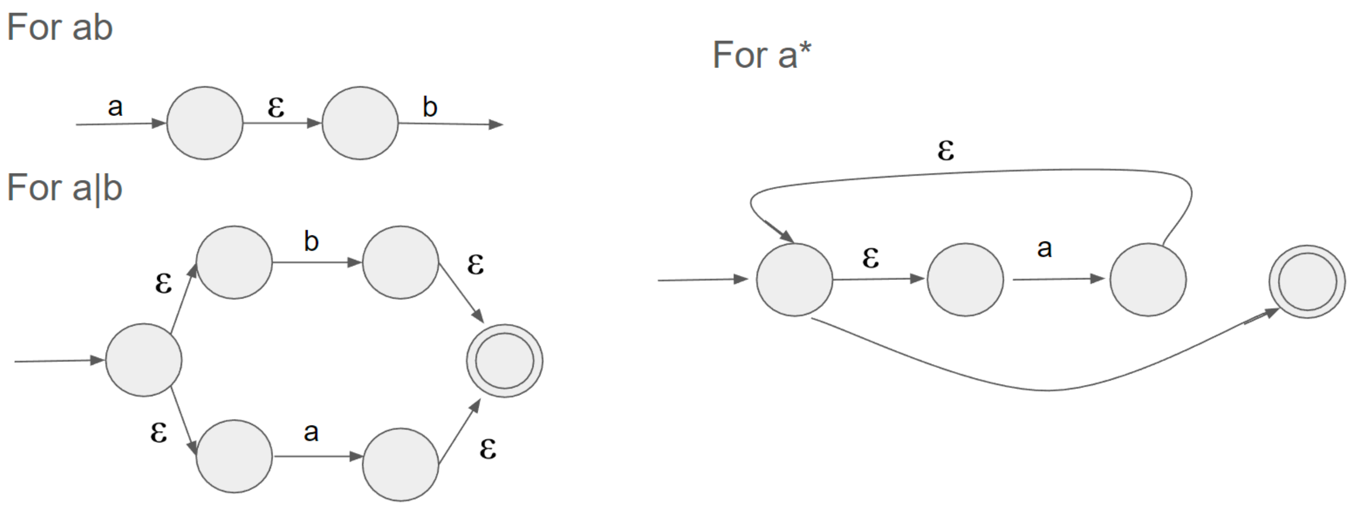
LL1


For ab

For a|b

For a*

Left recursion: A -> Ax|y change to: A->yA', A'->xA'|epsilon

Left factoring: A -> xm| xn | .... change to: A -> xA', A' -> m|n|...

First-follow set

First:

- terminal's first is self
- if X->epsilon is a production, then epsilon is in first(X)
- for X -> Y1, Y2.....
  - if Y is a non-terminal and first(Y) contains epsilon, add first(Y) without epsilon to first(X), keep going
  - if Y is a terminal, add Y
  - if add end, if the end Y's first has epsilon, add epsilon to first(X) Follow:
- Add $ to start's(S) follow
- for A -> axb:
  - add first(b) to follow(x)
  - if first(b) contains epsilon:
    - add follow(b) to follow(x)
    - if propulsion, add follow(A) to follow(x)
  - if b is the end, add follow(A) to follow(b)

Conflicts

First-first: First sets of 2 non-terminals intersect First-follow: First set of a non-terminal contains epsilon, and the intersection with its follow set is non-empty.

Generating LL1

For each non terminal X's production X->ABCD...

1. For each terminal t in first(A), M[X,t] = A
2. If epsilon is in first(A), for each terminal t in follow(X), M[X,t] = epsilon

Conflicts

Parse table can have at most one production rule per cell, otherwise, there is conflicts

LR(1)

Shift-reduce: shift the . on next token t, or reduce on t when the . is on the right end of a production Reduce-reduce: when the . is on the right end of 2 productions that can be both reduced on t.

Garbage Collection

Mark and Sweep:

- todo-list/free list can be too large. Solution: storing them in objects directly as auxiliary data.
- adv: no need to update ptrs
- dis: fragmentation

Register Inference

RIG

not n-colorable if is (n+1) clique

Spilling

after spilling: before use: f := load fa (only after this f is live) after define: store f, fa (only before this f is live)