Finite Automata using Metapost Macros

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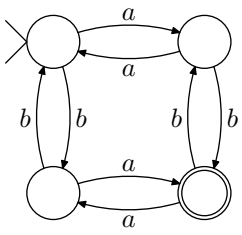
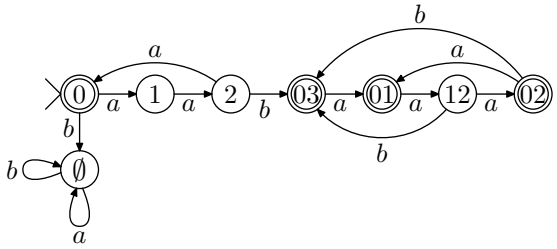
1 Simple Example

Here is a DFA that accepts strings over $\Sigma = \{a, b\}$ with an even number of a's and an even number of b's. Using "curve" curves the edge slightly to the left:



2 Curved Edges

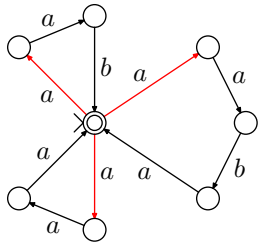
This DFA was constructed from an NFA using the subset construction. It has straight edges, edges with custom curves, and loops. For curved edges, the number indicates the angle of the curve in degrees. More specifically, it gives the number of degrees of the point on the circle where the edge should emerge from the node. An edge with angle zero would emerge directly toward the target node[1]; anything else is added or subtracted from that angle.



[1]This doesn't actually work, because it can't figure out where to put the label. For a straight edge, use "left" and "right" to tell it which side to put the label on.

3 Colored Edges

This NFA has red edges when there are multiple transitions for a single input letter. When using straight edges, put "left" or "right" to indicate where the label should go:



4 Undirected Graphs

You can do undirected edges and dashed edges as well. Note that using the label "BLANK" skips the label on an edge. The same works for a node, but you can also just leave the label argument blank. For straight, unlabeled edges, You can also use "sedge", which draws a simple, straight edge with no label.