

PWS

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25 September 2019

This program counts the number of 'edge paths' in a 'disc with ribbons', represented as a string, and describes them. It takes a string having two of each letter in it and outputs its description. If the string is incorrect, the program outputs 'Incorrect string'.

The algorithm, generally, works this way: it jumps from one letter to another and remembers its direction of movement and position on the ribbon. If it came to its destination from the outer curve, it continues to the next letter in its direction; otherwise, it changes its direction and takes a step 'backwards'. Using the direction, on which it approached the new letter, and the position of the second corresponding letter, it finds out, whether it is on the outer or the inner curve. Then the cycle continues.

Here are some examples of outputs on, respectively,

an empty string:

1 path - the disc itself

'abba':

1-th circle: Outer curve between 'a'
Connection through the other side of disc

2-th circle:

Inner curve between 'a'
Outer curve between 'b'

3-th circle:

Inner curve between 'b'

3 paths in total

'abacdcbd':

1-th circle:
Outer curve between 'a'

Outer curve between 'c'
Inner curve between 'b'
Inner curve between 'a'
Outer curve between 'b'
Inner curve between 'd'
Inner curve between 'c'
Outer curve between 'd'
Connection through the other side of disc

1 paths in total

'zxyxyz':

1-th circle:

Outer curve between 'z'
Connection through the other side of disc

2-th circle:

Inner curve between 'z'
Outer curve between 'y'
Inner curve between 'x'
Inner curve between 'y'
Outer curve between 'x'

2 paths in total