Lecture 27

-Augmented Transition Network (ATN)

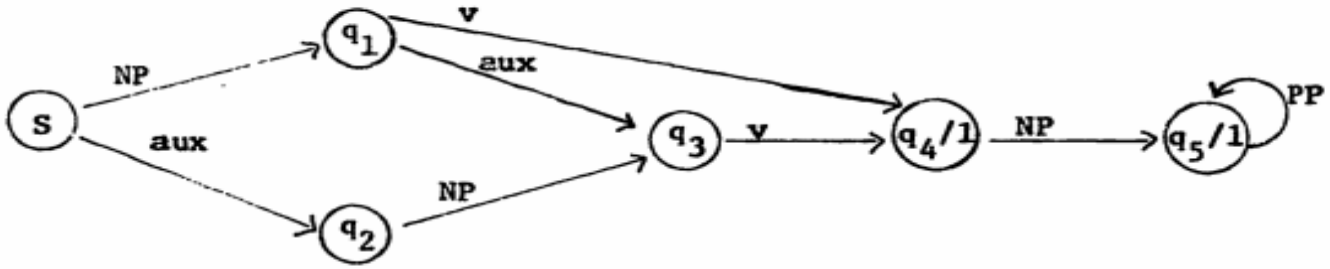
RTN: Recursive Transition Networks

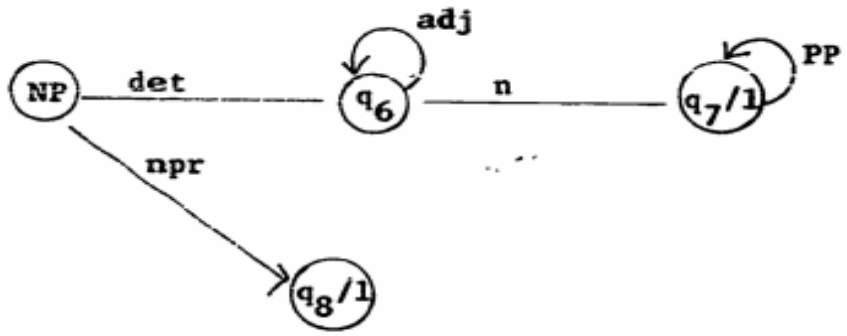
- Alternative of CFG
- Graphical representation of grammar (easier to parse)
- A set of transition networks represent the rules of grammar
- The transition networks are called in a recursive manner
- Each transition network is implemented as a subroutine
- Same as non-deterministic finite acceptor, except that along the arrows you can write terminals and also non-terminals like NP, VP..

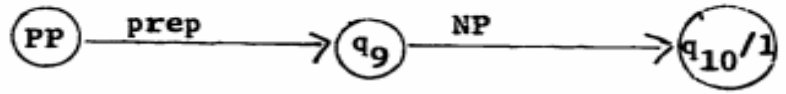
Example of RTN

(Woods, 1970)

aux verb : have/be/does/did







S is the start state

q_4, q_5, q_7, q_8, and q_{10} are the final states

Augmented Transition Networks (ATN)

- Proposed by Woods (1970)
- Augmented Recursive Transition Networks
- Similar to Augmented grammar
- Takes context into account so that different parts of a sentence show “agreement” with each other
- States look different (as compared to RTN)
- Eg. PP/Prep (It is preposition phrase (PP) being processed and so far preposition has been read so far: PP→Prep NP

Example of ATN
(Bates, 1978)

