

Please take survey at

https://uiowa.qualtrics.com/jfe/form/SV_bkeUAITmond0HdP



On a scales of 1 - 10, how interested are you in the following topics:

1 = very interested.

10 = not interested.

Extremely interesting		Very interesting		Moderately interesting		Slightly interesting		Not interesting at all		
1	2	3	4	5	6	6	7	8	9	10

Knot theory

Applications of knot theory

Persistent homology

Data analysis

Machine Learning

TDA mapper (a generalization of Reeb graph applied to data)

On a scales of 1 - 10, how interested are you in the following software:

1 = would like to have hands on demonstrations,

5 = maybe see a demonstration of the software,

10 = no interest.

5 = maybe see a demonstration of the software,
10 = no interest.

Extremely interesting		Very interesting		Moderately interesting		Slightly interesting		Not interesting at all		
1	2	3	4	5	6	6	7	8	9	10

KnotPlot



SnapPy (hyperbolic structures)



Persistent homology



TDA mapper



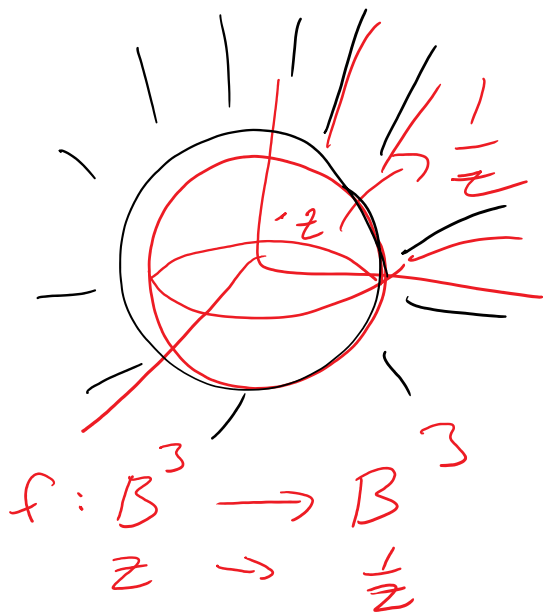
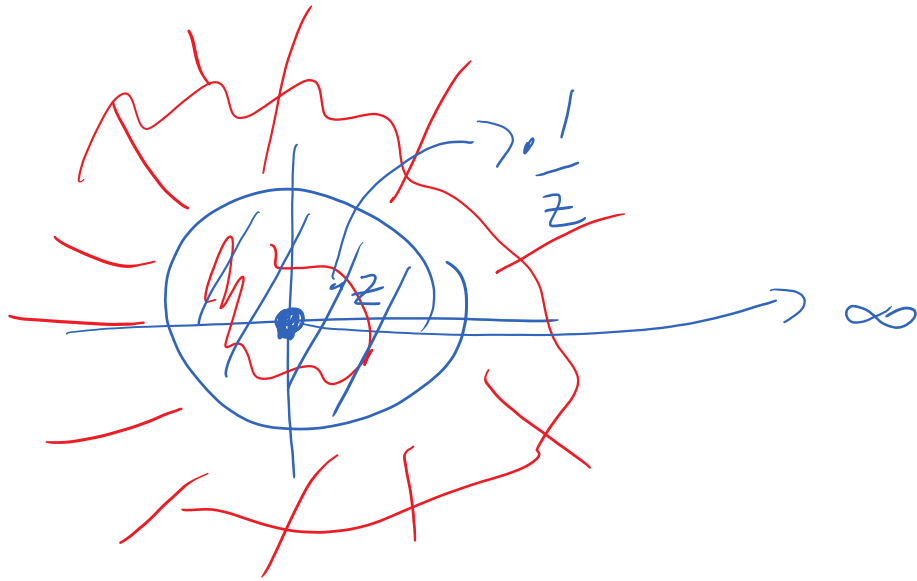
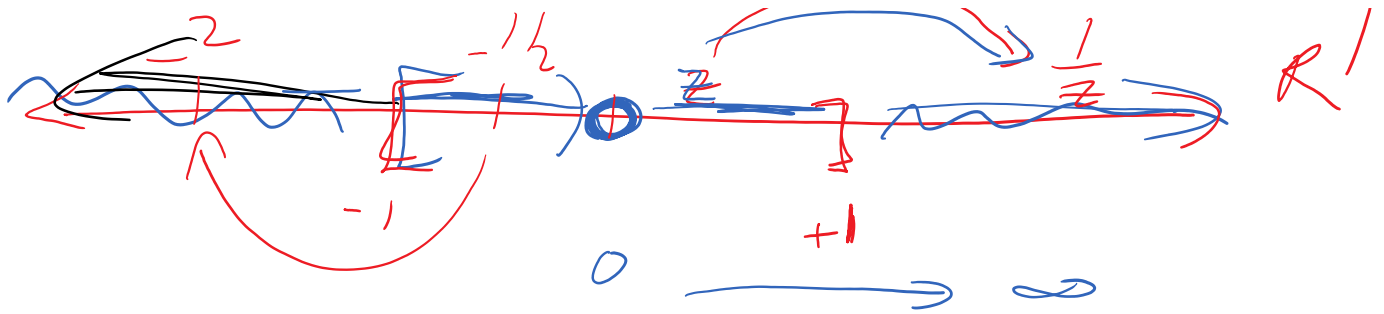
What is your background in topology?

