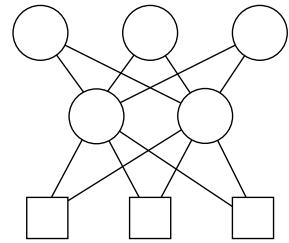
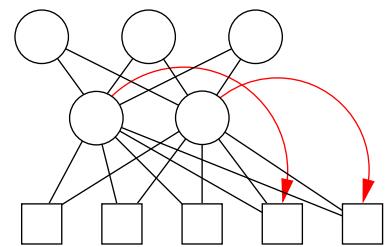


Time, in the Context of Neural Networks

- Feedforward neural networks:
Have no memory of past input.

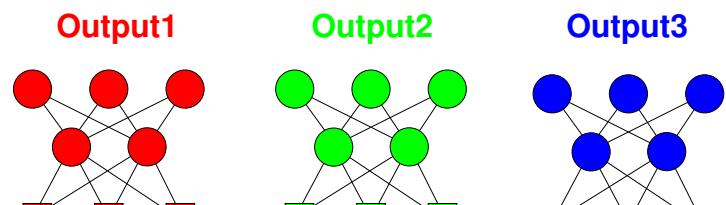


- Recurrent neural networks:
Have memory of past input.



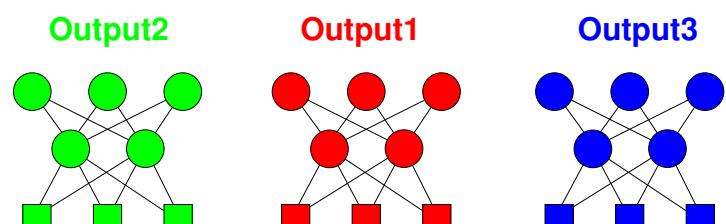
e.g., Elman (1991)

Feedforward Networks



Input1 → Input2 → Input3

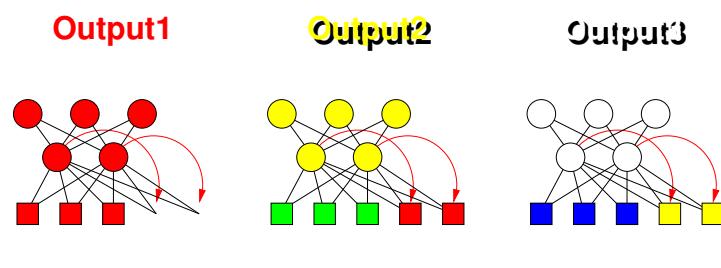
Input sequence 1



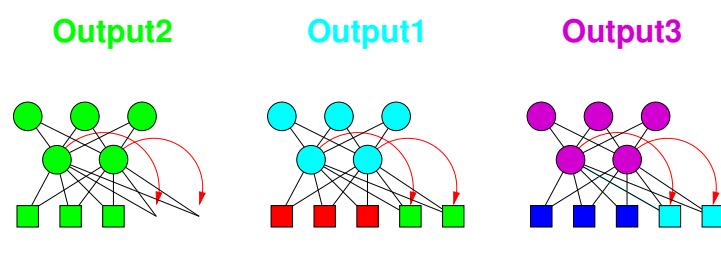
Input2 → Input1 → Input3

Input sequence 2

Recurrent Networks



Input sequence 1



Input sequence 2