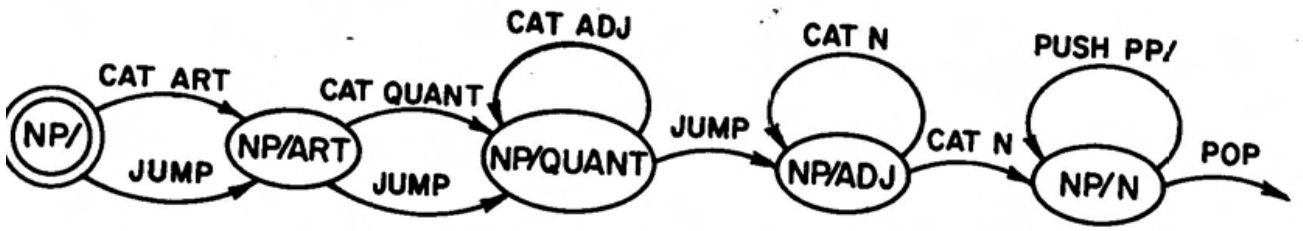


Figure 1: A Small Grammar for Noun Phrases

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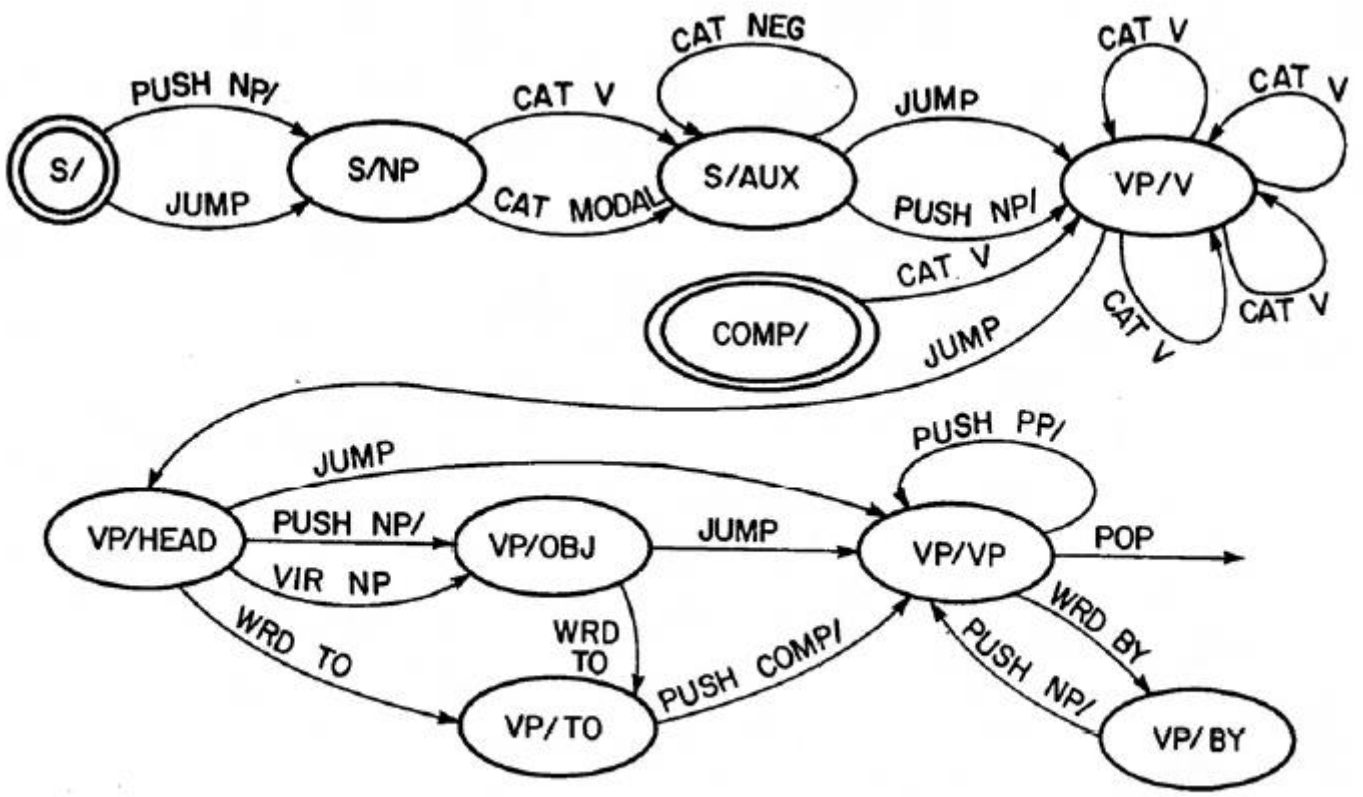

Figure 6: A Grammar for Sentences