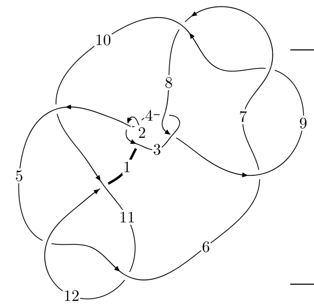
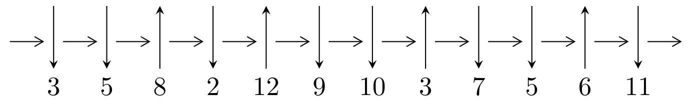
$12n_{0261}$ ($K12n_{0261}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

$3,8 \xrightarrow[c_8]{} 5,9,10 \xrightarrow[c_{10}]{} 11 \xrightarrow[c_2]{} 2 \xrightarrow[c_1]{} 1 \xrightarrow[c_4]{} 4 \xrightarrow[c_7]{} 7 \xrightarrow[c_6]{} 6 \xrightarrow[c_{12}]{} 12 \twoheadrightarrow c_3, c_5, c_9, c_{11}$

Ideals for irreducible components[2] of $X_{\mathbf{par}}$

$$
\begin{aligned}
I_1^u = \langle & 5.82214\times10^{22}u^{20} - 3.29635\times10^{23}u^{19} + \cdots + 1.18107\times10^{25}d - 1.00440\times10^{25},\\
& -6.72232\times10^{22}u^{20} + 3.09213\times10^{23}u^{19} + \cdots + 2.36214\times10^{25}c - 1.53724\times10^{25},\\
& 5.37718\times10^{22}u^{20} - 1.64184\times10^{23}u^{19} + \cdots + 1.18107\times10^{25}b + 1.07557\times10^{24},\\
& -6.27749\times10^{23}u^{20} + 1.76680\times10^{24}u^{19} + \cdots + 2.36214\times10^{25}a - 1.96176\times10^{25},\\
& u^{21} - 3u^{20} + \cdots - 32u + 32\rangle\\
I_2^u = \langle & -182575u^{12} - 264525u^{11} + \cdots + 1396412d - 304734,\\
& 1091678u^{12}a - 2056829u^{12} + \cdots + 8227316a + 8353986,\\
& 182575u^{12}a - 236482u^{12} + \cdots - 1091678a - 1127628,\\
& 152367u^{12}a - 563814u^{12} + \cdots - 1320834a + 1767620,\\
& u^{13} + u^{12} + 8u^{11} + 7u^{10} + 22u^9 + 18u^8 + 20u^7 + 21u^6 - u^5 + 5u^4 + 8u^3 - 9u^2 + 4u - 4\rangle
\end{aligned}
$$

$$
\begin{aligned}
I_1^v &= \langle a,\ d,\ c-1,\ b+v+1,\ v^2+v+1\rangle\\
I_2^v &= \langle c,\ d-1,\ b,\ a-v,\ v^2+v+1\rangle\\
I_3^v &= \langle a,\ d-1,\ c+a,\ b+1,\ v+1\rangle\\
I_4^v &= \langle c,\ d-1,\ a^2v^2-2cav-v^2a+c^2+cv+v^2,\ bv-1\rangle
\end{aligned}
$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 52 representations.
* 1 irreducible components of $\dim_{\mathbb{C}} = 1$

