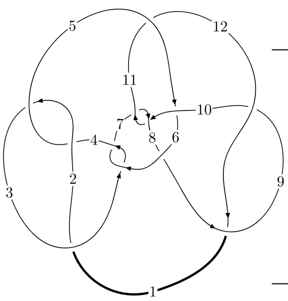
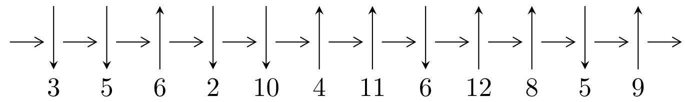
$12n_{0141}$ $(K12n_{0141})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I^u_1 = \langle -6686875043u^{25} - 624104415u^{24} + \cdots + 134355297 28b + 3806288503,$$
$$79755561391u^{25} + 46013804251u^{24} + \cdots + 214968475648a - 231933695795,$$
$$u^{26} + 2u^{24} + \cdots - u + 1\rangle$$
$$I^u_2 = \langle -6.09745 \times 10^{15}u^{23} + 2.23561 \times 10^{15}u^{22} + \cdots + 4.70830 \times 10^{16}b - 9.49470 \times 10^{16},$$
$$3.77245 \times 10^{16}u^{23} - 4.36637 \times 10^{15}u^{22} + \cdots + 1.14344 \times 10^{17}a + 1.28843 \times 10^{18},\ u^{24} - 2u^{23} + \cdots + 20u +$$
$$I^u_3 = \langle b,\ -u^3 - u^2 + 4a + 2u - 3,\ u^4 + u^2 + u + 1\rangle$$
$$I^u_4 = \langle 13362a^5u - 25075a^4u + \cdots + 39143a + 74777,$$
$$a^6 - 5a^5u - 5a^5 + 14a^4u + 2a^3u + 9a^3 - 14a^2u + 10a^2 - 5au - 13a + 3u,\ u^2 + 1\rangle$$
$$I^u_5 = \langle b,\ -u^3 + a - u + 1,\ u^6 - u^5 + 2u^4 - 2u^3 + 2u^2 - 2u + 1\rangle$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 72 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.

