



Chapter 1

WHAT IS STRAIGHT?

Straight is that of which the middle is in front of both extremities.
— Plato, *Parmenides*, 137 E [AT: Plato]

A *straight line* is a line that lies symmetrically with the points on itself.
— Euclid, *Elements*, Definition 4 [Appendix A]

To draw a circle, we generally do not start with a model of a circle; instead we use a fundamental property of circles that the points on a circle are a fixed distance from a center as in Euclid's definition of a circle (see Appendix A, Definition 15). Based on this definition we use a compass to draw a circle. What about drawing a straight line: Is there a tool (serving the role of a compass) that will draw a straight line? One could say we can use a straightedge for constructing a straight line. Well, how do you know that your straightedge is straight? How can you check that something is straight? What does "straight" mean? Think about it — this is part of Problem 1.1 below.