



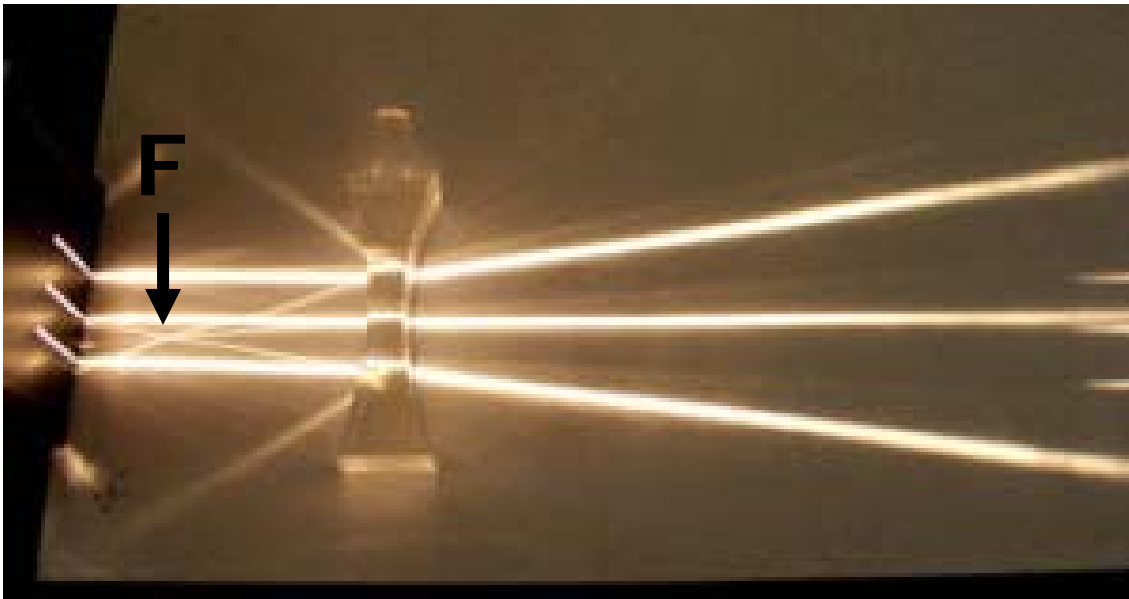
# CURVED LENSES

**13.1, 13.3**

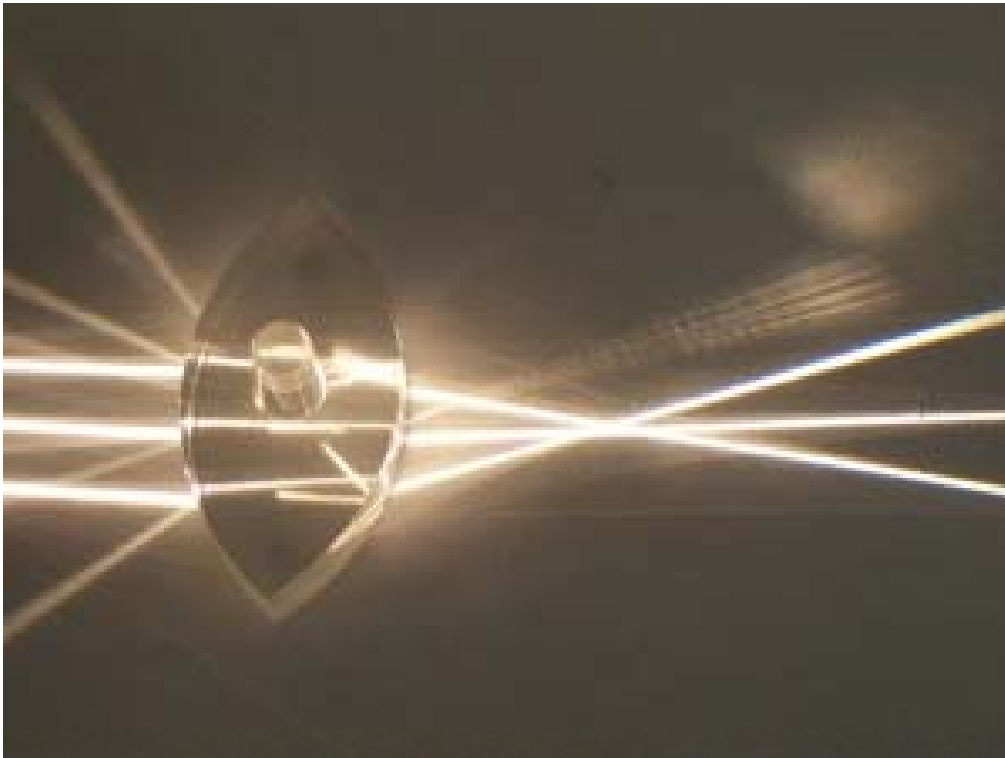
SNC 2D1