[1]The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

I. $\boldsymbol{I^u_1 = \langle 5.82 \times 10^{22}u^{20} - 3.30 \times 10^{23}u^{19} + \cdots + 1.18 \times 10^{25}d - 1.00 \times 10^{25},\ -6.72 \times 10^{22}u^{20} + 3.09 \times 10^{23}u^{19} + \cdots + 2.36 \times 10^{25}c - 1.54 \times 10^{25},\ 5.38 \times 10^{22}u^{20} - 1.64 \times 10^{23}u^{19} + \cdots + 1.18 \times 10^{25}b + 1.08 \times 10^{24},\ -6.28 \times 10^{23}u^{20} + 1.77 \times 10^{24}u^{19} + \cdots + 2.36 \times 10^{25}a - 1.96 \times 10^{25},\ u^{21} - 3u^{20} + \cdots - 32u + 32\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.0265755u^{20} - 0.0747968u^{19} + \cdots + 1.58156u + 0.830504 \\ -0.00455281u^{20} + 0.0139013u^{19} + \cdots + 0.741851u - 0.0910676 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.00284586u^{20} - 0.0130904u^{19} + \cdots + 0.686169u + 0.650783 \\ -0.00492955u^{20} + 0.0279099u^{19} + \cdots - 1.68092u + 0.850415 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.0210595u^{20} + 0.0850046u^{19} + \cdots - 3.46686u + 1.92380 \\ -0.00576337u^{20} + 0.0431394u^{19} + \cdots - 2.97976u + 1.42272 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.0311283u^{20} + 0.0886981u^{19} + \cdots - 0.839713u - 0.921571 \\ -0.00455281u^{20} + 0.0139013u^{19} + \cdots + 0.741851u - 0.0910676 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.0311283u^{20} + 0.0886981u^{19} + \cdots - 0.839713u - 0.921571 \\ -0.0204279u^{20} + 0.0622591u^{19} + \cdots - 0.104280u - 0.241041 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.00284586u^{20} - 0.0130904u^{19} + \cdots + 0.686169u + 0.650783 \\ 0.00468667u^{20} - 0.0299351u^{19} + \cdots + 1.91768u - 0.996105 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.00777542u^{20} - 0.0410003u^{19} + \cdots + 2.36709u - 0.199631 \\ 0.00392727u^{20} - 0.0344353u^{19} + \cdots + 2.49530u - 1.41598 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.00320223u^{20} + 0.0332571u^{19} + \cdots - 2.57523u + 0.998926 \\ 0.0165563u^{20} - 0.0374854u^{19} + \cdots + 0.0371713u + 0.859283 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{203971647344418191706557}{147633588700657601905769 8}u^{20} + \frac{205676569875456573206961 5}{590534354802630407623079 2}u^{19} + \cdots + \frac{110412943810700904190874 84}{7381679435032880095288 49}u - \frac{993704291228490774039511 6}{7381679435032880095288 49}$