$\boldsymbol{I_1^u = \langle -6.69\times 10^{9}u^{25} - 6.24\times 10^{8}u^{24} + \cdots + 1.34\times 10^{10}b + 3.81\times 10^{9},\ 7.98\times 10^{10}u^{25} + 4.60\times 10^{10}u^{24} + \cdots + 2.15\times 10^{11}a - 2.32\times 10^{11},\ u^{26} + 2u^{24} + \cdots - u + 1\rangle}$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.371010u^{25} - 0.214049u^{24} + \cdots - 2.37389u + 1.07892 \\ 0.497701u^{25} + 0.0464518u^{24} + \cdots - 0.303652u - 0.283300 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.786727u^{25} + 0.355240u^{24} + \cdots + 0.268947u + 0.181402 \\ -0.281655u^{25} + 0.162782u^{24} + \cdots - 0.150036u + 1.19156 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.0563150u^{25} - 0.379621u^{24} + \cdots - 1.27287u - 1.11514 \\ 0.478616u^{25} - 0.0163741u^{24} + \cdots + 1.75358u - 0.0264586 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.836319u^{25} + 0.321913u^{24} + \cdots + 0.240330u - 0.254796 \\ -0.290547u^{25} + 0.204134u^{24} + \cdots - 0.0385003u + 1.59443 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.00390625u^{25} - 0.00390625u^{24} + \cdots - 2u - 0.996094 \\ 0.00781250u^{25} + 0.00781250u^{24} + \cdots + 2u - 0.00781250 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.977915u^{25} - 0.402299u^{24} + \cdots - 2.88010u + 0.873808 \\ 0.278382u^{25} - 0.0788085u^{24} + \cdots - 1.17498u - 1.03877 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.00781250u^{25} + 0.00781250u^{24} + \cdots + 2u + 0.992188 \\ -\frac{1}{64}u^{25} - \frac{1}{64}u^{24} + \cdots - 2u + \frac{1}{64} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.00390625u^{25} - 0.00390625u^{24} + \cdots - 2u + 0.00390625 \\ \frac{1}{128}u^{25} + \frac{1}{128}u^{24} + \cdots + u - \frac{1}{128} \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= \frac{2427750693445}{859873902592}u^{25} - \frac{360782953559}{859873902592}u^{24} + \cdots + \frac{1801599863713}{214968475648}u - \frac{3455303354737}{859873902592}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{26} + 7u^{25} + \cdots + 801u + 256$
c_2, c_4	$u^{26} - 5u^{25} + \cdots - 97u + 16$
c_3, c_6	$u^{26} + 3u^{25} + \cdots - 288u + 256$
c_5	$u^{26} + 6u^{25} + \cdots + 12u + 4$
c_7, c_9, c_{10} c_{12}	$u^{26} + 2u^{24} + \cdots + u + 1$
c_8, c_{11}	$u^{26} - 4u^{25} + \cdots + 64u + 64$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{26} + 29y^{25} + \cdots - 2714689y + 65536$
c_2, c_4	$y^{26} - 7y^{25} + \cdots - 801y + 256$
c_3, c_6	$y^{26} - 27y^{25} + \cdots - 709632y + 65536$
c_5	$y^{26} - 4y^{25} + \cdots + 8y + 16$
c_7, c_9, c_{10} c_{12}	$y^{26} + 4y^{25} + \cdots + 11y + 1$
c_8, c_{11}	$y^{26} + 40y^{25} + \cdots + 114688y + 4096$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.667716 + 0.516448I$ $a = 0.351921 - 0.458400I$ $b = -1.12559 + 1.18769I$	$-2.22323 + 3.06268I$	$-3.92422 - 7.01336I$
$u = 0.667716 - 0.516448I$ $a = 0.351921 + 0.458400I$ $b = -1.12559 - 1.18769I$	$-2.22323 - 3.06268I$	$-3.92422 + 7.01336I$
