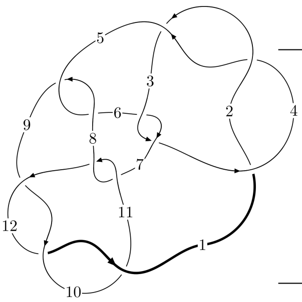
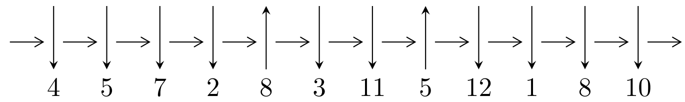
$12n_{0671}$ ($K12n_{0671}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle b+u,\ 2u^{12}+7u^{11}+2u^{10}-18u^9-18u^8+6u^7+9u^6+6u^5+19u^4+11u^3-6u^2+2a-4u-1,$$
$$u^{13}+3u^{12}-u^{11}-10u^{10}-4u^9+9u^8+3u^7+8u^5-7u^3-u^2+u-1\rangle$$
$$I_2^u = \langle 1.99592\times 10^{42}u^{43}+5.39326\times 10^{42}u^{42}+\cdots+7.34448\times 10^{41}b-6.74459\times 10^{41},$$
$$2.00974\times 10^{41}u^{43}+3.00732\times 10^{41}u^{42}+\cdots+1.83612\times 10^{41}a-1.49049\times 10^{43},\ u^{44}+4u^{43}+\cdots+116u-$$
$$I_3^u = \langle b+1,\ 2u^2+a+4u+4,\ u^3+u^2-1\rangle$$
$$I_4^u = \langle -a^2+4b-6a+4,\ a^3+4a^2-12a+8,\ u-1\rangle$$
$$I_5^u = \langle b+u,\ a-2,\ u^2+u-1\rangle$$
$$I_6^u = \langle b-u-1,\ a+u+1,\ u^2+u-1\rangle$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 67 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. $I^u_1 = \langle b + u,\ 2u^{12} + 7u^{11} + \cdots + 2a - 1,\ u^{13} + 3u^{12} + \cdots + u - 1\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^{12} - \frac{7}{2}u^{11} + \cdots + 2u + \frac{1}{2} \\ -u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -u^{12} - \frac{7}{2}u^{11} + \cdots + 3u + \frac{1}{2} \\ -u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -\frac{1}{2}u^{12} - 2u^{11} + \cdots + u^2 + \frac{3}{2}u \\ -u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -\frac{1}{2}u^{12} - 2u^{11} + \cdots + \frac{3}{2}u + 1 \\ u^3 - u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u^{11} - 2u^{10} + 2u^9 + 6u^8 + u^7 - 3u^6 - 2u^5 - 3u^4 - 3u^3 + 2u + 1 \\ \frac{1}{2}u^{12} + \frac{1}{2}u^{11} + \cdots - \frac{1}{2}u - \frac{1}{2} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{1}{2}u^{12} - 3u^{10} + \cdots + \frac{3}{2}u - 1 \\ \frac{3}{2}u^{12} + \frac{7}{2}u^{11} + \cdots + \frac{7}{2}u - \frac{3}{2} \end{pmatrix}$$
$$a_7 = \begin{pmatrix} \frac{1}{2}u^{11} + u^{10} + \cdots - u + \frac{3}{2} \\ -u^{11} - u^{10} + 4u^9 + 3u^8 - 6u^7 - u^6 + 3u^5 - 4u^4 + u^3 + 3u^2 - u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= -3u^{12} - 18u^{11} - 24u^{10} + 32u^9 + 80u^8 + 9u^7 - 34u^6 + 5u^5 - 47u^4 - 70u^3 + 6u^2 + 11u - 18$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4 c_9, c_{10}, c_{12}	$u^{13} - 3u^{12} - u^{11} + 10u^{10} - 4u^9 - 9u^8 + 3u^7 + 8u^5 - 7u^3 + u^2 + u + 1$
c_3, c_6, c_7 c_{11}	$u^{13} + u^{12} + \cdots + 5u + 1$
c_5, c_8	$u^{13} + 5u^{12} + \cdots - 8u - 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4 c_9, c_{10}, c_{12}	$y^{13} - 11y^{12} + \cdots - y - 1$
c_3, c_6, c_7 c_{11}	$y^{13} - 3y^{12} + \cdots + 7y - 1$
