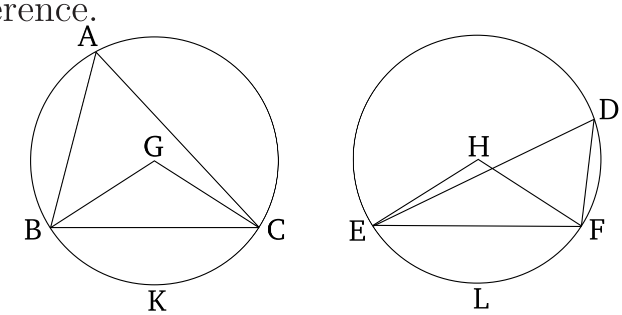
Book 3
Proposition 26

In equal circles, equal angles stand upon equal circumferences whether they are standing at the center or at the circumference.



Let ABC and DEF be equal circles, and within them let BGC and EHF be equal angles at the center, and BAC and EDF (equal angles) at the circumference. I say that circumference BKC is equal to circumference ELF.

For let BC and EF have been joined.

And since circles ABC and DEF are equal, their radii are equal. So the two (straight-lines) BG, GC (are) equal to the two (straight-lines) EH, HF (respectively). And the angle at G (is) equal to the angle at H. Thus, the base BC is equal to the base EF [Prop. 1.4]. And since the angle at A is equal to the (angle) at D, the segment BAC is thus similar to the segment EDF [Def. 3.11]. And they are on equal straight-lines [BC and EF]. And similar segments of circles on equal straight-lines are equal to one another [Prop. 3.24]. Thus, segment BAC is equal to (segment) EDF. And the whole circle ABC is also equal to the whole circle DEF. Thus, the remaining circumference BKC is equal to the (remaining) circumference ELF.

Thus, in equal circles, equal angles stand upon equal circumferences, whether they are standing at the center or at the circumference. (Which is) the very thing which it was required to show.