Fall 2016/MA 314 HW 6: The shortest path not taken.

1. Reading

Read Bonahon Chapters 7 and 8.

2. To do

(1) Bonahon Exercise 7.2c,d. According to Felix Klein's Erlangen program (c. 1872) geometry should be subsumed into group theory. Namely, to specify a geometry one should specify a group and a set and declare that the group is the isometry group of the set. One should then work out the geodesics, etc. for that geometry. This problem gives you a taste of that philosophy. While an extremely useful viewpoint, it's not the only viewpoint one can use to approach geometry. Our approach in this course is more in line with the differential geometric work of Riemann and the topological work of Poincaré.

(2) Bonahon Exercise 7.4

(3) Bonahon Exercise 7.6

(4) Bonahon Exercise 7.11

(5) (Extra-credit) Bonahon Exercises 7.12 - 7.14

(6) Bonahon Exercise 8.5