c_5, c_8	$y^{13} - 5y^{12} + \cdots + 96y - 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.920255$ $a = -5.92663$ $b = -0.920255$	-2.84609	-65.8580
$u = 0.217488 + 0.883339I$ $a = 0.154186 + 0.593271I$ $b = -0.217488 - 0.883339I$	$2.14237 - 5.68500I$	$-7.77978 + 6.07128I$
$u = 0.217488 - 0.883339I$ $a = 0.154186 - 0.593271I$ $b = -0.217488 + 0.883339I$	$2.14237 + 5.68500I$	$-7.77978 - 6.07128I$
$u = -0.795282 + 0.405757I$ $a = 1.200860 + 0.132364I$ $b = 0.795282 - 0.405757I$	$1.52283 + 3.56370I$	$-3.66796 - 8.41026I$
$u = -0.795282 - 0.405757I$ $a = 1.200860 - 0.132364I$ $b = 0.795282 + 0.405757I$	$1.52283 - 3.56370I$	$-3.66796 + 8.41026I$
$u = 1.266340 + 0.164860I$ $a = -3.55407 + 0.37923I$ $b = -1.266340 - 0.164860I$	$-3.86762 - 1.80054I$	$-11.65148 + 0.61379I$
$u = 1.266340 - 0.164860I$ $a = -3.55407 - 0.37923I$ $b = -1.266340 + 0.164860I$	$-3.86762 + 1.80054I$	$-11.65148 - 0.61379I$
$u = -1.38670 + 0.37744I$ $a = 1.43136 + 0.81847I$ $b = 1.38670 - 0.37744I$	$-10.71940 + 7.71547I$	$-15.7360 - 5.7316I$
$u = -1.38670 - 0.37744I$ $a = 1.43136 - 0.81847I$ $b = 1.38670 + 0.37744I$	$-10.71940 - 7.71547I$	$-15.7360 + 5.7316I$
$u = 0.240304 + 0.377267I$ $a = 1.39203 + 1.59640I$ $b = -0.240304 - 0.377267I$	$-0.98403 - 1.11558I$	$-8.69395 + 6.01211I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.240304 - 0.377267I$ $a = 1.39203 - 1.59640I$ $b = -0.240304 + 0.377267I$	$-0.98403 + 1.11558I$	$-8.69395 - 6.01211I$
$u = -1.50228 + 0.43298I$ $a = 1.83895 + 0.89236I$ $b = 1.50228 - 0.43298I$	$-8.8777 + 15.5620I$	$-14.5417 - 7.8795I$
$u = -1.50228 - 0.43298I$ $a = 1.83895 - 0.89236I$ $b = 1.50228 + 0.43298I$	$-8.8777 - 15.5620I$	$-14.5417 + 7.8795I$

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle 2.00\times10^{42}u^{43}+5.39\times10^{42}u^{42}+\cdots+7.34\times10^{41}b-6.74\times10^{41},\ 2.01\times10^{41}u^{43}+ 3.01\times10^{41}u^{42}+\cdots+1.84\times10^{41}a-1.49\times10^{43},\ u^{44}+4u^{43}+\cdots+116u-1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_4 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_2 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-u\\-u^3+u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-1.09456u^{43}-1.63787u^{42}+\cdots-526.141u+81.1760\\-2.71758u^{43}-7.34328u^{42}+\cdots-193.776u+0.918321\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}1.62303u^{43}+5.70542u^{42}+\cdots-332.365u+80.2576\\-2.71758u^{43}-7.34328u^{42}+\cdots-193.776u+0.918321\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}3.21805u^{43}+8.47168u^{42}+\cdots+23.3865u+57.2283\\2.36406u^{43}+6.27063u^{42}+\cdots+140.740u-1.74238\end{pmatrix}$$