[2]All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{21} + 31u^{20} + \cdots - 4u + 1$
c_2, c_4, c_6 c_7, c_9	$u^{21} - 5u^{20} + \cdots - 2u + 1$
c_3, c_8	$u^{21} + 3u^{20} + \cdots - 32u - 32$
c_5, c_{11}	$u^{21} + u^{20} + \cdots - 12u - 4$
c_{10}	$u^{21} - u^{20} + \cdots - 636u - 612$
c_{12}	$u^{21} + 11u^{20} + \cdots + 40u - 16$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{21} - 71y^{20} + \cdots - 144y - 1$
c_2, c_4, c_6 c_7, c_9	$y^{21} - 31y^{20} + \cdots - 4y - 1$
c_3, c_8	$y^{21} + 15y^{20} + \cdots - 4096y - 1024$
c_5, c_{11}	$y^{21} + 11y^{20} + \cdots + 40y - 16$
c_{10}	$y^{21} - 13y^{20} + \cdots + 1093608y - 374544$
c_{12}	$y^{21} - y^{20} + \cdots + 3616y - 256$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.036987 + 1.146540I$ $a = 0.578318 + 0.602865I$ $b = -0.222232 + 0.595413I$ $c = 0.512526 + 0.210362I$ $d = 0.669819 - 0.685364I$	$-3.32924 + 4.98790I$	$-8.89610 - 7.00933I$
$u = 0.036987 - 1.146540I$ $a = 0.578318 - 0.602865I$ $b = -0.222232 - 0.595413I$ $c = 0.512526 - 0.210362I$ $d = 0.669819 + 0.685364I$	$-3.32924 - 4.98790I$	$-8.89610 + 7.00933I$
$u = -0.154679 + 0.793727I$ $a = -0.412466 + 0.647829I$ $b = 0.050314 + 0.532414I$ $c = 0.634334 - 0.187007I$ $d = 0.450400 + 0.427591I$	$-0.57334 - 1.34767I$	$-3.83291 + 5.35474I$
$u = -0.154679 - 0.793727I$ $a = -0.412466 - 0.647829I$ $b = 0.050314 - 0.532414I$ $c = 0.634334 + 0.187007I$ $d = 0.450400 - 0.427591I$	$-0.57334 + 1.34767I$	$-3.83291 - 5.35474I$
$u = -0.470495 + 0.448103I$ $a = -0.409901 + 0.397885I$ $b = -0.268303 + 0.555704I$ $c = 0.888871 - 0.334537I$ $d = -0.014563 + 0.370881I$	$0.53740 - 1.37698I$	$1.82779 + 4.46485I$
$u = -0.470495 - 0.448103I$ $a = -0.409901 - 0.397885I$ $b = -0.268303 - 0.555704I$ $c = 0.888871 + 0.334537I$ $d = -0.014563 - 0.370881I$	$0.53740 + 1.37698I$	$1.82779 - 4.46485I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.128491 + 0.614288I$ $a = 0.535926 + 1.193030I$ $b = -0.103617 + 0.330827I$ $c = 0.549782 + 0.053680I$ $d = 0.801726 - 0.175920I$	$-2.84340 - 1.62330I$	$-11.63179 + 1.59969I$
$u = -0.128491 - 0.614288I$ $a = 0.535926 - 1.193030I$ $b = -0.103617 - 0.330827I$ $c = 0.549782 - 0.053680I$ $d = 0.801726 + 0.175920I$	$-2.84340 + 1.62330I$	$-11.63179 - 1.59969I$
$u = 0.518224 + 0.162575I$ $a = 0.507737 + 0.210413I$ $b = 0.583653 + 0.355856I$ $c = 1.221470 + 0.303490I$ $d = -0.228914 - 0.191587I$	$-0.25092 - 2.48183I$	$1.69657 + 3.99164I$
$u = 0.518224 - 0.162575I$ $a = 0.507737 - 0.210413I$ $b = 0.583653 - 0.355856I$ $c = 1.221470 - 0.303490I$ $d = -0.228914 + 0.191587I$	$-0.25092 + 2.48183I$	$1.69657 - 3.99164I$
$u = -1.63718$ $a = 0.993823$ $b = -0.623198$ $c = 0.380652$ $d = 1.62707$	-10.0156	-8.03320
$u = -0.11848 + 1.68160I$ $a = -0.035721 - 0.977610I$ $b = -0.04009 - 2.59088I$ $c = -1.53144 + 0.13174I$ $d = -1.64818 - 0.05576I$	$-10.91870 - 3.26339I$	$-9.90010 + 2.49959I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.11848 - 1.68160I$ $a = -0.035721 + 0.977610I$ $b = -0.04009 + 2.59088I$ $c = -1.53144 - 0.13174I$ $d = -1.64818 + 0.05576I$	$-10.91870 + 3.26339I$	$-9.90010 - 2.49959I$
$u = 1.80226 + 0.29000I$ $a = -0.934416 + 0.075142I$ $b = 0.669749 + 0.073622I$ $c = 0.368644 - 0.018467I$ $d = 1.70586 + 0.13555I$	$-14.0445 - 5.1370I$	$-11.02836 + 2.94498I$
$u = 1.80226 - 0.29000I$ $a = -0.934416 - 0.075142I$ $b = 0.669749 - 0.073622I$ $c = 0.368644 + 0.018467I$ $d = 1.70586 - 0.13555I$	$-14.0445 + 5.1370I$	$-11.02836 - 2.94498I$
$u = -0.77417 + 1.65700I$ $a = -0.199071 - 0.900171I$ $b = -0.19629 - 2.45464I$ $c = -1.170520 + 0.665347I$ $d = -1.64570 - 0.36703I$	$-15.0920 - 8.4883I$	$-8.50111 + 3.29621I$
$u = -0.77417 - 1.65700I$ $a = -0.199071 + 0.900171I$ $b = -0.19629 + 2.45464I$ $c = -1.170520 - 0.665347I$ $d = -1.64570 + 0.36703I$	$-15.0920 + 8.4883I$	$-8.50111 - 3.29621I$
$u = 0.94230 + 1.60086I$ $a = 0.234926 - 0.876218I$ $b = 0.22253 - 2.40487I$ $c = -1.054920 - 0.759955I$ $d = -1.62407 + 0.44958I$	$-18.0417 + 14.4957I$	$-10.41632 - 6.77876I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.94230 - 1.60086I$ $a = 0.234926 + 0.876218I$ $b = 0.22253 + 2.40487I$ $c = -1.054920 + 0.759955I$ $d = -1.62407 - 0.44958I$	$-18.0417 - 14.4957I$	$-10.41632 + 6.77876I$
$u = 0.66513 + 1.94791I$ $a = 0.137757 - 0.866713I$ $b = 0.11588 - 2.45183I$ $c = -1.109070 - 0.438193I$ $d = -1.77991 + 0.30814I$	$18.5711 + 4.0668I$	$-12.30105 - 1.16982I$
$u = 0.66513 - 1.94791I$ $a = 0.137757 + 0.866713I$ $b = 0.11588 + 2.45183I$ $c = -1.109070 + 0.438193I$ $d = -1.77991 - 0.30814I$	$18.5711 - 4.0668I$	$-12.30105 + 1.16982I$

