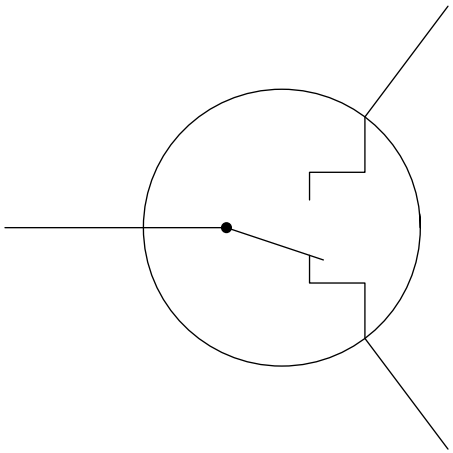
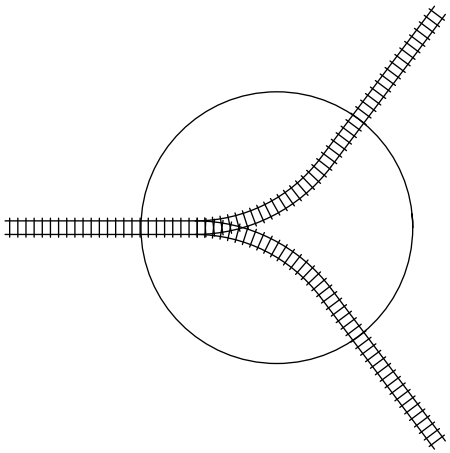
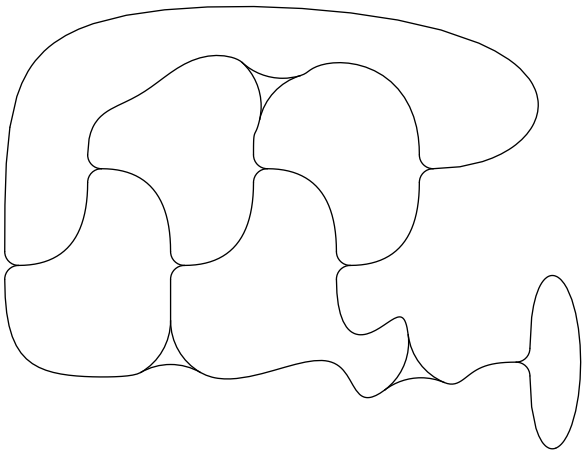


A switch vertex, enlarged here to show hypothetical detail, can be thought of like a mechanical switch that connects its "preferred edge", shown here coming in on the left, to exactly one of the other two edges.



Another way to think of a switch is like a branching train track. Just as a train must use the track on the left, and may not go from the upper right track to the lower right track, a switch cycle's route must obey the same restriction.



The train track version is especially easy to draw and read, so we will use this approach when drawing a switch graph. At each branching, a cycle must pass in a smooth, rather than cuspy, manner. So the question is, is there a smooth loop?