$$a_9 = \begin{pmatrix}3.61816u^{43}+9.27065u^{42}+\cdots+182.489u+32.8026\\4.49904u^{43}+11.8002u^{42}+\cdots+312.338u-3.00702\end{pmatrix}$$
$$a_8 = \begin{pmatrix}1.96942u^{43}+5.25944u^{42}+\cdots+65.5876u+33.8026\\2.07745u^{43}+5.75738u^{42}+\cdots+127.873u-1.42316\end{pmatrix}$$
$$a_6 = \begin{pmatrix}1.07148u^{43}+2.89399u^{42}+\cdots+59.4605u+9.96375\\1.37364u^{43}+3.38028u^{42}+\cdots+86.1371u-0.830453\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1.78926u^{43}+4.62600u^{42}+\cdots+163.701u-11.9689\\-1.22781u^{43}-2.74973u^{42}+\cdots-70.8975u+0.701920\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-u^2+1\\-u^4+2u^2\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -2.60530u^{43}-11.0854u^{42}+\cdots+553.011u-13.5461$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4 c_9, c_{10}, c_{12}	$u^{44} - 4u^{43} + \cdots - 116u - 1$
c_3, c_6, c_7 c_{11}	$u^{44} + 3u^{43} + \cdots - 44u + 8$
c_5, c_8	$(u^{22} - u^{21} + \cdots - 9u - 2)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4 c_9, c_{10}, c_{12}	$y^{44} - 40y^{43} + \cdots - 12428y + 1$
c_3, c_6, c_7 c_{11}	$y^{44} - 21y^{43} + \cdots - 7760y + 64$
c_5, c_8	$(y^{22} - 15y^{21} + \cdots - 113y + 4)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.090540 + 0.022158I$ $a = -1.92894 - 1.79340I$ $b = -0.643688 + 0.282110I$	$-2.83824 + 0.14755I$	$-2.77483 - 4.21375I$
$u = 1.090540 - 0.022158I$ $a = -1.92894 + 1.79340I$ $b = -0.643688 - 0.282110I$	$-2.83824 - 0.14755I$	$-2.77483 + 4.21375I$
$u = 0.109119 + 0.888646I$ $a = -0.127810 - 0.241019I$ $b = 1.351490 + 0.160264I$	$-5.93215 - 3.14286I$	$-14.6418 + 3.7109I$
$u = 0.109119 - 0.888646I$ $a = -0.127810 + 0.241019I$ $b = 1.351490 - 0.160264I$	$-5.93215 + 3.14286I$	$-14.6418 - 3.7109I$
$u = 0.344224 + 1.065750I$ $a = 0.631899 - 0.686719I$ $b = 1.40825 + 0.36939I$	$-3.01557 - 10.18830I$	$-12.15400 + 6.99410I$
$u = 0.344224 - 1.065750I$ $a = 0.631899 + 0.686719I$ $b = 1.40825 - 0.36939I$	$-3.01557 + 10.18830I$	$-12.15400 - 6.99410I$
$u = -1.134110 + 0.122816I$ $a = 0.989662 - 0.285685I$ $b = 0.748799 - 0.898808I$	$1.18895 + 3.23778I$	$-15.5021 - 9.5411I$
$u = -1.134110 - 0.122816I$ $a = 0.989662 + 0.285685I$ $b = 0.748799 + 0.898808I$	$1.18895 - 3.23778I$	$-15.5021 + 9.5411I$
$u = 1.036890 + 0.519128I$ $a = 0.888297 + 0.072748I$ $b = -0.117503 + 0.569726I$	$-0.357526 + 0.716312I$	$-8.85937 - 2.91987I$
$u = 1.036890 - 0.519128I$ $a = 0.888297 - 0.072748I$ $b = -0.117503 - 0.569726I$	$-0.357526 - 0.716312I$	$-8.85937 + 2.91987I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.748799+0.898808I$ $a=\ \ 0.887522+0.470312I$ $b=\ \ 1.134110-0.122816I$	$1.18895+3.23778I$	$-15.5021-9.5411I$