$u = -0.801593 + 0.232094I$ $a = -1.51203 + 1.55558I$ $b = 0.422167 + 0.399037I$	$-0.278324 - 0.685873I$	$9.0494 - 11.0486I$
$u = -0.801593 - 0.232094I$ $a = -1.51203 - 1.55558I$ $b = 0.422167 - 0.399037I$	$-0.278324 + 0.685873I$	$9.0494 + 11.0486I$
$u = 0.469402 + 1.100720I$ $a = -0.043572 - 0.410845I$ $b = -0.655893 - 0.316475I$	$-4.13271 + 8.27529I$	$-1.38622 - 13.75239I$
$u = 0.469402 - 1.100720I$ $a = -0.043572 + 0.410845I$ $b = -0.655893 + 0.316475I$	$-4.13271 - 8.27529I$	$-1.38622 + 13.75239I$
$u = 0.923141 + 0.764696I$ $a = -0.958376 + 0.099240I$ $b = 0.77338 + 1.80053I$	$1.82654 + 6.11440I$	$0.00845 - 7.81451I$
$u = 0.923141 - 0.764696I$ $a = -0.958376 - 0.099240I$ $b = 0.77338 - 1.80053I$	$1.82654 - 6.11440I$	$0.00845 + 7.81451I$
$u = -1.080690 + 0.597719I$ $a = 0.810296 + 0.338780I$ $b = -0.479644 + 0.933985I$	$2.44292 - 1.70853I$	$2.53010 - 0.44010I$
$u = -1.080690 - 0.597719I$ $a = 0.810296 - 0.338780I$ $b = -0.479644 - 0.933985I$	$2.44292 + 1.70853I$	$2.53010 + 0.44010I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.357275 + 0.656602I$ $a = 0.625898 - 0.297698I$ $b = 0.617127 - 0.011460I$	$0.43304 - 1.45422I$	$6.37162 + 4.53869I$
$u = -0.357275 - 0.656602I$ $a = 0.625898 + 0.297698I$ $b = 0.617127 + 0.011460I$	$0.43304 + 1.45422I$	$6.37162 - 4.53869I$
$u = 0.064603 + 0.724531I$ $a = -0.732028 + 0.504908I$ $b = -0.988101 + 0.632950I$	$-2.19370 - 5.44910I$	$2.44328 + 3.74912I$
$u = 0.064603 - 0.724531I$ $a = -0.732028 - 0.504908I$ $b = -0.988101 - 0.632950I$	$-2.19370 + 5.44910I$	$2.44328 - 3.74912I$
$u = -0.122998 + 0.488840I$ $a = 0.938808 - 0.475125I$ $b = 0.643196 - 0.415198I$	$0.295014 - 1.313020I$	$3.29344 + 4.27536I$
$u = -0.122998 - 0.488840I$ $a = 0.938808 + 0.475125I$ $b = 0.643196 + 0.415198I$	$0.295014 + 1.313020I$	$3.29344 - 4.27536I$
$u = 0.308360 + 0.340398I$ $a = 2.08611 - 1.44710I$ $b = -0.946580 - 0.566353I$	$-2.70538 - 0.26841I$	$-4.73409 - 2.48832I$
$u = 0.308360 - 0.340398I$ $a = 2.08611 + 1.44710I$ $b = -0.946580 + 0.566353I$	$-2.70538 + 0.26841I$	$-4.73409 + 2.48832I$
$u = -0.89844 + 1.25514I$ $a = -0.795341 - 1.127880I$ $b = 1.75386 - 0.65984I$	$9.35192 - 8.60133I$	$-0.45347 + 4.28581I$
$u = -0.89844 - 1.25514I$ $a = -0.795341 + 1.127880I$ $b = 1.75386 + 0.65984I$	$9.35192 + 8.60133I$	$-0.45347 - 4.28581I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.07814 + 1.14400I$ $a = -0.949321 + 0.843430I$ $b = 2.35374 + 0.29535I$	$10.68100 + 7.33921I$	$0.71166 - 4.65613I$
$u = 1.07814 - 1.14400I$ $a = -0.949321 - 0.843430I$ $b = 2.35374 - 0.29535I$	$10.68100 - 7.33921I$	$0.71166 + 4.65613I$
$u = 0.91358 + 1.30265I$ $a = 1.01202 - 1.05301I$ $b = -1.86071 - 0.87913I$	$8.8427 + 15.8962I$	$-1.12202 - 7.88761I$
$u = 0.91358 - 1.30265I$ $a = 1.01202 + 1.05301I$ $b = -1.86071 + 0.87913I$	$8.8427 - 15.8962I$	$-1.12202 + 7.88761I$
$u = -1.16396 + 1.16780I$ $a = 0.790615 + 0.787753I$ $b = -2.00696 + 0.05529I$	$10.55890 - 0.78971I$	$0.743315 - 0.651860I$
$u = -1.16396 - 1.16780I$ $a = 0.790615 - 0.787753I$ $b = -2.00696 - 0.05529I$	$10.55890 + 0.78971I$	$0.743315 + 0.651860I$

