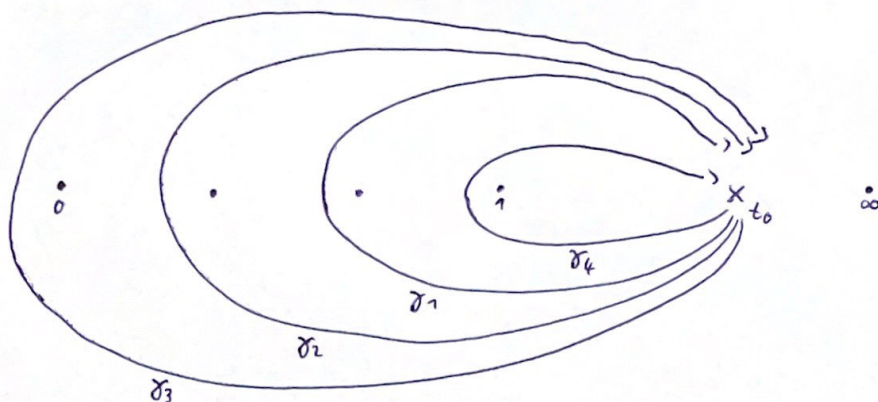$(k, \ell) = (1,1):$

Action of M_0:

$$M_0 \, I_z(\gamma, v) = I_z\left(M_0\gamma, \, v \begin{pmatrix} 1 & 0 & 0 \\ 1 & 1 & 0 \\ 1/2 & 1 & 1 \end{pmatrix}\right)$$

$\gamma_1 \longmapsto \gamma_1$

$\gamma_2 \longmapsto \gamma_1 \circ \gamma_3^{-1} \circ \gamma_2 \circ \gamma_1^{-1} \circ \gamma_3$

$\gamma_3 \longmapsto \gamma_3$

$\gamma_4 \longmapsto \gamma_1^{-1} \circ \gamma_4 \circ \gamma_1$

Action of M_1:

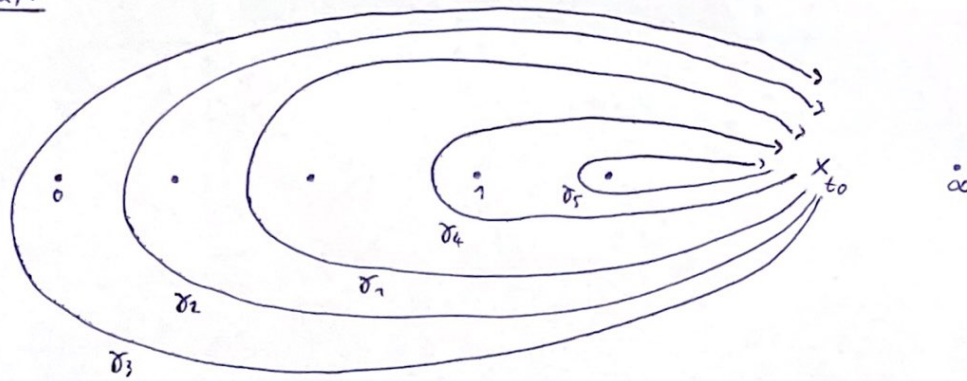$$M_1 \, I_z(\gamma, v) = I_z(M_1\gamma, \, v)$$

$\gamma_1 \longmapsto \gamma_4 \circ \gamma_1^{-1} \circ \gamma_2$

$\gamma_2 \longmapsto \gamma_2$

$\gamma_3 \longmapsto \gamma_3$

$\gamma_4 \longmapsto \gamma_4$

$(K, \ell) = (1, 2):$

Action of M_0:

$$M_0 \, I_2(\gamma, v) = I_2\left(M_0 \gamma, \, v \begin{pmatrix} 1 & 0 & 0 \\ 1 & 1 & 0 \\ 1/2 & 1 & 1 \end{pmatrix}\right)$$

$\gamma_1 \mapsto \gamma_1$

$\gamma_2 \mapsto \gamma_1 \circ \gamma_3^{-1} \circ \gamma_2 \circ \gamma_1^{-1} \circ \gamma_3$

