

- 3 (A) All set of balanced parentheses
- (B) All set of strings over (and).
- (C) want to develop parser so keep count +
 $\# \{ (\} \neq \# \} \}$
 $\text{and } \# \{ (\} - \# \} \} \geq 0$
 Final count = 0.

$T \rightarrow ($ $T_1.\text{count} = 1$
 $T_1.\text{valid} = \text{true}$

$T \rightarrow)$ $T_1.\text{count} = -1$
 $T_1.\text{valid} = \text{true}$

$T \rightarrow T_1 ($ T_1 T_2 T_3 T_4 T_5 T_6 T_7 T_8 T_9 T_{10} T_{11} T_{12} T_{13} T_{14} T_{15} T_{16} T_{17} T_{18} T_{19} T_{20} T_{21} T_{22} T_{23} T_{24} T_{25} T_{26} T_{27} T_{28} T_{29} T_{30} T_{31} T_{32} T_{33} T_{34} T_{35} T_{36} T_{37} T_{38} T_{39} T_{40} T_{41} T_{42} T_{43} T_{44} T_{45} T_{46} T_{47} T_{48} T_{49} T_{50} T_{51} T_{52} T_{53} T_{54} T_{55} T_{56} T_{57} T_{58} T_{59} T_{60} T_{61} T_{62} T_{63} T_{64} T_{65} T_{66} T_{67} T_{68} T_{69} T_{70} T_{71} T_{72} T_{73} T_{74} T_{75} T_{76} T_{77} T_{78} T_{79} T_{80} T_{81} T_{82} T_{83} T_{84} T_{85} T_{86} T_{87} T_{88} T_{89} T_{90} T_{91} T_{92} T_{93} T_{94} T_{95} T_{96} T_{97} T_{98} T_{99} T_{100}

$T \rightarrow T_1)$
 $T_1.\text{count} = T_1.\text{count} - 1$
 $T_1.\text{valid} = T_1.\text{valid} \text{ and } (T_1.\text{count} \geq 0)$

FINALLY

$P \Rightarrow T$
 $P.\text{valid} = T.\text{valid} \text{ and } (T.\text{count} = 0)$

4 (a) Doesn't change, still need activation record stacks.

(b) Change - NO global variables exist, all data is local so static linker no longer needed.

(c) Dynamic linker - still needed. NO changes

(d) Array descriptors - not needed in NIP and change doesn't affect them. so no change

(e) Symbol table - Function names are at one level and data is at a 2nd level. so symbol table changes.

only need 1 level of source
 - Data is local
 - Proc names may be 2 level back

5 Assume static linker is after 2
 L R3, 2 (R6)
 (R) L R0, 17 (R3)
 M R0, 18 (R0)
 ST R1, 16 (R6)

OR

01	16	0017
03	16	0018
02	16	0019

