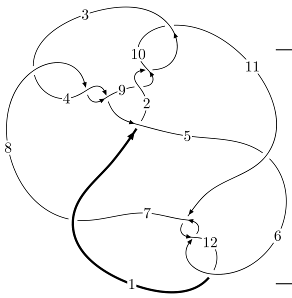
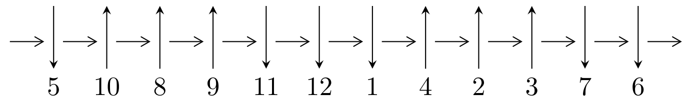
$12a_{1284}$ $(K12a_{1284})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I^u_1 = \langle b - u,\ u^{28} - u^{27} + \cdots + 16a - 1,\ u^{30} - u^{29} + \cdots + 2u + 1\rangle$$
$$I^u_2 = \langle 6.24110 \times 10^{20}u^{39} + 5.89445 \times 10^{20}u^{38} + \cdots + 1.64141 \times 10^{21}b + 4.89782 \times 10^{20},$$
$$- 1.01730 \times 10^{21}u^{39} + 2.23086 \times 10^{21}u^{38} + \cdots + 1.64141 \times 10^{21}a - 2.79305 \times 10^{21},\ u^{40} - u^{39} + \cdots + 2u -$$
$$I^u_3 = \langle b - 1,\ a^4 - 3a^2 + 3,\ u + 1\rangle$$
$$I^u_4 = \langle b + 1,\ a^4 - a^2 - 1,\ u - 1\rangle$$
$$I^u_5 = \langle b - 1,\ a,\ u + 1\rangle$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 79 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. $\boldsymbol{I_1^u = \langle b - u,\ u^{28} - u^{27} + \cdots + 16a - 1,\ u^{30} - u^{29} + \cdots + 2u + 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.0625000u^{28} + 0.0625000u^{27} + \cdots + 3.12500u + 0.0625000 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^2 + 1 \\ u^4 - 2u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.0625000u^{28} + 0.0625000u^{27} + \cdots + 2.12500u + 0.0625000 \\ -\frac{1}{16}u^{28} + \frac{1}{16}u^{27} + \cdots + \frac{9}{8}u + \frac{1}{16} \end{pmatrix}$$
$$a_1 = \begin{pmatrix} \frac{1}{16}u^{29} - \frac{1}{16}u^{28} + \cdots + \frac{3}{16}u + \frac{1}{8} \\ -\frac{1}{16}u^{28} + \frac{1}{16}u^{27} + \cdots + \frac{9}{8}u + \frac{1}{16} \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.0625000u^{28} + 0.0625000u^{27} + \cdots + 2.12500u + 0.0625000 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -\frac{1}{16}u^{29} + \frac{1}{16}u^{28} + \cdots + \frac{1}{16}u + 1 \\ u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{11}{16}u^{29} - \frac{13}{16}u^{28} + \cdots - \frac{9}{16}u + \frac{5}{4} \\ \frac{1}{16}u^{29} - \frac{1}{8}u^{28} + \cdots - \frac{1}{16}u + \frac{1}{16} \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -\frac{3}{16}u^{29} + \frac{7}{2}u^{27} + \cdots - \frac{5}{16}u - \frac{7}{16} \\ -0.375000u^{29} + 0.937500u^{28} + \cdots - 0.250000u - 1.18750 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{5}{4}u^{29} - \frac{13}{8}u^{28} + \cdots + \frac{43}{4}u + \frac{33}{8}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{30} + 21u^{29} + \cdots - 31648u - 3214$
c_2, c_3, c_4 c_8, c_9, c_{10}	$u^{30} + u^{29} + \cdots - 2u + 1$
c_5, c_7	$u^{30} + 3u^{29} + \cdots - 180u - 34$
c_6, c_{11}, c_{12}	$u^{30} - 3u^{29} + \cdots - 7u^2 - 2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{30} + 5y^{29} + \cdots + 33781340y + 10329796$
c_2, c_3, c_4 c_8, c_9, c_{10}	$y^{30} - 37y^{29} + \cdots - 4y + 1$
c_5, c_7	$y^{30} - 19y^{29} + \cdots + 9692y + 1156$
c_6, c_{11}, c_{12}	$y^{30} + 25y^{29} + \cdots + 28y + 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.352980 + 0.621053I$ $a = -0.54691 + 1.67340I$ $b = -0.352980 + 0.621053I$	$0.67916 - 7.00854I$	$0.01450 + 8.24477I$
$u = -0.352980 - 0.621053I$ $a = -0.54691 - 1.67340I$ $b = -0.352980 - 0.621053I$	$0.67916 + 7.00854I$	$0.01450 - 8.24477I$
$u = 0.294160 + 0.620614I$ $a = 0.46496 + 1.62443I$ $b = 0.294160 + 0.620614I$	$-3.74541 + 3.07076I$	$-5.43052 - 5.87151I$
$u = 0.294160 - 0.620614I$ $a = 0.46496 - 1.62443I$ $b = 0.294160 - 0.620614I$	$-3.74541 - 3.07076I$	$-5.43052 + 5.87151I$
$u = -0.209229 + 0.628257I$ $a = -0.33328 + 1.58251I$ $b = -0.209229 + 0.628257I$	$-0.424922 + 0.787716I$	$-2.53323 + 1.27592I$
$u = -0.209229 - 0.628257I$ $a = -0.33328 - 1.58251I$ $b = -0.209229 - 0.628257I$	$-0.424922 - 0.787716I$	$-2.53323 - 1.27592I$
$u = 1.38964$ $a = -1.59527$ $b = 1.38964$	2.23351	3.74940
$u = -1.391950 + 0.032239I$ $a = 1.56027 + 0.24632I$ $b = -1.391950 + 0.032239I$	$6.15309 - 4.53590I$	$7.37130 + 3.41569I$
$u = -1.391950 - 0.032239I$ $a = 1.56027 - 0.24632I$ $b = -1.391950 - 0.032239I$	$6.15309 + 4.53590I$	$7.37130 - 3.41569I$
$u = 0.416588 + 0.365315I$ $a = 0.98597 + 1.30700I$ $b = 0.416588 + 0.365315I$	$5.06214 + 1.29762I$	$5.37578 - 5.33556I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.416588 - 0.365315I$ $a = 0.98597 - 1.30700I$ $b = 0.416588 - 0.365315I$	$5.06214 - 1.29762I$	$5.37578 + 5.33556I$
$u = -0.517665 + 0.077298I$ $a = -1.88180 + 0.43471I$ $b = -0.517665 + 0.077298I$	$1.63781 + 3.82634I$	$1.68492 - 2.14247I$
$u = -0.517665 - 0.077298I$ $a = -1.88180 - 0.43471I$ $b = -0.517665 - 0.077298I$	$1.63781 - 3.82634I$	$1.68492 + 2.14247I$
$u = 0.496783$ $a = 1.81590$ $b = 0.496783$	-2.35493	-2.87800
$u = 1.49927 + 0.29227I$ $a = -0.387167 + 1.211670I$ $b = 1.49927 + 0.29227I$	$10.74230 + 6.05762I$	$6.37484 - 2.22999I$
$u = 1.49927 - 0.29227I$ $a = -0.387167 - 1.211670I$ $b = 1.49927 - 0.29227I$	$10.74230 - 6.05762I$	$6.37484 + 2.22999I$
$u = -1.51089 + 0.32477I$ $a = 0.274857 + 1.261600I$ $b = -1.51089 + 0.32477I$	$8.04859 - 10.42510I$	$3.37060 + 6.14879I$
$u = -1.51089 - 0.32477I$ $a = 0.274857 - 1.261600I$ $b = -1.51089 - 0.32477I$	$8.04859 + 10.42510I$	$3.37060 - 6.14879I$
$u = 1.53112 + 0.22334I$ $a = -0.460811 + 0.930719I$ $b = 1.53112 + 0.22334I$	$11.80090 + 5.69316I$	$7.29124 - 4.91871I$
$u = 1.53112 - 0.22334I$ $a = -0.460811 - 0.930719I$ $b = 1.53112 - 0.22334I$	$11.80090 - 5.69316I$	$7.29124 + 4.91871I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.54555 + 0.16201I$ $a = 0.530144 + 0.687150I$ $b = -1.54555 + 0.16201I$	$10.58750 - 1.81546I$	$5.41289 + 0.I$
$u = -1.54555 - 0.16201I$ $a = 0.530144 - 0.687150I$ $b = -1.54555 - 0.16201I$	$10.58750 + 1.81546I$	$5.41289 + 0.I$
$u = 1.52517 + 0.34179I$ $a = -0.201317 + 1.264960I$ $b = 1.52517 + 0.34179I$	$12.9098 + 14.6347I$	$7.58491 - 7.68189I$
$u = 1.52517 - 0.34179I$ $a = -0.201317 - 1.264960I$ $b = 1.52517 - 0.34179I$	$12.9098 - 14.6347I$	$7.58491 + 7.68189I$
$u = -0.195804 + 0.351319I$ $a = -0.470190 + 1.033650I$ $b = -0.195804 + 0.351319I$	$-0.006279 - 0.796564I$	$-0.20542 + 8.65055I$
$u = -0.195804 - 0.351319I$ $a = -0.470190 - 1.033650I$ $b = -0.195804 - 0.351319I$	$-0.006279 + 0.796564I$	$-0.20542 - 8.65055I$
$u = 1.59665 + 0.14347I$ $a = -0.371698 + 0.545654I$ $b = 1.59665 + 0.14347I$	$15.9724 - 1.4645I$	$10.01323 + 0.I$
$u = 1.59665 - 0.14347I$ $a = -0.371698 - 0.545654I$ $b = 1.59665 - 0.14347I$	$15.9724 + 1.4645I$	$10.01323 + 0.I$
$u = -1.58211 + 0.26365I$ $a = 0.226662 + 0.948412I$ $b = -1.58211 + 0.26365I$	$18.5173 - 6.9140I$	$11.23927 + 3.74532I$
$u = -1.58211 - 0.26365I$ $a = 0.226662 - 0.948412I$ $b = -1.58211 - 0.26365I$	$18.5173 + 6.9140I$	$11.23927 - 3.74532I$

II.
$\boldsymbol{I_2^u = \langle 6.24\times10^{20}u^{39}+5.89\times10^{20}u^{38}+\cdots+1.64\times10^{21}b+4.90\times10^{20},\ -1.02\times10^{21}u^{39}+2.23\times10^{21}u^{38}+\cdots+1.64\times10^{21}a-2.79\times10^{21},\ u^{40}-u^{39}+\cdots+2u-1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}u\\-u^3+u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0.619773u^{39}-1.35911u^{38}+\cdots+22.9232u+1.70161\\-0.380227u^{39}-0.359108u^{38}+\cdots+4.92321u-0.298390\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-u^2+1\\u^4-2u^2\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0.543102u^{39}-1.19599u^{38}+\cdots+16.4379u+1.69783\\-0.0232908u^{39}-0.365372u^{38}+\cdots+4.85714u+0.0127958\end{pmatrix}$$
$$a_1 = \begin{pmatrix}1.26580u^{39}-1.30533u^{38}+\cdots+27.7480u+2.14255\\0.646027u^{39}+0.0537756u^{38}+\cdots+5.82476u+0.440945\end{pmatrix}$$
$$a_4 = \begin{pmatrix}u^{39}-u^{38}+\cdots+18u+2\\-0.380227u^{39}-0.359108u^{38}+\cdots+4.92321u-0.298390\end{pmatrix}$$
$$a_8 = \begin{pmatrix}-0.298390u^{39}-0.0818367u^{38}+\cdots+15.7873u+5.32643\\0.739335u^{39}+0.286919u^{38}+\cdots-0.462064u+1.38023\end{pmatrix}$$
$$a_7 = \begin{pmatrix}-0.525272u^{39}-0.0557406u^{38}+\cdots+1.36459u-3.86438\\0.0790643u^{39}+0.253718u^{38}+\cdots+0.778092u-0.531600\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}0.268227u^{39}-0.849361u^{38}+\cdots+0.608273u+1.83922\\0.302594u^{39}+0.273543u^{38}+\cdots+1.54337u+0.135768\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{640058582208843334996 0}{1641414549632366281823}u^{39} - \frac{1917396265968610128824}{1641414549632366281823}u^{38}+\cdots-\frac{2181739270153041122994 4}{1641414549632366281823}u-\frac{8303876159610635920642}{1641414549632366281823}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{20}-7u^{19}+\cdots-6u+1)^2$
c_2, c_3, c_4 c_8, c_9, c_{10}	$u^{40}+u^{39}+\cdots-2u-1$
c_5, c_7	$(u^{20}-u^{19}+\cdots+4u-1)^2$
c_6, c_{11}, c_{12}	$(u^{20}+u^{19}+\cdots+2u-1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{20} + 13y^{19} + \cdots - 6y + 1)^2$
c_2, c_3, c_4 c_8, c_9, c_{10}	$y^{40} - 33y^{39} + \cdots - 40y + 1$
c_5, c_7	$(y^{20} - 11y^{19} + \cdots - 6y + 1)^2$
c_6, c_{11}, c_{12}	$(y^{20} + 17y^{19} + \cdots - 6y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.775780 + 0.647591I$ $a = -0.630465 - 0.581990I$ $b = -1.390130 + 0.052152I$	$2.96536 - 0.81573I$	$2.32828 + 1.07888I$
$u = 0.775780 - 0.647591I$ $a = -0.630465 + 0.581990I$ $b = -1.390130 - 0.052152I$	$2.96536 + 0.81573I$	$2.32828 - 1.07888I$
$u = -0.434102 + 0.914548I$ $a = 1.03581 - 1.10998I$ $b = 1.45939 - 0.21760I$	$6.57229 - 10.05770I$	$5.29166 + 7.26612I$
$u = -0.434102 - 0.914548I$ $a = 1.03581 + 1.10998I$ $b = 1.45939 + 0.21760I$	$6.57229 + 10.05770I$	$5.29166 - 7.26612I$
$u = -0.939888 + 0.425646I$ $a = 0.373710 - 0.231234I$ $b = 1.256600 + 0.168597I$	$6.05405 - 2.16136I$	$7.26252 + 3.31855I$
$u = -0.939888 - 0.425646I$ $a = 0.373710 + 0.231234I$ $b = 1.256600 - 0.168597I$	$6.05405 + 2.16136I$	$7.26252 - 3.31855I$
$u = 0.416544 + 0.869986I$ $a = -0.98007 - 1.14721I$ $b = -1.42778 - 0.21212I$	$1.80703 + 6.07240I$	$0.54715 - 5.87540I$
$u = 0.416544 - 0.869986I$ $a = -0.98007 + 1.14721I$ $b = -1.42778 + 0.21212I$	$1.80703 - 6.07240I$	$0.54715 + 5.87540I$
$u = 0.608596 + 0.846537I$ $a = -0.914359 - 0.871769I$ $b = -1.47424 - 0.09300I$	$11.26460 + 2.84648I$	$9.60998 - 2.97861I$
$u = 0.608596 - 0.846537I$ $a = -0.914359 + 0.871769I$ $b = -1.47424 + 0.09300I$	$11.26460 - 2.84648I$	$9.60998 + 2.97861I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.946129+0.119622I$ $a=-1.166750-0.332930I$ $b=-0.126443-0.201400I$	$1.63329-3.96853I$	$0.10651+3.79787I$
$u=-0.946129-0.119622I$ $a=-1.166750+0.332930I$ $b=-0.126443+0.201400I$	$1.63329+3.96853I$	$0.10651-3.79787I$
$u=\ \ 0.916645$ $a=\ \ 1.24074$ $b=\ \ 0.149808$	-2.26801	-4.44030
$u=-0.807999+0.735436I$ $a=\ \ 0.774534-0.558298I$ $b=\ \ 1.45140+0.05778I$	$7.72048+4.43308I$	$7.31630-2.52728I$
$u=-0.807999-0.735436I$ $a=\ \ 0.774534+0.558298I$ $b=\ \ 1.45140-0.05778I$	$7.72048-4.43308I$	$7.31630+2.52728I$
$u=-0.549205+0.695984I$ $a=\ \ 0.673732-0.972316I$ $b=\ \ 1.372450-0.086864I$	$4.95641-2.35832I$	$5.64775+4.49783I$
$u=-0.549205-0.695984I$ $a=\ \ 0.673732+0.972316I$ $b=\ \ 1.372450+0.086864I$	$4.95641+2.35832I$	$5.64775-4.49783I$
$u=-0.398694+0.774094I$ $a=\ \ 0.84367-1.21023I$ $b=\ \ 1.369530-0.189240I$	$4.55875-2.13456I$	$3.49102+2.16962I$
$u=-0.398694-0.774094I$ $a=\ \ 0.84367+1.21023I$ $b=\ \ 1.369530+0.189240I$	$4.55875+2.13456I$	$3.49102-2.16962I$
$u=-1.15120$ $a=-0.215264$ $b=\ \ 0.653394$	2.60969	-2.76210

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.256600 + 0.168597I$ $a = -0.158159 + 0.320761I$ $b = -0.939888 + 0.425646I$	$6.05405 - 2.16136I$	$7.26252 + 3.31855I$
$u = 1.256600 - 0.168597I$ $a = -0.158159 - 0.320761I$ $b = -0.939888 - 0.425646I$	$6.05405 + 2.16136I$	$7.26252 - 3.31855I$
$u = 0.653394$ $a = 0.379269$ $b = -1.15120$	2.60969	-2.76210
$u = 1.372450 + 0.086864I$ $a = 0.176513 - 0.741916I$ $b = -0.549205 - 0.695984I$	$4.95641 + 2.35832I$	0
$u = 1.372450 - 0.086864I$ $a = 0.176513 + 0.741916I$ $b = -0.549205 + 0.695984I$	$4.95641 - 2.35832I$	0
$u = 1.369530 + 0.189240I$ $a = 0.317804 - 0.873099I$ $b = -0.398694 - 0.774094I$	$4.55875 + 2.13456I$	0
$u = 1.369530 - 0.189240I$ $a = 0.317804 + 0.873099I$ $b = -0.398694 + 0.774094I$	$4.55875 - 2.13456I$	0
$u = -1.390130 + 0.052152I$ $a = 0.057435 + 0.620642I$ $b = 0.775780 + 0.647591I$	$2.96536 - 0.81573I$	0
$u = -1.390130 - 0.052152I$ $a = 0.057435 - 0.620642I$ $b = 0.775780 - 0.647591I$	$2.96536 + 0.81573I$	0
$u = -1.42778 + 0.21212I$ $a = -0.268719 - 0.971795I$ $b = 0.416544 - 0.869986I$	$1.80703 - 6.07240I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.42778 - 0.21212I$ $a = -0.268719 + 0.971795I$ $b = 0.416544 + 0.869986I$	$1.80703 + 6.07240I$	0
$u = 1.45140 + 0.05778I$ $a = -0.120101 + 0.708049I$ $b = -0.807999 + 0.735436I$	$7.72048 + 4.43308I$	0
$u = 1.45140 - 0.05778I$ $a = -0.120101 - 0.708049I$ $b = -0.807999 - 0.735436I$	$7.72048 - 4.43308I$	0
$u = 1.45939 + 0.21760I$ $a = 0.236213 - 1.014500I$ $b = -0.434102 - 0.914548I$	$6.57229 + 10.05770I$	0
$u = 1.45939 - 0.21760I$ $a = 0.236213 + 1.014500I$ $b = -0.434102 + 0.914548I$	$6.57229 - 10.05770I$	0
$u = -1.47424 + 0.09300I$ $a = -0.067033 - 0.889156I$ $b = 0.608596 - 0.846537I$	$11.26460 - 2.84648I$	0
$u = -1.47424 - 0.09300I$ $a = -0.067033 + 0.889156I$ $b = 0.608596 + 0.846537I$	$11.26460 + 2.84648I$	0
$u = -0.126443 + 0.201400I$ $a = -3.18208 - 3.68109I$ $b = -0.946129 - 0.119622I$	$1.63329 + 3.96853I$	$0.10651 - 3.79787I$
$u = -0.126443 - 0.201400I$ $a = -3.18208 + 3.68109I$ $b = -0.946129 + 0.119622I$	$1.63329 - 3.96853I$	$0.10651 + 3.79787I$
$u = 0.149808$ $a = 7.59187$ $b = 0.916645$	-2.26801	-4.44030

III. $I^u_3 = \langle b-1,\ a^4-3a^2+3,\ u+1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} a \\ 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} a \\ a+1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -a^2 \\ -a-1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} a-1 \\ 1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} a \\ 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -a^3+a \\ -a^2-a+1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} a^2-3 \\ a^3+2a^2-2a-4 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4a^2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_7	$u^4 - 3u^2 + 3$
c_2, c_8	$(u-1)^4$
c_3, c_4, c_9 c_{10}	$(u+1)^4$
c_6, c_{11}, c_{12}	$u^4 + 3u^2 + 3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_7	$(y^2 - 3y + 3)^2$
c_2, c_3, c_4 c_8, c_9, c_{10}	$(y - 1)^4$
c_6, c_{11}, c_{12}	$(y^2 + 3y + 3)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = 1.271230 + 0.340625I$ $b = 1.00000$	$3.28987 - 4.05977I$	$6.00000 + 3.46410I$
$u = -1.00000$ $a = 1.271230 - 0.340625I$ $b = 1.00000$	$3.28987 + 4.05977I$	$6.00000 - 3.46410I$
$u = -1.00000$ $a = -1.271230 + 0.340625I$ $b = 1.00000$	$3.28987 + 4.05977I$	$6.00000 - 3.46410I$
$u = -1.00000$ $a = -1.271230 - 0.340625I$ $b = 1.00000$	$3.28987 - 4.05977I$	$6.00000 + 3.46410I$

IV. $I_4^u = \langle b+1,\ a^4 - a^2 - 1,\ u-1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} a \\ -1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} a \\ a-1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} a^2 \\ -a+1 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} a+1 \\ -1 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -a \\ 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} a^3 - a \\ -a^2 + a + 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} a^2 - 1 \\ a^3 - 2a \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4a^2 + 8$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_5, c_7	$u^4 - u^2 - 1$
c_2, c_8	$(u+1)^4$
c_3, c_4, c_9 c_{10}	$(u-1)^4$
c_6, c_{11}, c_{12}	$u^4 + u^2 - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_5, c_7	$(y^2 - y - 1)^2$
c_2, c_3, c_4 c_8, c_9, c_{10}	$(y-1)^4$
c_6, c_{11}, c_{12}	$(y^2 + y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0.786151I$ $b = -1.00000$	7.23771	10.4720
$u = 1.00000$ $a = -0.786151I$ $b = -1.00000$	7.23771	10.4720
$u = 1.00000$ $a = 1.27202$ $b = -1.00000$	−0.657974	1.52790
$u = 1.00000$ $a = -1.27202$ $b = -1.00000$	−0.657974	1.52790

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

(i) Arc colorings

$a_2 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$

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

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

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

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

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

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = 0$ $b = 1.00000$	3.28987	12.0000

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u(u^4-3u^2+3)(u^4-u^2-1)(u^{20}-7u^{19}+\cdots-6u+1)^2$ $\cdot(u^{30}+21u^{29}+\cdots-31648u-3214)$
c_2, c_8	$((u-1)^5)(u+1)^4(u^{30}+u^{29}+\cdots-2u+1)(u^{40}+u^{39}+\cdots-2u-1)$
c_3, c_4, c_9 c_{10}	$((u-1)^4)(u+1)^5(u^{30}+u^{29}+\cdots-2u+1)(u^{40}+u^{39}+\cdots-2u-1)$
c_5, c_7	$u(u^4-3u^2+3)(u^4-u^2-1)(u^{20}-u^{19}+\cdots+4u-1)^2$ $\cdot(u^{30}+3u^{29}+\cdots-180u-34)$
c_6, c_{11}, c_{12}	$u(u^4+u^2-1)(u^4+3u^2+3)(u^{20}+u^{19}+\cdots+2u-1)^2$ $\cdot(u^{30}-3u^{29}+\cdots-7u^2-2)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y(y^2-3y+3)^2(y^2-y-1)^2(y^{20}+13y^{19}+\cdots-6y+1)^2$ $\cdot(y^{30}+5y^{29}+\cdots+33781340y+10329796)$
c_2,c_3,c_4 c_8,c_9,c_{10}	$((y-1)^9)(y^{30}-37y^{29}+\cdots-4y+1)(y^{40}-33y^{39}+\cdots-40y+1)$
c_5,c_7	$y(y^2-3y+3)^2(y^2-y-1)^2(y^{20}-11y^{19}+\cdots-6y+1)^2$ $\cdot(y^{30}-19y^{29}+\cdots+9692y+1156)$
c_6,c_{11},c_{12}	$y(y^2+y-1)^2(y^2+3y+3)^2(y^{20}+17y^{19}+\cdots-6y+1)^2$ $\cdot(y^{30}+25y^{29}+\cdots+28y+4)$