Image rendering from images

- Suppose we have N views of a scene and we wish to render it from a new viewpoint.
- We could use the previous method and build an explicit model of the scene, or we could use the idea of transfer.
- **Question** How do we take into account the visibility?

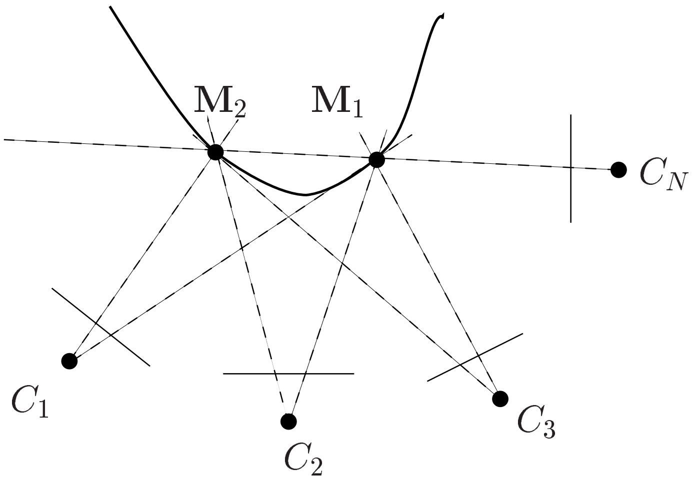

Figure 8: The visibility problem.

Image rendering from images (*continued*)

- One solution is to use oriented projective geometry, i.e. to orient the epipolar lines:

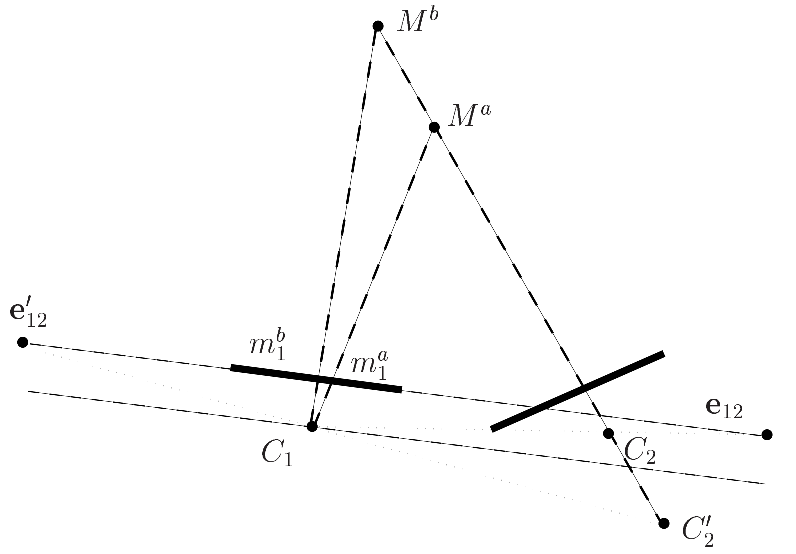

Figure 9: The orientation of the epipolar lines will change when the optical center of the second camera crosses the focal plane of the first one.

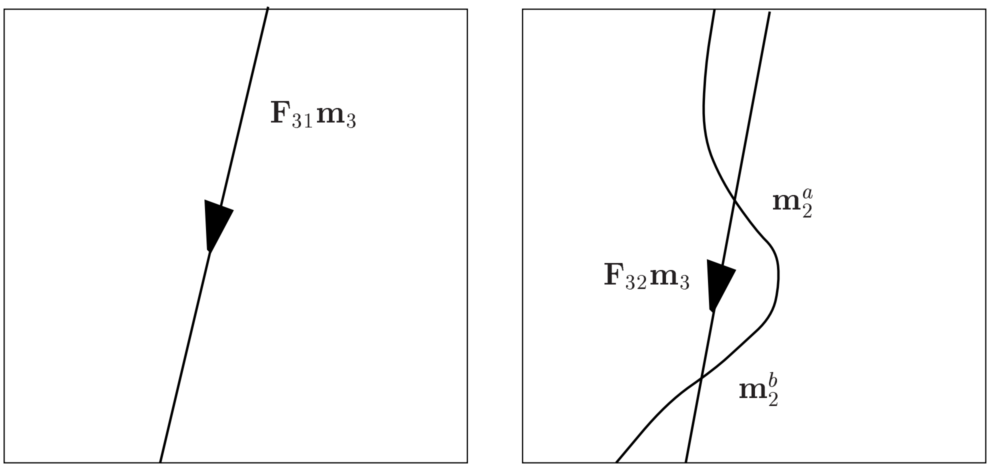

Figure 10: Point M^a is visible, point M^b is not.

Some results: dense correspondences

Some results: sparse correspondences

- In many cases it is hard to obtain dense correspondences.
- Triangulate sets of sparse correspondences.
- Assume that the scene is flat within each triangle: this determines an affine correspondence between the real views and the virtual one.


Some results: sparse correspondences (*continued*)

Some results: sparse correspondences (*continued*)

- **The two mosaics**

Some results: sparse correspondences (*continued*)

■ Initial triangulation