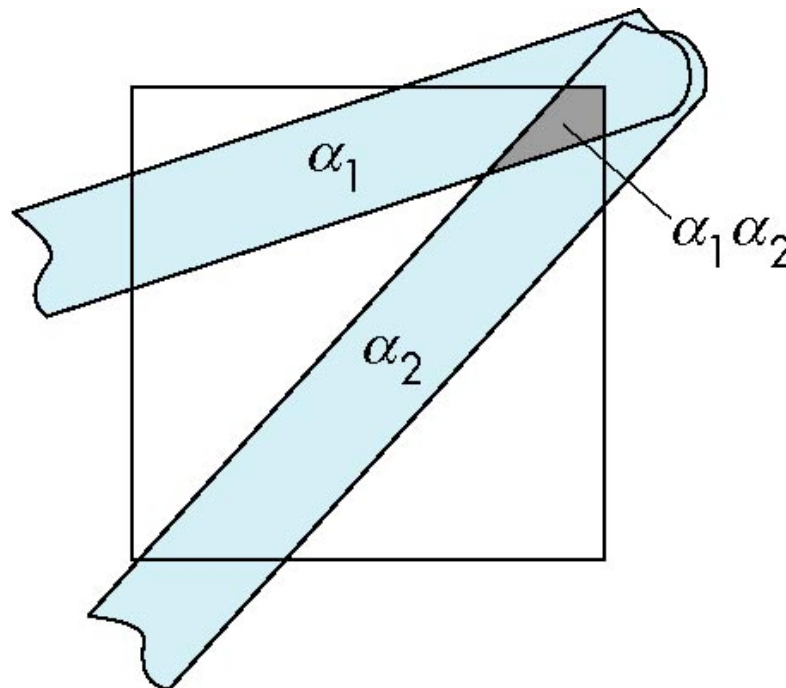
# Antialiasing

- Can try to color a pixel by adding a fraction of its color to the frame buffer
  - Fraction depends on percentage of pixel covered by fragment
  - Fraction depends on whether there is overlap



# Area Averaging

- Use average area  $a_1 + a_2 - a_1 a_2$  as blending factor



# OpenGL anti-aliasing

- Can enable separately for points, lines, or polygons

```
glEnable(GL_POINT_SMOOTH);  
glEnable(GL_LINE_SMOOTH);  
glEnable(GL_POLYGON_SMOOTH);
```

```
glEnable(GL_BLEND);  
glBlendFunc(GL_SRC_ALPHA, GL_ONE_MINUS_SRC_ALPHA);
```



See Lecture 21 slides for theory of  
sampling / aliasing/anti-aliasing