Mr. Dvorsky

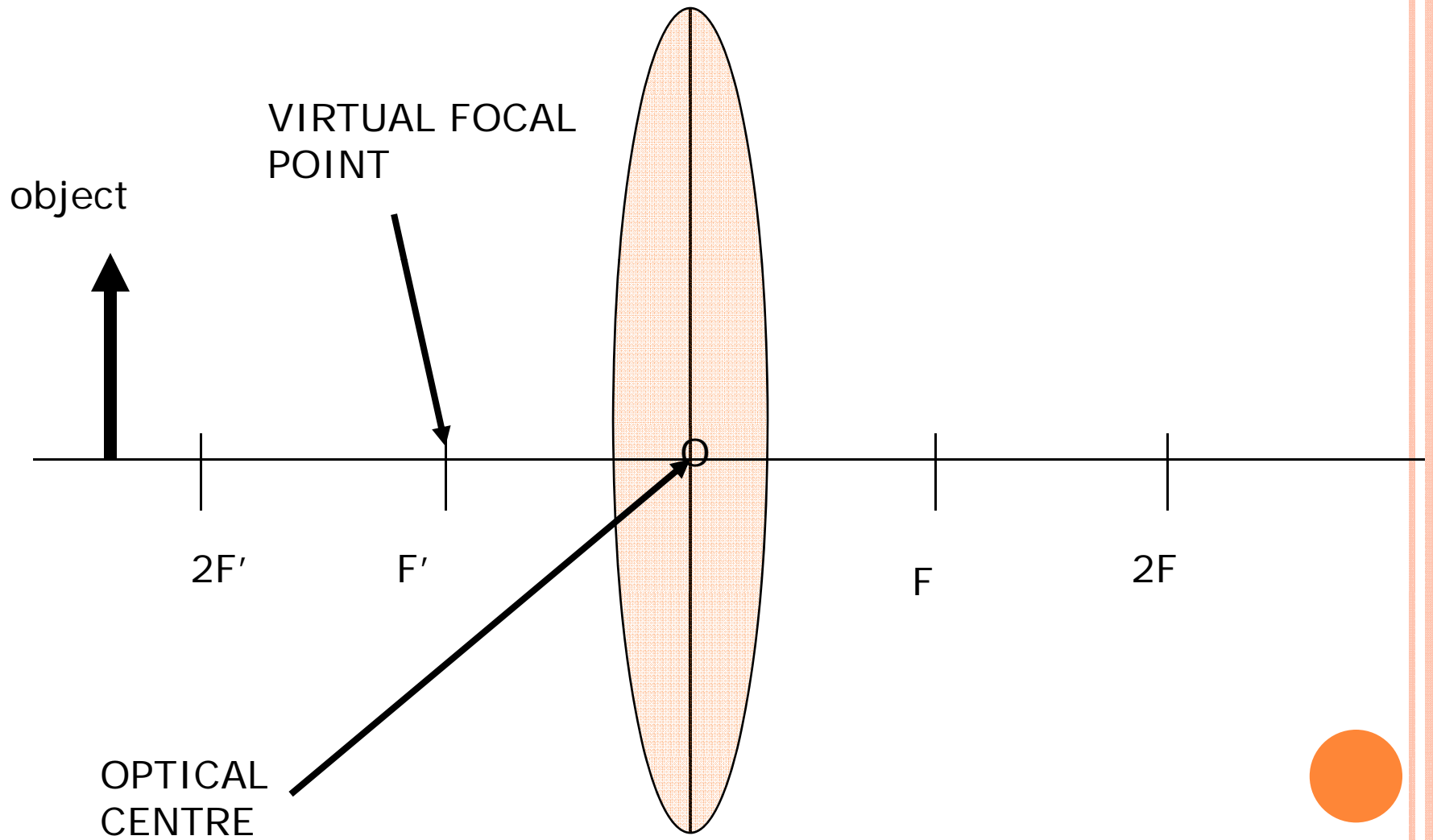
# DIVERGING LENS, CONCAVE SHAPE



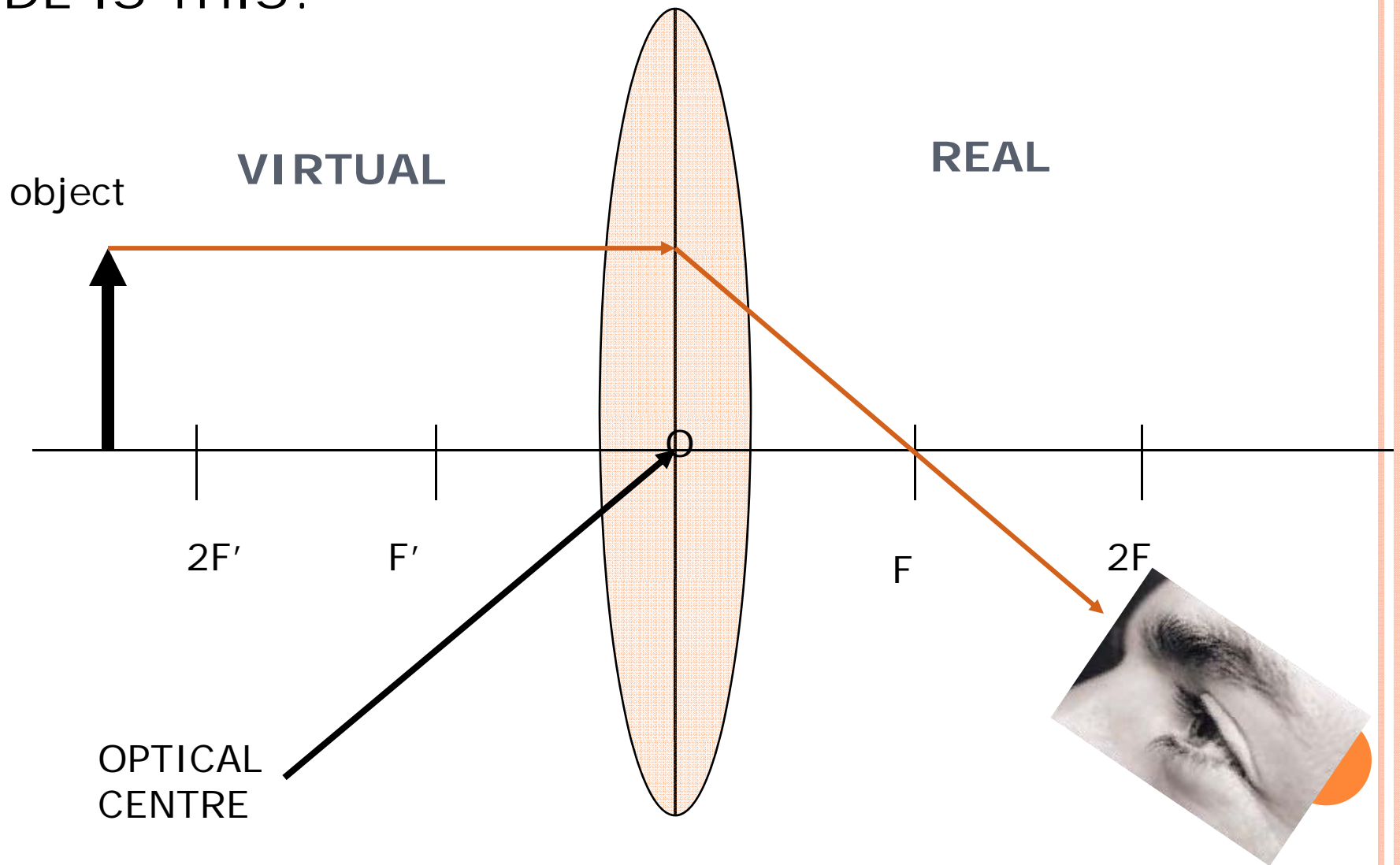
