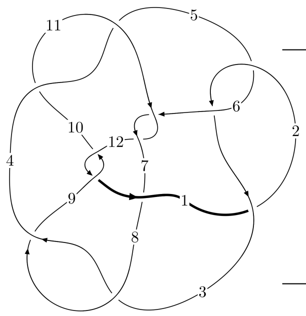
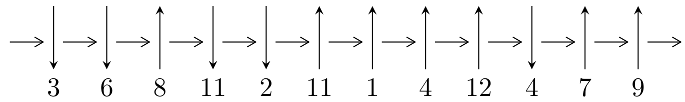
$12n_{0377}$ ($K12n_{0377}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -117109314812117u^{21} - 185021907483518u^{20} + \cdots + 714668995809 13b - 239788584214052,$$
$$a - 1,\ u^{22} + 2u^{21} + \cdots + 5u + 1\rangle$$
$$I_2^u = \langle 49557u^{15} - 41829u^{14} + \cdots + 54911b + 38554,\ a + 1,\ u^{16} - u^{15} + \cdots + 2u + 1\rangle$$
$$I_3^u = \langle 1927557535u^{13} - 1956930209u^{12} + \cdots + 241857780481b - 19316532454,$$
$$60475263347u^{13} + 4869248027u^{12} + \cdots + 24185780481a + 118878628659,$$
$$u^{14} - 6u^{12} + u^{11} - 7u^{10} + 127u^8 - 27u^7 - 371u^6 + 81u^5 + 482u^4 - 41u^3 - 201u^2 + 21u - 1\rangle$$
$$I_4^u = \langle b,\ a - 1,\ u - 1\rangle$$
$$I_5^u = \langle b,\ a - u - 2,\ u^2 + u - 1\rangle$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 55 representations.

[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`).

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

I. $\boldsymbol{I_1^u = \langle -1.17 \times 10^{14}u^{21} - 1.85 \times 10^{14}u^{20} + \cdots + 7.15 \times 10^{13}b - 2.40 \times 10^{14},\ a-1,\ u^{22} + 2u^{21} + \cdots + 5u + 1 \rangle}$