What is your background in data analysis?

Comments, suggestions, concerns, topics you would like to see covered?



Stereographic Projection

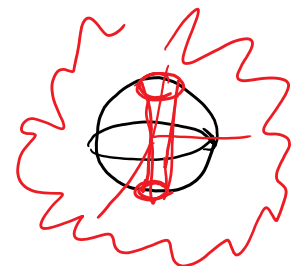


$$\mathbb{R}^3 \cup \{\infty\} = S^3$$

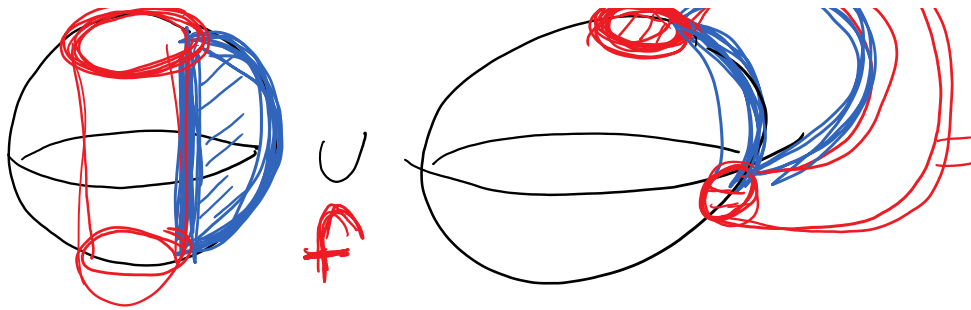


$$f: 2B^3 \rightarrow 2B^3$$

id



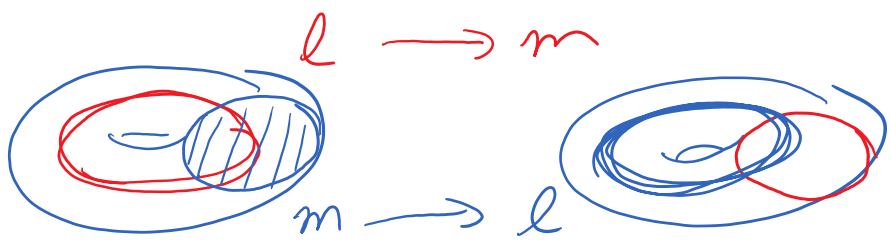
3



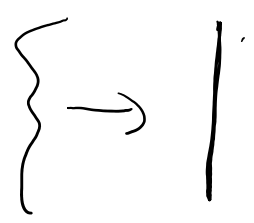