# CONVERGING LENS, CONVEX SHAPE



# LENS DIAGRAM SET UP



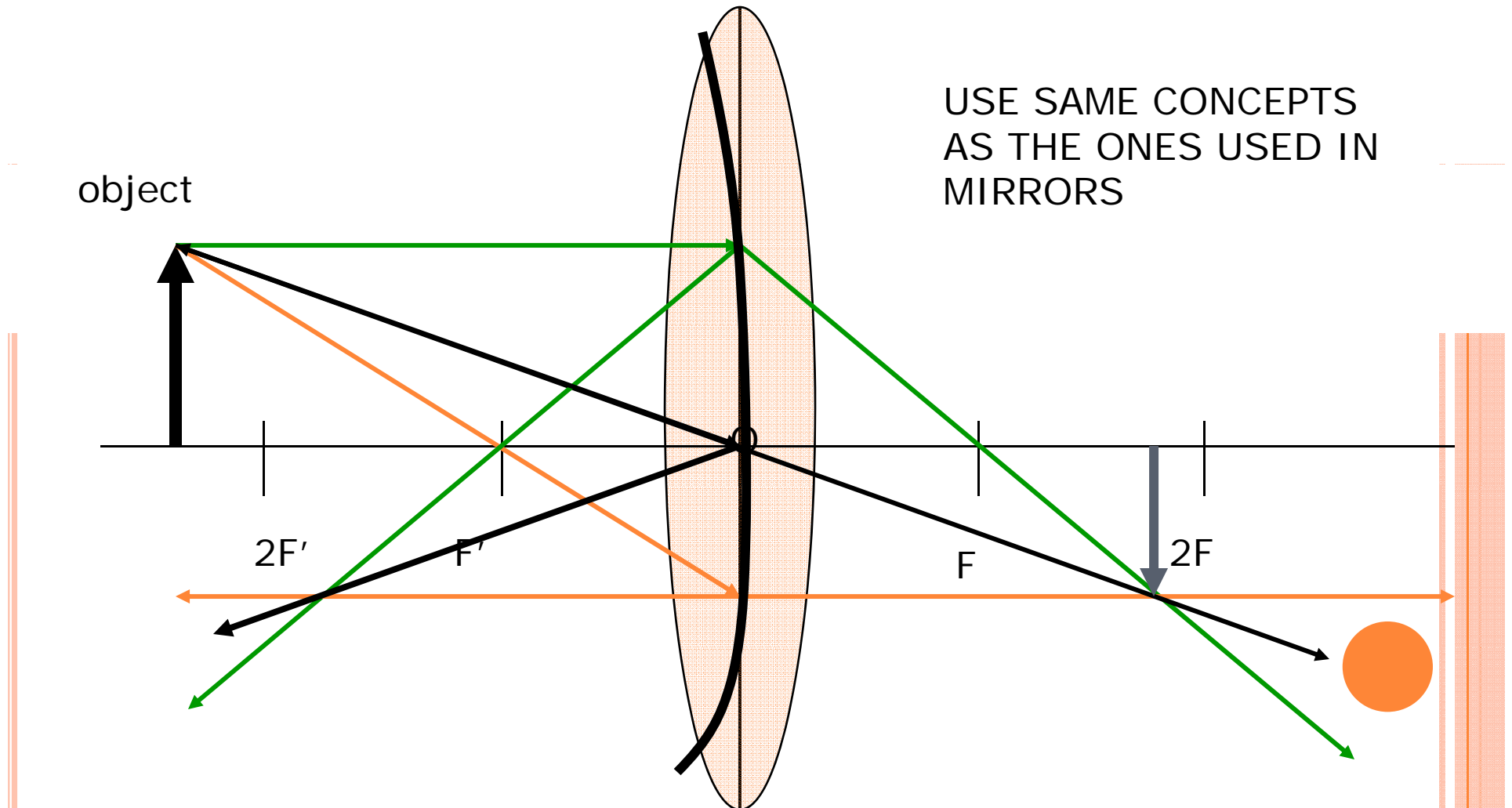
REMEMBER THAT FOR WHICH SIDE IS REAL AND WHICH SIDE IS VIRTUAL? OBSERVER WHO IS SEEING THE IMAGE IS LOCATED...WHEN DEALING WITH LENSES, WHICH SIDE IS THIS?