II. $\boldsymbol{I^u_2 = \langle -6.10 \times 10^{15}u^{23} + 2.24 \times 10^{15}u^{22} + \cdots + 4.71 \times 10^{16}b - 9.49 \times 10^{16},\ 3.77 \times 10^{16}u^{23} - 4.37 \times 10^{15}u^{22} + \cdots + 1.14 \times 10^{17}a + 1.29 \times 10^{18},\ u^{24} - 2u^{23} + \cdots + 20u + 17\rangle}$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix} -0.329920u^{23} + 0.0381861u^{22} + \cdots - 16.1056u - 11.2680 \\ 0.129504u^{23} - 0.0474822u^{22} + \cdots + 6.03349u + 2.01659 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} 0.134080u^{23} + 0.273604u^{22} + \cdots + 18.4960u + 7.55474 \\ -0.0652274u^{23} + 0.230684u^{22} + \cdots + 2.08553u - 0.246283 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.525803u^{23} + 0.373005u^{22} + \cdots - 21.1910u - 9.77304 \\ 0.290659u^{23} - 0.568556u^{22} + \cdots + 0.961671u + 1.16554 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u \\ u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.0378807u^{23} + 0.376737u^{22} + \cdots + 15.4253u + 5.78825 \\ 0.0130146u^{23} + 0.0806472u^{22} + \cdots + 1.73550u + 0.00270381 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.381461u^{23} + 0.0579674u^{22} + \cdots + 17.8645u + 15.5499 \\ -0.233501u^{23} + 0.551364u^{22} + \cdots + 3.42307u + 2.97882 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.372396u^{23} - 0.256379u^{22} + \cdots - 28.9922u - 15.0699 \\ 0.158126u^{23} - 0.156008u^{22} + \cdots + 5.53212u + 2.08728 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.171014u^{23} + 0.00109401u^{22} + \cdots - 7.41524u - 4.78310 \\ 0.217158u^{23} - 0.502812u^{22} + \cdots - 2.31071u - 0.0127898 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.561081u^{23} + 1.28719u^{22} + \cdots - 10.6082u + 5.36892 \\ -0.125093u^{23} + 0.0910163u^{22} + \cdots + 0.476538u - 4.41213 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $=$
$-\frac{8343946159698214}{47083027591501867}u^{23} - \frac{14877793040005974}{47083027591501867}u^{22} + \cdots - \frac{1332066838354670501}{47083027591501867}u - \frac{405177085834515952}{47083027591501867}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{12}+14u^{10}+\cdots+12u+1)^2$
c_2, c_4	$(u^{12}-4u^{11}+8u^{10}-5u^9-5u^8+15u^7-9u^6+8u^4-2u^3-2u^2+4u-1)^2$
c_3, c_6	$(u^{12}+u^{11}+\cdots+36u+8)^2$
c_5	$(u^{12}-2u^{11}+u^{10}+2u^9+u^8-6u^7+4u^6+3u^5-6u^3+3u^2+u-1)^2$
c_7, c_9, c_{10} c_{12}	$u^{24}+2u^{23}+\cdots-20u+17$
c_8, c_{11}	$u^{24}-4u^{23}+\cdots+206508u+103417$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{12} + 28y^{11} + \cdots - 136y + 1)^2$
c_2, c_4	$(y^{12} + 14y^{10} + \cdots - 12y + 1)^2$
c_3, c_6	$(y^{12} - 21y^{11} + \cdots - 464y + 64)^2$
c_5	$(y^{12} - 2y^{11} + \cdots - 7y + 1)^2$
c_7, c_9, c_{10} c_{12}	$y^{24} + 6y^{23} + \cdots - 672y + 289$
c_8, c_{11}	$y^{24} + 10y^{23} + \cdots - 21593989544y + 10695075889$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.969635 + 0.106868I$ $a = 1.001160 + 0.317590I$ $b = -1.109170 + 0.168712I$	$-0.62669 + 4.39533I$	$1.05572 - 5.22312I$
$u = 0.969635 - 0.106868I$ $a = 1.001160 - 0.317590I$ $b = -1.109170 - 0.168712I$	$-0.62669 - 4.39533I$	$1.05572 + 5.22312I$
$u = 0.123724 + 1.022700I$ $a = 5.28074 - 2.03927I$ $b = -0.523623$	-5.52228	$4.00782 + 0.I$
$u = 0.123724 - 1.022700I$ $a = 5.28074 + 2.03927I$ $b = -0.523623$	-5.52228	$4.00782 + 0.I$
