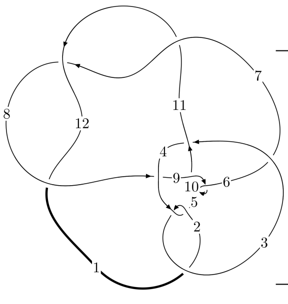
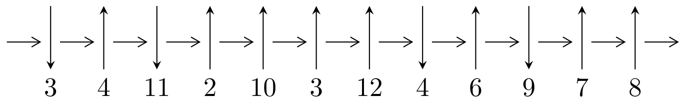
$12n_{0144}$ ($K12n_{0144}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 7.34372 \times 10^{20} u^{43} + 1.60104 \times 10^{21} u^{42} + \cdots + 6.28525 \times 10^{21} b + 5.02483 \times 10^{21},$$
$$1.42649 \times 10^{20} u^{43} + 6.11830 \times 10^{20} u^{42} + \cdots + 3.14262 \times 10^{21} a - 1.33924 \times 10^{20},\ u^{44} + 4u^{43} + \cdots + 32u +$$
$$I_2^u = \langle 4b + 2a - u + 2,\ 2a^2 - 2au + 7,\ u^2 - 2\rangle$$
$$I_3^u = \langle au + 7b + 4a + u + 4,\ 2a^2 + au - 3u + 7,\ u^2 - 2\rangle$$
$$I_4^u = \langle 3a^4 - 4a^3 + 24a^2 + 2b - 25a + 8,\ a^5 - 2a^4 + 9a^3 - 14a^2 + 9a - 2,\ u - 1\rangle$$