RAY #1: Any ray that is parallel to the PA is refracted through the F

RAY #2: Any ray that pass through F is refracted parallel to PA

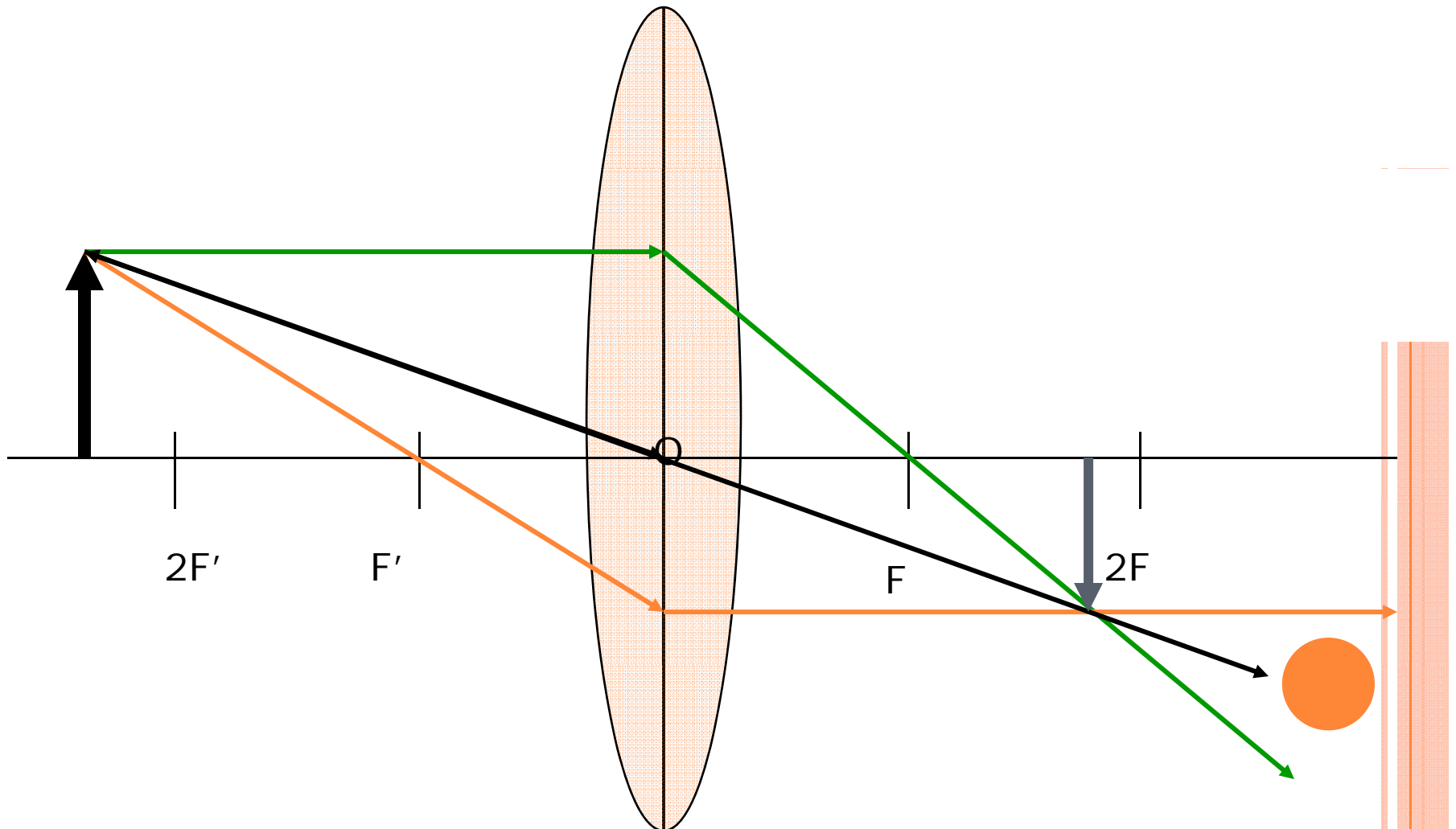
RAY #3: Any ray that passes through O continues through



