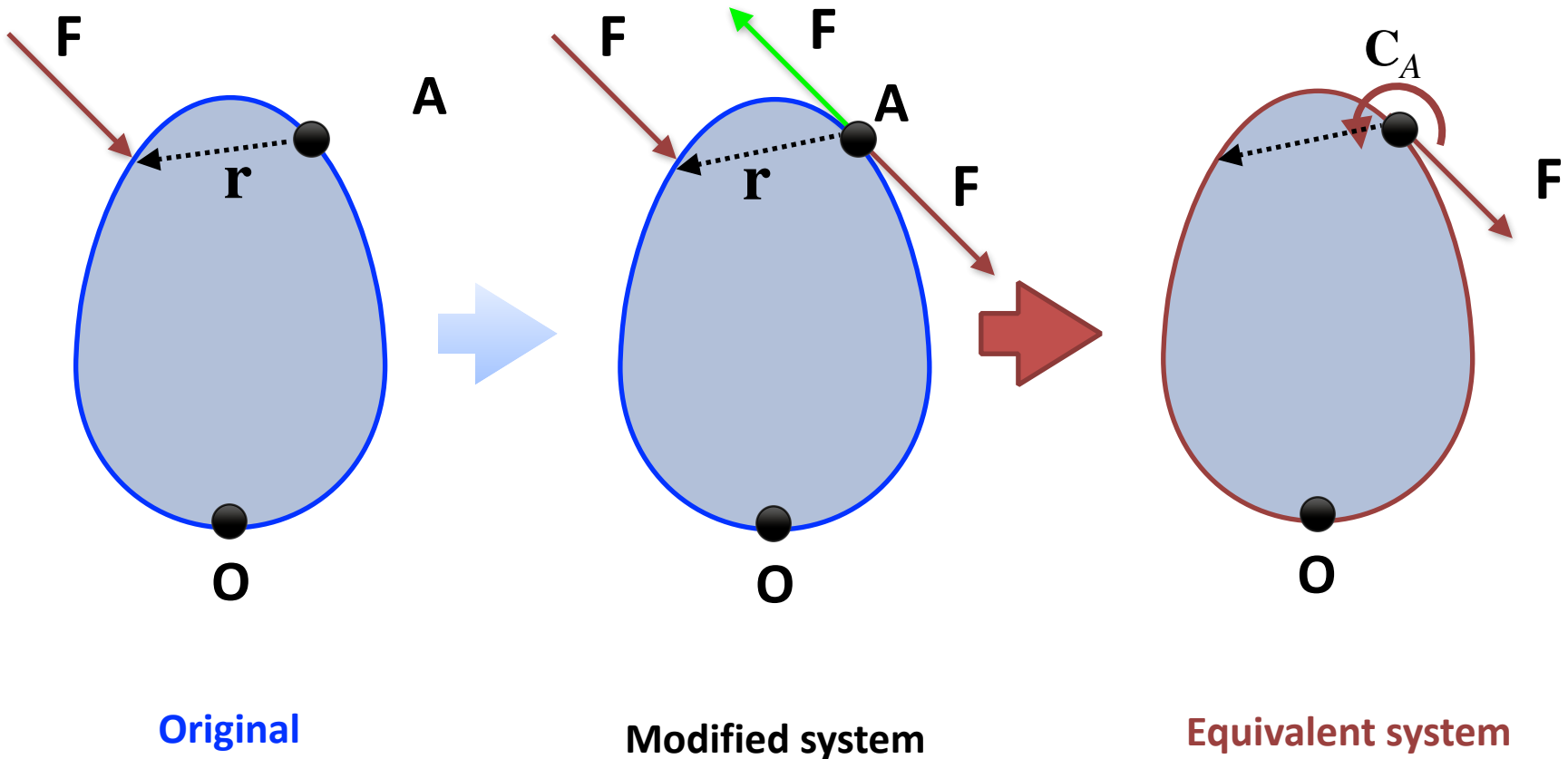


# Simplification of Forces and Couples

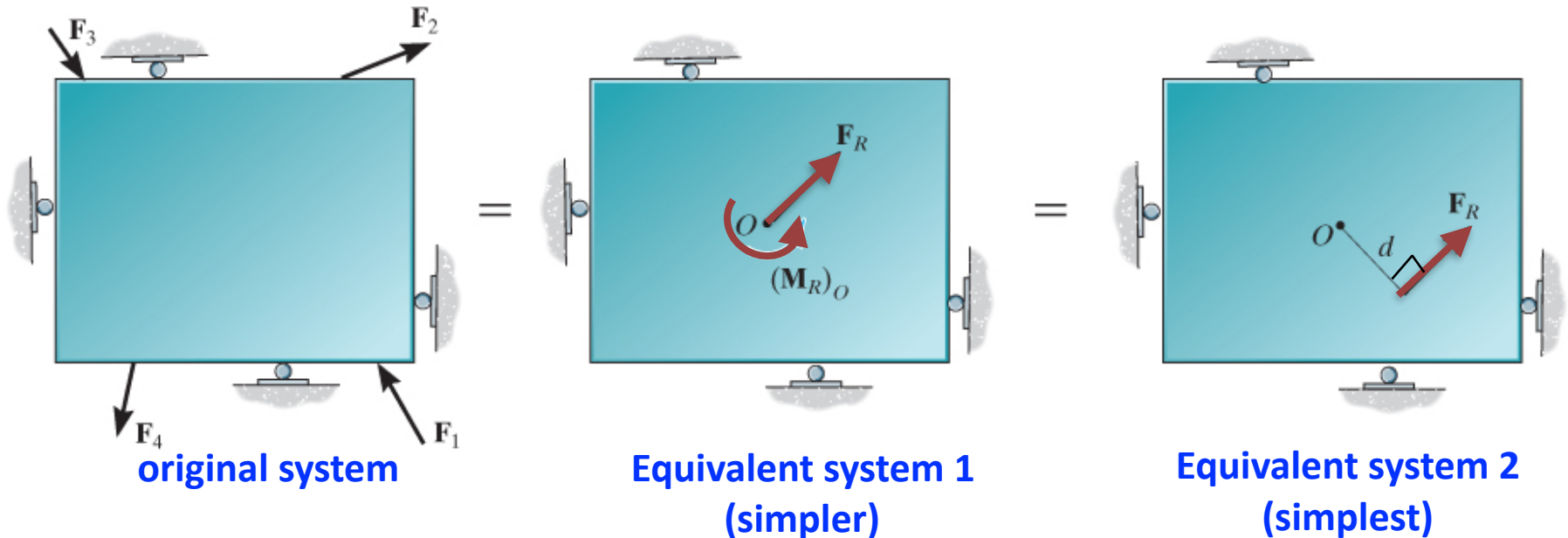
- We can even place anywhere the equivalent force-moment system.  
(Changing the line of action of applied force)



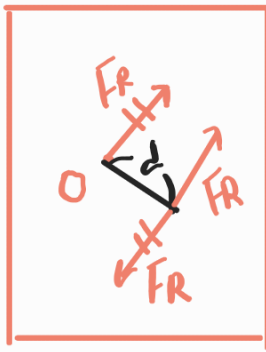
# Further Simplification

## Coplanar Force System (공평면력계)

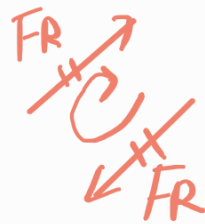
All the lines of action lie in a same plane. (coplanar forces)



- Equivalent system 1: a single force and a couple moment at  $O$
- Equivalent system 2: a single force at a specific distance from  $O$  (the simplest equivalent system)



여기서  $F_R$ 의 힘의 반대방향이  
서로 상쇄되고



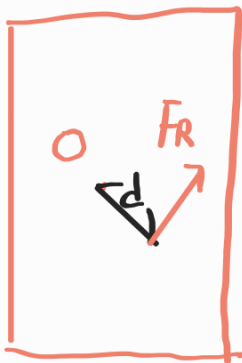
시계 방향의

Couple moment를

만든다는 원래 기준에

있던  $(\uparrow)(M_R)_O$  과

서로 상쇄되어 사라진다.



따라서 Single force  
로 Equivalent System 2  
(simplest) 만들 수  
있다.