Reading

- Stillwell, 18.2, 18.3, 18.7
- *Logicomix*, sections 3 and 4.

Exercises

Spherical Geometry

1. Does every point on a sphere have an antipodal point? How many antipodal points does any given point on the sphere have?
2. What might "between" mean for points on a sphere? Write a definition you are happy with. With your definition, is St. Louis between the North Pole and the South Pole? Is the North Pole between the South Pole and St. Louis?
3. Draw a picture of sphere. Draw a triangle on it with three 90° angles.
4. Stillwell 18.2.3
5. Derive a formula for the area of a spherical quadrilateral with angles $\alpha, \beta, \gamma, \delta$.
6. The state of Colorado has four 90° corners. However, we know that spherical quadrilaterals have angle sum larger than 360°. What is going on with Colorado?
7. Euclid's Proposition 16 is part of absolute geometry, but not true in spherical geometry. Give an example of a spherical triangle where Proposition 16 fails. Can you see where Euclid's proof falls apart when applied to your triangle?