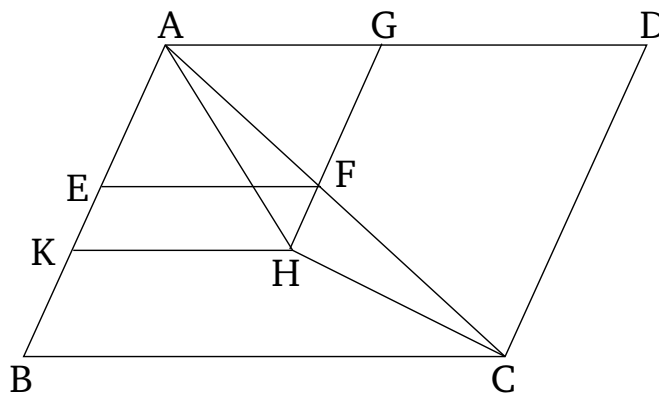


Book 6

Proposition 26

If from a parallelogram a(nother) parallelogram is subtracted (which is) similar, and similarly laid out, to the whole, having a common angle with it, then (the subtracted parallelogram) is about the same diagonal as the whole.

For, from parallelogram $ABCD$, let (parallelogram) AF have been subtracted (which is) similar, and similarly laid out, to $ABCD$, having the common angle DAB with it. I say that $ABCD$ is about the same diagonal as AF .



For (if) not, then, if possible, let AHC be [$ABCD$'s] diagonal. And producing GF , let it have been drawn through to (point) H . And let HK have been drawn through (point) H , parallel to either of AD or BC [Prop. 1.31].

Therefore, since $ABCD$ is about the same diagonal as KG , thus as DA is to AB , so GA (is) to AK [Prop. 6.24]. And, on account of the similarity of $ABCD$ and EG , also, as DA (is) to AB , so GA (is) to AE . Thus, also, as GA (is) to AK , so GA (is) to AE . Thus, GA has the

same ratio to each of AK and AE . Thus, AE is equal to AK [Prop. 5.9], the lesser to the greater. The very thing is impossible. Thus, $ABCD$ is not not about the same diagonal as AF . Thus, parallelogram $ABCD$ is about the same diagonal as parallelogram AF .

Thus, if from a parallelogram a(nother) parallelogram is subtracted (which is) similar, and similarly laid out, to the whole, having a common angle with it, then (the subtracted parallelogram) is about the same diagonal as the whole. (Which is) the very thing it was required to show.