(i) Arc colorings

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

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

$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 1 \\ 1.63865u^{21} + 2.58892u^{20} + \cdots + 9.18338u + 3.35524 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.203702u^{21} - 0.308210u^{20} + \cdots - 1.80327u + 0.311615 \\ 1.78179u^{21} + 2.92653u^{20} + \cdots + 10.6944u + 3.94443 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1.63865u^{21} + 2.58892u^{20} + \cdots + 9.18338u + 4.35524 \\ -0.810203u^{21} - 1.40823u^{20} + \cdots - 4.36829u - 3.21832 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -1.63865u^{21} - 2.58892u^{20} + \cdots - 9.18338u - 2.35524 \\ 1.63865u^{21} + 2.58892u^{20} + \cdots + 9.18338u + 3.35524 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -2.24515u^{21} - 3.68894u^{20} + \cdots - 11.7484u - 4.88518 \\ 0.606501u^{21} + 1.10002u^{20} + \cdots + 2.56501u + 2.52994 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -2.24515u^{21} - 3.68894u^{20} + \cdots - 11.7484u - 4.88518 \\ 0.436584u^{21} + 0.693675u^{20} + \cdots + 0.803325u + 1.72857 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.851249u^{21} + 1.42218u^{20} + \cdots + 7.28853u + 2.44520 \\ -1.23619u^{21} - 2.26646u^{20} + \cdots - 9.46092u - 3.86352 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.573533u^{21} + 0.906242u^{20} + \cdots + 4.56014u + 1.08378 \\ -2.19732u^{21} - 3.69644u^{20} + \cdots - 15.9510u - 6.18859 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= \frac{797326516733960}{71466899580913}u^{21} + \frac{1296483474868809}{71466899580913}u^{20} + \cdots + \frac{4697397509475603}{71466899580913}u + \frac{2248576824709077}{71466899580913}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{22} + 4u^{21} + \cdots - 126u + 25$
c_2, c_5	$u^{22} + 8u^{21} + \cdots + 12u + 5$
c_3, c_8	$u^{22} + 2u^{21} + \cdots + 5u + 1$
c_4, c_{10}	$u^{22} + 28u^{20} + \cdots - 2525u + 1849$
c_6, c_{11}	$u^{22} + 3u^{21} + \cdots + 11u + 1$
c_7	$u^{22} - 15u^{21} + \cdots - 384u + 64$
c_9, c_{12}	$u^{22} + 11u^{21} + \cdots + 36u + 5$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{22} + 44y^{21} + \cdots - 15326y + 625$
c_2, c_5	$y^{22} - 4y^{21} + \cdots + 126y + 25$
c_3, c_8	$y^{22} - 26y^{21} + \cdots - 5y + 1$
c_4, c_{10}	$y^{22} + 56y^{21} + \cdots - 20797825y + 3418801$
c_6, c_{11}	$y^{22} - 39y^{21} + \cdots + 71y + 1$
c_7	$y^{22} + 7y^{21} + \cdots + 32768y + 4096$
