Problem

In the *silly Post Correspondence Problem*, *SPCP*, the top string in each pair has the same length as the bottom string. Show that the *SPCP* is decidable.

Step-by-step solution

Step 1 of 2

In silly Post correspondence problem or SPCP, each pair of both strings (top and bottom) have same length. Here, the concern is related to whether the instance contains a match or not. SPCP problem is decidable. Decidability of SPCP can be proved as follows:

Consider an instance of SPCP given below:

$$\{[\frac{a_1}{b_1}], [\frac{a_2}{b_2}], ..., [\frac{a_n}{b_n}]\}$$

Here, $|a_i| = |b_k|$ for all $1 \le i \le k$.

Comment

Step 2 of 2

After finding the match of SPCP instance, it is checked whether the numerator is equal to denominator or not for the domino. Here, the length of the strings at top and bottom are similar.

Trivial match in a single domino of SPCP is formed whenever the top and bottom string is same.

After examining the instance having same top and bottom string, it is said to be as decidable. Dominos are working as decider to find whether the top string and bottom string are same or not. This it is quite easy to find decidability of SPCP.

Comment