II. $\boldsymbol{I_2^u = \langle -1.83\times10^5u^{12} - 2.65\times10^5u^{11} + \cdots + 1.40\times10^6d - 3.05\times10^5,\ 1.09\times10^6au^{12} - 2.06\times10^6u^{12} + \cdots + 8.23\times10^6a + 8.35\times10^6,\ 1.83\times10^5au^{12} - 2.36\times10^5u^{12} + \cdots - 1.09\times10^6a - 1.13\times10^6,\ 1.52\times10^5au^{12} - 5.64\times10^5u^{12} + \cdots - 1.32\times10^6a + 1.77\times10^6,\ u^{13} + u^{12} + \cdots + 4u - 4\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} a \\ -0.130746au^{12} + 0.169350u^{12} + \cdots + 0.781774a + 0.807518 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.195443au^{12} + 0.368235u^{12} + \cdots - 1.47294a - 1.49562 \\ 0.130746u^{12} + 0.189432u^{11} + \cdots - 0.691165u + 0.218226 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.169350au^{12} + 0.368235u^{12} + \cdots - 0.807518a - 1.49562 \\ 0.0521873au^{12} + 0.261492u^{12} + \cdots + 1.33084a - 0.563547 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.130746au^{12} + 0.169350u^{12} + \cdots - 0.218226a + 0.807518 \\ -0.130746au^{12} + 0.169350u^{12} + \cdots + 0.781774a + 0.807518 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.130746au^{12} + 0.169350u^{12} + \cdots - 0.218226a + 0.807518 \\ -0.112072au^{12} + 0.214783u^{12} + \cdots + 1.01652a + 1.16237 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.195443au^{12} + 0.368235u^{12} + \cdots - 1.47294a - 1.49562 \\ -0.0586861au^{12} - 0.0773597au^{11} + \cdots - 0.522983a - 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.195443au^{12} + 0.237489u^{12} + \cdots - 1.47294a - 1.71384 \\ -0.0586861au^{12} + 0.0186736u^{12} + \cdots - 0.522983a - 0.765256 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.280165au^{12} + 0.0140927u^{12} + \cdots + 0.328803a - 1.76474 \\ -0.00702658au^{12} + 0.208441u^{12} + \cdots + 1.44074a - 0.142777 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{498055}{698206}u^{12} + \frac{527627}{698206}u^{11} + \cdots - \frac{3711195}{698206}u - \frac{2197714}{349103}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{26} + 23u^{25} + \cdots + 1824u + 256$
c_2, c_4, c_6 c_7, c_9	$u^{26} - 3u^{25} + \cdots - 24u - 16$
c_3, c_8	$(u^{13} - u^{12} + \cdots + 4u + 4)^2$
c_5, c_{11}	$(u^{13} + 2u^{12} + \cdots + u - 1)^2$
c_{10}	$(u^{13} - 2u^{12} + \cdots + 3u - 1)^2$
c_{12}	$(u^{13} + 8u^{12} + \cdots + 5u - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{26} - 43y^{25} + \cdots - 2728448y + 65536$
c_2, c_4, c_6 c_7, c_9	$y^{26} - 23y^{25} + \cdots - 1824y + 256$
c_3, c_8	$(y^{13} + 15y^{12} + \cdots - 56y - 16)^2$
c_5, c_{11}	$(y^{13} + 8y^{12} + \cdots + 5y - 1)^2$
c_{10}	$(y^{13} - 16y^{12} + \cdots + 5y - 1)^2$
c_{12}	$(y^{13} - 4y^{12} + \cdots + 85y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.997974+0.288600I$ $a=-0.683330-0.720692I$ $b=-0.91523-1.71878I$ $c=\ \ 0.429264+0.025235I$ $d=\ \ 1.321540-0.136474I$	$-4.89799-2.52293I$	$-10.35428+4.38707I$
$u=-0.997974+0.288600I$ $a=\ \ 1.258530+0.227197I$ $b=-0.435677+0.098702I$ $c=\ \ 0.38670+1.83409I$ $d=-0.889938-0.522023I$	$-4.89799-2.52293I$	$-10.35428+4.38707I$
$u=-0.997974-0.288600I$ $a=-0.683330+0.720692I$ $b=-0.91523+1.71878I$ $c=\ \ 0.429264-0.025235I$ $d=\ \ 1.321540+0.136474I$	$-4.89799+2.52293I$	$-10.35428-4.38707I$
$u=-0.997974-0.288600I$ $a=\ \ 1.258530-0.227197I$ $b=-0.435677-0.098702I$ $c=\ \ 0.38670-1.83409I$ $d=-0.889938+0.522023I$	$-4.89799+2.52293I$	$-10.35428-4.38707I$
$u=\ \ 0.452299+0.637242I$ $a=-1.050080+0.855900I$ $b=\ \ 0.262779+0.278726I$ $c=\ \ 0.752720+0.325368I$ $d=\ \ 0.119367-0.483853I$	$-2.32452-0.99909I$	$-8.45638-0.58191I$