c_9, c_{12}	$y^{22} + 3y^{21} + \cdots - 96y + 25$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.620794 + 0.535509I$ $a = 1.00000$ $b = 0.269144 - 0.300532I$	$-1.73171 + 0.39209I$	$-6.82911 - 0.72643I$
$u = -0.620794 - 0.535509I$ $a = 1.00000$ $b = 0.269144 + 0.300532I$	$-1.73171 - 0.39209I$	$-6.82911 + 0.72643I$
$u = -0.105696 + 0.706053I$ $a = 1.00000$ $b = -0.063961 + 0.862281I$	$-3.10436 + 1.56753I$	$-1.37917 - 0.82636I$
$u = -0.105696 - 0.706053I$ $a = 1.00000$ $b = -0.063961 - 0.862281I$	$-3.10436 - 1.56753I$	$-1.37917 + 0.82636I$
$u = 1.333060 + 0.198330I$ $a = 1.00000$ $b = 0.723572 - 0.172331I$	$2.84189 + 0.60050I$	$3.92920 + 0.28556I$
$u = 1.333060 - 0.198330I$ $a = 1.00000$ $b = 0.723572 + 0.172331I$	$2.84189 - 0.60050I$	$3.92920 - 0.28556I$
$u = -0.056495 + 0.552181I$ $a = 1.00000$ $b = -0.487168 - 1.034230I$	$-0.79249 + 2.57985I$	$0.76440 - 3.56435I$
$u = -0.056495 - 0.552181I$ $a = 1.00000$ $b = -0.487168 + 1.034230I$	$-0.79249 - 2.57985I$	$0.76440 + 3.56435I$
$u = -1.41493 + 0.47947I$ $a = 1.00000$ $b = 0.921745 - 0.224366I$	$1.50957 - 6.23042I$	$2.89462 + 2.84257I$
$u = -1.41493 - 0.47947I$ $a = 1.00000$ $b = 0.921745 + 0.224366I$	$1.50957 + 6.23042I$	$2.89462 - 2.84257I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.290445 + 0.380257I$ $a = 1.00000$ $b = -0.658679 - 0.004198I$	$1.41421 + 0.48473I$	$7.29881 - 2.06718I$
$u = 0.290445 - 0.380257I$ $a = 1.00000$ $b = -0.658679 + 0.004198I$	$1.41421 - 0.48473I$	$7.29881 + 2.06718I$
$u = 1.52781 + 0.03204I$ $a = 1.00000$ $b = 1.09000 - 1.35357I$	$15.9443 - 3.5566I$	$4.85061 + 2.05487I$
$u = 1.52781 - 0.03204I$ $a = 1.00000$ $b = 1.09000 + 1.35357I$	$15.9443 + 3.5566I$	$4.85061 - 2.05487I$
$u = -1.58478 + 0.02890I$ $a = 1.00000$ $b = 1.25856 + 1.26328I$	$16.5982 - 4.1754I$	$5.36851 + 2.13460I$
$u = -1.58478 - 0.02890I$ $a = 1.00000$ $b = 1.25856 - 1.26328I$	$16.5982 + 4.1754I$	$5.36851 - 2.13460I$
$u = -0.369059 + 0.081714I$ $a = 1.00000$ $b = -0.113829 + 1.356110I$	$-3.96081 - 3.52484I$	$7.30433 + 8.96045I$
$u = -0.369059 - 0.081714I$ $a = 1.00000$ $b = -0.113829 - 1.356110I$	$-3.96081 + 3.52484I$	$7.30433 - 8.96045I$
$u = 1.74996 + 0.63959I$ $a = 1.00000$ $b = 1.32824 + 1.03454I$	$17.0359 + 5.3783I$	$5.15920 - 2.10879I$
$u = 1.74996 - 0.63959I$ $a = 1.00000$ $b = 1.32824 - 1.03454I$	$17.0359 - 5.3783I$	$5.15920 + 2.10879I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.74953 + 0.66838I$ $a = 1.00000$ $b = 1.23238 - 1.16964I$	$16.7528 - 13.3075I$	$4.63861 + 6.01533I$
$u = -1.74953 - 0.66838I$ $a = 1.00000$ $b = 1.23238 + 1.16964I$	$16.7528 + 13.3075I$	$4.63861 - 6.01533I$

II.

$$I_2^u = \langle 49557u^{15} - 41829u^{14} + \cdots + 54911b + 38554,\ a+1,\ u^{16} - u^{15} + \cdots + 2u + 1 \rangle$$

(i) Arc colorings

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

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

$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1 \\ -0.902497u^{15} + 0.761760u^{14} + \cdots - 1.46801u - 0.702118 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.370636u^{15} - 0.375917u^{14} + \cdots - 1.18397u - 1.14074 \\ -0.914371u^{15} + 0.649196u^{14} + \cdots - 0.644115u - 0.556100 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.902497u^{15} - 0.761760u^{14} + \cdots + 1.46801u + 1.70212 \\ 0.217570u^{15} - 0.135273u^{14} + \cdots + 1.32194u - 1.08969 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.902497u^{15} - 0.761760u^{14} + \cdots + 1.46801u - 0.297882 \\ -0.902497u^{15} + 0.761760u^{14} + \cdots - 1.46801u - 0.702118 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.314290u^{15} + 0.250569u^{14} + \cdots - 1.33004u - 0.932545 \\ -0.588206u^{15} + 0.511191u^{14} + \cdots - 0.137969u + 1.23043 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.314290u^{15} + 0.250569u^{14} + \cdots - 1.33004u - 0.932545 \\ -0.880243u^{15} + 0.779480u^{14} + \cdots + 0.303764u + 1.29415 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.110615u^{15} - 0.168272u^{14} + \cdots + 0.347162u + 0.575021 \\ -0.320883u^{15} - 0.226038u^{14} + \cdots + 4.37586u + 0.584109 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.327475u^{15} - 0.297354u^{14} + \cdots - 1.08177u + 0.899237 \\ -0.366539u^{15} + 0.127953u^{14} + \cdots + 4.97174u + 1.11795 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{57612}{54911}u^{15} - \frac{210798}{54911}u^{14} + \cdots + \frac{882421}{54911}u + \frac{37697}{54911}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{16} - 5u^{15} + \cdots - 9u + 1$
c_2	$u^{16} + 5u^{15} + \cdots + 5u + 1$
c_3	$u^{16} + u^{15} + \cdots - 2u + 1$
c_4	$u^{16} - u^{15} + \cdots + 2u + 1$
c_5	$u^{16} - 5u^{15} + \cdots - 5u + 1$
c_6	$u^{16} + 2u^{15} + \cdots + 2u + 1$
c_7	$u^{16} - 3u^{15} + \cdots - u + 1$
c_8	$u^{16} - u^{15} + \cdots + 2u + 1$
c_9	$u^{16} + 8u^{15} + \cdots + 23u + 5$
c_{10}	$u^{16} + u^{15} + \cdots - 2u + 1$
