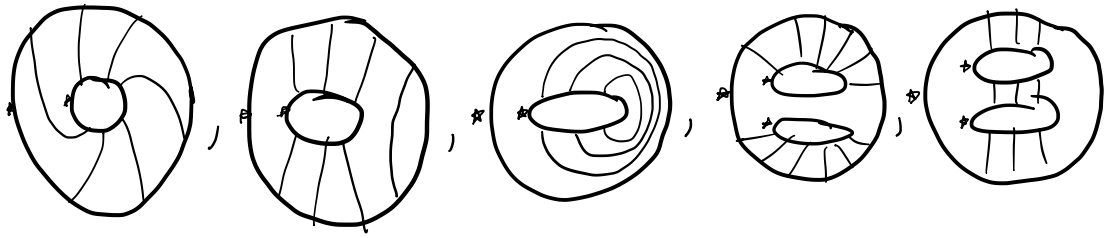
Lecture 3

1. Show that negligible elements in $TL([2]_q)$ for a planar ideal.

2. In a graph planar algebra, what do the following diagrams do to the Kroenecker delta functionals $\delta_{\ell,-}$?



3. Argue that the first action of planar tangles on the spaces $GPA(G)_n$ defines a planar algebra: why is the output isotopy invariant? Why does composition work as expected?

Lecture 4

4. The examples we did yesterday in lecture, and above in problem 1, for the first action of planar tangles on the graph planar algebra: redo these for the second action.

5. Let T be a planar diagram with a closed loop, and T' the same diagram with the loop removed. For the second action of planar diagrams on $GPA(G)$, show that

$$T(f_1, \ldots, f_k) = \delta T'(f_1, \ldots, f_k)$$

6. The graph planar algebra with the second action of planar diagrams is almost a subfactor planar algebra. Show that it satisfies most of the conditions. Which condition does it fail?