# SPECIAL CASES WITH CONVERGING LENSES (P. 377)

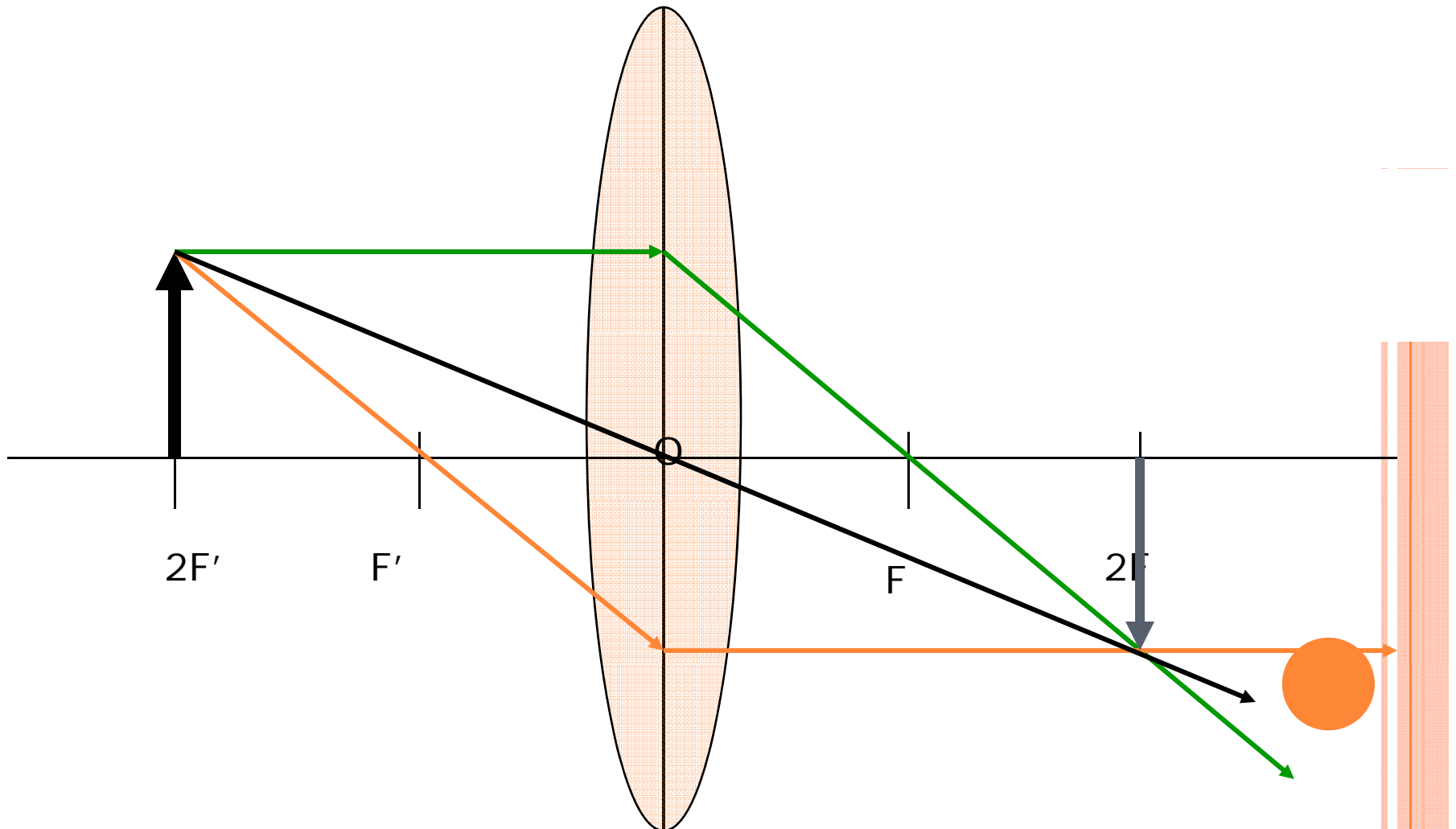


Object beyond  $2F'$ : image is real, inverted, smaller

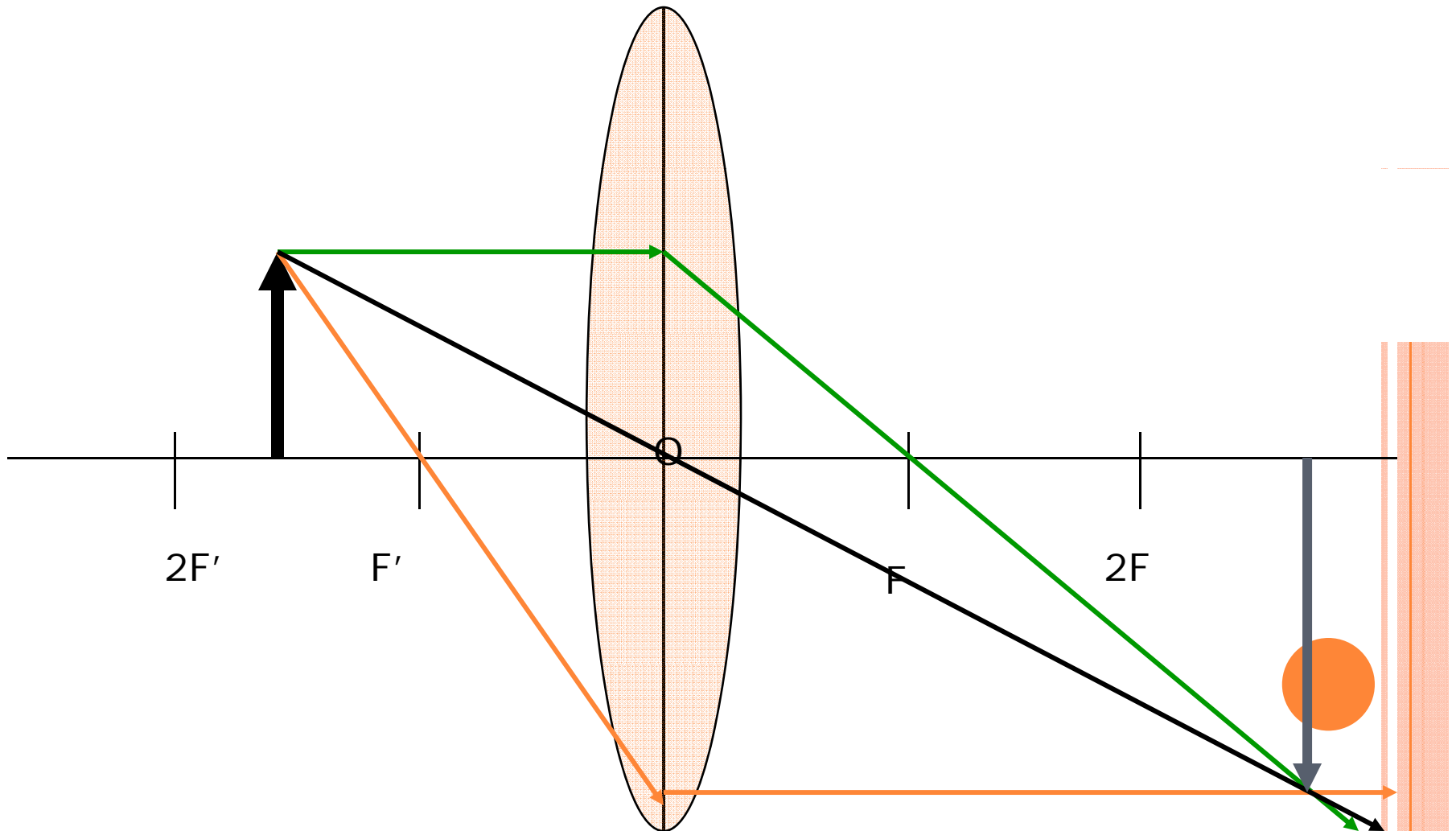




