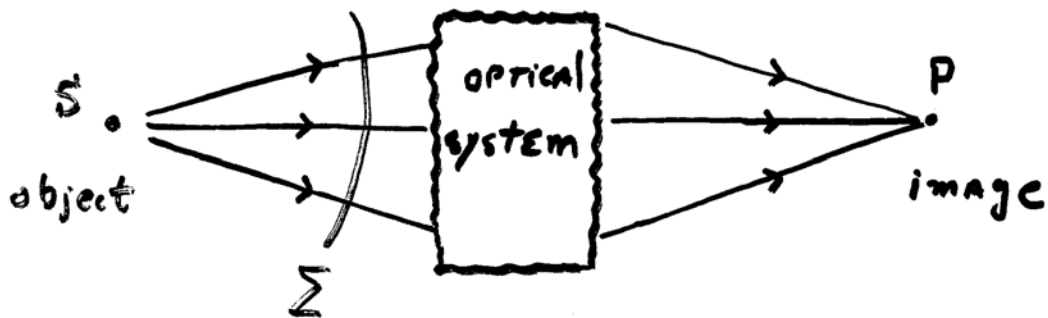


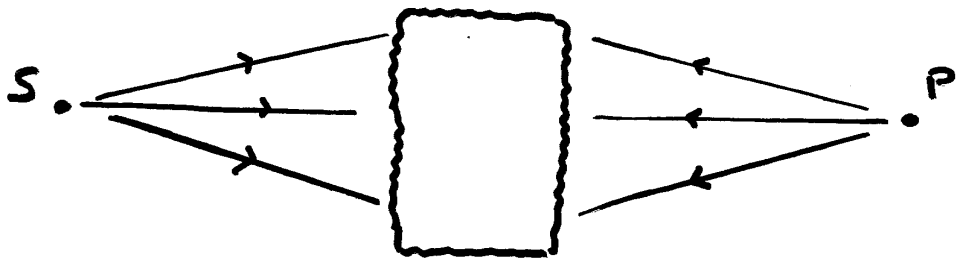
Imaging by an Optical System

Let's start considering imaging a punctual light source S



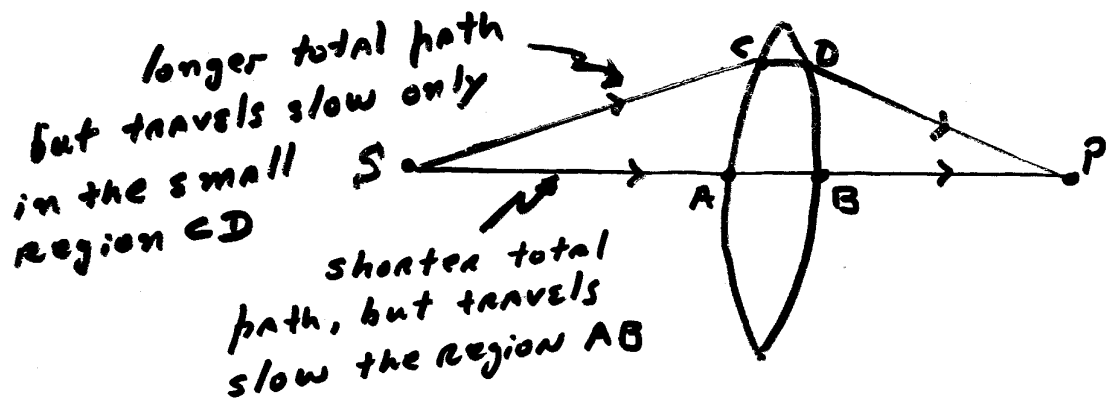
An imaging process involves the modification of wavefront Σ by the optical system

Wavefront: Locus of points such that each ray contacting a wavefront represent the same transit time of light from the source



An ideal optical system would make all the rays from S to reach the image point P at the same time

This can be achieved by properly shaping a refracting surface



S and P are called "conjugated points" (for the reason we'll explain later)

Limitations of optical systems

3

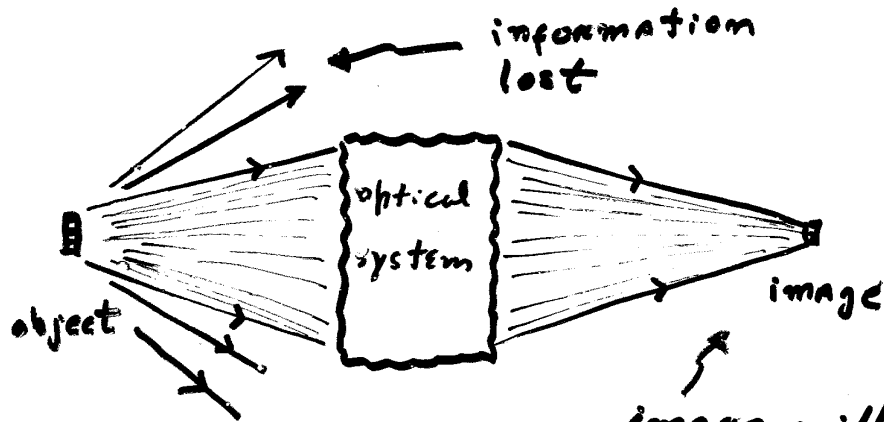


image will not be perfect because of the limited capacity of the optical system to collect all the information from the object.

Realizing that the imaging process by optical systems will have limitations, we would like to develop a formalism (a theoretical formalism) that will allow us to evaluate how "imperfect" is the real image from the idealized one.