$u = 0.238605 + 1.047760I$ $a = 0.655906 + 0.223543I$ $b = 1.121780 - 0.617797I$	$0.439990 - 1.030190I$	$2.72057 + 1.44119I$
$u = 0.238605 - 1.047760I$ $a = 0.655906 - 0.223543I$ $b = 1.121780 + 0.617797I$	$0.439990 + 1.030190I$	$2.72057 - 1.44119I$
$u = 0.020698 + 1.152910I$ $a = 1.61672 - 1.91219I$ $b = -0.080299 - 0.791847I$	$-4.16359 - 1.32529I$	$-2.28742 + 4.78445I$
$u = 0.020698 - 1.152910I$ $a = 1.61672 + 1.91219I$ $b = -0.080299 + 0.791847I$	$-4.16359 + 1.32529I$	$-2.28742 - 4.78445I$
$u = 0.364095 + 1.182240I$ $a = 0.285055 - 0.547656I$ $b = -0.516192$	-4.70703	$-2.22072 + 0.I$
$u = 0.364095 - 1.182240I$ $a = 0.285055 + 0.547656I$ $b = -0.516192$	-4.70703	$-2.22072 + 0.I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.117212 + 0.716758I$ $a = 1.17962 - 1.95274I$ $b = -0.080299 + 0.791847I$	$-4.16359 + 1.32529I$	$-2.28742 - 4.78445I$
$u = 0.117212 - 0.716758I$ $a = 1.17962 + 1.95274I$ $b = -0.080299 - 0.791847I$	$-4.16359 - 1.32529I$	$-2.28742 + 4.78445I$
$u = -0.42521 + 1.35732I$ $a = -0.082612 + 0.195129I$ $b = -1.109170 - 0.168712I$	$-0.62669 - 4.39533I$	$1.05572 + 5.22312I$
$u = -0.42521 - 1.35732I$ $a = -0.082612 - 0.195129I$ $b = -1.109170 + 0.168712I$	$-0.62669 + 4.39533I$	$1.05572 - 5.22312I$
$u = -1.26329 + 0.77255I$ $a = -0.983614 - 0.427684I$ $b = 2.18164 + 0.33163I$	$11.04720 + 0.80453I$	$1.287091 + 0.160859I$
$u = -1.26329 - 0.77255I$ $a = -0.983614 + 0.427684I$ $b = 2.18164 - 0.33163I$	$11.04720 - 0.80453I$	$1.287091 - 0.160859I$
$u = 1.14727 + 1.03329I$ $a = -0.996717 + 0.865474I$ $b = 2.18164 + 0.33163I$	$11.04720 + 0.80453I$	$1.287091 + 0.160859I$
$u = 1.14727 - 1.03329I$ $a = -0.996717 - 0.865474I$ $b = 2.18164 - 0.33163I$	$11.04720 - 0.80453I$	$1.287091 - 0.160859I$
$u = 1.34944 + 0.76245I$ $a = 0.973078 - 0.515965I$ $b = -2.09405 + 0.51270I$	$10.75480 - 7.79830I$	$0.83048 + 4.22102I$
$u = 1.34944 - 0.76245I$ $a = 0.973078 + 0.515965I$ $b = -2.09405 - 0.51270I$	$10.75480 + 7.79830I$	$0.83048 - 4.22102I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.447244 + 0.047871I$ $a = -1.70744 - 1.42312I$ $b = \ \ 1.121780 - 0.617797I$	$0.439990 - 1.030190I$	$2.72057 + 1.44119I$
$u = -0.447244 - 0.047871I$ $a = -1.70744 + 1.42312I$ $b = \ \ 1.121780 + 0.617797I$	$0.439990 + 1.030190I$	$2.72057 - 1.44119I$
$u = -1.19493 + 1.10213I$ $a = \ \ 1.042810 + 0.655912I$ $b = -2.09405 + 0.51270I$	$10.75480 - 7.79830I$	$0.83048 + 4.22102I$
$u = -1.19493 - 1.10213I$ $a = \ \ 1.042810 - 0.655912I$ $b = -2.09405 - 0.51270I$	$10.75480 + 7.79830I$	$0.83048 - 4.22102I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{49}{16}u^3 - \frac{43}{16}u^2 + \frac{21}{8}u - \frac{29}{16}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^4$
c_3, c_6	y^4
c_5	$y^4 - y^3 + 2y^2 + 7y + 4$
c_7, c_9, c_{10} c_{12}	$y^4 + 2y^3 + 3y^2 + y + 1$
c_8, c_{11}	$y^4 + 2y^3 + 7y^2 + 5y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.547424 + 0.585652I$ $a = 1.112690 - 0.371716I$ $b = 0$	$-0.66484 - 1.39709I$	$-1.91043 + 4.25783I$
$u = -0.547424 - 0.585652I$ $a = 1.112690 + 0.371716I$ $b = 0$	$-0.66484 + 1.39709I$	$-1.91043 - 4.25783I$
$u = 0.547424 + 1.120870I$ $a = -0.237691 - 0.353773I$ $b = 0$	$-4.26996 + 7.64338I$	$-3.62082 - 1.58240I$
$u = 0.547424 - 1.120870I$ $a = -0.237691 + 0.353773I$ $b = 0$	$-4.26996 - 7.64338I$	$-3.62082 + 1.58240I$