$$I_1^v = \langle a,\ b - v - 1,\ v^2 + v + 1\rangle$$
$$I_2^v = \langle a,\ b^2 - b + 1,\ v - 1\rangle$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 61 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. $I_1^u = \langle 7.34\times10^{20}u^{43}+1.60\times10^{21}u^{42}+\cdots+6.29\times10^{21}b+5.02\times10^{21},\ 1.43\times10^{20}u^{43}+6.12\times10^{20}u^{42}+\cdots+3.14\times10^{21}a-1.34\times10^{20},\ u^{44}+4u^{43}+\cdots+32u+16\rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}1\\-u^2\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-0.0453917u^{43}-0.194688u^{42}+\cdots-0.0781355u+0.0426155\\-0.116841u^{43}-0.254730u^{42}+\cdots-2.09430u-0.799464\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u\\-u^3+u\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0.191388u^{43}+0.550760u^{42}+\cdots+3.38008u+3.58656\\-0.0541941u^{43}-0.188082u^{42}+\cdots-0.273250u-1.13238\end{pmatrix}$$
$$a_1 = \begin{pmatrix}-u^2+1\\u^4-2u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}-0.162232u^{43}-0.449417u^{42}+\cdots-2.17243u-0.756849\\-0.116841u^{43}-0.254730u^{42}+\cdots-2.09430u-0.799464\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-0.459894u^{43}-1.20645u^{42}+\cdots-7.93846u-3.69776\\0.319896u^{43}+0.993797u^{42}+\cdots+4.40818u+5.01424\end{pmatrix}$$
$$a_5 = \begin{pmatrix}0.873473u^{43}+2.49705u^{42}+\cdots+13.0049u+12.6274\\u^4-2u^2\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-0.776380u^{43}-2.07570u^{42}+\cdots-12.3449u-8.51440\\0.297158u^{43}+0.926397u^{42}+\cdots+6.35873u+4.85216\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-0.335109u^{43}-1.04952u^{42}+\cdots-6.89963u-4.51774\\-0.185846u^{43}-0.499407u^{42}+\cdots-2.65438u-1.59651\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{1752784223058518261005}{785655665183033765648}u^{43}+\frac{2500993104539143938499}{392827832591516882824}u^{42}+\cdots+\frac{1124081559828742593975}{491034790739396103530}u+\frac{1641699334520185355340}{491034790739396103530}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{44} + 51u^{43} + \cdots - 38168u + 2401$
c_2, c_4	$u^{44} - 11u^{43} + \cdots - 796u + 49$
c_3	$u^{44} + 3u^{43} + \cdots - 4u + 7$
c_5, c_9	$u^{44} - 3u^{43} + \cdots - 14u + 7$
c_6	$u^{44} + 2u^{43} + \cdots - 7517u + 13159$
c_7, c_{11}, c_{12}	$u^{44} + 4u^{43} + \cdots + 32u + 16$
c_8	$u^{44} - 2u^{43} + \cdots - 23256067u + 7050439$
c_{10}	$u^{44} + 27u^{43} + \cdots + 476u + 49$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{44} - 109y^{43} + \cdots - 778696200y + 5764801$
c_2, c_4	$y^{44} + 51y^{43} + \cdots - 38168y + 2401$
c_3	$y^{44} + 11y^{43} + \cdots + 796y + 49$
c_5, c_9	$y^{44} + 27y^{43} + \cdots + 476y + 49$
c_6	$y^{44} + 26y^{43} + \cdots + 5158564319y + 173159281$
c_7, c_{11}, c_{12}	$y^{44} - 36y^{43} + \cdots + 1024y + 256$
c_8	$y^{44} - 50y^{43} + \cdots - 570620658530165y + 49708690092721$
c_{10}	$y^{44} - 13y^{43} + \cdots + 67816y + 2401$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.053172 + 0.977197I$ $a = -0.726530 - 0.386151I$ $b = -0.881310 + 0.926174I$	$-7.21788 + 3.26048I$	$2.64523 - 2.48280I$
$u = 0.053172 - 0.977197I$ $a = -0.726530 + 0.386151I$ $b = -0.881310 - 0.926174I$	$-7.21788 - 3.26048I$	$2.64523 + 2.48280I$
$u = -0.969991 + 0.414842I$ $a = 0.607490 + 0.368276I$ $b = -0.799478 + 0.075673I$	$-1.73925 - 3.53680I$	$0.98095 + 4.14861I$
$u = -0.969991 - 0.414842I$ $a = 0.607490 - 0.368276I$ $b = -0.799478 - 0.075673I$	$-1.73925 + 3.53680I$	$0.98095 - 4.14861I$
$u = -0.174827 + 1.043030I$ $a = -0.718830 + 0.754972I$ $b = -0.888329 - 1.005910I$	$-11.08430 - 8.59782I$	$0.28005 + 5.55448I$
$u = -0.174827 - 1.043030I$ $a = -0.718830 - 0.754972I$ $b = -0.888329 + 1.005910I$	$-11.08430 + 8.59782I$	$0.28005 - 5.55448I$
$u = 0.074358 + 1.061190I$ $a = -0.353302 + 0.278439I$ $b = -0.957730 - 0.874395I$	$-11.51210 + 1.82027I$	$-0.464174 - 0.761806I$
$u = 0.074358 - 1.061190I$ $a = -0.353302 - 0.278439I$ $b = -0.957730 + 0.874395I$	$-11.51210 - 1.82027I$	$-0.464174 + 0.761806I$
