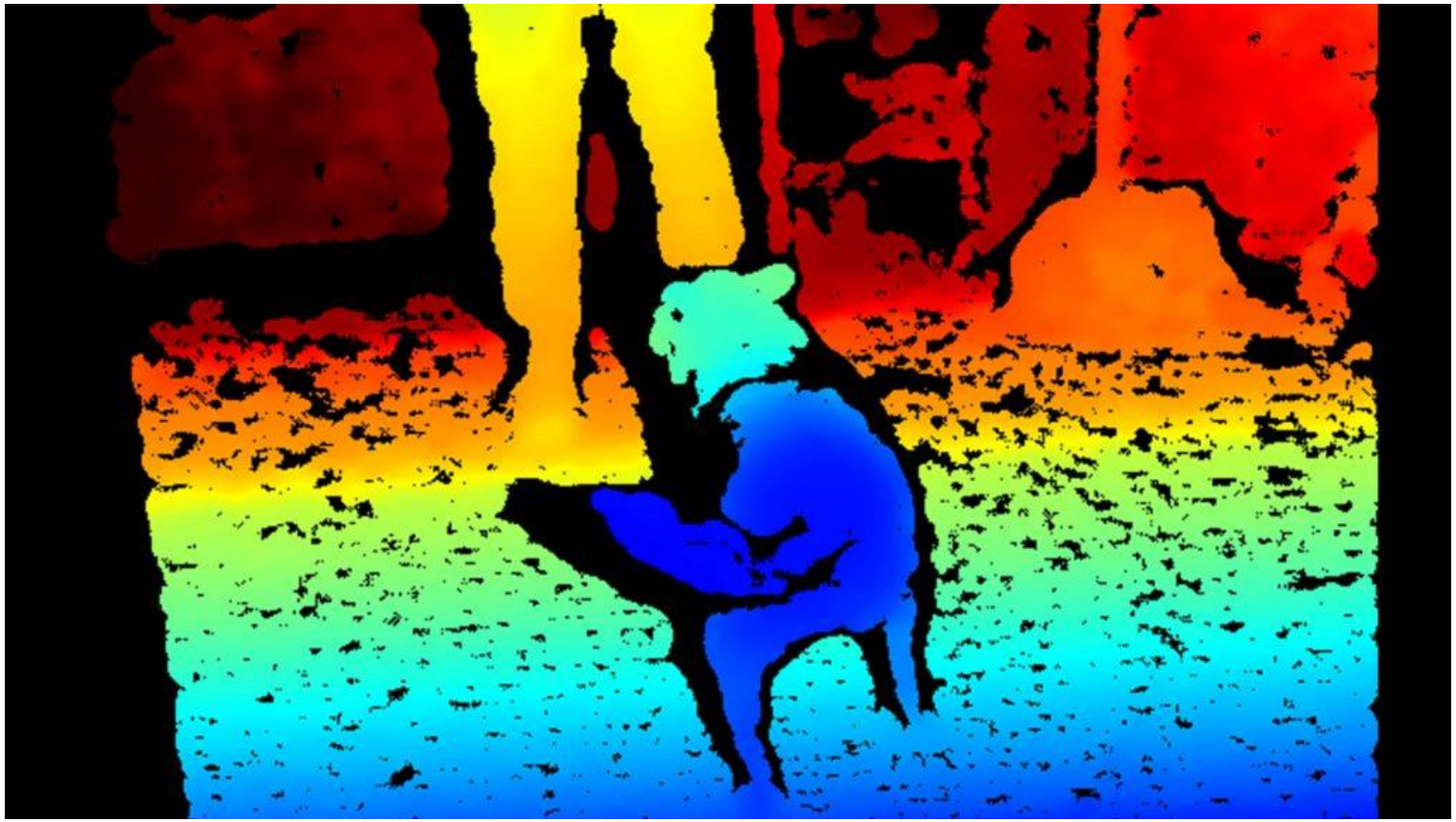
