Study Note—Euclid's *Elements*, Book I, Proposition 41
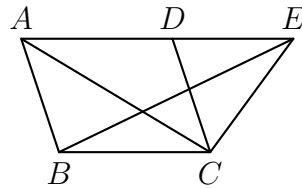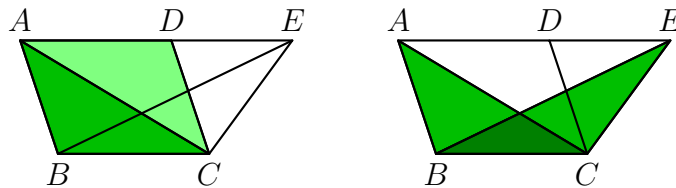
David R. Wilkins

This proposition concerns a parallelogram $ABCD$ and a triangle EBC which are on the same base BC and between the same parallels BC and AE. It is required to show that the the parallelogram $ABCD$ is in area double the triangle EBC.

Now it follows from Proposition 34 of Book I of the *Elements* that the parallelogram $ABCD$ is bisected by the diagonal AC, and thus the triangles ABC and ACD are equal in area. It follows from Proposition 37 of Book I of the *Elements* that the triangles ABC and EBC are equal in area. Con-

sequently the parallelogram $ABCD$, being in area double the triangle ABC, must be in area double the triangle EBC, as required.