$\gamma_3 \mapsto \gamma_3$

$\gamma_4 \mapsto \gamma_5^{-1} \circ \gamma_1$

$\gamma_5 \mapsto \gamma_4^{-1} \circ \gamma_1$

Action of M_1:

$$M_1 \, I_2(\gamma, v) = I_2(M_1 \gamma, v)$$

$\gamma_1 \mapsto \gamma_4 \circ \gamma_1^{-1} \circ \gamma_2$
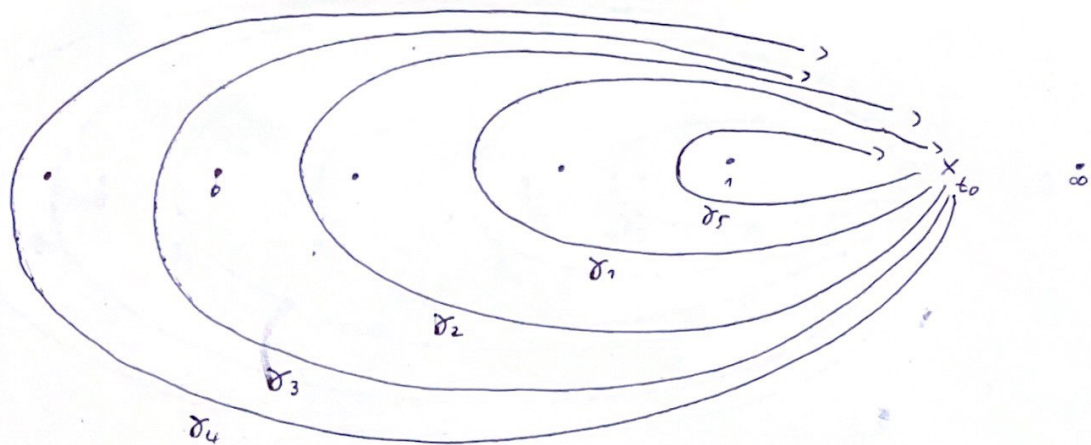
$\gamma_2 \mapsto \gamma_2$

$\gamma_3 \mapsto \gamma_3$

$\gamma_4 \mapsto \gamma_4$

$\gamma_5 \mapsto \gamma_5$

$(k, \ell) = (2,1):$

Action of M_0:

$$M_0\, I_2(\gamma, v) = I_2\left(M_0\gamma,\, v \begin{pmatrix} 1 & 0 & 0 \\ 1 & 1 & 0 \\ 1/2 & 1 & 1 \end{pmatrix}\right)$$
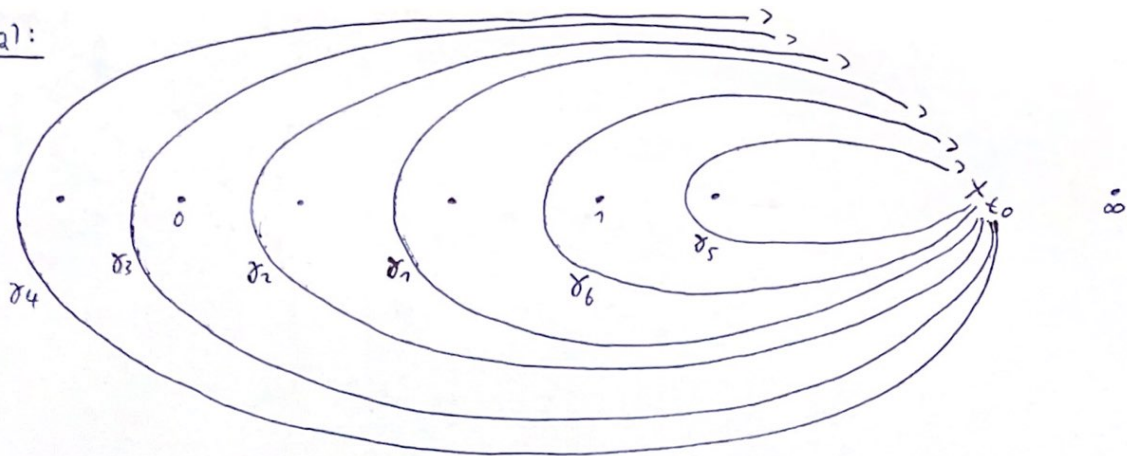
$\gamma_1 \longmapsto \gamma_1$

$\gamma_2 \longmapsto \gamma_1 \circ \gamma_3^{-1} \circ \gamma_4$

$\gamma_3 \longmapsto \gamma_1 \circ \gamma_2^{-1} \circ \gamma_4$

$\gamma_4 \longmapsto \gamma_4$

$\gamma_5 \longmapsto \gamma_1^{-1} \circ \gamma_5 \circ \gamma_1$

Action of M_1:

$$M_1\, I_2(\gamma, v) = I_2(M_1\gamma, v)$$

$\gamma_1 \longmapsto \gamma_5 \circ \gamma_1^{-1} \circ \gamma_2$

$\gamma_2 \longmapsto \gamma_2$

$\gamma_3 \longmapsto \gamma_3$

$\gamma_4 \longmapsto \gamma_4$

$\gamma_5 \longmapsto \gamma_5$

$(k, \ell) = (2, 2)$:

