Week 8

Parse tree revision  
Branching factor *b*: number of branches from a node  
Height *h*: max number of nodes from start  
Leaf nodes *l* ≤ bh

Parse tree limits

Deterministic Finite State Machines

Represented as a quintuple (K, Σ, δ**,** s, A)

K = the finite set of FSM states,   
Σ = the alphabet,   
δ = all transitions / the transition function from (K x Σ) => K  
s = start state  
A = set of accepting states, A ⊆ K

eg.   
K = { q0, q1, q2 },   
Σ = { a, b },   
δ = { ((q0, a), q1), ((q0, b), q0), ((q1, a), q2), ((q1,b), q0), ((q2, a), q2), ((q2, b), q2) }  
s = { q0 }  
A = { q0, q1 }

Non-deterministic Finite State Machine

Represented as a quintuple (K, Σ, Δ**,** s, A)

K = the finite set of FSM states,   
Σ = the alphabet,   
Δ = all transitions / the transition function from Δ ⊆ (K x (Σ ⋃ {ε})) x K  
s = start state  
A = set of accepting states, A ⊆ K

R’ (p, q) = R(p, q) ⋃ R(p, rip) R(rip, rip)\* R(rip, q)