

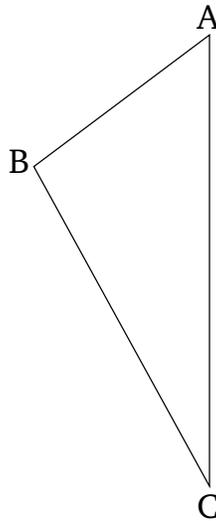
Book 1

Proposition 19

In any triangle, the greater angle is subtended by the greater side.

Let ABC be a triangle having the angle ABC greater than BCA . I say that side AC is also greater than side AB .

For if not, AC is certainly either equal to, or less than, AB . In fact, AC is not equal to AB . For then angle ABC would also have been equal to ACB [Prop. 1.5]. But it is not. Thus, AC is not equal to AB . Neither, indeed, is AC less than AB . For then angle ABC would also have been less than ACB [Prop. 1.18]. But it is not. Thus, AC is not less than AB . But it was shown that (AC) is not equal (to AB) either. Thus, AC is greater than AB .



Thus, in any triangle, the greater angle is subtended by the greater side. (Which is) the very thing it was required to show.