IV. $I_4^u = \langle 13362a^5u - 25075a^4u + \cdots + 39143a + 74777,\ -5a^5u + 14a^4u + \cdots + 10a^2 - 13a,\ u^2+1\rangle$

(i) Arc colorings

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

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

$$a_4 = \begin{pmatrix}a\\-0.500206a^5u + 0.938682a^4u + \cdots - 1.46532a - 2.79927\end{pmatrix}$$

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

$$a_6 = \begin{pmatrix}-0.0900311a^5u - 1.26744a^4u + \cdots + 3.52978a - 0.500618\\0.0680942a^5u - 1.17486a^4u + \cdots + 2.89286a + 0.341631\end{pmatrix}$$

$$a_3 = \begin{pmatrix}0.542657a^5u - 0.659567a^4u + \cdots + 0.405121a + 2.59499\\0.125332a^5u - 2.12833a^4u + \cdots + 5.25085a - 2.46026\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}-u\\0\end{pmatrix}$$

$$a_5 = \begin{pmatrix}-0.158125a^5u - 0.0925766a^4u + \cdots + 0.636918a - 0.842249\\0.0680942a^5u - 1.17486a^4u + \cdots + 2.89286a + 0.341631\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}-0.138884a^5u + 1.72882a^4u + \cdots - 1.87714a - 1.14648\\1\end{pmatrix}$$

$$a_2 = \begin{pmatrix}0.202635a^5u - 0.0151237a^4u + \cdots - 1.04395a + 0.630704\\0.339086a^5u - 2.83225a^4u + \cdots + 6.33399a + 0.331224\end{pmatrix}$$

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

$$a_9 = \begin{pmatrix}0.280163a^5u - 0.0168457a^4u + \cdots - 2.83113a + 1.59361\\-u\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{45304}{26713}a^5u + \frac{242984}{26713}a^4u + \cdots - \frac{450232}{26713}a - \frac{205440}{26713}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^6 - 3u^5 + 5u^4 - 4u^3 + 2u^2 - u + 1)^2$
c_2, c_6	$(u^6 + u^5 - u^4 - 2u^3 + u + 1)^2$
c_3, c_4	$(u^6 - u^5 - u^4 + 2u^3 - u + 1)^2$
c_5	$u^{12} - u^{10} + 5u^8 + 6u^4 - 3u^2 + 1$
c_7, c_9, c_{10} c_{12}	$(u^2 + 1)^6$
c_8	$u^{12} + 2u^{11} + \cdots + 192u + 64$
c_{11}	$u^{12} - 2u^{11} + \cdots - 192u + 64$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^6 + y^5 + 5y^4 + 6y^2 + 3y + 1)^2$
c_2, c_3, c_4 c_6	$(y^6 - 3y^5 + 5y^4 - 4y^3 + 2y^2 - y + 1)^2$
c_5	$(y^6 - y^5 + 5y^4 + 6y^2 - 3y + 1)^2$
c_7, c_9, c_{10} c_{12}	$(y + 1)^{12}$
c_8, c_{11}	$y^{12} - 12y^{10} + 736y^8 - 3584y^6 + 9472y^4 - 9216y^2 + 4096$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = -0.973865 - 0.455201I$ $b = -1.073950 - 0.558752I$	$-3.28987 + 5.69302I$	$-6.00000 - 5.51057I$
$u = 1.000000I$ $a = -0.008563 + 0.670038I$ $b = 1.002190 - 0.295542I$	$-1.39926 - 0.92430I$	$-2.28328 + 0.79423I$
$u = 1.000000I$ $a = 1.320500 + 0.473476I$ $b = 1.002190 + 0.295542I$	$-1.39926 + 0.92430I$	$-2.28328 - 0.79423I$
$u = 1.000000I$ $a = 0.143638 + 0.307302I$ $b = -1.073950 + 0.558752I$	$-3.28987 - 5.69302I$	$-6.00000 + 5.51057I$
$u = 1.000000I$ $a = 1.96360 + 0.56994I$ $b = -0.428243 - 0.664531I$	$-5.18047 - 0.92430I$	$-9.71672 + 0.79423I$
$u = 1.000000I$ $a = 2.55469 + 3.43444I$ $b = -0.428243 + 0.664531I$	$-5.18047 + 0.92430I$	$-9.71672 - 0.79423I$
$u = -1.000000I$ $a = -0.973865 + 0.455201I$ $b = -1.073950 + 0.558752I$	$-3.28987 - 5.69302I$	$-6.00000 + 5.51057I$
$u = -1.000000I$ $a = -0.008563 - 0.670038I$ $b = 1.002190 + 0.295542I$	$-1.39926 + 0.92430I$	$-2.28328 - 0.79423I$
$u = -1.000000I$ $a = 1.320500 - 0.473476I$ $b = 1.002190 - 0.295542I$	$-1.39926 - 0.92430I$	$-2.28328 + 0.79423I$
$u = -1.000000I$ $a = 0.143638 - 0.307302I$ $b = -1.073950 - 0.558752I$	$-3.28987 + 5.69302I$	$-6.00000 - 5.51057I$