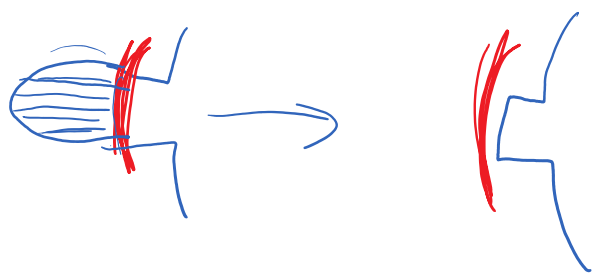
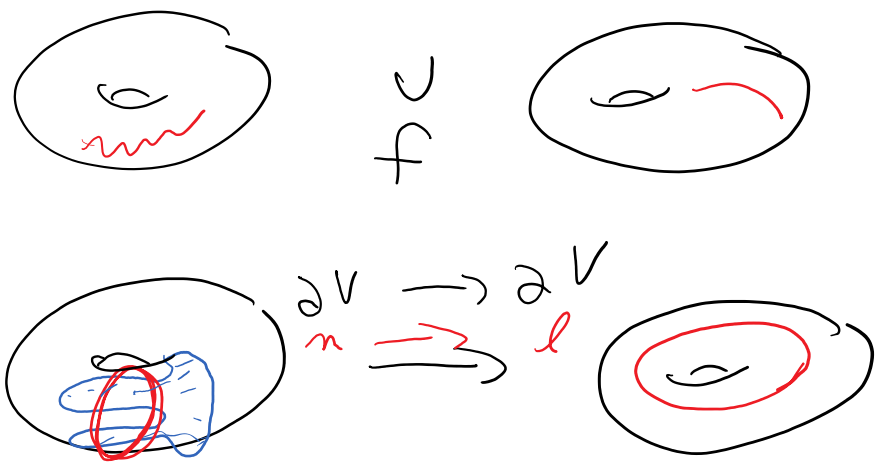
solid torus

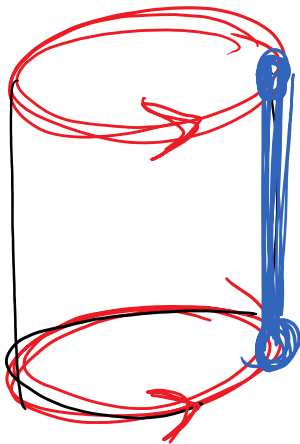
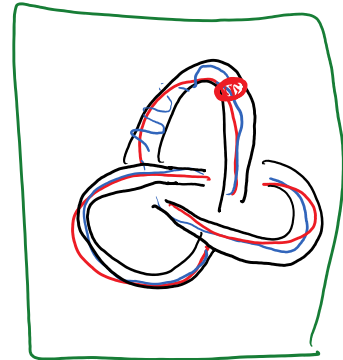
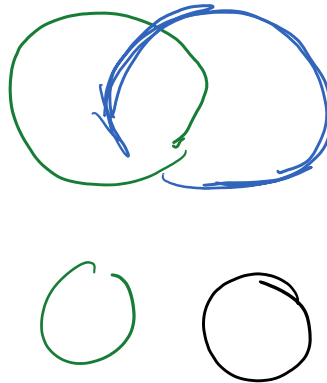
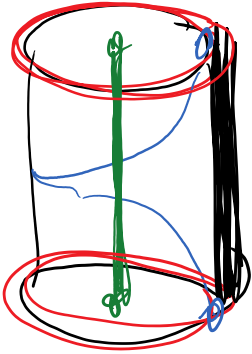
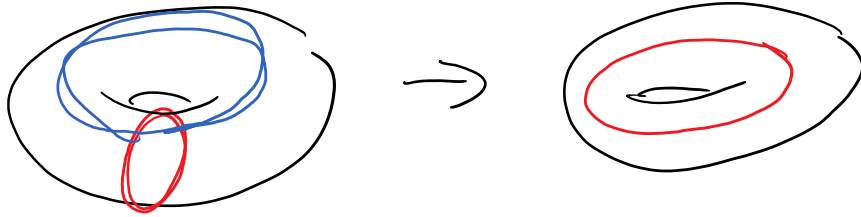
solid torus

S^3

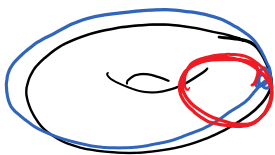
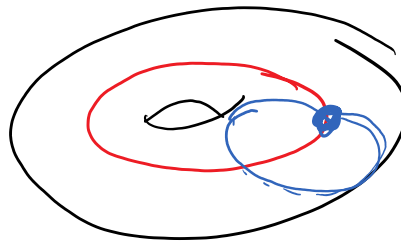


