

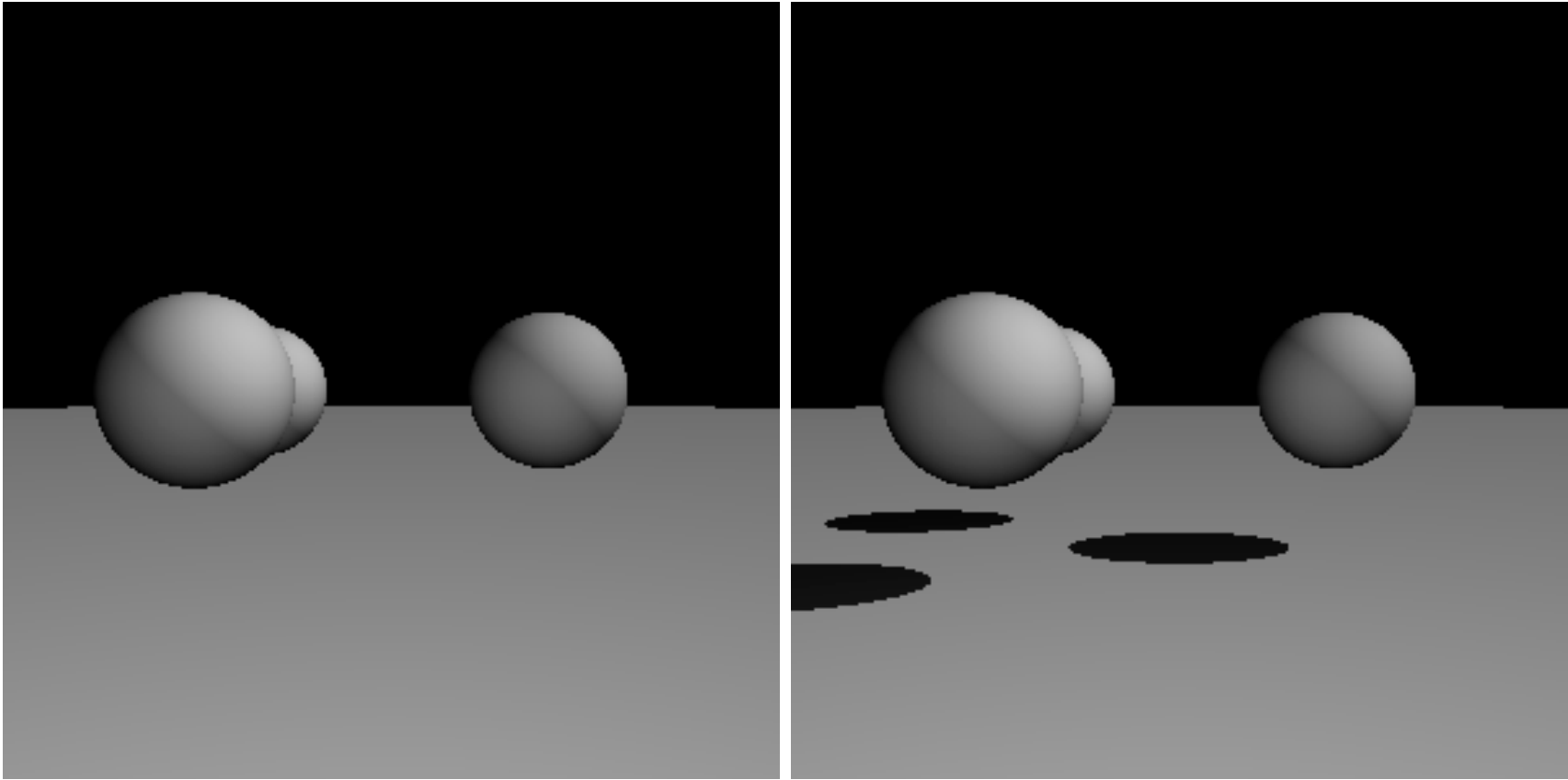
Computer Graphics

Lecture 10C
Shadows

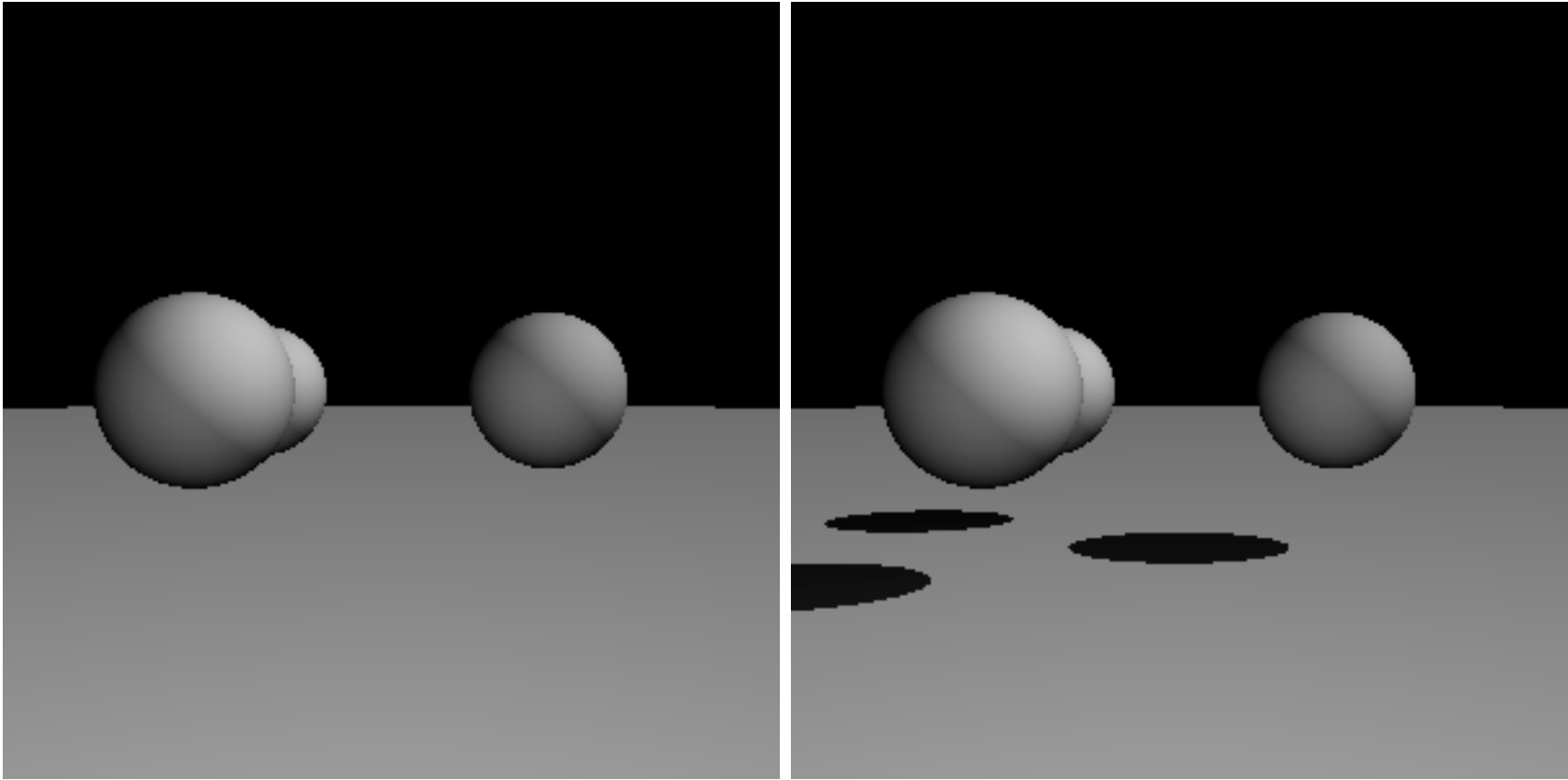
Goals

- Know how to generate **shadow rays** to determine whether a light source illuminates a point.

