Q: Understand the topology of the gluing below:

\[
\includegraphics{diagram.png}
\]

\[n \text{ cuts}\]

Equivalently,

\[
\includegraphics{diagram.png}
\]

So its gluing two spheres using \(n\) tunnels—
a genus \((n-1)\) surface.

\[\Rightarrow\] there should be \((2n-2)\) closed curves on

representing \(H_{ij}\) and we should understand how to reduce any
other curve to a combination of those.
\[ \langle a_i, b_i : a_i^2 = 1, b_i^2 = 1, T \overline{a_i b_i} = 1 \rangle_{\text{even words commute}} \]

\[ \varepsilon \Rightarrow \text{FA} \langle a_i b_i \mid i \leq n-1, j \mid b_i a_{i+1} b_i a_{i+1} \rangle \]

The dual cuts