

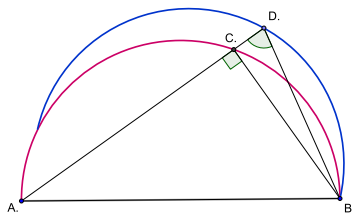
# Proposition III.23

Speaker: Sean Johnson  
Scribe: Matt MacDonald  
Artist: Daniel Moresco

March 13, 2009

## Prop III.23

*On the same straight line there cannot be constructed two similar and unequal segments of circles on the same side.*



If possible, on the same straight line  $AB$  let two similar and unequal segments  $ACB$  and  $ADB$  be constructed on the same side.  
Draw  $ACD$  through, and join  $CB$  and  $DB$ . (Post. 1)

Since  $ACD$  is similar to  $ADB$ ,  $\angle ACB = \angle ADB$ . (III.21)  
But this is impossible, since  $\angle ACB$  is an exterior angle of  $\triangle CDB$ . (I.16)  
Therefore it is not possible to construct two similar and unequal segments of circles on the same straight line.  
Q.E.D.