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad - 1.000000I$ $a = \quad 1.96360 - 0.56994I$ $b = -0.428243 + 0.664531I$	$-5.18047 + 0.92430I$	$-9.71672 - 0.79423I$
$u = \quad - 1.000000I$ $a = \quad 2.55469 - 3.43444I$ $b = -0.428243 - 0.664531I$	$-5.18047 - 0.92430I$	$-9.71672 + 0.79423I$

V. $\boldsymbol{I_5^u = \langle b,\ -u^3 + a - u + 1,\ u^6 - u^5 + 2u^4 - 2u^3 + 2u^2 - 2u + 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -2u^5 + 3u^3 + 2u^2 + 3u - 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u-1)^6$
c_3, c_6	u^6
c_4	$(u+1)^6$
c_5	$(u^3-u^2+1)^2$
c_7, c_9	$u^6-u^5+2u^4-2u^3+2u^2-2u+1$
c_8, c_{11}	$u^6+3u^5+4u^4+2u^3+1$
c_{10}, c_{12}	$u^6+u^5+2u^4+2u^3+2u^2+2u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^6$
c_3, c_6	y^6
c_5	$(y^3-y^2+2y-1)^2$
c_7, c_9, c_{10} c_{12}	$y^6+3y^5+4y^4+2y^3+1$
c_8, c_{11}	$y^6-y^5+4y^4-2y^3+8y^2+1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.498832 + 1.001300I$ $a = -0.122561 + 0.744862I$ $b = 0$	$-1.91067 - 2.82812I$	$-0.28809 + 2.59975I$
$u = -0.498832 - 1.001300I$ $a = -0.122561 - 0.744862I$ $b = 0$	$-1.91067 + 2.82812I$	$-0.28809 - 2.59975I$
$u = 0.284920 + 1.115140I$ $a = -1.75488$ $b = 0$	-6.04826	$-12.42382 + 0.I$
$u = 0.284920 - 1.115140I$ $a = -1.75488$ $b = 0$	-6.04826	$-12.42382 + 0.I$
$u = 0.713912 + 0.305839I$ $a = -0.122561 + 0.744862I$ $b = 0$	$-1.91067 - 2.82812I$	$-0.28809 + 2.59975I$
$u = 0.713912 - 0.305839I$ $a = -0.122561 - 0.744862I$ $b = 0$	$-1.91067 + 2.82812I$	$-0.28809 - 2.59975I$