$u = -1.060920 + 0.195318I$ $a = 0.943353 - 0.723894I$ $b = 0.729269 + 0.856189I$	$1.66107 - 5.45145I$	$5.86619 + 6.59616I$
$u = -1.060920 - 0.195318I$ $a = 0.943353 + 0.723894I$ $b = 0.729269 - 0.856189I$	$1.66107 + 5.45145I$	$5.86619 - 6.59616I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.396864 + 0.675816I$ $a = 0.320038 - 0.485056I$ $b = 0.767519 + 0.420310I$	$-3.41945 - 0.63164I$	$-2.08485 + 2.40121I$
$u = -0.396864 - 0.675816I$ $a = 0.320038 + 0.485056I$ $b = 0.767519 - 0.420310I$	$-3.41945 + 0.63164I$	$-2.08485 - 2.40121I$
$u = 1.209100 + 0.327502I$ $a = -0.52561 - 2.57152I$ $b = -0.313533 + 1.159410I$	$1.94616 + 7.53567I$	$4.00000 - 7.30881I$
$u = 1.209100 - 0.327502I$ $a = -0.52561 + 2.57152I$ $b = -0.313533 - 1.159410I$	$1.94616 - 7.53567I$	$4.00000 + 7.30881I$
$u = -1.244840 + 0.163819I$ $a = -0.40678 + 2.39610I$ $b = -0.306940 - 1.055000I$	$4.81580 - 3.31538I$	$11.03880 + 4.12292I$
$u = -1.244840 - 0.163819I$ $a = -0.40678 - 2.39610I$ $b = -0.306940 + 1.055000I$	$4.81580 + 3.31538I$	$11.03880 - 4.12292I$
$u = -1.193050 + 0.633879I$ $a = -0.488351 + 0.504147I$ $b = 0.926853 - 0.905761I$	$-7.99420 + 2.74053I$	0
$u = -1.193050 - 0.633879I$ $a = -0.488351 - 0.504147I$ $b = 0.926853 + 0.905761I$	$-7.99420 - 2.74053I$	0
$u = 1.277500 + 0.501120I$ $a = -0.535158 - 0.270801I$ $b = 0.908252 + 0.813085I$	$-3.43084 + 1.99299I$	0
$u = 1.277500 - 0.501120I$ $a = -0.535158 + 0.270801I$ $b = 0.908252 - 0.813085I$	$-3.43084 - 1.99299I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.155102 + 0.599275I$ $a = 0.352478 - 1.113320I$ $b = 0.478851 + 1.053130I$	$-1.29319 - 4.02132I$	$-0.30638 + 3.65044I$
$u = 0.155102 - 0.599275I$ $a = 0.352478 + 1.113320I$ $b = 0.478851 - 1.053130I$	$-1.29319 + 4.02132I$	$-0.30638 - 3.65044I$
$u = -1.405870 + 0.102387I$ $a = -0.89393 + 1.77081I$ $b = -0.149374 - 0.798948I$	$6.37799 - 2.69804I$	0
$u = -1.405870 - 0.102387I$ $a = -0.89393 - 1.77081I$ $b = -0.149374 + 0.798948I$	$6.37799 + 2.69804I$	0
$u = 1.286440 + 0.585860I$ $a = 0.43019 + 1.54824I$ $b = 0.898558 - 0.969867I$	$-7.79148 + 3.97595I$	0
$u = 1.286440 - 0.585860I$ $a = 0.43019 - 1.54824I$ $b = 0.898558 + 0.969867I$	$-7.79148 - 3.97595I$	0
$u = 1.41894 + 0.07907I$ $a = -1.13538 - 1.16362I$ $b = -0.065725 + 0.584352I$	$5.49142 - 1.80694I$	0
$u = 1.41894 - 0.07907I$ $a = -1.13538 + 1.16362I$ $b = -0.065725 - 0.584352I$	$5.49142 + 1.80694I$	0
$u = -1.35375 + 0.46551I$ $a = 0.66647 - 1.74497I$ $b = 0.826223 + 1.007890I$	$-2.81404 - 8.41153I$	0
$u = -1.35375 - 0.46551I$ $a = 0.66647 + 1.74497I$ $b = 0.826223 - 1.007890I$	$-2.81404 + 8.41153I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.44498+0.10365I$ $a=\ 0.25589-1.83310I$ $b=-0.582379+0.972015I$	$4.02565+1.74679I$	0
$u=-1.44498-0.10365I$ $a=\ 0.25589+1.83310I$ $b=-0.582379-0.972015I$	$4.02565-1.74679I$	0
$u=-1.38764+0.51587I$ $a=-0.717568+0.258839I$ $b=\ 0.967178-0.764646I$	$-6.94944-7.42595I$	0
$u=-1.38764-0.51587I$ $a=-0.717568-0.258839I$ $b=\ 0.967178+0.764646I$	$-6.94944+7.42595I$	0
$u=-0.353533+0.362697I$ $a=\ 1.81787+0.90961I$ $b=-0.443035+0.586833I$	$-0.20174+3.16277I$	$3.03176+0.27471I$
$u=-0.353533-0.362697I$ $a=\ 1.81787-0.90961I$ $b=-0.443035-0.586833I$	$-0.20174-3.16277I$	$3.03176-0.27471I$
$u=\ 0.344360+0.354929I$ $a=\ 1.54824+0.67408I$ $b=-0.072149-0.658876I$	$0.836056+1.038800I$	$7.69659-5.53666I$
$u=\ 0.344360-0.354929I$ $a=\ 1.54824-0.67408I$ $b=-0.072149+0.658876I$	$0.836056-1.038800I$	$7.69659+5.53666I$
$u=\ 1.43633+0.46857I$ $a=\ 0.58445+1.94710I$ $b=\ 0.824013-1.059570I$	$-6.0040+14.0033I$	0
$u=\ 1.43633-0.46857I$ $a=\ 0.58445-1.94710I$ $b=\ 0.824013+1.059570I$	$-6.0040-14.0033I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.50906 + 0.09274I$ $a = 0.209822 - 1.305860I$ $b = -0.677586 + 0.683171I$	$3.07707 + 3.14518I$	0
$u = 1.50906 - 0.09274I$ $a = 0.209822 + 1.305860I$ $b = -0.677586 - 0.683171I$	$3.07707 - 3.14518I$	0
$u = 0.221879 + 0.395714I$ $a = 0.765153 + 0.917828I$ $b = 0.310852 - 0.803316I$	$0.452406 + 1.318670I$	$4.68386 - 5.79682I$
$u = 0.221879 - 0.395714I$ $a = 0.765153 - 0.917828I$ $b = 0.310852 + 0.803316I$	$0.452406 - 1.318670I$	$4.68386 + 5.79682I$

