**ITCS – 6150 Project: Tautology checking RS method**

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**Introduction:**

This project implements a formula verification method called RS proof to determine whether a given formula in the propositional calculus is a Tautology.

Formula F is a propositional tautology if and only if all the end sequences in diagram D(F) are fundamental.

Our Group has implemented in C++.

**Instructions on how to run the program:**

**INPUT:** A propositional formula

~ for Negation (# for placeholder in the code. Do not enter it.)

^ for Conjunction

v for Disjunction

> for Implication

(\* It supports both () and [].)

(\* Spaces are not allowed between characters.)

(\* Do not input two ~ continuously. Separate them with parentheses like this: ~(~a).)

**INPUT EXAMPLE:**

(a>b)>((b>c)>(a>c))

a>(avb)

~(a>c)>[~(cvd)>(a^c)]

~(a>c)>[~(cvd)>(a^~c)]

**OUTPUT:** 1. The binary tree representation for this sequence

2. The binary tree representation and normal representation for each leaf

(The tree grows from the left side to the right side.)

3. Whether the according leaf is fundamental

4. Whether this formula is a tautology

Please follow the instructions shown on the terminal.

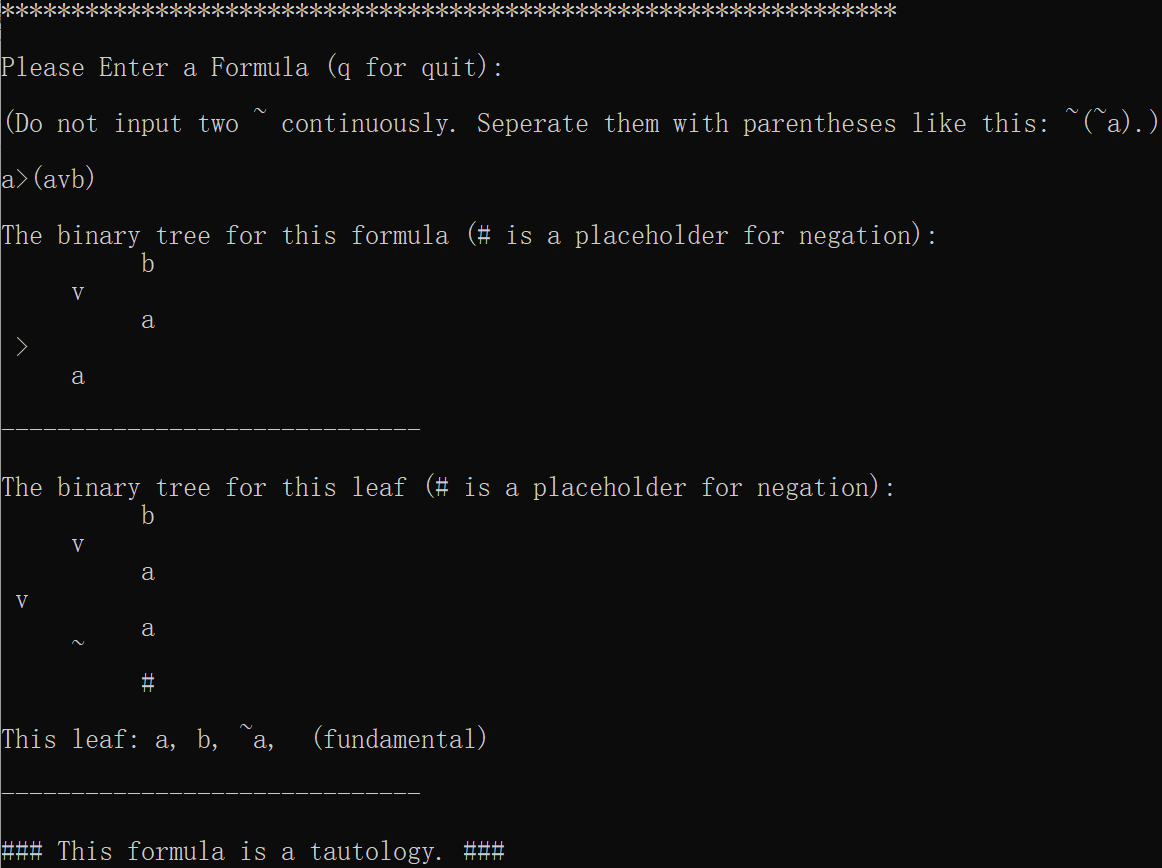
\* This project requires compilers supporting C++11 or higher versions. If you are using command lines then please compile code with using below command:

