

Matthew Silva

Professor Hamel

CSC 301

24 September 2017

CSC301 Assignment #2

3.1 a

G6:

$$\langle \text{exp} \rangle^* ::= \langle \text{exp} \rangle + \langle \text{mulexp} \rangle \mid \langle \text{exp} \rangle - \langle \text{mulexp} \rangle \mid \langle \text{mulexp} \rangle$$
$$\langle \text{mulexp} \rangle ::= \langle \text{mulexp} \rangle * \langle \text{rootexp} \rangle \mid \langle \text{mulexp} \rangle / \langle \text{rootexp} \rangle \mid \langle \text{rootexp} \rangle$$
$$\langle \text{rootexp} \rangle ::= (\langle \text{exp} \rangle) \mid a \mid b \mid c$$

3.3 b

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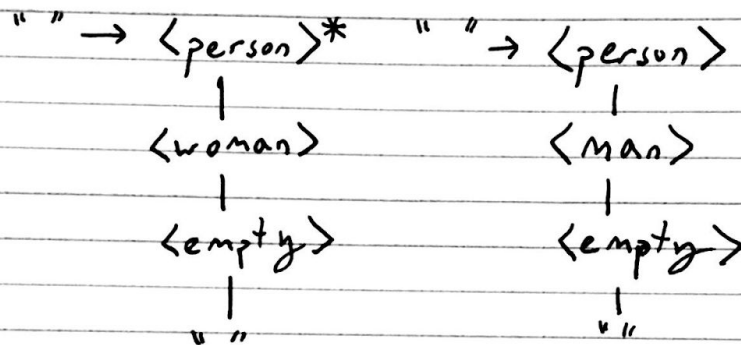
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The grammar is ambiguous because it can produce 2 parse trees for the empty string ("")



Either the $\langle \text{woman} \rangle$ or the $\langle \text{man} \rangle$ branch can be used to generate an empty string, so the grammar is ambiguous

The empty string can be generated using either the $\langle \text{man} \rangle$ or $\langle \text{woman} \rangle$ productions

3.4 b

 $\langle \text{person} \rangle^* ::= \langle \text{woman} \rangle \mid \langle \text{man} \rangle \mid \langle \text{empty} \rangle$
 $\langle \text{woman} \rangle ::= \text{wilma} \mid \text{betty}$
 $\langle \text{man} \rangle ::= \text{fred} \mid \text{barney}$