**Problem**

Find a match in the following instance of the Post Correspondence Problem.

$$\left\{ \left[ \frac{ab}{abab} \right], \left[ \frac{b}{a} \right], \left[ \frac{aba}{b} \right], \left[ \frac{aa}{a} \right] \right\}$$

**Step-by-step solution**

**Step 1** of 2

Post Correspondence Problem can be considered as an example of undecidability problem concerning with manipulation of strings to find a match.

A match can be found if the string made or created by combining all the symbols of upper side and string made by combining all the symbols of lower side, both are same.

Comment

**Step 2** of 2

Consider the instance of Post Correspondence Problem with the collection of dominos as follows:

$$\left\{ \left[ \frac{ab}{abab} \right], \left[ \frac{b}{a} \right], \left[ \frac{aba}{b} \right], \left[ \frac{aa}{a} \right] \right\}:$$

The match for the given problem is a sequence of 4, 4, 2, and 1 using the dominos 1, 2 and 4:

$$\left\{ \left[ \frac{aa}{a} \right], \left[ \frac{aa}{a} \right], \left[ \frac{b}{a} \right], \left[ \frac{ab}{abab} \right] \right\}$$

The sequence produces same string aaaabab while reading off the top and bottom of the sequence 4,4,2,1.

The match can be depicted as follows:



**Therefore, a match 4,4,2,1 is found for the given Post Correspondence Problem.**

Comments (2)