Shadows

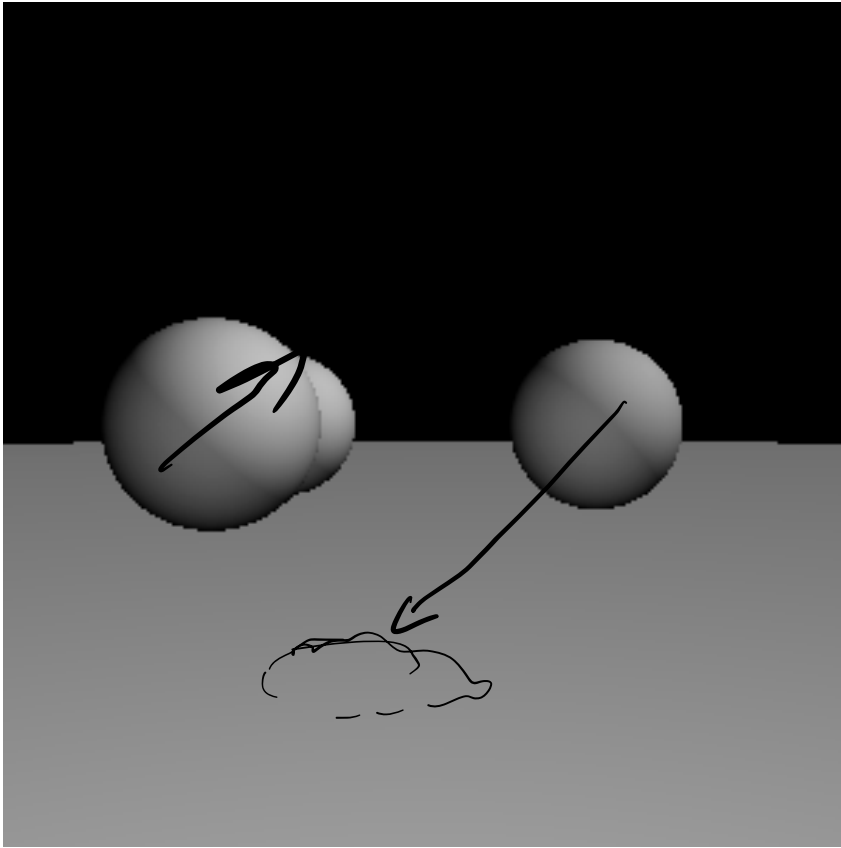


Shadows

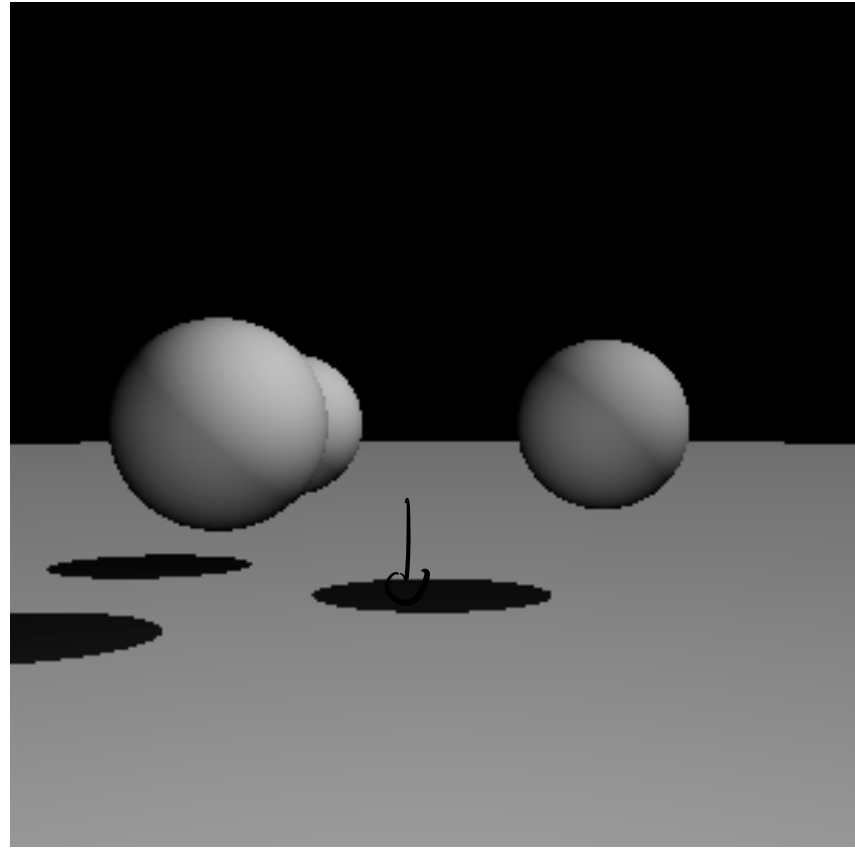


Less Wrong

Shadows



Wrong

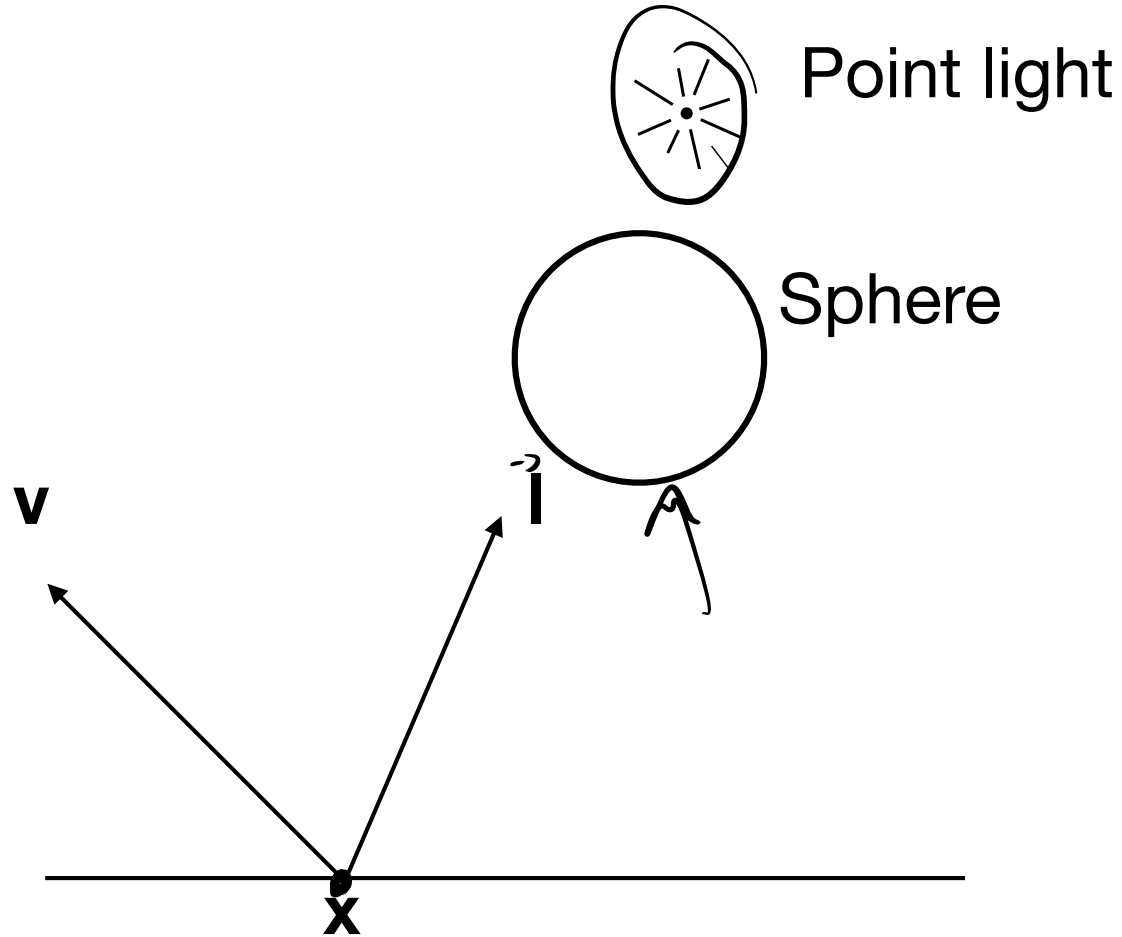


Less Wrong

Shadows

How can we tell if a point is in shadow?

Eye



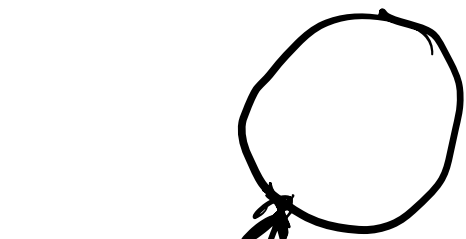
Shadows

How can we tell if a point is in shadow?