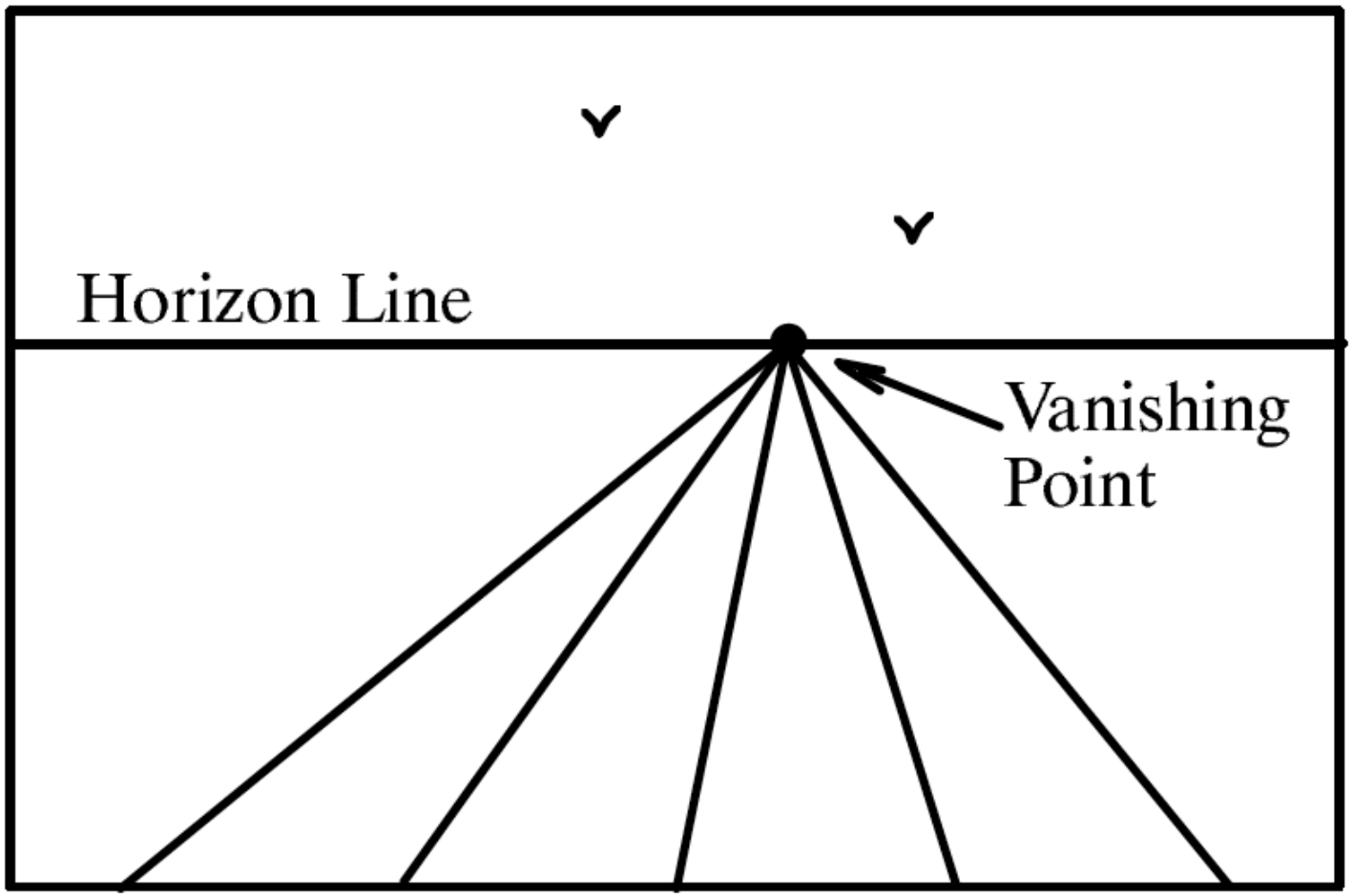
Stereo



