

Report Topics in Computational Science

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Problem : We want to find 4-edges knot possible condition for 3 and 1 coloring. We try every combination of coloring for each crossing to find which one is satisfy the condition for 3 and 1 coloring.

Answer : In the figure 2 we try to find all the combination of 3 coloring and 1 coloring. It is shown that 4_1 is not 3 colorable.

We can label the strand with 1, 2, 3, 4. We assume strand 1, 2, 3 have different color. Say 1 is black, 2 is blue, 3 is red. Then, to color the strand 4 we should choose the color which is satisfy the coloring of knot. But, it is impossible to choose any color that acceptable. Such knot is not 3 colorable. This knot is only possible for three of 1 coloring, which is all strand is black, blue, or red.

So, we could only found three 1-colorable.

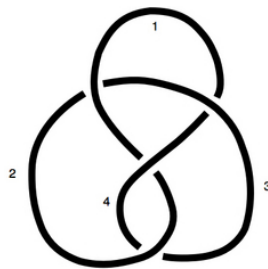


Figure 1:

In figure 2, we could show that the crossing not satisfy the coloring of knot by green neon highlighter.

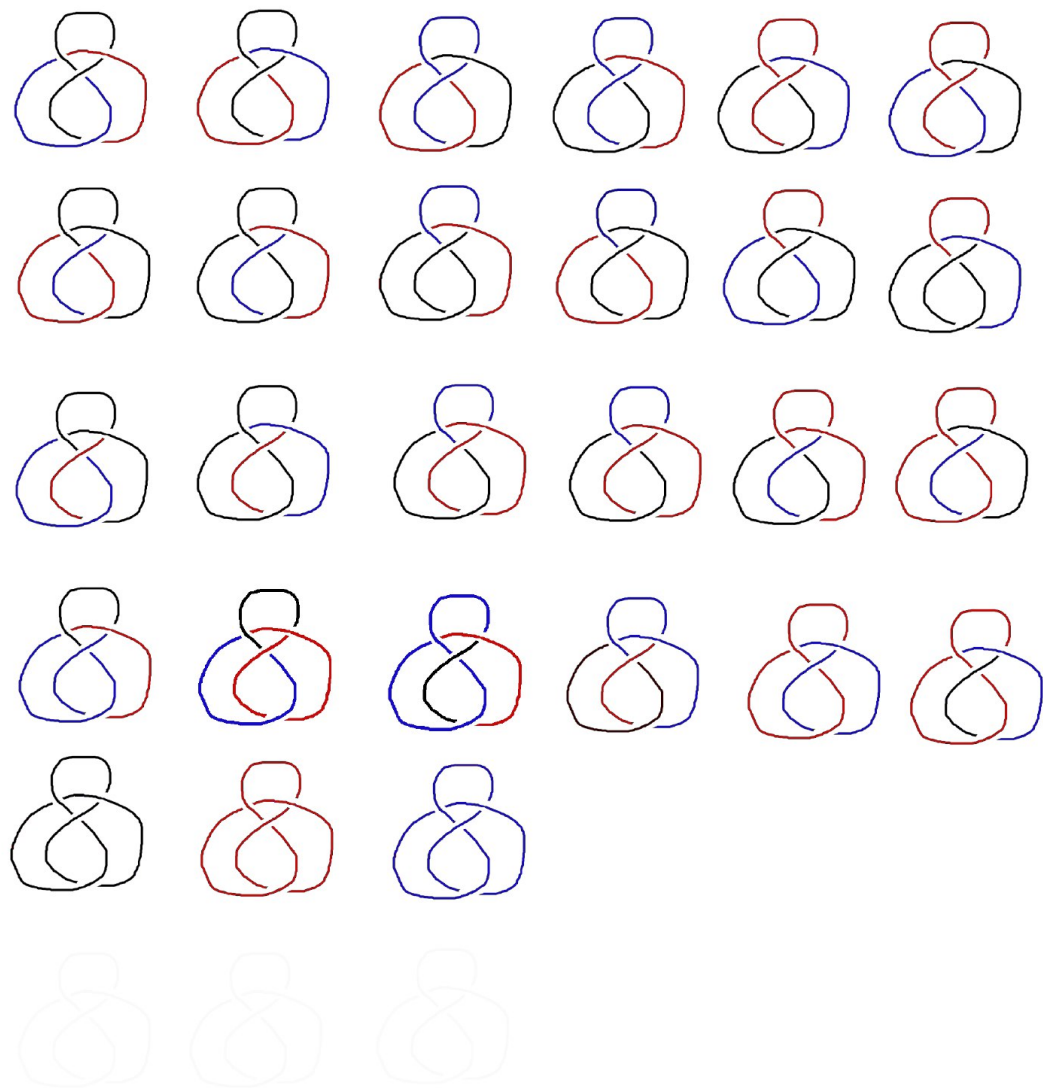


Figure 2: