

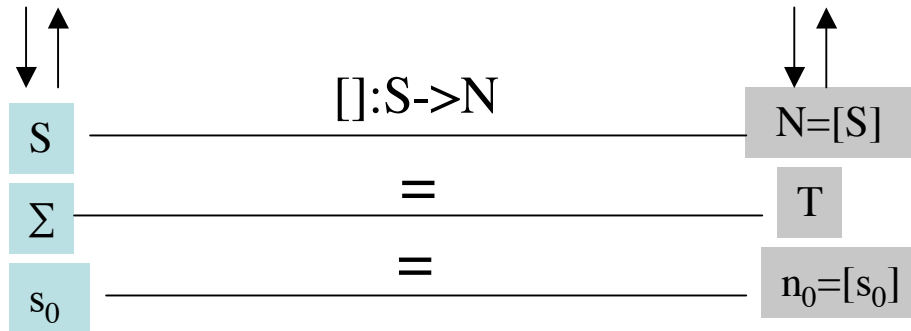
On The Equivalence FSA and L-Grammars (right)

$A = \langle S, \Sigma, M, s_0, F \rangle$

$M = \{ \langle \langle s_i, a \rangle, S_{i,a} \rangle \mid s_i \in S, a \in \Sigma + \{ \epsilon \}, S_{i,a} \subseteq S \}$

$G = \langle N, T, n_0, P \rangle$

$P = \{ n_i ::= u n_j, n_i ::= u \mid n_i, n_j \in N, u \in T + \{ \epsilon \} \}$



$\langle \langle s_i, a \rangle, \{ s_{i,a,1}, \dots, s_{i,a,k_{i,a}} \} \rangle \iff [s_i] ::= a [s_{i,a,1}], \dots, [s_i] ::= a [s_{i,a,k_{i,a}}]$

$F = \{ s_{F,1}, \dots, s_{F,k} \} \implies [s_{F,1}] ::= \epsilon, \dots, [s_{F,k}] ::= \epsilon$

$L(A) = L(G)$

Exercise: How condition on F has to be extended when implication is reversed?

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Consider the grammar:

$S ::= a B$

$B ::= a C \mid d$

$C ::= b B$

Compare it with:

Consider the grammar:

$S ::= a B$

$B ::= a C \mid d D$

$C ::= b B$

$D ::= \varepsilon$

Then: We can require a preliminary transformation from Linear to the subclass of Strongly Linear (i.e. productions have the form: Either $n_i ::= u n_j$, or $n_i ::= \varepsilon$)