References

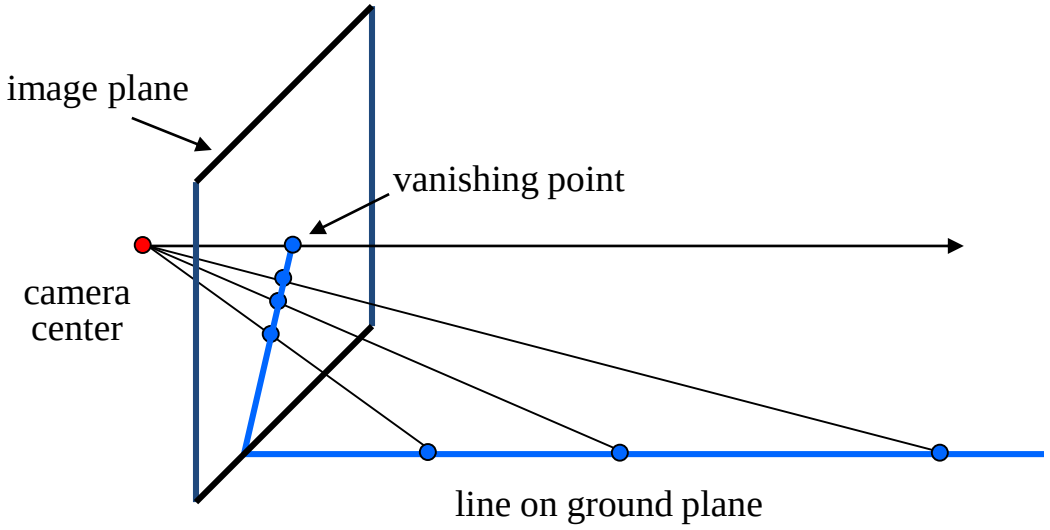
- http://szeliski.org/Book/
- http://www.cs.cornell.edu/courses/cs5670/2019sp/lectures/lectures.html
- http://www.cs.cmu.edu/~16385/

