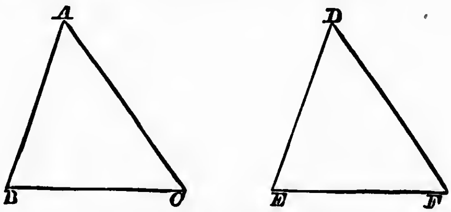
Proposition XXV. Theorem.

If two triangles have two sides of the one equal to two sides of the other, each to each, but the base of the one greater than the base of the other; the angle also, contained by the sides of that which has the greater base, must be greater than the angle contained by the sides equal to them of the other.



In the $\triangle$s ABC, DEF,

let $AB = DE$ and $AC = DF$,

and let BC be greater than EF.

Then must $\angle BAC$ be greater than $\angle EDF$.

For $\angle BAC$ is greater than, equal to, or less than $\angle EDF$.

Now $\angle BAC$ cannot $=$ $\angle EDF$,

for then, by I. 4, BC would $= EF$; which is not the case.

And $\angle BAC$ cannot be less than $\angle EDF$,

for then, by I. 24, BC would be less than EF; which is not the case;

$\therefore$ $\angle BAC$ must be greater than $\angle EDF$.

Q. E. D.

Note.—In Prop. XXVI. Euclid includes two cases, in which two triangles are equal in all respects; viz., when the following parts are equal in the two triangles:

1. Two angles and the side between them.
2. Two angles and the side opposite one of them.

Of these we have already proved the first case, in Prop. B, so that we have only the second case left, to form the subject of Prop. XXVI., which we shall prove by the method of superposition.

For Euclid's proof of Prop. XXVI, see pp. 114-115.