Action of M_0:

$$M_0 \, I_z(\gamma, v) = I_z\left(M_0\gamma, \, v \begin{pmatrix} 1 & 0 & 0 \\ 1 & 1 & 0 \\ 1/2 & 1 & 1 \end{pmatrix}\right)$$

$\gamma_1 \longmapsto \gamma_1$

$\gamma_2 \longmapsto \gamma_1 \circ \gamma_3^{-1} \circ \gamma_4$

$\gamma_3 \longmapsto \gamma_1 \circ \gamma_2^{-1} \circ \gamma_4$

$\gamma_4 \longmapsto \gamma_4$

$\gamma_5 \longmapsto \gamma_6^{-1} \circ \gamma_1$

$\gamma_6 \longmapsto \gamma_5^{-1} \circ \gamma_1$

Action of M_1:

$$M_1 \, I_z(\gamma, v) = I_z(M_1\gamma, \, v)$$

$\gamma_1 \longmapsto \gamma_6 \circ \gamma_1^{-1} \circ \gamma_2$
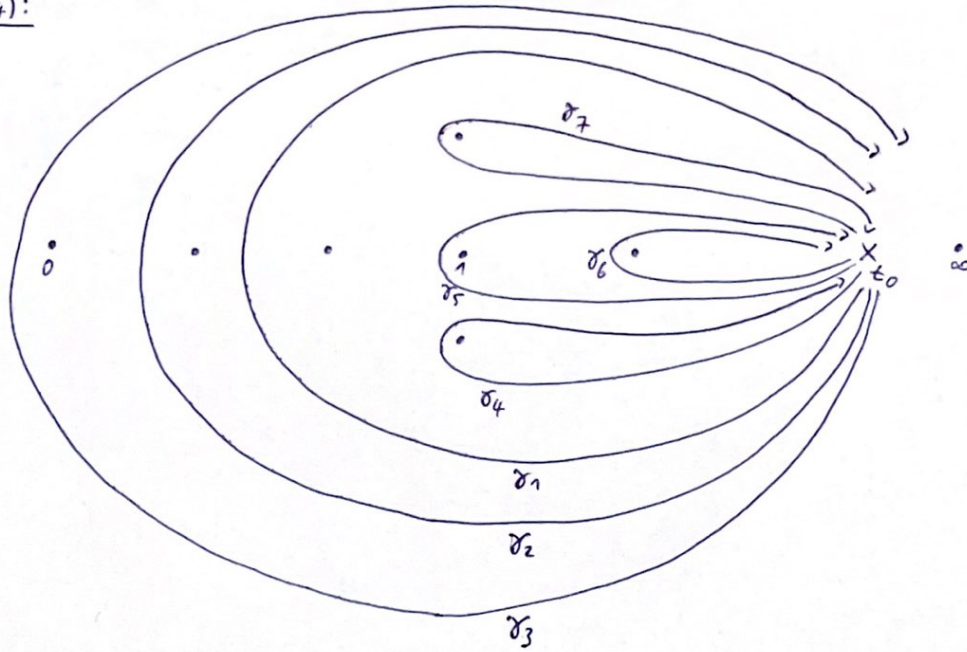
$\gamma_2 \longmapsto \gamma_2$

$\gamma_3 \longmapsto \gamma_3$

$\gamma_4 \longmapsto \gamma_4$

$\gamma_5 \longmapsto \gamma_5$

$\gamma_6 \longmapsto \gamma_6$

Action of M_0:

$$M_0 \, I_2(\gamma, v) = I_2\left(M_0 \gamma, \; v \begin{pmatrix} 1 & 0 & 0 \\ 1 & 1 & 0 \\ \frac{1}{2} & 1 & 1 \end{pmatrix}\right)$$

$\gamma_1 \mapsto \gamma_1$

$\gamma_2 \mapsto \gamma_1 \circ \gamma_3^{-1} \circ \gamma_2 \circ \gamma_1^{-1} \circ \gamma_3$