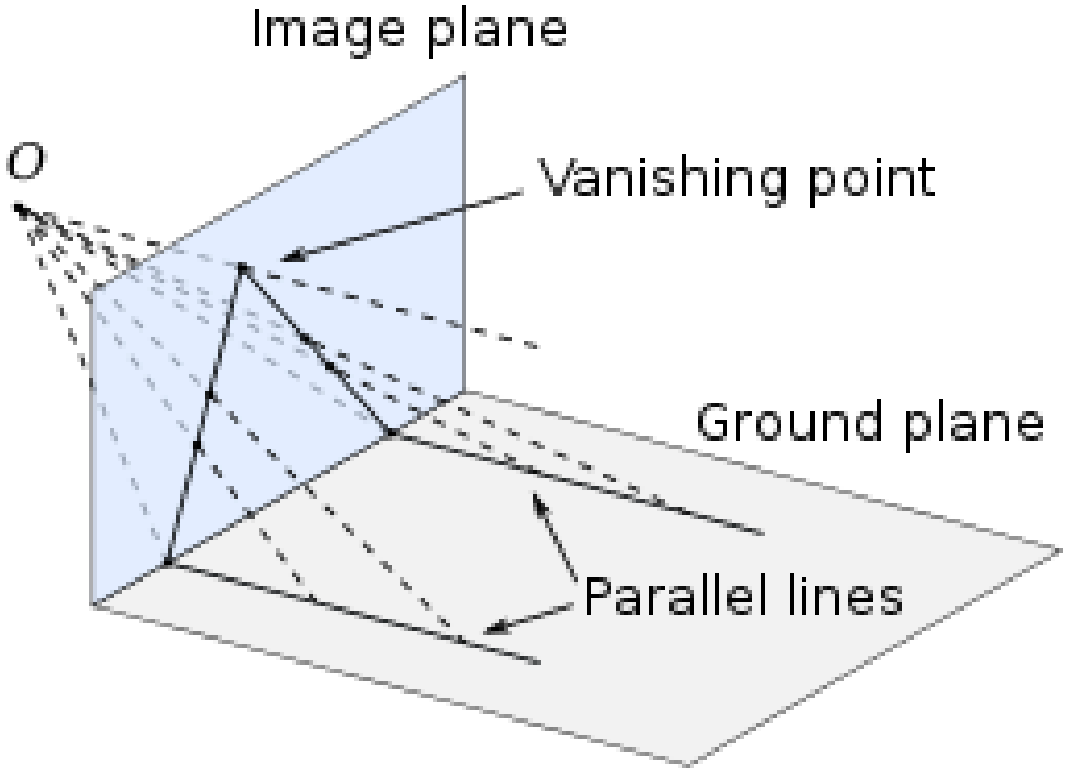
Vanishing points



Vanishing points

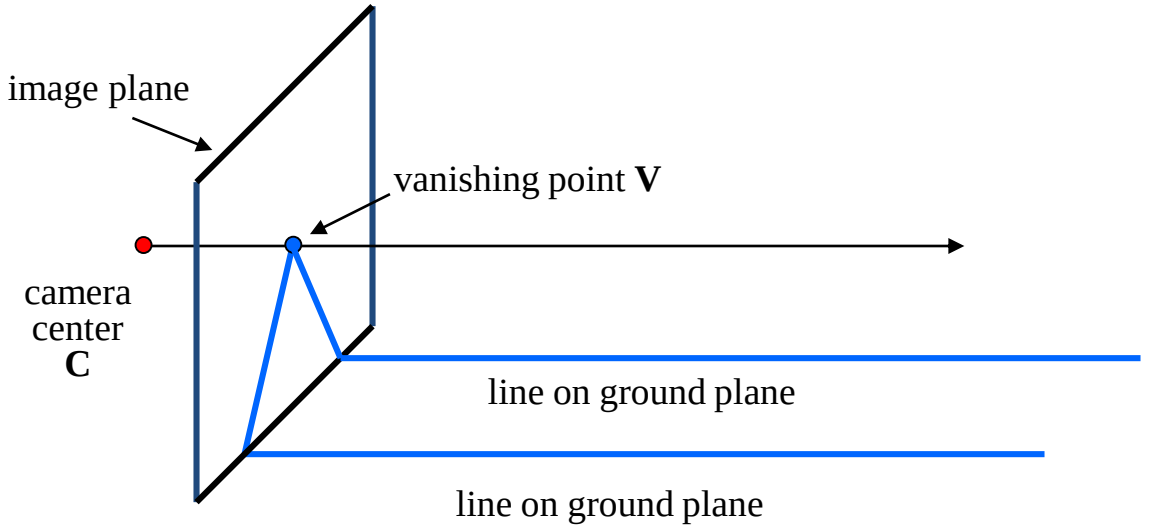
- A **vanishing point** is a point on the image plane of a perspective drawing where the two-dimensional perspective projections (or drawings) of mutually parallel lines in three-dimensional space appear to converge. [Wikipedia]