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^{10}(u^6-3u^5+5u^4-4u^3+2u^2-u+1)^2$ $\cdot((u^{12}+14u^{10}+\cdots+12u+1)^2)(u^{26}+7u^{25}+\cdots+801u+256)$
c_2	$(u-1)^{10}(u^6+u^5-u^4-2u^3+u+1)^2$ $\cdot(u^{12}-4u^{11}+8u^{10}-5u^9-5u^8+15u^7-9u^6+8u^4-2u^3-2u^2+4u-1)^2$ $\cdot(u^{26}-5u^{25}+\cdots-97u+16)$
c_3	$u^{10}(u^6-u^5+\cdots-u+1)^2(u^{12}+u^{11}+\cdots+36u+8)^2$ $\cdot(u^{26}+3u^{25}+\cdots-288u+256)$
c_4	$(u+1)^{10}(u^6-u^5-u^4+2u^3-u+1)^2$ $\cdot(u^{12}-4u^{11}+8u^{10}-5u^9-5u^8+15u^7-9u^6+8u^4-2u^3-2u^2+4u-1)^2$ $\cdot(u^{26}-5u^{25}+\cdots-97u+16)$
c_5	$((u^3-u^2+1)^2)(u^4+3u^3+\cdots+3u+2)(u^{12}-u^{10}+\cdots-3u^2+1)$ $\cdot(u^{12}-2u^{11}+u^{10}+2u^9+u^8-6u^7+4u^6+3u^5-6u^3+3u^2+u-1)^2$ $\cdot(u^{26}+6u^{25}+\cdots+12u+4)$
c_6	$u^{10}(u^6+u^5+\cdots+u+1)^2(u^{12}+u^{11}+\cdots+36u+8)^2$ $\cdot(u^{26}+3u^{25}+\cdots-288u+256)$
c_7, c_9	$(u^2+1)^6(u^4+u^2+u+1)(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^{24}+2u^{23}+\cdots-20u+17)(u^{26}+2u^{24}+\cdots+u+1)$
c_8	$(u^4+2u^3+3u^2+u+1)(u^6+3u^5+4u^4+2u^3+1)$ $\cdot(u^{12}+2u^{11}+\cdots+192u+64)(u^{24}-4u^{23}+\cdots+206508u+103417)$ $\cdot(u^{26}-4u^{25}+\cdots+64u+64)$
c_{10}, c_{12}	$(u^2+1)^6(u^4+u^2-u+1)(u^6+u^5+2u^4+2u^3+2u^2+2u+1)$ $\cdot(u^{24}+2u^{23}+\cdots-20u+17)(u^{26}+2u^{24}+\cdots+u+1)$
c_{11}	$(u^4+2u^3+3u^2+u+1)(u^6+3u^5+4u^4+2u^3+1)$ $\cdot(u^{12}-2u^{11}+\cdots-192u+64)(u^{24}-4u^{23}+\cdots+206508u+103417)$ $\cdot(u^{26}-4u^{25}+\cdots+64u+64)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^{10}(y^6+y^5+5y^4+6y^2+3y+1)^2$ $\cdot(y^{12}+28y^{11}+\cdots-136y+1)^2$ $\cdot(y^{26}+29y^{25}+\cdots-2714689y+65536)$
c_2, c_4	$(y-1)^{10}(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2$ $\cdot((y^{12}+14y^{10}+\cdots-12y+1)^2)(y^{26}-7y^{25}+\cdots-801y+256)$
c_3, c_6	$y^{10}(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2$ $\cdot(y^{12}-21y^{11}+\cdots-464y+64)^2$ $\cdot(y^{26}-27y^{25}+\cdots-709632y+65536)$
c_5	$(y^3-y^2+2y-1)^2(y^4-y^3+2y^2+7y+4)$ $\cdot((y^6-y^5+5y^4+6y^2-3y+1)^2)(y^{12}-2y^{11}+\cdots-7y+1)^2$ $\cdot(y^{26}-4y^{25}+\cdots+8y+16)$
c_7, c_9, c_{10} c_{12}	$(y+1)^{12}(y^4+2y^3+3y^2+y+1)(y^6+3y^5+4y^4+2y^3+1)$ $\cdot(y^{24}+6y^{23}+\cdots-672y+289)(y^{26}+4y^{25}+\cdots+11y+1)$
c_8, c_{11}	$(y^4+2y^3+7y^2+5y+1)(y^6-y^5+4y^4-2y^3+8y^2+1)$ $\cdot(y^{12}-12y^{10}+736y^8-3584y^6+9472y^4-9216y^2+4096)$ $\cdot(y^{24}+10y^{23}+\cdots-21593989544y+10695075889)$ $\cdot(y^{26}+40y^{25}+\cdots+114688y+4096)$