DEPARTMENT : Computer Science and Engineering

MATRIC NO : CSC/2018/136

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Option : Computer Science with mathematics

① Formulation of grammar

The first thing to Do is to generate a Naration for a binary constant.

A binary constant is a string of binary digit equivalent to 1 and more i.e

$BD \geq 1$

zero is not permitted.

Fraction is not permitted.

For a grammar, the expression is this

$$G := \{ S, T, E, P \}$$

S is Set of primitive term

T is Represent Auxiliary terms

An instance of T is designated as an Auxiliary axiom.

E is the prime axiom.

P is the production rule.

In binary, the primitive terms is zero & one

$$S = \{ 0, 1 \}$$

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Example of binary Constant.

0001, 1100, 1101, 0010, all of this are
binary constants.

This means   0 can start,   1 can start,
              0 can end   1 can end

Let us define T
T = {A, B}

T cannot enter the grammar as it is a prime
axiom, it needs to be reduced.
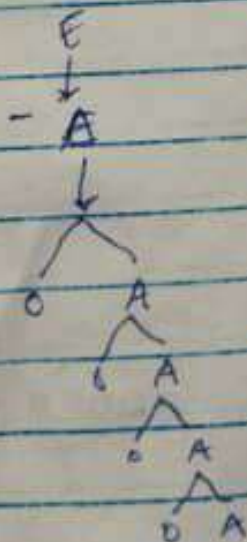
Production

$$E \rightarrow \varepsilon A$$
$$A \rightarrow 0A$$
$$A \rightarrow 1B$$
$$B \rightarrow 0B$$
$$B \rightarrow 1B$$
$$B \rightarrow 0$$
$$B \rightarrow 1$$
$$A \rightarrow 1$$

This is the
production rule for the
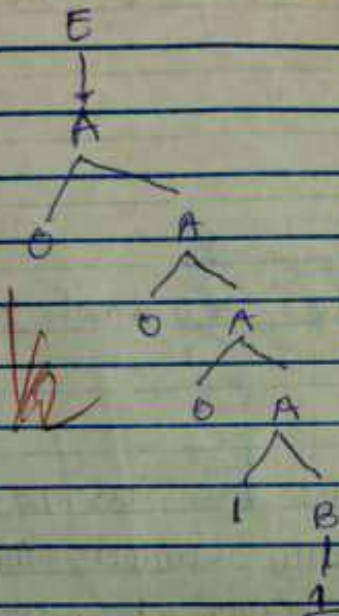valid expression of binary
constant.

Let's test
E = 0000

E
↓
A
↓
0 A
  6 A
    A
   0 A
     0 A
      0 A

X   not valid ie it doesn't end
     with primitive term.

let's test with $E = 00011$

E
|
A

This is a
valid binary constant

O   A
     O   A
         O   A
             I   B
                 |
                 1

Faculty of language:

Let's discuss language first:
Language is the faculty and instrument through
which mental state and activities find sensorily
accessible material Expression.

Faculty of language: This is inherent in the agency of
language, it is ineffable, cannot be modelled, doesn't
conform to standard and convention, and cannot
be removed from its agency. It is used to
create and refine instrument of language.

Instrument of language: This is used to define simply faculty of language. It is obtained by interaction of the agency with its environment and it is of three kinds

Context - Sensitive

Context - neutral

Regular

This does not have / conform to standard, convention and consensus.

Pseudo - language: This can also be ascribed to written language. It is formally learned, this conform to standard convention and consensus.

Pseudo language is of two kinds

Language of Sign - { Phone & tone }

of Symbol { phone }

Pseudo language needs to be learned,

It has grammar.

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