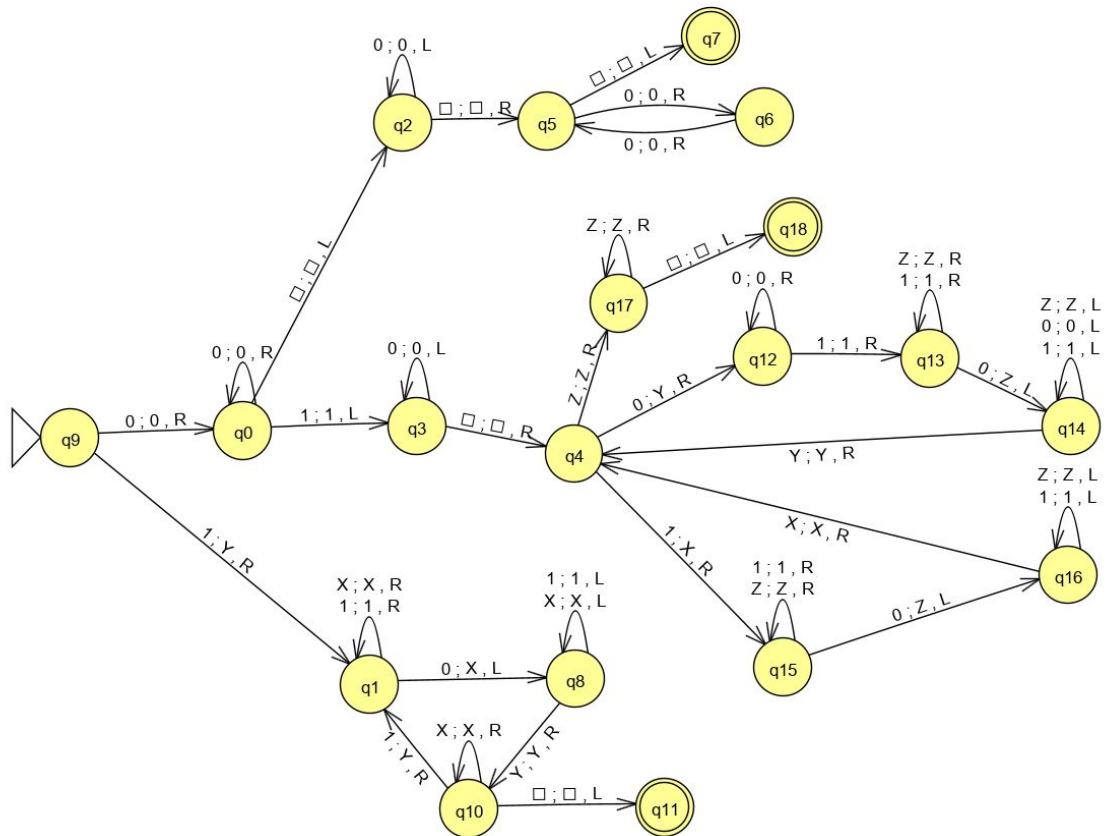


1.



2.

3. There are an infinite number of symbols and an infinite number of languages, therefore the wobbly turing machine will come to the same conclusion with new symbols.
Similarly, that same conclusion will be accepted by another wobbly turing machine that converts the language back into the original language. Thus all wobbly Turing machines can be Turing Machines and all Turing machines can be made wobbly by conversion of symbols.
4. a.) Let x_i be an enumeration of all strings. Simulate a Turing Machine, M , step by step until it prints at least 2 accepting strings and can safely halt. In any other case, continue the simulation even if M halts.
b.)
5. a.) Visiting each vertex in the HAMILTONIAN CYCLE, check all possible edge's weight values with b . We can guess the value of b and thus verify that all edges in the cycle have a weight less than or equal to b in polynomial time by traversing all vertices.
b.) By definition, a BOTTLENECK-TSP is a HAMILTONIAN CYCLE with weights that are less than or equal to b . Therefore, in order for a BOTTLENECK-TSP to exist, there must also be a HAMILTONIAN CYCLE.
6. The homework groups aside from Hopper are names of 6 women who physically built what is arguably the first computer, the ENIAC. They were in charge of maintenance and acted as the 'computers'.