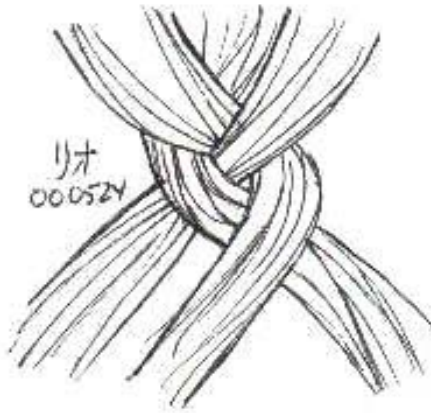


Exercise 1) Braid

Represent the following braid which has been taken from a manga comic in our schematic notation:



Exercise 2) Fibonacci Anyons

a) The Fibonacci anyon model has two particles, type 0 and type 1. Their fusion rules are

$$0 \times 0 = 0 \quad 0 \times 1 = 1 \quad 1 \times 0 = 1 \quad 1 \times 1 = 0 + 1.$$

Find the F -matrix and the R -matrix by solving the pentagon and hexagon equations. Note: there is a phase freedom in the F -matrix which you can fix to your liking.

b) How many different fusion paths are there when n Fibonacci anyons of type 1 are fused to a 0? How can you approximate this number for large n ? Why are these anyons known as Fibonacci anyons?