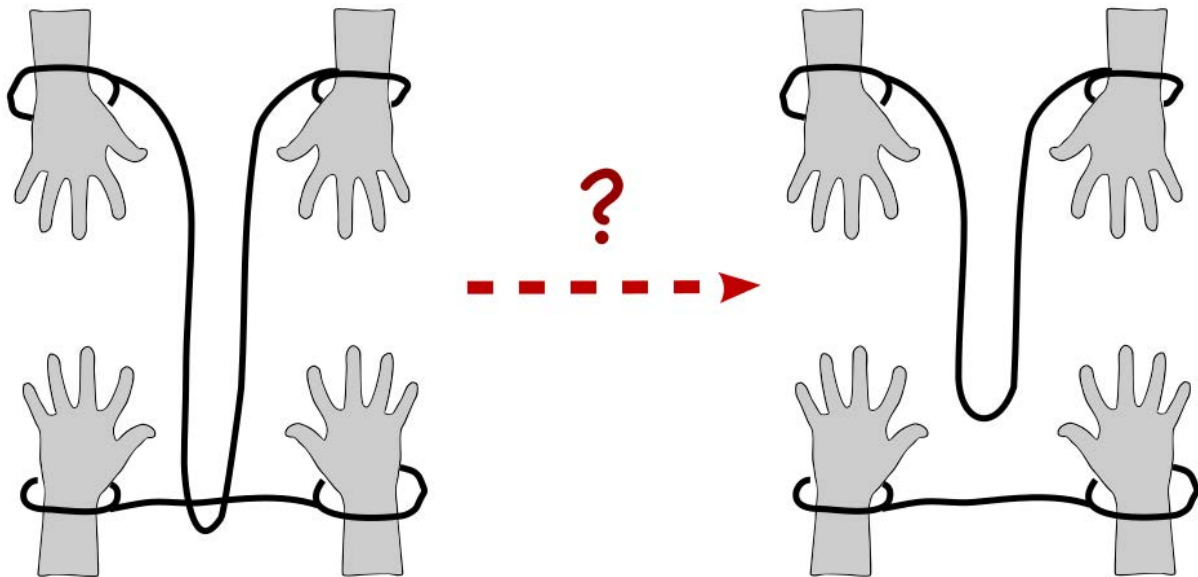


## Puzzle of the Week

# *Are Their Hands Tied?*

**THE CHALLENGE:** There are two people. Each person ties their hands together (loosely) with a string. As this is being done, the strings loop inside each other as shown. How do the two people get apart without untying their strings?



## Puzzle of the Week

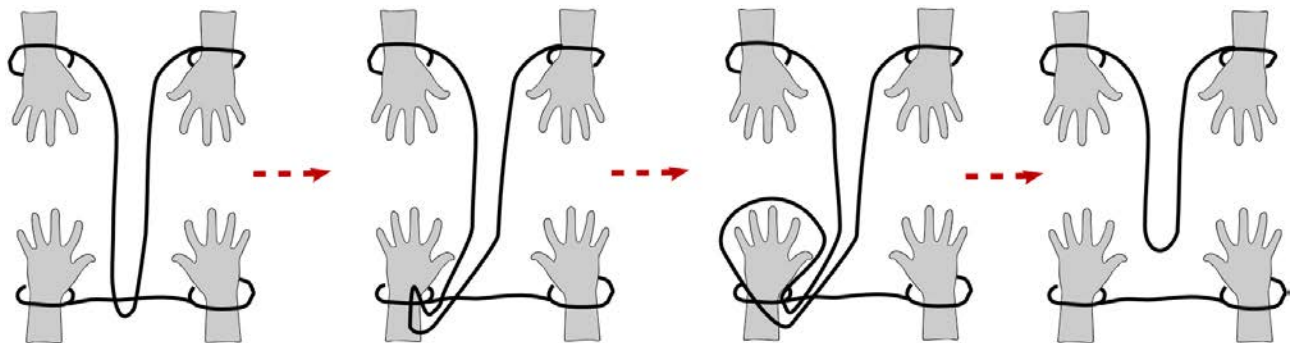
# *Are Their Hands Tied? – Notes*

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**THE CHALLENGE:** The key insight is to let go of the idea that the string is tied tightly around the wrists. The best way to visualize what to do is to open up the string around one of the wrists and fully withdraw that hand from the string. Once this is done, all you have to do is slide the other person's string off.

That feels like cheating, but it isn't! Topologically, a little bit of space is the same as a great deal of space. In any event, you don't need to withdraw your hand to solve the puzzle. However, withdrawing the hand will help you see why the solution works.

To solve this without pulling a hand out, take the loop that goes around the other string and move it inside one of the loops around a hand - then move it around that hand and out the other side. You should find that the two strings are no longer entangled!



Reading this is a lot harder than trying it out for yourself now that you've got the idea. Grab some string and a partner and try it out!