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CS370

Problem 4.2.2 c

!c) S --+ S(S)SIE withstring(00)

1/ S =lm=> S(S)S => (S)S => (S(S)S)S => ((S)S)S => (()S)S => (()S(S)S)S => (()(S)S)S => (()()S)S => (()())S => (()())

2/ S =rm=> S(S)S => S(S) => S(S(S)S) => S(S(S)) => S(S()) => S(S(S)S()) => S(S(S)()) => S(S()()) => S(()()) => (()())

3/ Omit

Diagram, shape, schematic

Description automatically generated

4/ Ambiguous because there are more than one left most derivation.

5/ The set of all strings of symmetrical parentheses due to the bracket string

Problem 4.2.3 a

a) The set of all strings of Os and Is such that every 0 is immediately followed

by at least one 1.

S -> (0?1)\*

Problem 4.4.1.c

! S -> S (S) S | ε

Eliminate left-recursion: S->A

A->(S) S A | ε

|  |  |  |  |
| --- | --- | --- | --- |
| Nonterminal | Enter your symbol | | |
| ( | ) | $ |
| S | S -> A | S -> A | S -> A |
| A | A -> (S) S A | A -> ε | A -> ε |
| A -> ε |