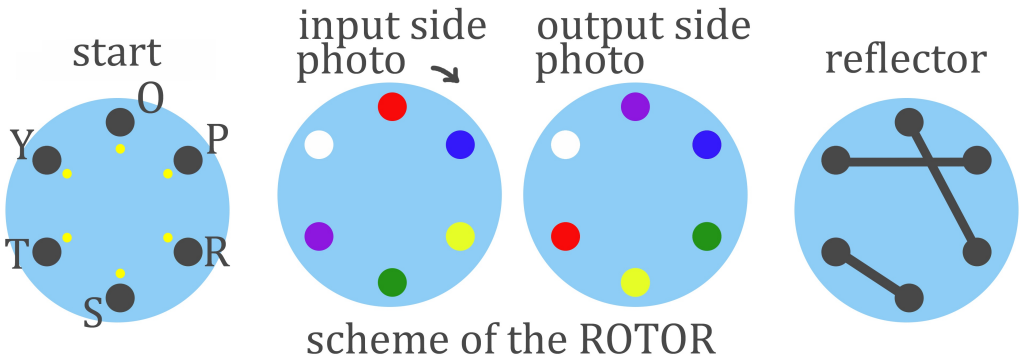
Problem 4. «A rotor machine»

In one country rotor machines were very useful for encryption of information.

Eve knows that for some secret communication a simple rotor machine was used. It works with letters `O`, `P`, `R`, `S`, `T`, `Y` only and has an input circle with lamps (start), one rotor and a reflector. See the scheme below.



The input circle and the reflector are fixed in their positions while the rotor can be in one of 6 possible positions. After pressing a button on a keyboard, an electrical signal corresponding to the letter goes through the machine, comes back to the input circle, and the appropriate lamp shows the result of encryption. After each letter is encrypted, the rotor turns right (i. e. clockwise) on 60 degrees. Points of different colors on the rotor sides indicate different noncrossing signal lines within the rotor.

For instance, if the rotor is fixed as shown on the picture above, then if you press the button `O`, it will be encrypted as `T` (the signal enters the rotor via red point, is reflected and then comes back via purple line). If you press `O` again, it will be encrypted as `R`. If you press `T` then, you will get `S` and so on.

Eve intercepted a secret message: `TRRYSSPRYRYROYTOPTOPTSPSPRS`. Help her to decrypt it keeping in mind that Eve does not know the initial position of the rotor.