- Object at  $2F'$ : image is inverted, same size, real

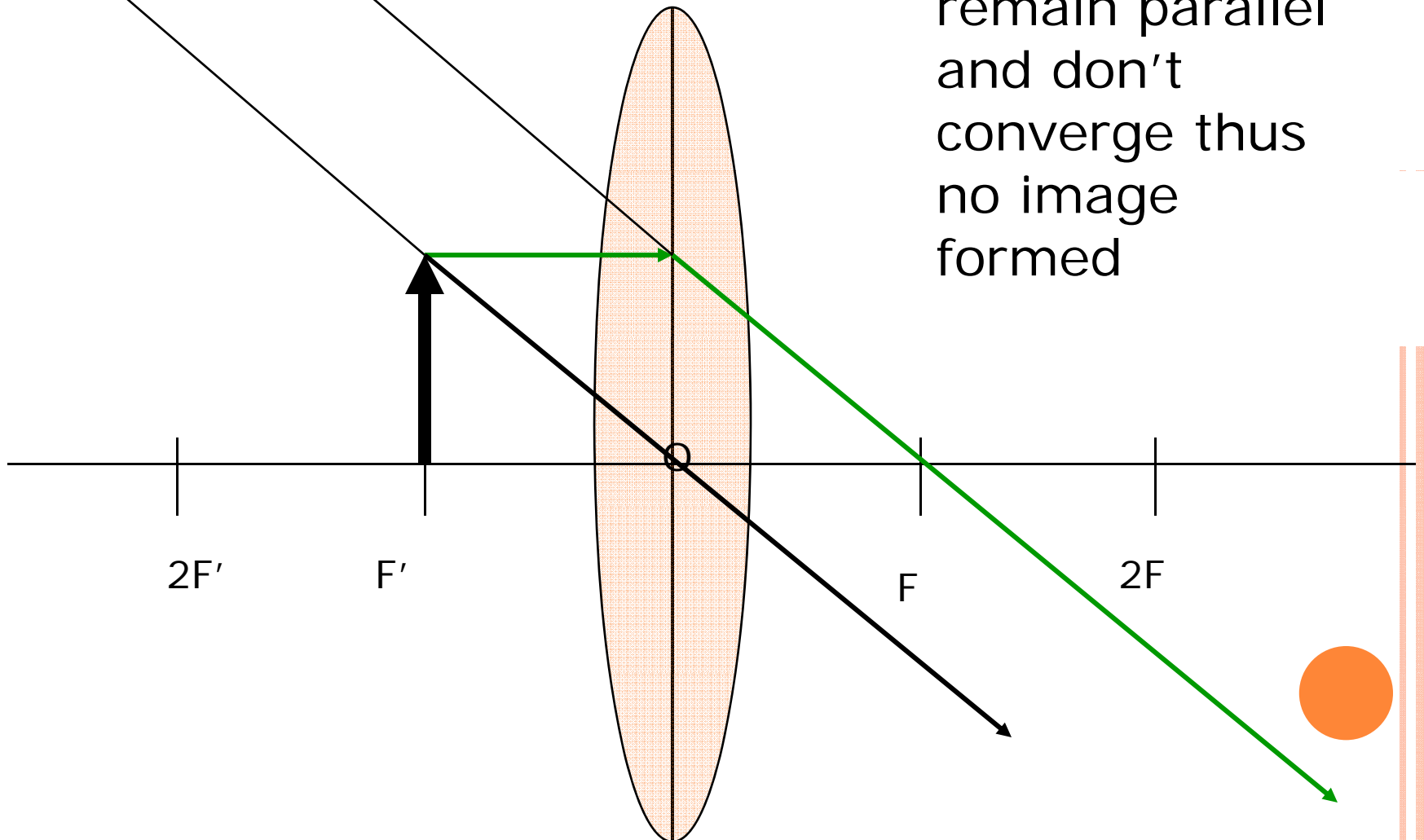


○ Object between  $F'$  and  $2F'$ : image is beyond  $2F$ , real inverted, larger