Vanishing points

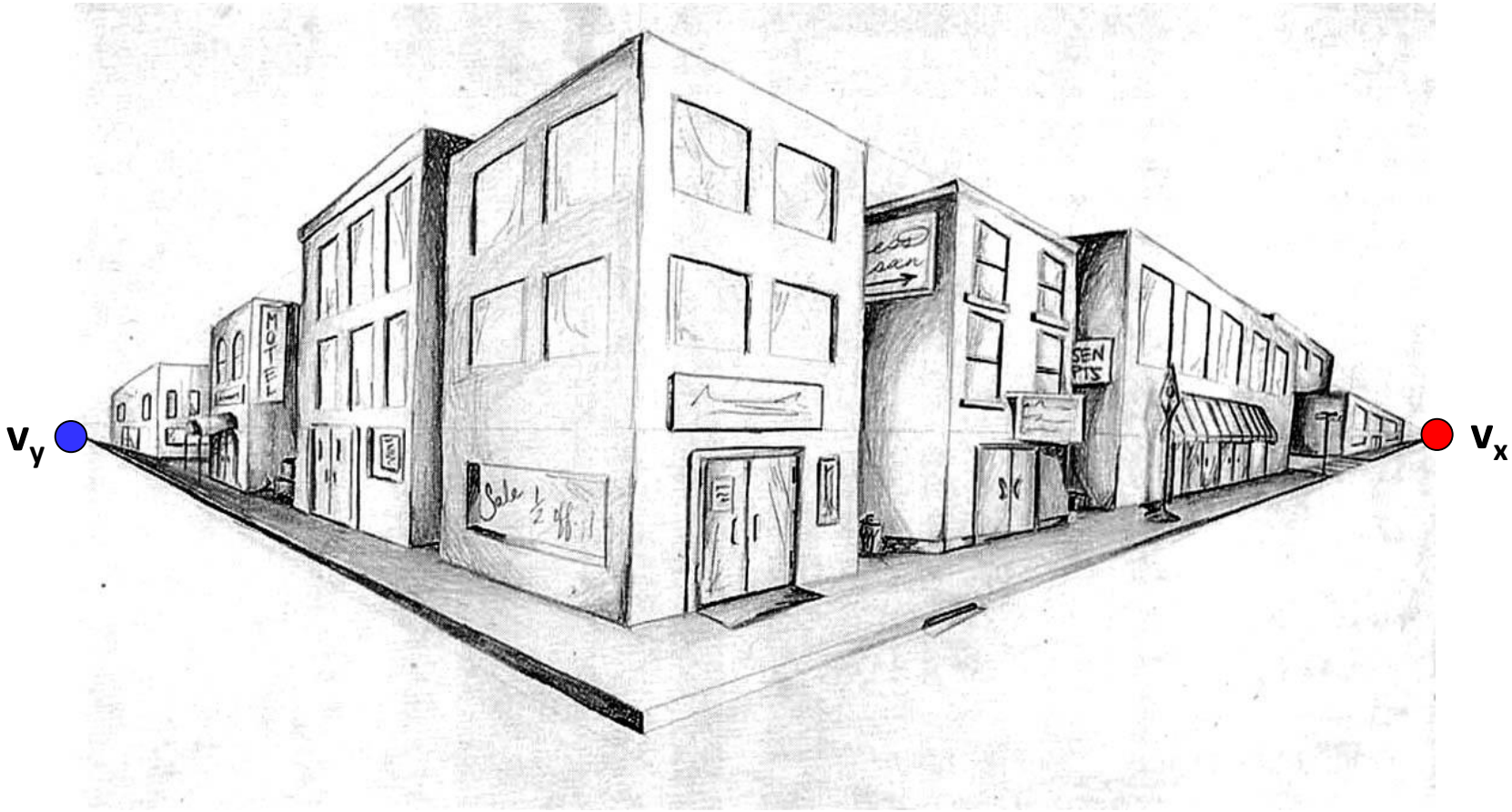
- Properties
  - Any two parallel lines (in 3D) have the same vanishing point **v.**
  - The ray from **C** through **v** is parallel to the lines.
  - An image may have more than one vanishing point.
  - Sometimes vanishing points can be out of FOV of the image.