$u=-0.748799-0.898808I$ $a=\ \ 0.887522-0.470312I$ $b=\ \ 1.134110+0.122816I$	$1.18895-3.23778I$	$-15.5021+9.5411I$
$u=\ \ 0.238284+0.726491I$ $a=-0.740307+0.364992I$ $b=-1.358520-0.282419I$	$-1.09298-3.55787I$	$-9.79859+4.38747I$
$u=\ \ 0.238284-0.726491I$ $a=-0.740307-0.364992I$ $b=-1.358520+0.282419I$	$-1.09298+3.55787I$	$-9.79859-4.38747I$
$u=\ \ 0.736176$ $a=\ \ 0.933140$ $b=-0.00897213$	-1.10346	-8.70720
$u=-0.164222+0.700108I$ $a=-0.035754-0.152428I$ $b=\ \ 0.164222+0.700108I$	3.71629	$-3.80483+0.I$
$u=-0.164222-0.700108I$ $a=-0.035754+0.152428I$ $b=\ \ 0.164222-0.700108I$	3.71629	$-3.80483+0.I$
$u=\ \ 1.243520+0.352072I$ $a=\ \ 1.29291-1.34278I$ $b=\ \ 1.45462+0.06689I$	$-9.47192-1.36166I$	0
$u=\ \ 1.243520-0.352072I$ $a=\ \ 1.29291+1.34278I$ $b=\ \ 1.45462-0.06689I$	$-9.47192+1.36166I$	0
$u=\ \ 0.643688+0.282110I$ $a=-1.54817+3.78331I$ $b=-1.090540+0.022158I$	$-2.83824-0.14755I$	$-2.77483+4.21375I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.643688 - 0.282110I$ $a = -1.54817 - 3.78331I$ $b = -1.090540 - 0.022158I$	$-2.83824 + 0.14755I$	$-2.77483 - 4.21375I$
$u = 1.047760 + 0.864022I$ $a = 0.870174 - 0.473031I$ $b = 1.347140 - 0.234013I$	$-5.02280 + 3.68716I$	0
$u = 1.047760 - 0.864022I$ $a = 0.870174 + 0.473031I$ $b = 1.347140 + 0.234013I$	$-5.02280 - 3.68716I$	0
$u = -1.351490 + 0.160264I$ $a = -0.134000 - 0.119389I$ $b = -0.109119 + 0.888646I$	$-5.93215 + 3.14286I$	0
$u = -1.351490 - 0.160264I$ $a = -0.134000 + 0.119389I$ $b = -0.109119 - 0.888646I$	$-5.93215 - 3.14286I$	0
$u = -1.347140 + 0.234013I$ $a = -0.919401 - 0.349911I$ $b = -1.047760 - 0.864022I$	$-5.02280 + 3.68716I$	0
$u = -1.347140 - 0.234013I$ $a = -0.919401 + 0.349911I$ $b = -1.047760 + 0.864022I$	$-5.02280 - 3.68716I$	0
$u = 1.358520 + 0.282419I$ $a = -0.377703 - 0.253352I$ $b = -0.238284 - 0.726491I$	$-1.09298 - 3.55787I$	0
$u = 1.358520 - 0.282419I$ $a = -0.377703 + 0.253352I$ $b = -0.238284 + 0.726491I$	$-1.09298 + 3.55787I$	0
$u = 0.117503 + 0.569726I$ $a = -0.59666 - 1.67345I$ $b = -1.036890 + 0.519128I$	$-0.357526 - 0.716312I$	$-8.85937 + 2.91987I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.117503 - 0.569726I$ $a = -0.59666 + 1.67345I$ $b = -1.036890 - 0.519128I$	$-0.357526 + 0.716312I$	$-8.85937 - 2.91987I$
$u = -1.42436$ $a = 2.23200$ $b = 1.80378$	-16.0009	0
$u = -1.39535 + 0.29610I$ $a = -2.22418 - 0.65388I$ $b = -1.57069 + 0.28000I$	$-6.28468 + 7.27868I$	0
$u = -1.39535 - 0.29610I$ $a = -2.22418 + 0.65388I$ $b = -1.57069 - 0.28000I$	$-6.28468 - 7.27868I$	0
