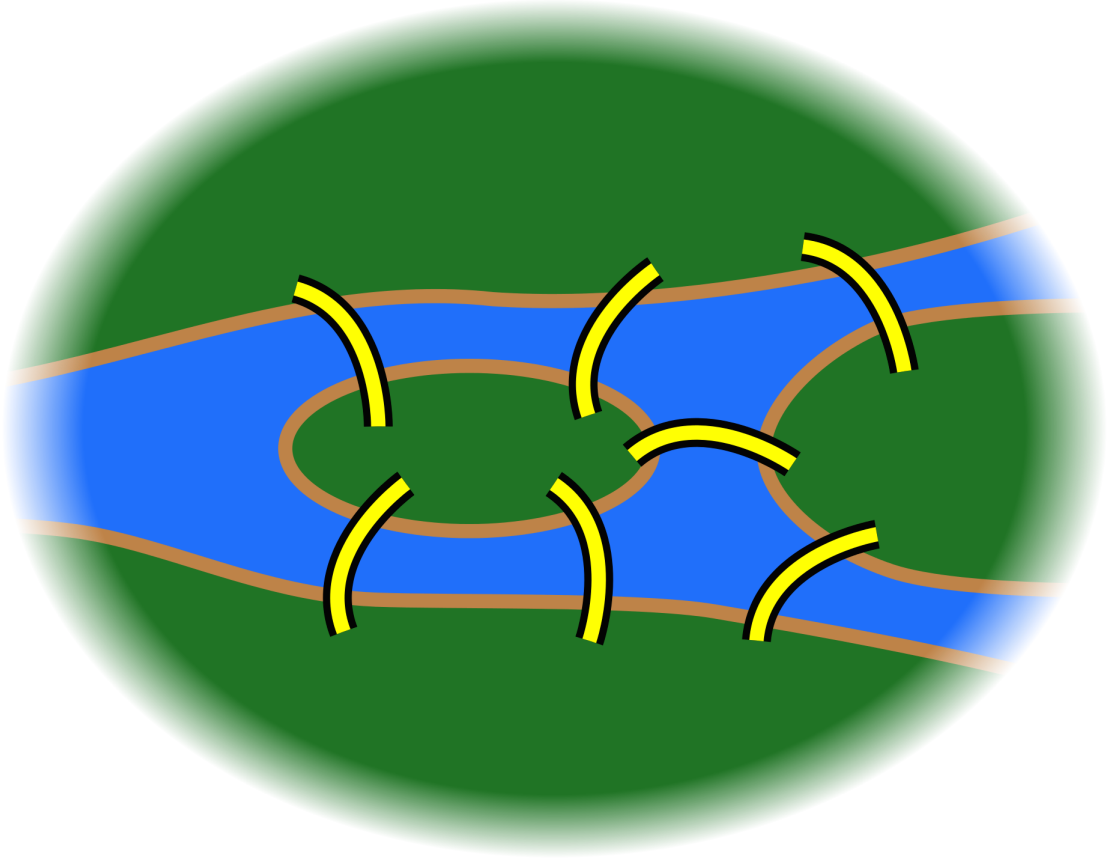
Mathematical Humanists: Graph Theory and Networks Self-Guided Workshop

Exercise #1: Bridges of Königsberg

Consider the image below of seven bridges connecting an island to three other landmasses.



https://en.wikipedia.org/wiki/Seven_Bridges_of_Königsberg#/media/File:7_bridges.svg

Can you cross all seven bridges exactly once? (No taking a boat, swimming, etc.)

If you remove one of the bridges that connects the island to the top landmass and one of the birdges that connects the island to the bottom landmass, can you cross the five remaining bridges exactly once? (Again, no boats, swimming, etc.)

If you can cross all the bridges, where do you have to start to do so? And does the order you cross the bridges matter?