LING 185A: Section 3

Thursday, October 16

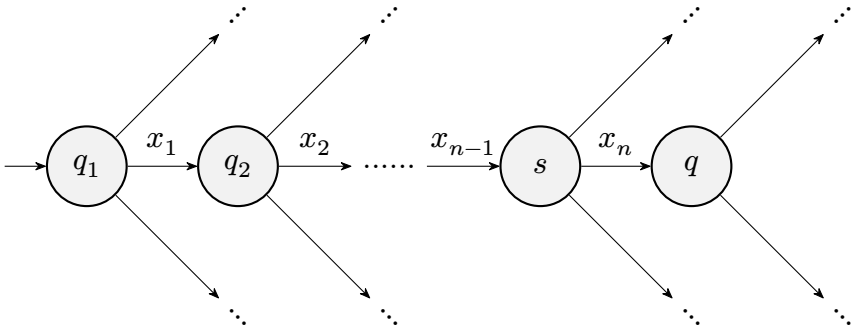
Reminders

- **Homework #2** is due at **11:59 PM on Friday, October 17**.
  - Submit a file called `Homework02.hs` on **BruinLearn**.
- Feedback for Homework #1 is out.
- Keep posting questions on Campuswire, keep coming to office hours!

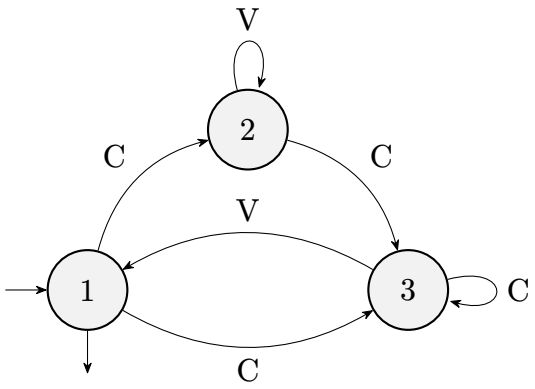
Forward Values

- $\text{fwd}_M(w)(q) = 1$ means there is a path in M from an initial state to q emitting the word w
- **Important Observation!**

$$\text{fwd}_M(x_1 \ldots x_n)(q) = 1$$
$$\text{if and only if}$$
$$\text{there is a state } s \text{ such that } \text{fwd}_M(x_1 \ldots x_{n-1})(s) = 1 \text{ and } \Delta(s, x_n, q) = 1$$



- This lets us fill in tables of forward values recursively
  - Row q of a column labeled x has a 1 in it exactly when: there is a row s in the previous column with a 1 in it such that $\Delta(s, x, q) = 1$



STATE	C	V	C	C	V
1					
2					
3					

Building Finite-State Automata

Design a finite-state automaton over the alphabet $\{C, V\}$ which ...

1. accepts all and only strings that start and end with 'V'

2. accepts all and only strings with two consecutive 'C's

3. accepts all and only strings with an even number of ‘V’s

4. accepts all and only strings where ‘V’s are confined to the third, sixth, ninth, etc. position