$u = -1.40825 + 0.36939I$ $a = -0.706930 + 0.124928I$ $b = -0.344224 + 1.065750I$	$-3.01557 + 10.18830I$	0
$u = -1.40825 - 0.36939I$ $a = -0.706930 - 0.124928I$ $b = -0.344224 - 1.065750I$	$-3.01557 - 10.18830I$	0
$u = -1.45462 + 0.06689I$ $a = -1.38893 - 0.89884I$ $b = -1.243520 + 0.352072I$	$-9.47192 + 1.36166I$	0
$u = -1.45462 - 0.06689I$ $a = -1.38893 + 0.89884I$ $b = -1.243520 - 0.352072I$	$-9.47192 - 1.36166I$	0
$u = 0.521744$ $a = -1.71909$ $b = 1.63226$	-9.78452	30.1490
$u = 1.57069 + 0.28000I$ $a = 2.00659 - 0.51930I$ $b = 1.39535 + 0.29610I$	$-6.28468 - 7.27868I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.57069 - 0.28000I$ $a = 2.00659 + 0.51930I$ $b = 1.39535 - 0.29610I$	$-6.28468 + 7.27868I$	0
$u = -1.63226$ $a = 0.549499$ $b = -0.521744$	-9.78452	0
$u = -1.80378$ $a = 1.76252$ $b = 1.42436$	-16.0009	0
$u = 0.00897213$ $a = 76.5654$ $b = -0.736176$	-1.10346	-8.70720

III. $I_3^u = \langle b + 1,\ 2u^2 + a + 4u + 4,\ u^3 + u^2 - 1 \rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ u^2 + u - 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -2u^2 - 4u - 4 \\ -1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -2u^2 - 4u - 3 \\ -1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -2u^2 - 4u - 3 \\ -1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -u \\ 2u^2 + u - 2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -2u + 1 \\ 5u^2 + 2u - 4 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ 2u^2 + u - 2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -u^2 + 1 \\ u^2 - u + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 21u^2 + 45u + 27$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$y^3 - y^2 + 2y - 1$
c_3, c_6	$y^3 + 3y^2 + 2y - 1$
c_5, c_8	$y^3 - 5y^2 + 10y - 1$
c_7, c_{11}	y^3
c_9, c_{10}, c_{12}	$(y-1)^3$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.877439+0.744862I$ $a=-0.920404-0.365165I$ $b=-1.00000$	$1.37919+2.82812I$	$-7.96807+6.06881I$
$u=-0.877439-0.744862I$ $a=-0.920404+0.365165I$ $b=-1.00000$	$1.37919-2.82812I$	$-7.96807-6.06881I$
$u=\ \ 0.754878$ $a=-8.15919$ $b=-1.00000$	-2.75839	72.9360

IV. $\boldsymbol{I_4^u = \langle -a^2 + 4b - 6a + 4,\ a^3 + 4a^2 - 12a + 8,\ u - 1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a \\ \frac{1}{4}a^2 + \frac{3}{2}a - 1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -\frac{1}{4}a^2 - \frac{1}{2}a + 1 \\ \frac{1}{4}a^2 + \frac{3}{2}a - 1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -\frac{1}{2}a^2 - 2a + 3 \\ -\frac{1}{2}a^2 - \frac{5}{2}a + 3 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -\frac{1}{4}a^2 - \frac{1}{2}a + 3 \\ -\frac{1}{4}a^2 - a + 3 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} \frac{1}{2}a \\ -\frac{1}{4}a^2 - a + 3 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ -\frac{3}{4}a^2 - \frac{7}{2}a + 7 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ -\frac{3}{4}a^2 - \frac{7}{2}a + 7 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{3}{4}a^2 - 15a + 9$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^3$
c_3, c_6	y^3
c_5, c_8	$y^3 - 5y^2 + 10y - 1$
c_7, c_{11}	$y^3 + 3y^2 + 2y - 1$
c_9, c_{10}, c_{12}	$y^3 - y^2 + 2y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 1.079600 + 0.365165I$ $b = 0.877439 + 0.744862I$	$1.37919 - 2.82812I$	$-7.96807 - 6.06881I$
$u = 1.00000$ $a = 1.079600 - 0.365165I$ $b = 0.877439 - 0.744862I$	$1.37919 + 2.82812I$	$-7.96807 + 6.06881I$
$u = 1.00000$ $a = -6.15919$ $b = -0.754878$	-2.75839	72.9360

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -20$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_5	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = 2.00000$ $b = -0.618034$	-1.97392	-20.0000
$u = -1.61803$ $a = 2.00000$ $b = 1.61803$	-17.7653	-20.0000

VI. $I_6^u = \langle b - u - 1,\ a + u + 1,\ u^2 + u - 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -65$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.618034$ $a = -1.61803$ $b = \quad 1.61803$	-9.86960	-65.0000
$u = -1.61803$ $a = \quad 0.618034$ $b = -0.618034$	-9.86960	-65.0000

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2, c_9 c_{10}	$(u-1)^3(u^2+u-1)^2(u^3+u^2-1)$ $\cdot(u^{13}-3u^{12}-u^{11}+10u^{10}-4u^9-9u^8+3u^7+8u^5-7u^3+u^2+u+1)$ $\cdot(u^{44}-4u^{43}+\cdots-116u-1)$
c_3, c_7	$u^3(u^2+u-1)^2(u^3-u^2+2u-1)(u^{13}+u^{12}+\cdots+5u+1)$ $\cdot(u^{44}+3u^{43}+\cdots-44u+8)$
c_4, c_{12}	$(u+1)^3(u^2-u-1)^2(u^3-u^2+1)$ $\cdot(u^{13}-3u^{12}-u^{11}+10u^{10}-4u^9-9u^8+3u^7+8u^5-7u^3+u^2+u+1)$ $\cdot(u^{44}-4u^{43}+\cdots-116u-1)$
c_5	$u^4(u^3+3u^2+2u-1)^2(u^{13}+5u^{12}+\cdots-8u-4)$ $\cdot(u^{22}-u^{21}+\cdots-9u-2)^2$
c_6, c_{11}	$u^3(u^2-u-1)^2(u^3+u^2+2u+1)(u^{13}+u^{12}+\cdots+5u+1)$ $\cdot(u^{44}+3u^{43}+\cdots-44u+8)$
c_8	$u^4(u^3-3u^2+2u+1)^2(u^{13}+5u^{12}+\cdots-8u-4)$ $\cdot(u^{22}-u^{21}+\cdots-9u-2)^2$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4 c_9, c_{10}, c_{12}	$((y-1)^3)(y^2-3y+1)^2(y^3-y^2+2y-1)(y^{13}-11y^{12}+\cdots-y-1)$ $\cdot\,(y^{44}-40y^{43}+\cdots-12428y+1)$
c_3, c_6, c_7 c_{11}	$y^3(y^2-3y+1)^2(y^3+3y^2+2y-1)(y^{13}-3y^{12}+\cdots+7y-1)$ $\cdot\,(y^{44}-21y^{43}+\cdots-7760y+64)$
c_5, c_8	$y^4(y^3-5y^2+10y-1)^2(y^{13}-5y^{12}+\cdots+96y-16)$ $\cdot\,(y^{22}-15y^{21}+\cdots-113y+4)^2$