$\gamma_3 \mapsto \gamma_3$

$\gamma_4 \mapsto \gamma_6$

$\gamma_5 \mapsto \gamma_6^{-1} \circ \gamma_5 \circ \gamma_7$

$\gamma_6 \mapsto \gamma_7$

$\gamma_7 \mapsto \gamma_7^{-1} \circ \gamma_5^{-1} \circ \gamma_4^{-1} \circ \gamma_1$

Action of M_1:

$$M_1 \, I_2(\gamma, v) = I_2(M_1 \gamma, v)$$

$\gamma_1 \mapsto \gamma_4 \circ \gamma_5 \circ \gamma_7 \circ \gamma_1^{-1} \circ \gamma_2$

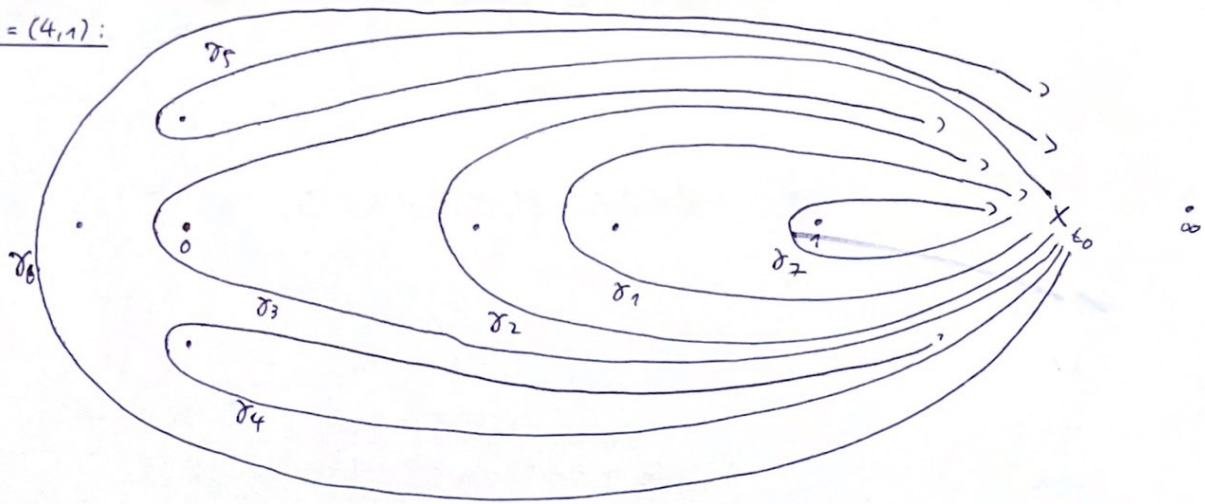$\gamma_2 \mapsto \gamma_2$

$\gamma_3 \mapsto \gamma_3$

$\gamma_4 \mapsto \gamma_4$

$\gamma_5 \mapsto \gamma_5$

$\gamma_6 \mapsto \gamma_6$

$\gamma_7 \mapsto \gamma_7$

$(\kappa, \ell) = (4,1):$

Action of M_0:

$$M_0 \; I_2(\gamma, v) = I_2\left(M_0\gamma, \; v \begin{pmatrix} 1 & 0 & 0 \\ 1 & 1 & 0 \\ 1/2 & 1 & 1 \end{pmatrix}\right)$$

$\gamma_1 \longmapsto \gamma_1$

$\gamma_2 \longmapsto \gamma_1 \circ \gamma_5$

$\gamma_3 \longmapsto \gamma_1 \circ \gamma_2^{-1} \circ \gamma_3 \circ \gamma_5$

$\gamma_4 \longmapsto \gamma_2 \circ \gamma_1^{-1}$

$\gamma_5 \longmapsto \gamma_5^{-1} \circ \gamma_3^{-1} \circ \gamma_4^{-1} \circ \gamma_6$

$\gamma_6 \longmapsto \gamma_6$

$\gamma_7 \longmapsto \gamma_1^{-1} \circ \gamma_7 \circ \gamma_1$

Action of M_1:

$$M_1 \; I_2(\gamma, v) = I_2(M_1\gamma, v)$$

$\gamma_1 \longmapsto \gamma_7 \circ \gamma_1^{-1} \circ \gamma_2$

$\gamma_2 \longmapsto \gamma_2$

$\gamma_3 \longmapsto \gamma_3$

$\gamma_4 \longmapsto \gamma_4$

$\gamma_5 \longmapsto \gamma_5$

$\gamma_6 \longmapsto \gamma_6$

$\gamma_7 \longmapsto \gamma_7$