$u=\ \ 0.452299+0.637242I$ $a=\ \ 0.416509+0.482947I$ $b=\ \ 0.133116+0.626828I$ $c=\ \ 0.485499-0.067773I$ $d=\ \ 1.020370+0.282033I$	$-2.32452-0.99909I$	$-8.45638-0.58191I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.452299 - 0.637242I$ $a = -1.050080 - 0.855900I$ $b = 0.262779 - 0.278726I$ $c = 0.752720 - 0.325368I$ $d = 0.119367 + 0.483853I$	$-2.32452 + 0.99909I$	$-8.45638 + 0.58191I$
$u = 0.452299 - 0.637242I$ $a = 0.416509 - 0.482947I$ $b = 0.133116 - 0.626828I$ $c = 0.485499 + 0.067773I$ $d = 1.020370 - 0.282033I$	$-2.32452 + 0.99909I$	$-8.45638 + 0.58191I$
$u = -0.032142 + 0.650070I$ $a = 0.289254 + 0.995266I$ $b = -0.055887 + 0.387220I$ $c = -5.95031 + 0.48273I$ $d = -1.166960 - 0.013545I$	$-2.68970 + 2.36301I$	$-10.56487 - 4.19898I$
$u = -0.032142 + 0.650070I$ $a = -0.06776 - 1.79178I$ $b = -0.12255 - 3.88363I$ $c = 0.598447 + 0.056382I$ $d = 0.656289 - 0.156046I$	$-2.68970 + 2.36301I$	$-10.56487 - 4.19898I$
$u = -0.032142 - 0.650070I$ $a = 0.289254 - 0.995266I$ $b = -0.055887 - 0.387220I$ $c = -5.95031 - 0.48273I$ $d = -1.166960 + 0.013545I$	$-2.68970 - 2.36301I$	$-10.56487 + 4.19898I$
$u = -0.032142 - 0.650070I$ $a = -0.06776 + 1.79178I$ $b = -0.12255 + 3.88363I$ $c = 0.598447 - 0.056382I$ $d = 0.656289 + 0.156046I$	$-2.68970 - 2.36301I$	$-10.56487 + 4.19898I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.612460$ $a = 0.817082$ $b = 1.22597$ $c = 0.464808$ $d = 1.15142$	-2.28684	-1.88180
$u = 0.612460$ $a = -1.88000$ $b = 0.284677$ $c = 2.00172$ $d = -0.500430$	-2.28684	-1.88180
$u = 0.25689 + 1.55234I$ $a = 0.088362 - 1.008150I$ $b = 0.10585 - 2.61952I$ $c = 0.441695 + 0.272101I$ $d = 0.641176 - 1.011030I$	$-7.65433 + 3.30324I$	$-7.16390 - 2.39821I$
$u = 0.25689 + 1.55234I$ $a = 0.567403 + 0.506935I$ $b = -0.308927 + 0.755560I$ $c = -1.63150 - 0.33817I$ $d = -1.58768 + 0.12181I$	$-7.65433 + 3.30324I$	$-7.16390 - 2.39821I$
$u = 0.25689 - 1.55234I$ $a = 0.088362 + 1.008150I$ $b = 0.10585 + 2.61952I$ $c = 0.441695 - 0.272101I$ $d = 0.641176 + 1.011030I$	$-7.65433 - 3.30324I$	$-7.16390 + 2.39821I$
$u = 0.25689 - 1.55234I$ $a = 0.567403 - 0.506935I$ $b = -0.308927 - 0.755560I$ $c = -1.63150 + 0.33817I$ $d = -1.58768 - 0.12181I$	$-7.65433 - 3.30324I$	$-7.16390 + 2.39821I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.50699 + 1.66583I$ $a = -0.143355 - 0.943399I$ $b = -0.15313 - 2.52888I$ $c = 0.416555 - 0.312499I$ $d = 0.536120 + 1.152390I$	$-11.16570 - 8.60203I$	$-9.58542 + 5.32797I$
$u = -0.50699 + 1.66583I$ $a = -0.543494 + 0.487244I$ $b = 0.309381 + 0.852342I$ $c = -1.36379 + 0.50699I$ $d = -1.64422 - 0.23949I$	$-11.16570 - 8.60203I$	$-9.58542 + 5.32797I$
$u = -0.50699 - 1.66583I$ $a = -0.143355 + 0.943399I$ $b = -0.15313 + 2.52888I$ $c = 0.416555 + 0.312499I$ $d = 0.536120 - 1.152390I$	$-11.16570 + 8.60203I$	$-9.58542 - 5.32797I$
$u = -0.50699 - 1.66583I$ $a = -0.543494 - 0.487244I$ $b = 0.309381 - 0.852342I$ $c = -1.36379 - 0.50699I$ $d = -1.64422 + 0.23949I$	$-11.16570 + 8.60203I$	$-9.58542 - 5.32797I$
$u = 0.02169 + 1.76519I$ $a = 0.005990 - 0.955765I$ $b = 0.00639 - 2.56843I$ $c = 0.406243 - 0.232132I$ $d = 0.855680 + 1.060360I$	$-12.07010 + 1.38297I$	$-10.93425 - 0.71622I$
$u = 0.02169 + 1.76519I$ $a = -0.606568 + 0.477299I$ $b = 0.418568 + 0.712063I$ $c = -1.45478 - 0.02149I$ $d = -1.68724 + 0.01015I$	$-12.07010 + 1.38297I$	$-10.93425 - 0.71622I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.02169 - 1.76519I$ $a = 0.005990 + 0.955765I$ $b = 0.00639 + 2.56843I$ $c = 0.406243 + 0.232132I$ $d = 0.855680 - 1.060360I$	$-12.07010 - 1.38297I$	$-10.93425 + 0.71622I$
$u = 0.02169 - 1.76519I$ $a = -0.606568 - 0.477299I$ $b = 0.418568 - 0.712063I$ $c = -1.45478 + 0.02149I$ $d = -1.68724 - 0.01015I$	$-12.07010 - 1.38297I$	$-10.93425 + 0.71622I$

