**Proposition 1.33:** If two lines are equal and parallel then the lines through the endpoints on the same side are also equal and parallel.  

Given: \( AB = CD \) and \( AB \parallel CD \).  
Claim: \( AC = BD \) and \( AC \parallel BD \)

Remark: How do you know that you can draw a pair that doesn’t cross instead of a pair that does? In order to address this question, the definition of ”same side” needs to be clearer. It was concluded that ”same side” means that points \( B \) and \( D \) are on the same side (either both on right side or both on left side) of line \( AC \). Postulate 5 defines ”same side” for parallel lines in its definition, bringing about the idea of an invisible postulate Euclid assumes about orientation and that we should assume the notion of direction.

So if we assume that we know what it means to be on the same side:

Draw \( AC \) and then draw \( BD \) such that \( B \) and \( D \) are on the same side of line \( AC \) [Post 1]. Draw \( BD \) [Post 1]. Since \( AB \parallel CD \), \( \angle ABC = \angle BCD \) [Prop 1.29]. By construction \( AB = CD \) and \( BC \) is common, so \( \triangle ABC = \triangle CBD \) [Prop 1.4]. Therefore, \( \angle CBD = \angle ACB \), so \( AC \parallel BD \) [Prop 1.27]. Also \( AC = BD \) since \( \triangle ABC = \triangle CBD \).