One-point perspective

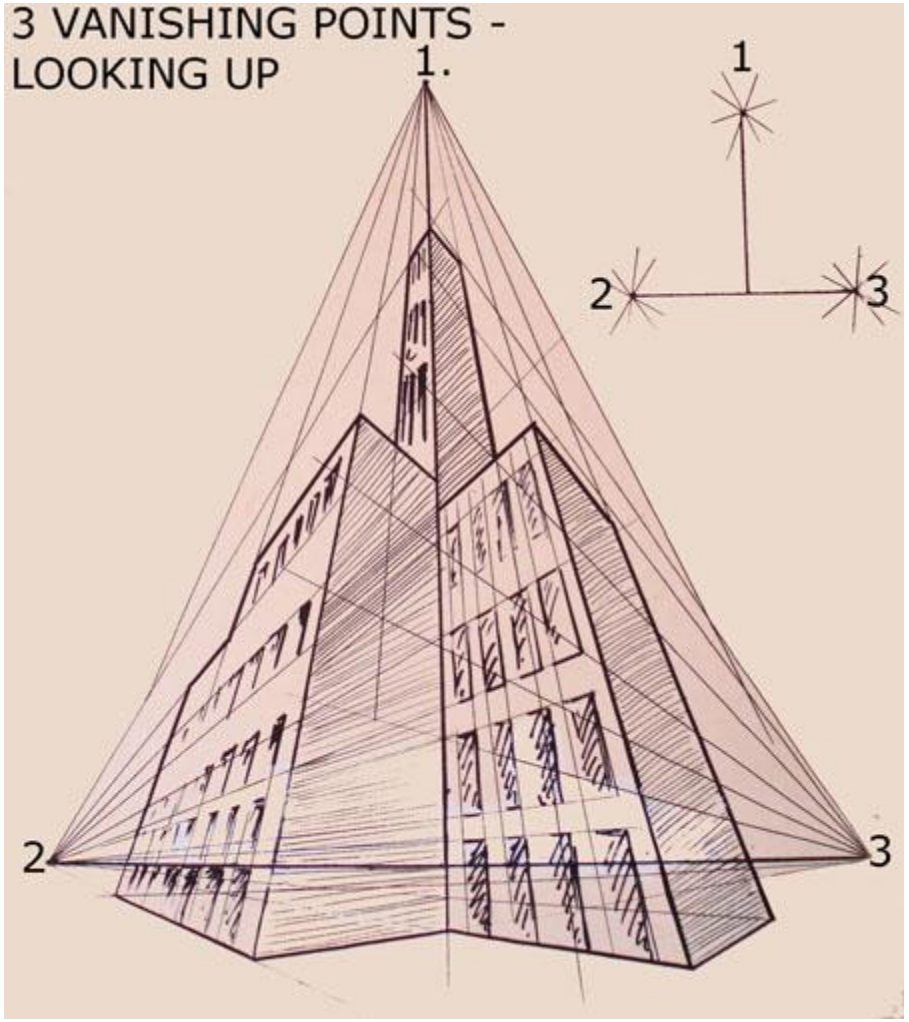
- A drawing/ image has one-point perspective when it contains only one vanishing point.