III. $I_1^v = \langle a,\ d,\ c-1,\ b+v+1,\ v^2+v+1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0 \\ -v-1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1 \\ v \end{pmatrix}$$

$$a_2 = \begin{pmatrix} v \\ v+1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0 \\ v+1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} v+1 \\ v \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4v - 1$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^2$
c_3, c_6, c_7 c_8, c_9	u^2
c_4	$(u+1)^2$
c_5, c_{10}, c_{12}	u^2+u+1
c_{11}	u^2-u+1

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^2$
c_3, c_6, c_7 c_8, c_9	y^2
c_5, c_{10}, c_{11} c_{12}	$y^2 + y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.500000 + 0.866025I$ $a = 0$ $b = -0.500000 - 0.866025I$ $c = 1.00000$ $d = 0$	$-1.64493 - 2.02988I$	$-3.00000 + 3.46410I$
$v = -0.500000 - 0.866025I$ $a = 0$ $b = -0.500000 + 0.866025I$ $c = 1.00000$ $d = 0$	$-1.64493 + 2.02988I$	$-3.00000 - 3.46410I$

IV. $I_2^v = \langle c,\ d-1,\ b,\ a-v,\ v^2+v+1 \rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} v+1 \\ 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} v+1 \\ -v \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4v - 5$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_3 c_4, c_8	u^2
c_5, c_{10}	$u^2 - u + 1$
c_6, c_7	$(u-1)^2$
c_9	$(u+1)^2$
c_{11}, c_{12}	$u^2 + u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_4, c_8	y^2
c_5, c_{10}, c_{11} c_{12}	$y^2 + y + 1$
c_6, c_7, c_9	$(y-1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = -0.500000 + 0.866025I$ $a = -0.500000 + 0.866025I$ $b = 0$ $c = 0$ $d = 1.00000$	$-1.64493 + 2.02988I$	$-3.00000 - 3.46410I$
$v = -0.500000 - 0.866025I$ $a = -0.500000 - 0.866025I$ $b = 0$ $c = 0$ $d = 1.00000$	$-1.64493 - 2.02988I$	$-3.00000 + 3.46410I$

