Two versions of mirror image:

① change crossings, ② reflect diagram in a line.

Why are they the same?

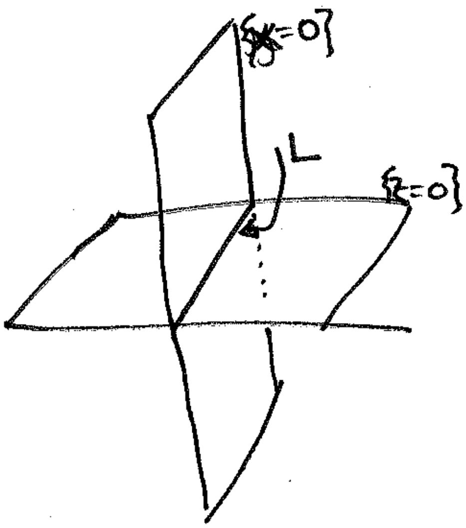
Consider coords on $\mathbb{R}^3$ so the projection plane is $\{z=0\}$.

Changing the crossings means reflect in $\{z=0\}$

$$(x,y,z) \longmapsto (x,y,-z)$$

Also adjust coords so line of reflection is $\{x=0\} \cap \{z=0\}$. Planar reflection in that line is $(x,y) \mapsto (-x,y)$.

This suppresses z ... It's really $(x,y,z) \mapsto (-x,y,z)$



The two reflection planes.

Cool facts:

★ These transformations r_z, r_x commute:

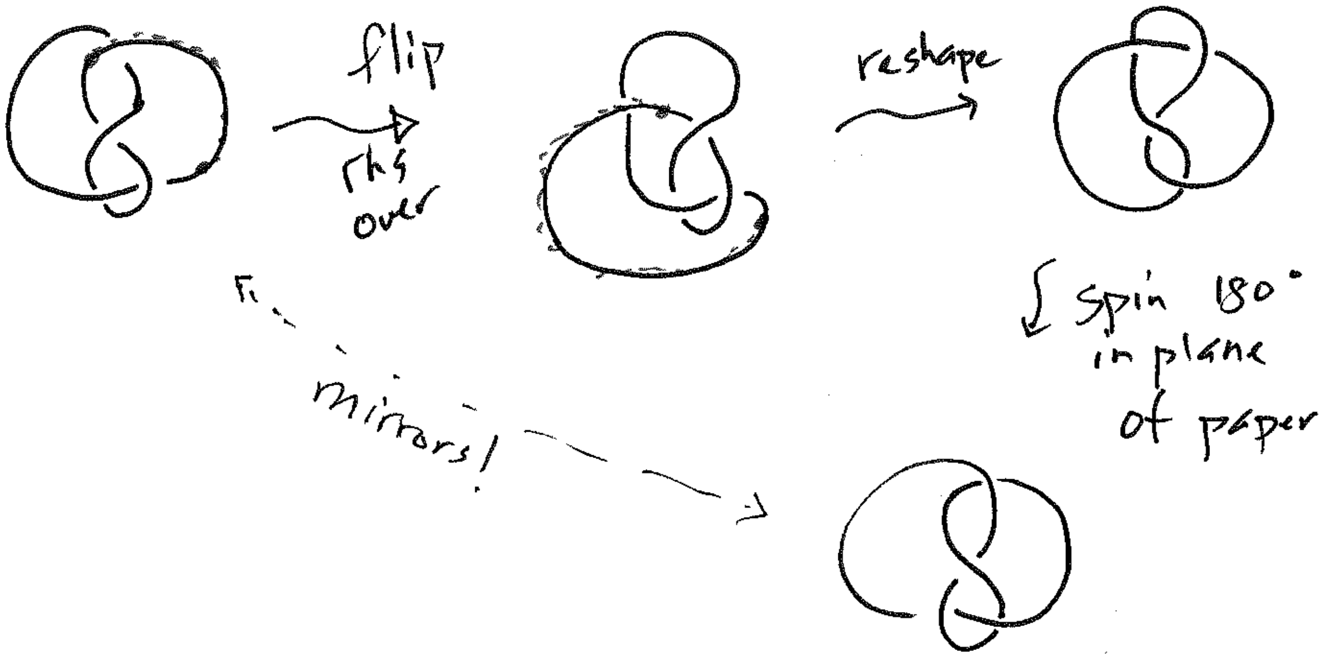
$$r_z \circ r_x = r_x \circ r_z$$

★ the composition $r_x \circ r_z = r_z \circ r_x$ is rotation through $180°$ about the line L, which is an equivalence!

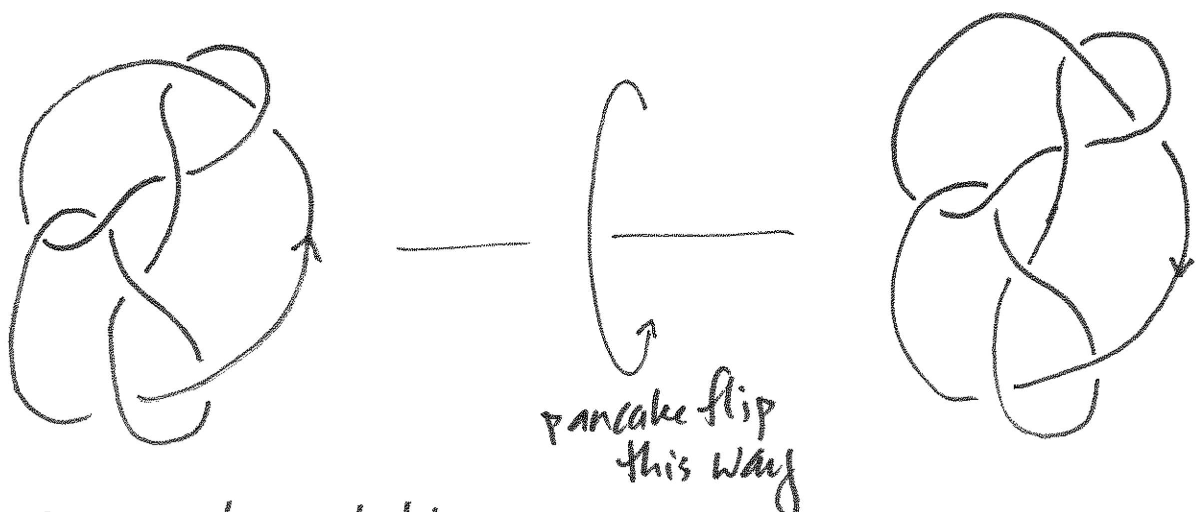
★ Each r_x, r_z is involutive.

So $r_x \circ (r_x \circ r_z) = r_x^2 \circ r_z = r_z \Rightarrow$ equivalent!

The knot 4_1 is equivalent to its mirror image.



Hardest Task: show 8_{15} is reversible



8_{15} w/ orientation

in the end a simple solution.