Two-point perspective



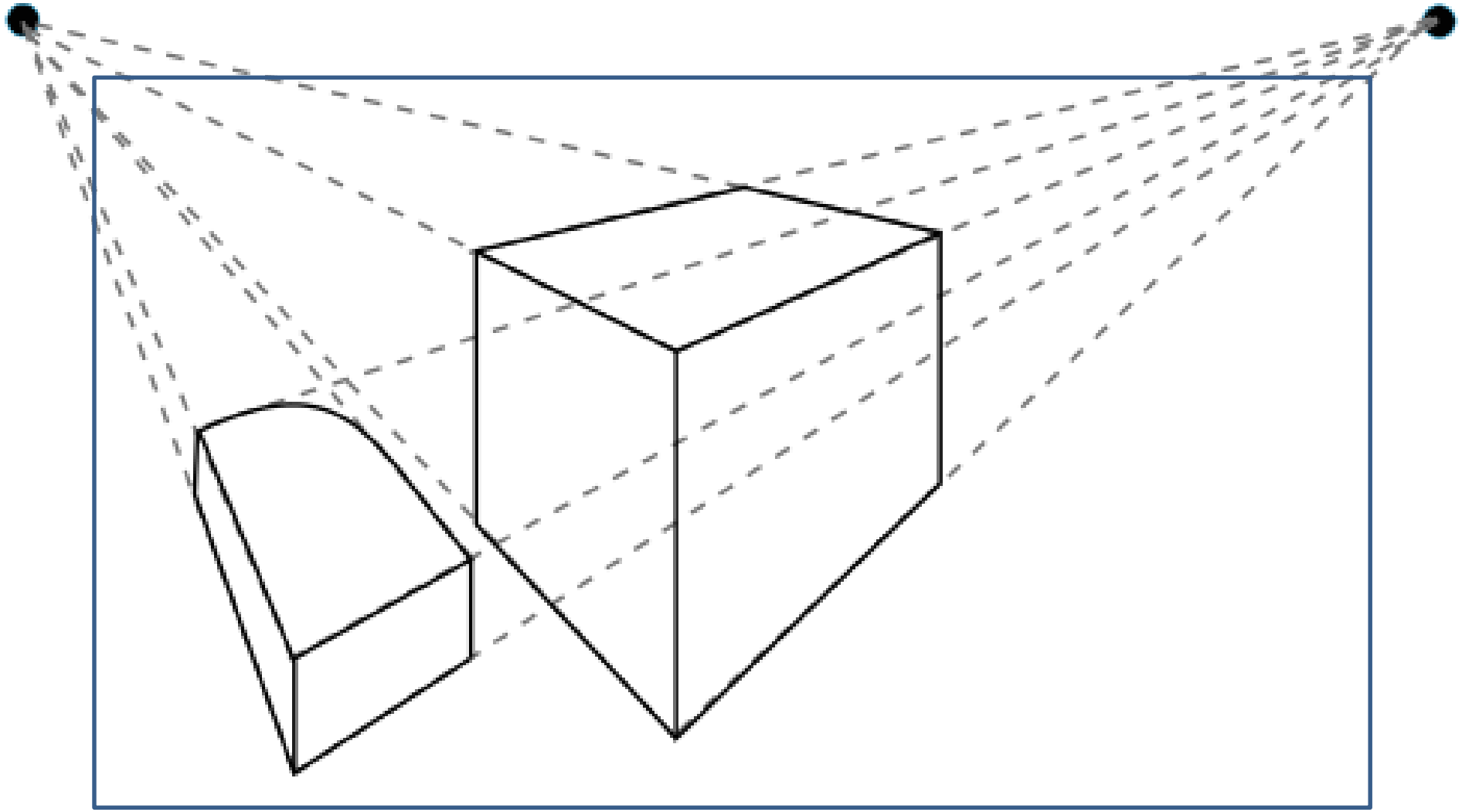
Two-point perspective

Three-point perspective

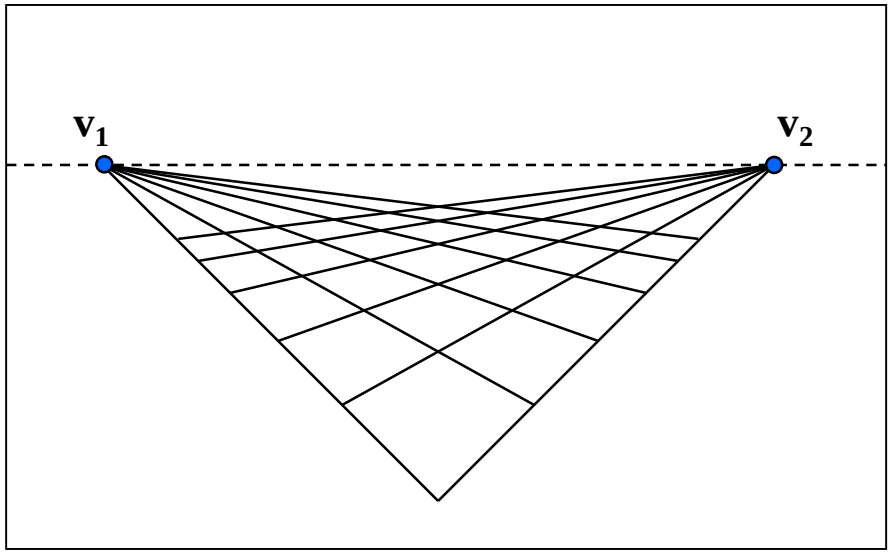


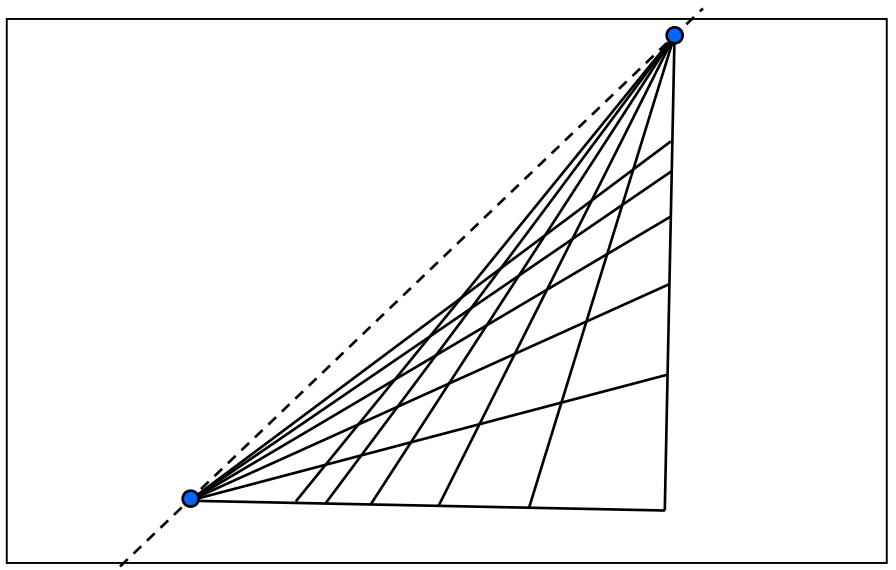
Vanishing points

- Sometimes vanishing points can be out of FOV of the image.



Vanishing lines





- Any set of parallel lines on the plane define a vanishing point.
- The union of all these vanishing points is the *horizon line*
  - also called *vanishing line*
- Note that different planes (can) define different vanishing lines

Vanishing lines

- Three different vanishing lines (and points…).