See Rolfsen





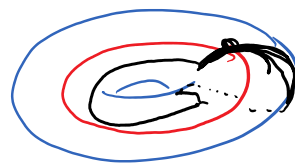
U
 $m \rightarrow l$
 $l \rightarrow m$

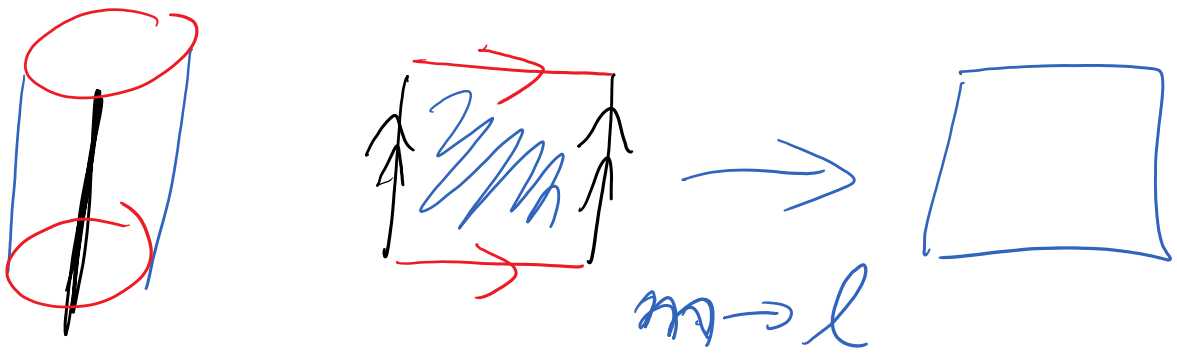
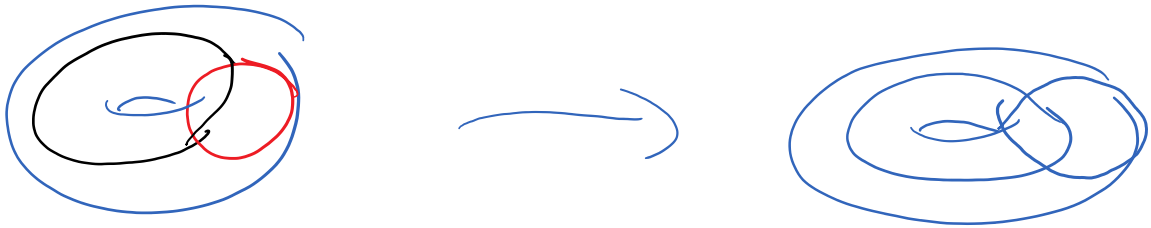
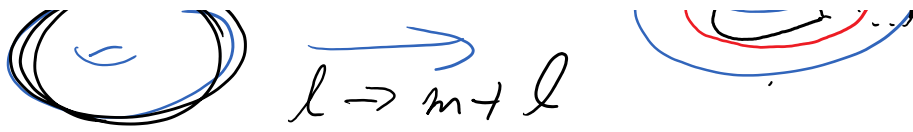


Does it matter? NO!



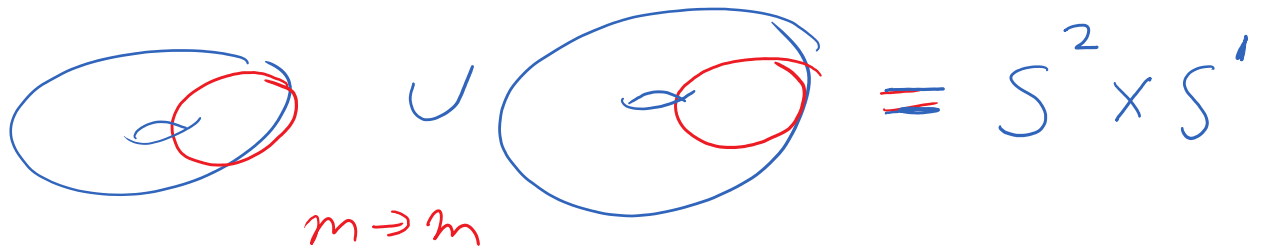
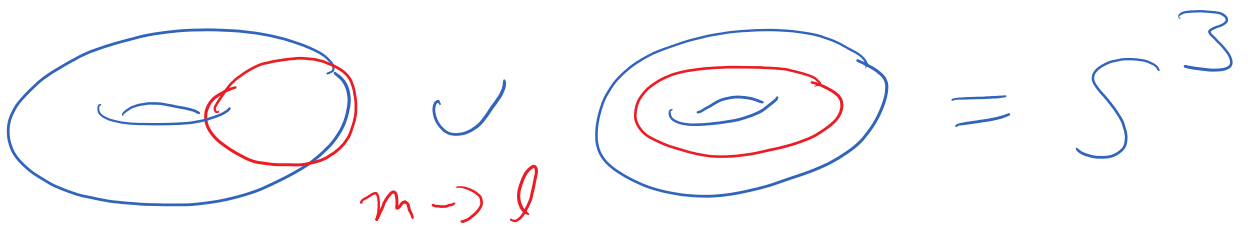
$l \rightarrow m + l$

