```
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Derivations in CFG
                              ⇒ $ (TUT)* × (TUT)*
                                    * reflexive-transitive dosure
      Rythmost derivation: dissuper replace the subjection of winder of the superior of the superior
         Per: A ⇒ w # A ⇒ w # A ⇒ m w
                                                           d∈ (vur)* is a sortential form # on the t*]

if S$ a. [Surence: if S$ and the t*]
   Sentential form
                                                              it S \stackrel{*}{\Rightarrow} \alpha. [Surface: 4]
Left-most (rightmost) souterfiel find: S \stackrel{*}{\Rightarrow} \alpha (or S \stackrel{*}{\Rightarrow} \alpha)
        Parse Trees
          Gran a (FG) G = (V, T, P, S) a porce trace (divination trace)
of G is a traction rock is labelled by a consider in V

(1) Each interior rock is labelled by a consider in V

(1) Each hard is builted by a variable to terminal or e. It a but is labelled by E then it must be the only okile of its procest.

(ii) If an interior rock is labelled by A and its children are about the rock of the process.

(iii) If an interior rock is labelled by A and its children are about the rock of the process.

(iv) And the state of the process of the labelled by A and the children are about the production of G.
                Gild of a pure tree: the string obtained by concatenating for labels of the leaves from
                                                                                             left to right
                B 3→ E 0 1 1 0 0 0 1 1 3 1
                                                                                                                                                gield: 0110
      ( >>> By induction on the no. of steps of the devivoration A \stackrel{>}{\Rightarrow} cl .
                   (4) By induction on the voc of internal roles in the power tree.
                                                                                                                                      A n = m+
                                                                                                                                       A \Rightarrow X_1...X_k \stackrel{\bigstar}{\Rightarrow} \alpha_1...\alpha_k
        To soumerisa, For a CFG G and AEV the following are equivalent
                                                           1. A ⇒ ω
2. A ⇒ ω
                                                               2. A 5 m w
4. There is a parse true with root A
set girls w.
           Control for " : If X \Rightarrow 8 than for any of B
dxp \Rightarrow dxp
           Convention 4, p, & C (VUT)*
                                                                                                                         a,b,c,0,1,2,... ET
                                           A,8,C, S ... € V
               Ambiquity
                 CES for arithmetic expressions (atb) 40 OR ?
                                                                                                                                                                            E→ E+E|E+E|
               A CFG G is ambiguous if there is a \omega \in T^* for
                  which there are two different passe trees.
            Alternatively: ... if the one two different explined desirations ...
             Removing Amboguity for arithmetic engrassions CFG
                                                              I -> a | b | Ia | Ib
N -> 0 | 1 | N0 | N1 | - N | + N
                                                                 N \rightarrow I \mid N \mid (E) cannot be displayed by opens of I \rightarrow I \mid N \mid (E) cannot be displayed and I \rightarrow I \mid E \rightarrow I \mid E \rightarrow I \mid E \rightarrow I all separations
                      Parse tree for a+b* a
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