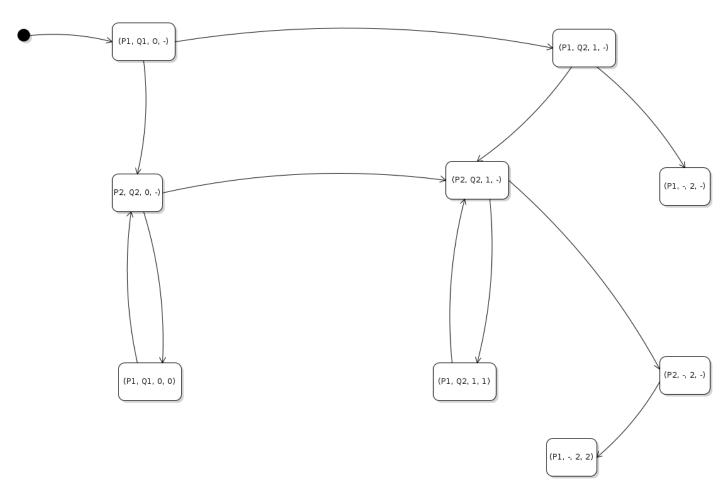
(Px, Qx, n, print)



2. 012:
$$\rightarrow$$
 (P1, Q1, 0, -) \rightarrow (P2, Q1, 0, -) \rightarrow (P1, Q1, 0, 0) \rightarrow (P2, Q1, 0, -) \rightarrow (P2, Q2, 1, -) \rightarrow (P1, Q2, 1, 1) \rightarrow (P2, Q2, 1, -) \rightarrow (P2, -, 2, -) \rightarrow (P1, -, 2, 2)

002:
$$\rightarrow$$
 (P1, Q1, 0, -) \rightarrow (P2, Q1, 0, -) \rightarrow (P1, Q1, 0, 0) \rightarrow (P2, Q1, 0, -) \rightarrow (P1, Q1, 0, 0) \rightarrow (P2, Q1, 0, -) \rightarrow (P2, Q2, 1, -) \rightarrow (P2, -, 2, -) \rightarrow (P1, -, 2, 2)

$$02: \to (P1,\,Q1,\,0,\,\text{-}) \to (P2,\,Q1,\,0,\,\text{-}) \to (P1,\,Q1,\,0,\,0) \to (P2,\,Q1,\,01,\,\text{-}) \to (P2,\,Q2,\,1,\,\text{-}) \to (P2,\,\text{-},\,2,\,\text{-}) \to (P1,\,\text{-},\,2,\,2)$$

- 3. It does not necessarily have to appear. It is possible for both lines of Q to be executed before the loop in P checks the value of n, meaning n (2) will not be printed.
- 4. 2 can only appear in the input once, because after it is printed once, the loop will check and see that n = 2.
- 5. 1 can appear an infinite number of times, if the first line of Q executes and then the entirety of P keeps executing consecutively.
- 6. 0 can appear an infinite number of times, if no lines of Q execute and the entirety of P keeps executing consecutively.
- 7. The shortest length is 0. If both lines of Q are executed before the first time P checks the value of n, then nothing will be printed at all.