c_{11}	$u^{16} - 2u^{15} + \cdots - 2u + 1$
c_{12}	$u^{16} - 8u^{15} + \cdots - 23u + 5$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{16} + 11y^{15} + \cdots - 9y + 1$
c_2, c_5	$y^{16} - 5y^{15} + \cdots - 9y + 1$
c_3, c_8	$y^{16} - 11y^{15} + \cdots + 4y + 1$
c_4, c_{10}	$y^{16} + 15y^{15} + \cdots - 8y + 1$
c_6, c_{11}	$y^{16} - 12y^{15} + \cdots - 4y + 1$
c_7	$y^{16} + 7y^{15} + \cdots - 5y + 1$
c_9, c_{12}	$y^{16} + 6y^{15} + \cdots - 139y + 25$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.954777+0.142609I$ $a=-1.00000$ $b=-0.455945-1.267540I$	$-0.95352-2.33937I$	$3.69928+2.27145I$
$u=-0.954777-0.142609I$ $a=-1.00000$ $b=-0.455945+1.267540I$	$-0.95352+2.33937I$	$3.69928-2.27145I$
$u=\ \ 0.845388+0.160874I$ $a=-1.00000$ $b=-0.42793-1.42727I$	$0.65993+3.36157I$	$4.55859-4.29560I$
$u=\ \ 0.845388-0.160874I$ $a=-1.00000$ $b=-0.42793+1.42727I$	$0.65993-3.36157I$	$4.55859+4.29560I$
$u=-0.661594+0.474483I$ $a=-1.00000$ $b=-0.654799+0.242436I$	$-0.903865+0.284978I$	$4.15730+0.76962I$
$u=-0.661594-0.474483I$ $a=-1.00000$ $b=-0.654799-0.242436I$	$-0.903865-0.284978I$	$4.15730-0.76962I$
$u=-0.030530+1.200850I$ $a=-1.00000$ $b=\ \ 0.643145+0.122983I$	$9.47497+3.82028I$	$0.82572-2.11435I$
$u=-0.030530-1.200850I$ $a=-1.00000$ $b=\ \ 0.643145-0.122983I$	$9.47497-3.82028I$	$0.82572+2.11435I$
$u=\ \ 1.329520+0.350471I$ $a=-1.00000$ $b=-1.140330-0.634965I$	$3.99670+2.81389I$	$5.17513-2.85413I$
$u=\ \ 1.329520-0.350471I$ $a=-1.00000$ $b=-1.140330+0.634965I$	$3.99670-2.81389I$	$5.17513+2.85413I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.38404 + 0.60477I$ $a = -1.00000$ $b = -0.826464 + 0.694550I$	$1.21063 - 7.51551I$	$0.30224 + 8.63073I$
$u = -1.38404 - 0.60477I$ $a = -1.00000$ $b = -0.826464 - 0.694550I$	$1.21063 + 7.51551I$	$0.30224 - 8.63073I$
$u = 1.48217 + 0.35127I$ $a = -1.00000$ $b = -0.941782 - 0.971401I$	$3.96834 + 3.49267I$	$6.27073 - 2.05893I$
$u = 1.48217 - 0.35127I$ $a = -1.00000$ $b = -0.941782 + 0.971401I$	$3.96834 - 3.49267I$	$6.27073 + 2.05893I$
$u = -0.126135 + 0.368078I$ $a = -1.00000$ $b = -0.195896 - 1.263040I$	$-4.29370 + 3.24685I$	$-6.98898 + 1.98047I$
$u = -0.126135 - 0.368078I$ $a = -1.00000$ $b = -0.195896 + 1.263040I$	$-4.29370 - 3.24685I$	$-6.98898 - 1.98047I$

