

## 5. Axioms about parallel lines.

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Contra

Contra ex

The 19'

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1. Through a given point it is always possible to draw only one line parallel to a given line.

Statement: If  $p$ , then  $q$ .

Contrapositive: If not  $q$ , then not  $p$ .

Whenever statement is true the conterpositive is also true.

Check:

$p$ =Jumping from the Empire State Buiding

$q$ = Breaking a leg

If leg is not broken, then did not jump from the Empire State Building

Theorem 19. If  $\angle 4 + \angle 6 < 180$ , then lines AC and BD have a point of intersection.

Theorem 19. If  $\angle 4 + \angle 6 \neq 180$ , then lines AC and BD have a point of intersection.

Contrapositive to Theorem 19.

Theorem 19'. If lines AC and BD do not have a point of intersection, then  $\angle 4 + \angle 6 = 180$ .

Or if lines AC and BD are parallel, then the corresponding(alternating) angles are equal.