Here are the maps from last time, used to define our TQFT. Note the new shorthand for these cobordisms.

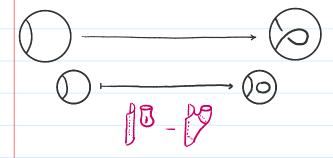


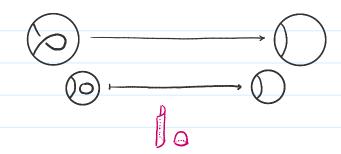




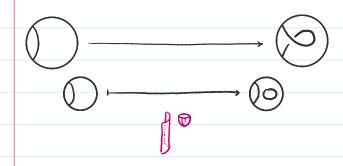


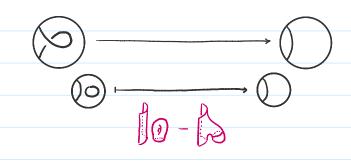
POSITIVE RI



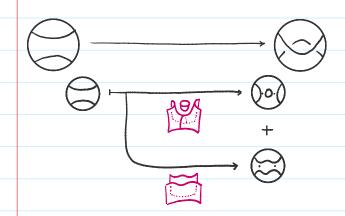


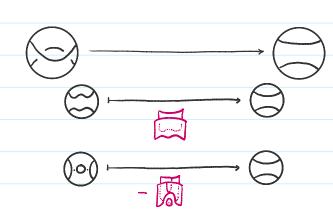
NEGATIVE RI





RIL



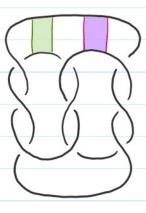


Exercise Find $\phi \in Kh(3, \# m(3,1))$ so that the slice disk D illustrated below satisfies $Kh(D)(\phi) = 1$.

- (a) Write out a movie for this slice disk
- (b) Find a candidate cycle P
 - i. What bigrading is Kh(D) supported in?
 - ii. How many O and I smoothings does & have?
 - iii. How many I and x labels can & have?
 - iv. Make some greases at \$
 - v. Make sure & is a cycle (d=0)
- (c) Show Kh(D)(\$) = ±1.
- (d) Bonus Find a second class with this property.

Exercise Here are two slice distance D_{ϵ} and D_{ϵ} for 9_{46} , given as band moves. Show that they induce distinct maps $Kh(D_{4,\epsilon}): Kh(9_{46}) \to Kh(\varnothing)$

- (a) Follow above steps to find DEKh (946)
- (b) Show Kh(Dx)(4)=0 and Kh(Dx)(4)=1
- (c) What can we conclude about De and Dr ?



Exercise Show the surfaces below an distinct by distinguishing their induced maps on the given homology class.

