State diagram with start state 0 and accepting state 1, connected by a transition labeled:
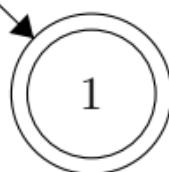
$(aa \mid bb \mid (ab \mid ba)(bb \mid aa)^*(ba \mid ab))^*(\epsilon \mid b \mid (ab \mid ba)(bb \mid aa)^*(\epsilon \mid a))$