V. $I_3^v = \langle a,\ d-1,\ c+a,\ b+1,\ v+1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -1 \\ 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_6 c_7	$u - 1$
c_3, c_5, c_8 c_{10}, c_{11}, c_{12}	u
c_4, c_9	$u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4 c_6, c_7, c_9	$y-1$
c_3, c_5, c_8 c_{10}, c_{11}, c_{12}	y

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.00000$ $a = 0$ $b = -1.00000$ $c = 0$ $d = 1.00000$	-3.28987	-12.0000

VI. $I_4^v = \langle c,\ d-1,\ a^2v^2 - 2cav - v^2a + c^2 + cv + v^2,\ bv - 1\rangle$

(i) Arc colorings

$$a_3 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} a \\ b \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -a+1 \\ -ba+1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -a+v \\ -b \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -a \\ -b \end{pmatrix}$$
$$a_4 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -a+1 \\ -ba+a \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -b^2 - v^2 + 4a - 12$

(iv) u-Polynomials at the component : It cannot be defined for a positive dimension component.

(v) Riley Polynomials at the component : It cannot be defined for a positive dimension component.

(iv) Complex Volumes and Cusp Shapes

Solution to I_4^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = \cdots$		
$a = \cdots$		
$b = \cdots$	$-3.28987 + 2.02988I$	$-11.65094 + 3.33332I$
$c = \cdots$		
$d = \cdots$		

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^2(u-1)^3(u^{21}+31u^{20}+\cdots-4u+1)$ $\cdot(u^{26}+23u^{25}+\cdots+1824u+256)$
c_2, c_6, c_7	$u^2(u-1)^3(u^{21}-5u^{20}+\cdots-2u+1)(u^{26}-3u^{25}+\cdots-24u-16)$
c_3, c_8	$u^5(u^{13}-u^{12}+\cdots+4u+4)^2(u^{21}+3u^{20}+\cdots-32u-32)$
c_4, c_9	$u^2(u+1)^3(u^{21}-5u^{20}+\cdots-2u+1)(u^{26}-3u^{25}+\cdots-24u-16)$
c_5, c_{11}	$u(u^2-u+1)(u^2+u+1)(u^{13}+2u^{12}+\cdots+u-1)^2$ $\cdot(u^{21}+u^{20}+\cdots-12u-4)$
c_{10}	$u(u^2-u+1)(u^2+u+1)(u^{13}-2u^{12}+\cdots+3u-1)^2$ $\cdot(u^{21}-u^{20}+\cdots-636u-612)$
c_{12}	$u(u^2+u+1)^2(u^{13}+8u^{12}+\cdots+5u-1)^2$ $\cdot(u^{21}+11u^{20}+\cdots+40u-16)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^2(y-1)^3(y^{21}-71y^{20}+\cdots-144y-1)$ $\cdot\,(y^{26}-43y^{25}+\cdots-2728448y+65536)$
c_2, c_4, c_6 c_7, c_9	$y^2(y-1)^3(y^{21}-31y^{20}+\cdots-4y-1)$ $\cdot\,(y^{26}-23y^{25}+\cdots-1824y+256)$
c_3, c_8	$y^5(y^{13}+15y^{12}+\cdots-56y-16)^2$ $\cdot\,(y^{21}+15y^{20}+\cdots-4096y-1024)$
c_5, c_{11}	$y(y^2+y+1)^2(y^{13}+8y^{12}+\cdots+5y-1)^2$ $\cdot\,(y^{21}+11y^{20}+\cdots+40y-16)$
c_{10}	$y(y^2+y+1)^2(y^{13}-16y^{12}+\cdots+5y-1)^2$ $\cdot\,(y^{21}-13y^{20}+\cdots+1093608y-374544)$
c_{12}	$y(y^2+y+1)^2(y^{13}-4y^{12}+\cdots+85y-1)^2$ $\cdot\,(y^{21}-y^{20}+\cdots+3616y-256)$