III.
$\boldsymbol{I_3^u = \langle 1.93\times 10^{9}u^{13} - 1.96\times 10^{9}u^{12} + \cdots + 2.42\times 10^{10}b - 1.93\times 10^{10},\ 6.05\times 10^{10}u^{13} + 4.87\times 10^{9}u^{12} + \cdots + 2.42\times 10^{10}a + 1.19\times 10^{11},\ u^{14} - 6u^{12} + \cdots + 21u - 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -2.50045u^{13} - 0.201327u^{12} + \cdots + 498.185u - 4.91523 \\ -0.0796980u^{13} + 0.0809124u^{12} + \cdots + 1.72742u + 0.798673 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -2.42075u^{13} - 0.282239u^{12} + \cdots + 496.457u - 4.71390 \\ -0.0369901u^{13} + 0.00188849u^{12} + \cdots + 5.23369u + 0.516434 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -2.50045u^{13} - 0.201327u^{12} + \cdots + 498.185u - 3.91523 \\ -0.0796980u^{13} + 0.0809124u^{12} + \cdots + 1.72742u + 0.798673 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -2.42075u^{13} - 0.282239u^{12} + \cdots + 496.457u - 5.71390 \\ -0.0796980u^{13} + 0.0809124u^{12} + \cdots + 1.72742u + 0.798673 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 2.45112u^{13} + 0.157103u^{12} + \cdots - 490.012u + 11.1679 \\ -0.137834u^{13} + 0.206995u^{12} + \cdots - 7.06018u - 0.434576 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 2.45112u^{13} + 0.157103u^{12} + \cdots - 490.012u + 11.1679 \\ -0.0855064u^{13} + 0.157616u^{12} + \cdots - 7.90821u - 0.277473 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1.90624u^{13} - 0.119682u^{12} + \cdots - 392.906u + 68.8828 \\ 0.0998596u^{13} + 0.0125182u^{12} + \cdots - 24.2787u + 2.08825 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 2.12010u^{13} + 0.153572u^{12} + \cdots - 440.511u + 24.1292 \\ 0.00222918u^{13} + 0.0614998u^{12} + \cdots - 12.0319u + 0.363834 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= \frac{6739667375}{24185780481}u^{13} + \frac{3644507297}{24185780481}u^{12} + \cdots - \frac{15592489210\!91}{24185780481}u + \frac{342583935034}{24185780481}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^7 + 4u^5 + u^4 - 6u^3 + 3u^2 - 2u + 1)^2$
c_2, c_5	$(u^7 - 2u^6 + 2u^5 + u^4 - 2u^3 + 3u^2 - 2u + 1)^2$
c_3, c_8	$u^{14} - 6u^{12} + \cdots + 21u - 1$
c_4, c_{10}	$u^{14} + 2u^{13} + \cdots + 2543u + 563$
c_6, c_{11}	$u^{14} - 3u^{13} + \cdots - 666u - 297$
c_7	$(u + 1)^{14}$
c_9, c_{12}	$(u^7 - 3u^6 + 3u^5 + 2u^4 - 6u^3 + 3u^2 + 3u - 2)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^7+8y^6+4y^5-53y^4+14y^3+13y^2-2y-1)^2$
c_2, c_5	$(y^7+4y^5-y^4-6y^3-3y^2-2y-1)^2$
c_3, c_8	$y^{14}-12y^{13}+\cdots-39y+1$
c_4, c_{10}	$y^{14}+36y^{13}+\cdots-1927943y+316969$
c_6, c_{11}	$y^{14}-23y^{13}+\cdots-641358y+88209$
c_7	$(y-1)^{14}$
c_9, c_{12}	$(y^7-3y^6+9y^5-16y^4+30y^3-37y^2+21y-4)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.215940+0.220023I$ $a=-1.54528-0.08333I$ $b=-1.25449+0.70767I$	$5.41964-2.53884I$	$12.86344+1.81085I$
$u=-1.215940-0.220023I$ $a=-1.54528+0.08333I$ $b=-1.25449-0.70767I$	$5.41964+2.53884I$	$12.86344-1.81085I$
$u=\ 0.758211$ $a=-2.80601$ $b=-0.613130$	0.459094	13.7190
$u=-1.400900+0.122011I$ $a=-1.010470+0.394732I$ $b=-0.833081+1.114220I$	$3.62587-4.72329I$	$4.98093+9.17288I$
$u=-1.400900-0.122011I$ $a=-1.010470-0.394732I$ $b=-0.833081-1.114220I$	$3.62587+4.72329I$	$4.98093-9.17288I$
$u=\ 1.36740+0.67627I$ $a=-0.858613+0.335410I$ $b=-0.833081-1.114220I$	$3.62587+4.72329I$	$4.98093-9.17288I$
$u=\ 1.36740-0.67627I$ $a=-0.858613-0.335410I$ $b=-0.833081+1.114220I$	$3.62587-4.72329I$	$4.98093+9.17288I$
$u=\ 1.89730+0.23868I$ $a=-0.645256-0.034794I$ $b=-1.25449-0.70767I$	$5.41964+2.53884I$	$12.86344-1.81085I$
$u=\ 1.89730-0.23868I$ $a=-0.645256+0.034794I$ $b=-1.25449+0.70767I$	$5.41964-2.53884I$	$12.86344+1.81085I$
$u=\ 0.0517518+0.0475534I$ $a=\ 21.1195+23.2984I$ $b=\ 0.894131+0.113662I$	$10.46420+3.91715I$	$10.79602-3.00324I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.0517518 - 0.0475534I$ $a = 21.1195 - 23.2984I$ $b = 0.894131 - 0.113662I$	$10.46420 - 3.91715I$	$10.79602 + 3.00324I$
$u = -2.12755$ $a = -0.356378$ $b = -0.613130$	0.459094	13.7190
$u = -0.01495 + 2.21004I$ $a = 0.0213576 - 0.0235612I$ $b = 0.894131 + 0.113662I$	$10.46420 + 3.91715I$	$10.79602 - 3.00324I$
$u = -0.01495 - 2.21004I$ $a = 0.0213576 + 0.0235612I$ $b = 0.894131 - 0.113662I$	$10.46420 - 3.91715I$	$10.79602 + 3.00324I$

