Let us call a string $S$ *(“a”, “b”, “c”) a $T$-string if no two adjacent nonempty segments are identical:

$$\neg \exists i, j, k \cdot 0 \leq i < j < k \leq |S| \land S_{i..j} = S_{j..k}$$

Write a program to output all $T$-strings in alphabetical order. (The mathematician Thue proved that there are infinitely many $T$-strings.)

§ Define $R \Leftarrow (\text{print all } T\text{-strings in alphabetical order})$.
Define $A \Leftarrow (\text{all } T\text{-strings before } S \text{ have been printed in alphabetical order})$.
Define $Z \Leftarrow (\text{print all } T\text{-strings from } S \text{ on in alphabetical order})$.
Define $T \Leftarrow (S \text{ is a } T\text{-string}) = \neg \exists i, j, k \cdot 0 \leq i < j < k \leq |S| \land S_{i..j} = S_{j..k}$.
Define $U \Leftarrow (S \text{ has no adjacent nonempty identical segments of length } < l) = \neg \exists i, j, k \cdot 0 \leq i < j < k \leq |S| \land j - i < l \land S_{i..j} = S_{j..k}$.

$$R \Leftarrow S := \text{""}.$$  $A \land T \Rightarrow Z$
$$A \Rightarrow Z \Leftarrow l := 1. \ A \land U \Rightarrow Z$$
$$A \land U \Rightarrow Z \Leftarrow$$
if $\iff S \geq 2x$ 
then if $S_{S-2x..} = S_{S-2x..}$
  then $S := (\text{the alphabetically next text that is not longer})$.
else $i := i + 1. \ A \land U \Rightarrow Z \fi$
else $A \land T \Rightarrow Z \fi$

$S := (\text{the alphabetically next text that is not longer}) \Leftarrow$
if $S_{S-1} = \text{“a”}$ then $S := S_{0..} \text{“b”}$
else if $S_{S-1} = \text{“b”}$ then $S := S_{0..} \text{“c”}$
else $S := S_{0..} \text{“c”}$. $S := (\text{the alphabetically next text that is not longer}) \fi$ \fi

The one insight is the fact that a non-$T$-string cannot be made into a $T$-string by extending it, hence the assignment $S := (\text{the alphabetically next text that is not longer})$. We are assured that there is one by Thue.