g++ RS\_Strategy.cpp -o RS\_Strategy -std=c++11

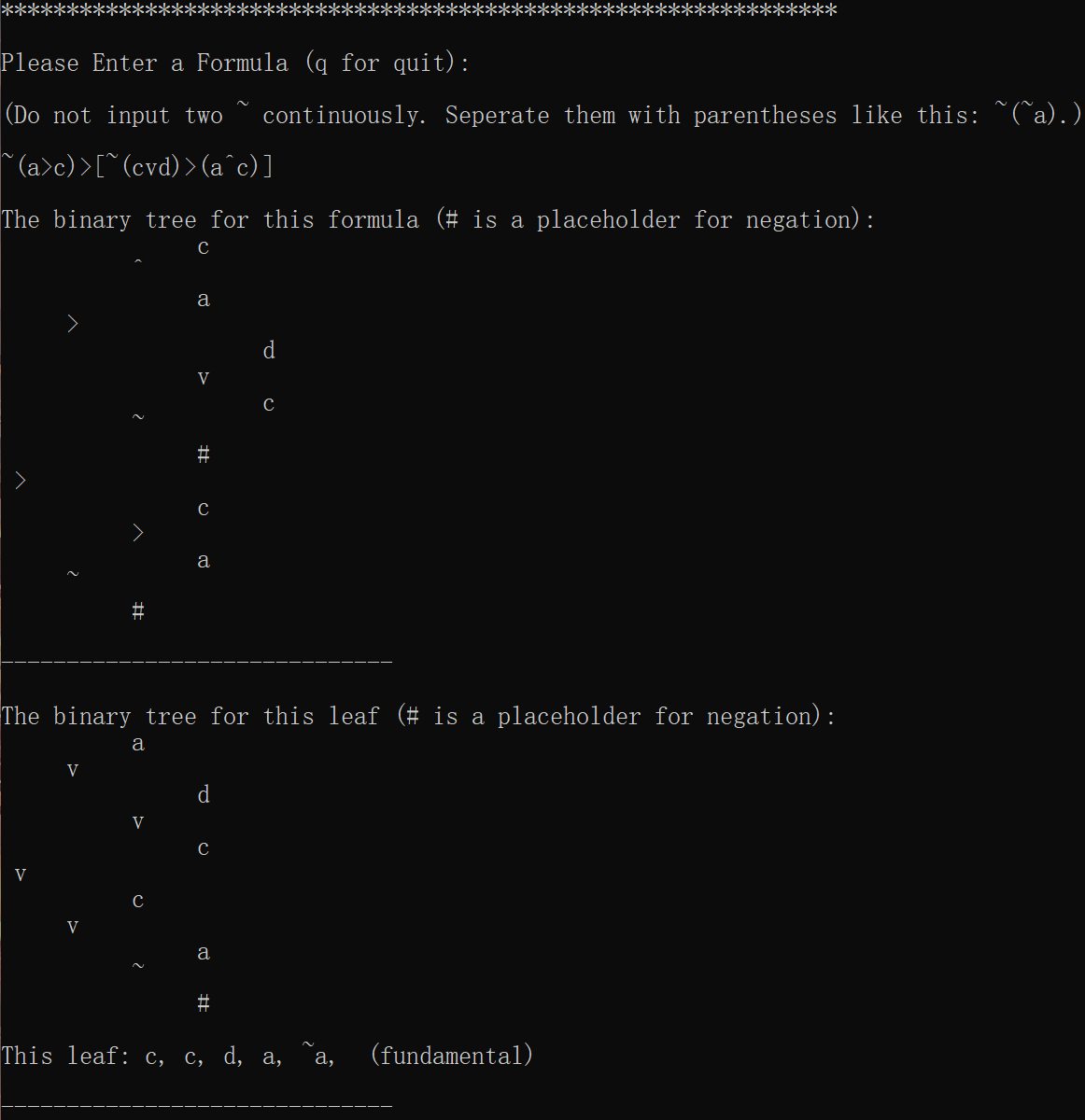
\* This project does not contain any function for checking grammar error.

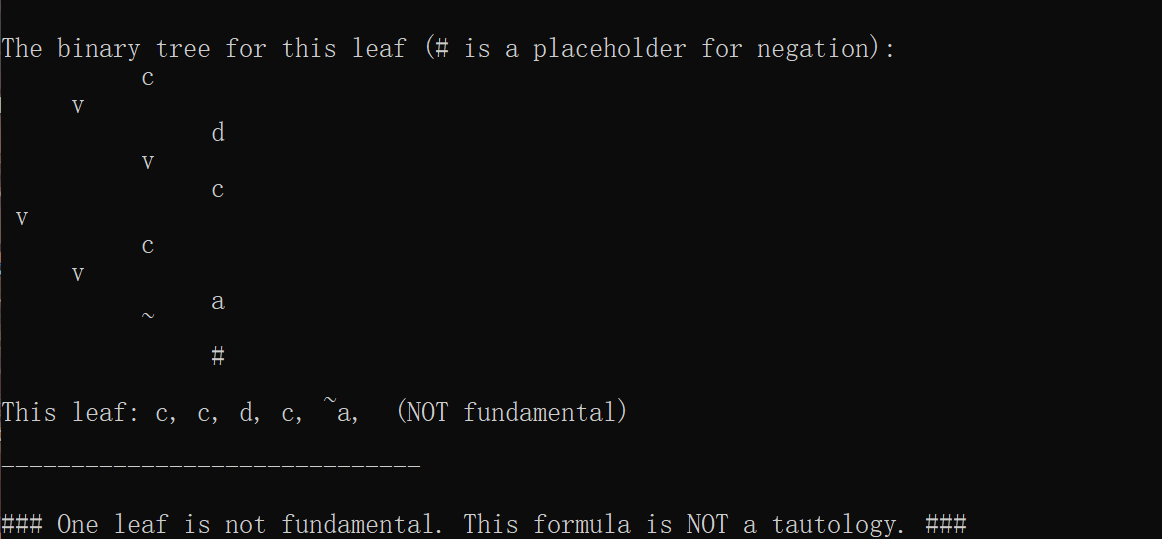
**SCREENSHOTS:**

Example 1: a>(avb)

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Example 2: ~(a>c)>[~(cvd)>(a^c)]

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