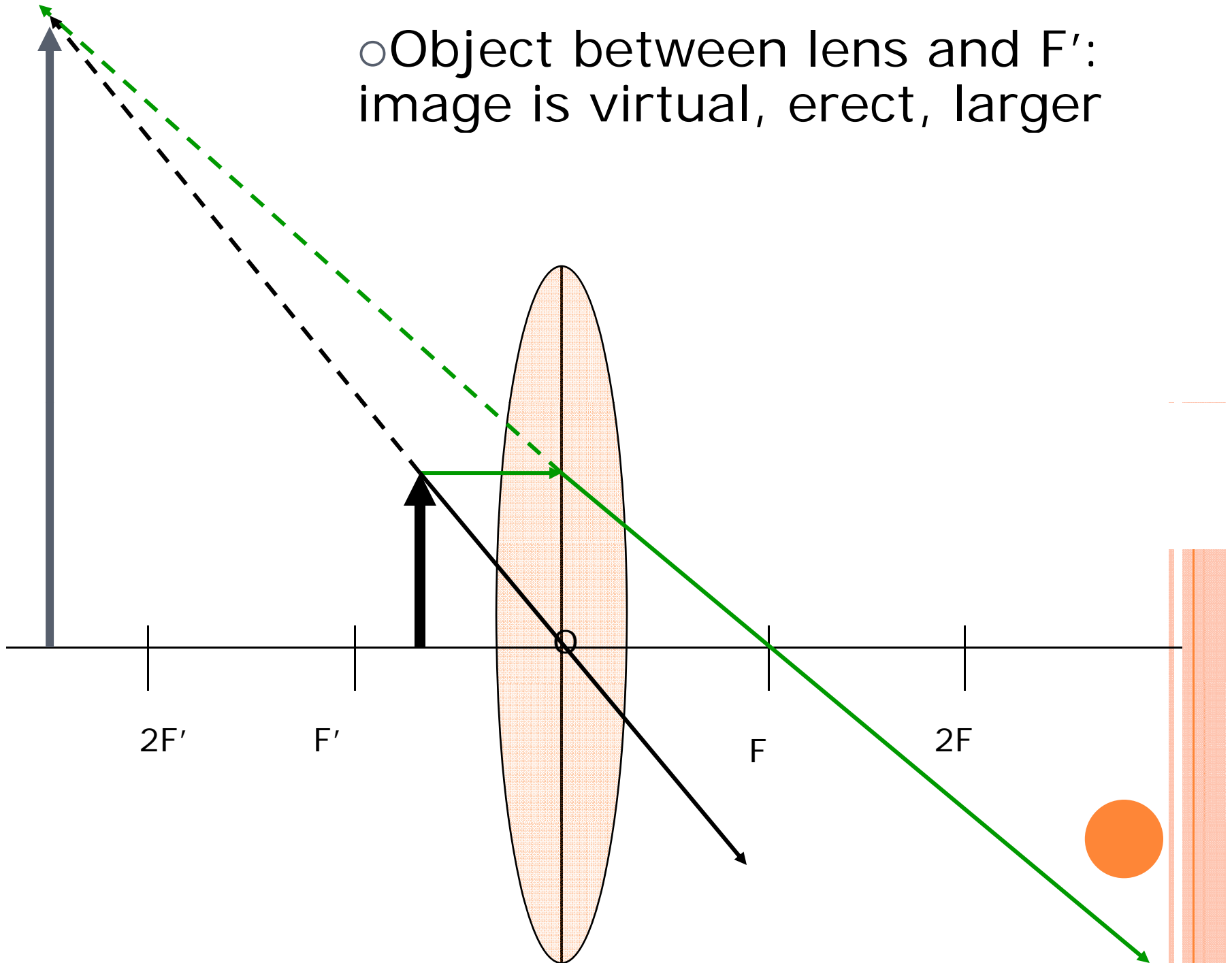


# ○ Object at $F'$ : no image

Light rays remain parallel and don't converge thus no image formed



○ Object between lens and  $F'$ :  
image is virtual, erect, larger



# RULES WITH DIVERGING LENSES



RAY #1: Any ray that is parallel to the PA appears to be refracted through the  $F'$

RAY #2: Any ray that appears to pass through  $F$  is refracted parallel to PA

RAY #3: Any ray that passes through  $O$  continues through