IV. $I_4^u = \langle b,\ a-1,\ u-1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u		$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	1.00000		
$a =$	1.00000	1.64493	6.00000
$b =$	0		

V. $I_5^u = \langle b,\ a - u - 2,\ u^2 + u - 1\rangle$

(i) Arc colorings

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

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

$$a_8 = \begin{pmatrix} 1 \\ -u+1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u+2 \\ 0 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u \\ -u+1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 2 \\ -u+1 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} u+2 \\ 0 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 1 \\ -u+1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u \\ -u+1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u-2 \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_5 c_6, c_7, c_{11}	$(y-1)^2$
c_3, c_4, c_8 c_{10}	$y^2 - 3y + 1$
c_9, c_{12}	y^2

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_5	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = 2.61803$ $b = 0$	0	-5.00000
$u = -1.61803$ $a = 0.381966$ $b = 0$	0	-5.00000

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u(u-1)^2(u^7+4u^5+u^4-6u^3+3u^2-2u+1)^2$ $\cdot(u^{16}-5u^{15}+\cdots-9u+1)(u^{22}+4u^{21}+\cdots-126u+25)$
c_2	$u(u-1)^2(u^7-2u^6+2u^5+u^4-2u^3+3u^2-2u+1)^2$ $\cdot(u^{16}+5u^{15}+\cdots+5u+1)(u^{22}+8u^{21}+\cdots+12u+5)$
c_3	$(u-1)(u^2-u-1)(u^{14}-6u^{12}+\cdots+21u-1)(u^{16}+u^{15}+\cdots-2u+1)$ $\cdot(u^{22}+2u^{21}+\cdots+5u+1)$
c_4	$(u-1)(u^2-u-1)(u^{14}+2u^{13}+\cdots+2543u+563)$ $\cdot(u^{16}-u^{15}+\cdots+2u+1)(u^{22}+28u^{20}+\cdots-2525u+1849)$
c_5	$u(u+1)^2(u^7-2u^6+2u^5+u^4-2u^3+3u^2-2u+1)^2$ $\cdot(u^{16}-5u^{15}+\cdots-5u+1)(u^{22}+8u^{21}+\cdots+12u+5)$
c_6	$(u-1)(u+1)^2(u^{14}-3u^{13}+\cdots-666u-297)$ $\cdot(u^{16}+2u^{15}+\cdots+2u+1)(u^{22}+3u^{21}+\cdots+11u+1)$
c_7	$(u-1)(u+1)^{16}(u^{16}-3u^{15}+\cdots-u+1)$ $\cdot(u^{22}-15u^{21}+\cdots-384u+64)$
c_8	$(u-1)(u^2+u-1)(u^{14}-6u^{12}+\cdots+21u-1)(u^{16}-u^{15}+\cdots+2u+1)$ $\cdot(u^{22}+2u^{21}+\cdots+5u+1)$
c_9	$u^3(u^7-3u^6+3u^5+2u^4-6u^3+3u^2+3u-2)^2$ $\cdot(u^{16}+8u^{15}+\cdots+23u+5)(u^{22}+11u^{21}+\cdots+36u+5)$
c_{10}	$(u-1)(u^2+u-1)(u^{14}+2u^{13}+\cdots+2543u+563)$ $\cdot(u^{16}+u^{15}+\cdots-2u+1)(u^{22}+28u^{20}+\cdots-2525u+1849)$
c_{11}	$((u-1)^3)(u^{14}-3u^{13}+\cdots-666u-297)(u^{16}-2u^{15}+\cdots-2u+1)$ $\cdot(u^{22}+3u^{21}+\cdots+11u+1)$
c_{12}	$u^3(u^7-3u^6+3u^5+2u^4-6u^3+3u^2+3u-2)^2$ $\cdot(u^{16}-8u^{15}+\cdots-23u+5)(u^{22}+11u^{21}+\cdots+36u+5)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y(y-1)^2(y^7+8y^6+4y^5-53y^4+14y^3+13y^2-2y-1)^2$ $\cdot(y^{16}+11y^{15}+\cdots-9y+1)(y^{22}+44y^{21}+\cdots-15326y+625)$
c_2, c_5	$y(y-1)^2(y^7+4y^5-y^4-6y^3-3y^2-2y-1)^2$ $\cdot(y^{16}-5y^{15}+\cdots-9y+1)(y^{22}-4y^{21}+\cdots+126y+25)$
c_3, c_8	$(y-1)(y^2-3y+1)(y^{14}-12y^{13}+\cdots-39y+1)$ $\cdot(y^{16}-11y^{15}+\cdots+4y+1)(y^{22}-26y^{21}+\cdots-5y+1)$
c_4, c_{10}	$(y-1)(y^2-3y+1)(y^{14}+36y^{13}+\cdots-1927943y+316969)$ $\cdot(y^{16}+15y^{15}+\cdots-8y+1)$ $\cdot(y^{22}+56y^{21}+\cdots-20797825y+3418801)$
c_6, c_{11}	$((y-1)^3)(y^{14}-23y^{13}+\cdots-641358y+88209)$ $\cdot(y^{16}-12y^{15}+\cdots-4y+1)(y^{22}-39y^{21}+\cdots+71y+1)$
c_7	$((y-1)^{17})(y^{16}+7y^{15}+\cdots-5y+1)$ $\cdot(y^{22}+7y^{21}+\cdots+32768y+4096)$
c_9, c_{12}	$y^3(y^7-3y^6+9y^5-16y^4+30y^3-37y^2+21y-4)^2$ $\cdot(y^{16}+6y^{15}+\cdots-139y+25)(y^{22}+3y^{21}+\cdots-96y+25)$