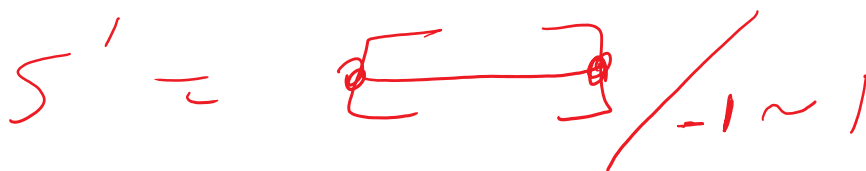
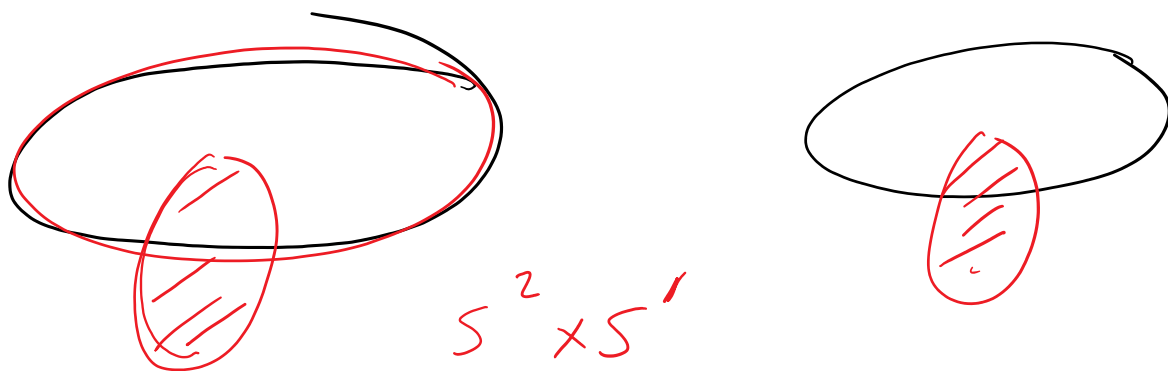
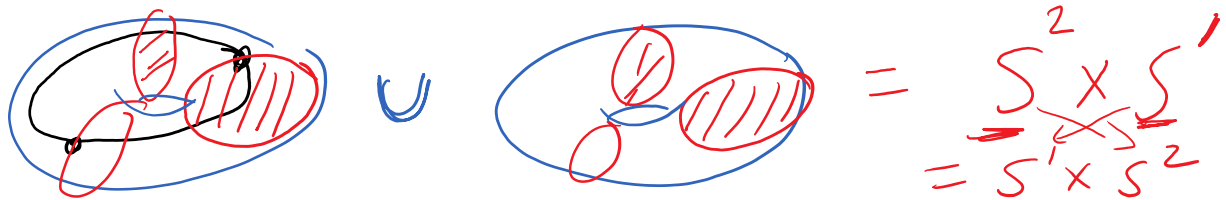