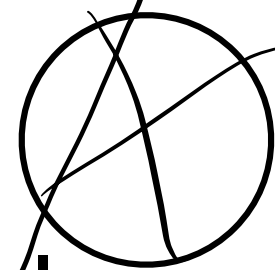
Eye



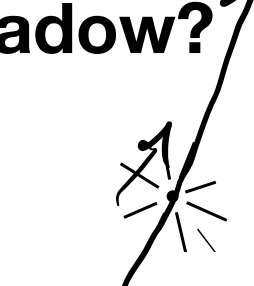
\mathbf{v}



Point light



Sphere



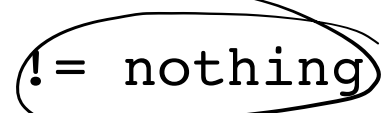
\mathbf{l}



\mathbf{x}

Point is shadowed iff:

`ray_intersect(objs, Ray(\mathbf{x} , \mathbf{l}), t_{min} , t_{max}) != nothing`



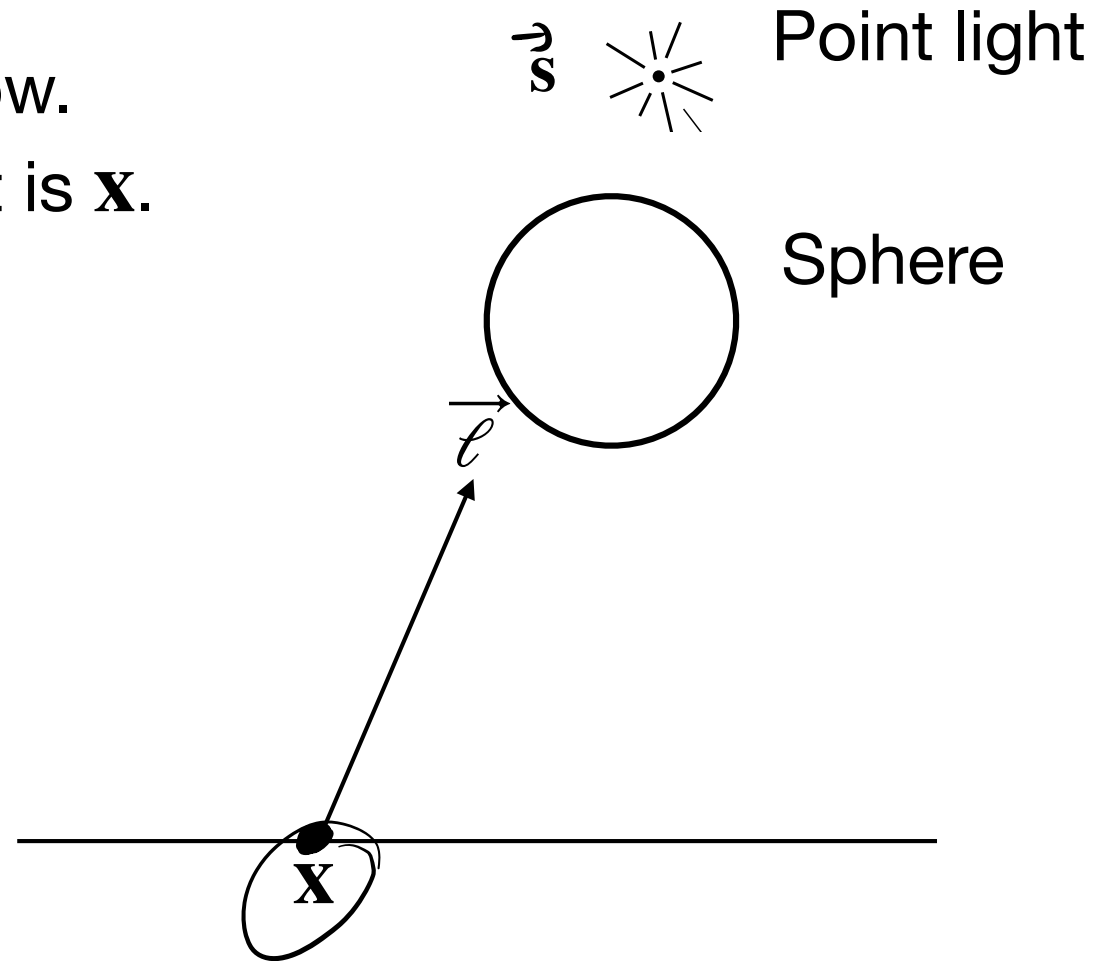
Shadows

How can we tell if a point is in shadow?

Exercise: Fill in the table below.

Assume the intersection point is \mathbf{x} .

	Directional light $\vec{\ell}$	Point light \vec{S}
<code>r.orig</code>	\mathbf{X}	\mathbf{X}
<code>r.dir</code>		
<code>tmin</code>		
<code>tmax</code>		



Point is shadowed iff:

`ray_intersect(objs, Ray(orig, dir), tmin, tmax) != nothing`