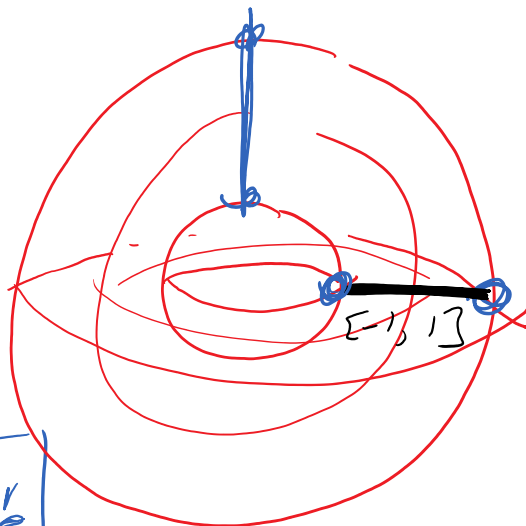
Lens Spaces

$V \cup V$ where $V = \text{solid torus}$





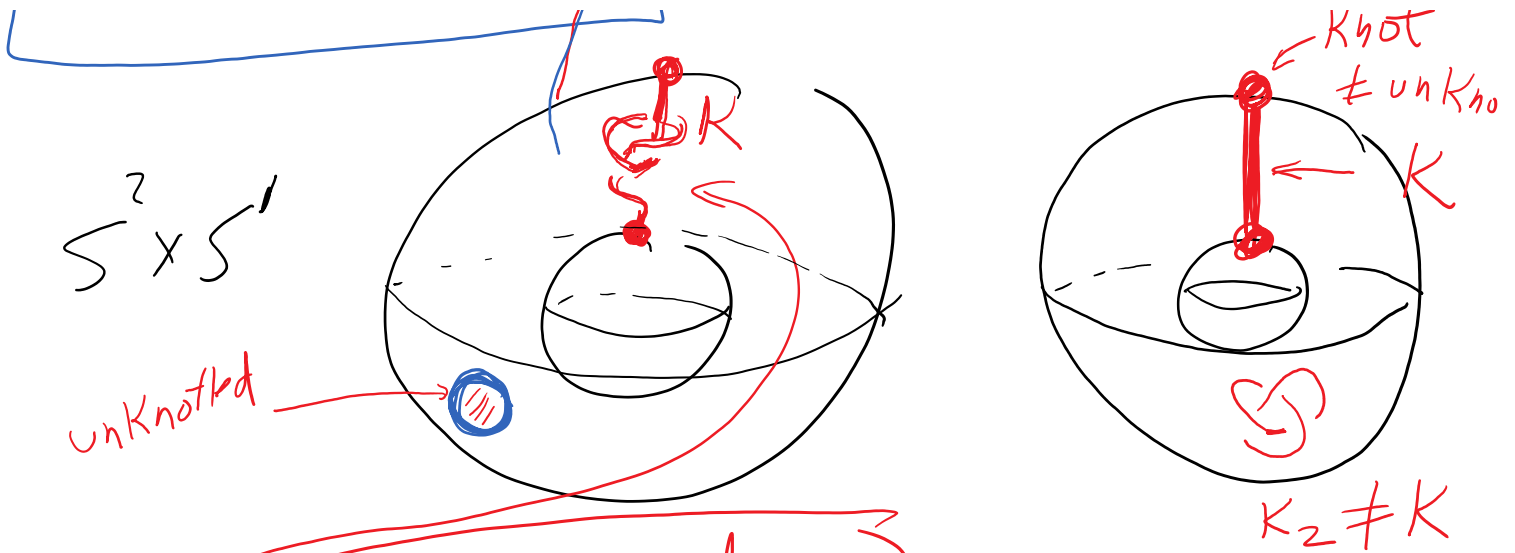
$S^2 \times S^1$



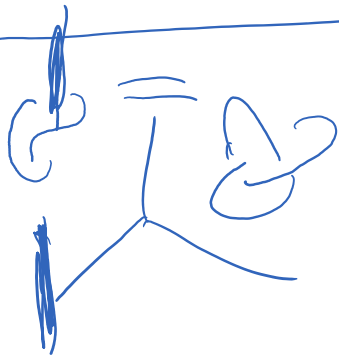
$K: S^1 \rightarrow S^2 \times S^1$



Knot $\neq \text{unkn}$



- A) unknotted
 B) same as K
 C) a third type of knot



Knot theory is different in different 3 manifolds