II. $\boldsymbol{I_2^u = \langle 4b + 2a - u + 2,\ 2a^2 - 2au + 7,\ u^2 - 2\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_4, c_5, c_9 c_{10}	$(y^2 + y + 1)^2$
c_6, c_8	$y^4 + 14y^2 + 48y + 49$
c_7, c_{11}, c_{12}	$(y - 2)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.41421$ $a = 0.70711 + 1.73205I$ $b = -0.500000 - 0.866025I$	$4.93480 - 4.05977I$	$8.00000 + 6.92820I$
$u = 1.41421$ $a = 0.70711 - 1.73205I$ $b = -0.500000 + 0.866025I$	$4.93480 + 4.05977I$	$8.00000 - 6.92820I$
$u = -1.41421$ $a = -0.70711 + 1.73205I$ $b = -0.500000 - 0.866025I$	$4.93480 - 4.05977I$	$8.00000 + 6.92820I$
$u = -1.41421$ $a = -0.70711 - 1.73205I$ $b = -0.500000 + 0.866025I$	$4.93480 + 4.05977I$	$8.00000 - 6.92820I$

III. $\boldsymbol{I_3^u = \langle au + 7b + 4a + u + 4,\ 2a^2 + au - 3u + 7,\ u^2 - 2\rangle}$

(i) Arc colorings

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

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

$$a_{12} = \begin{pmatrix} 1 \\ -2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} a \\ -\frac{1}{7}au - \frac{4}{7}a - \frac{1}{7}u - \frac{4}{7} \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -\frac{3}{7}au - \frac{5}{7}a - \frac{13}{14}u + \frac{16}{7} \\ \frac{1}{7}au + \frac{4}{7}a + \frac{1}{7}u - \frac{3}{7} \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -\frac{1}{7}au + \frac{3}{7}a - \frac{1}{7}u - \frac{4}{7} \\ -\frac{1}{7}au - \frac{4}{7}a - \frac{1}{7}u - \frac{4}{7} \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -\frac{2}{7}au - \frac{1}{7}a + \frac{3}{14}u - \frac{15}{7} \\ -\frac{1}{7}au - \frac{4}{7}a - \frac{1}{7}u + \frac{3}{7} \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} \frac{2}{7}au + \frac{1}{7}a + \frac{11}{14}u - \frac{13}{7} \\ -\frac{1}{7}au - \frac{4}{7}a - \frac{1}{7}u + \frac{3}{7} \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -\frac{1}{7}au - \frac{11}{7}a - \frac{8}{7}u + \frac{10}{7} \\ \frac{1}{7}au + \frac{4}{7}a + \frac{1}{7}u + \frac{4}{7} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_3 c_4, c_5, c_9 c_{10}	$(y^2 + y + 1)^2$
c_6, c_8	$y^4 + 6y^3 - y^2 - 30y + 49$
c_7, c_{11}, c_{12}	$(y - 2)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_3	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.41421$ $a = -0.353553 + 1.119680I$ $b = -0.500000 - 0.866025I$	4.93480	8.00000
$u = 1.41421$ $a = -0.353553 - 1.119680I$ $b = -0.500000 + 0.866025I$	4.93480	8.00000
$u = -1.41421$ $a = 0.35355 + 2.34442I$ $b = -0.500000 - 0.866025I$	4.93480	8.00000
$u = -1.41421$ $a = 0.35355 - 2.34442I$ $b = -0.500000 + 0.866025I$	4.93480	8.00000

IV.

$$\boldsymbol{I^u_4 = \langle 3a^4 - 4a^3 + 24a^2 + 2b - 25a + 8,\ a^5 - 2a^4 + 9a^3 - 14a^2 + 9a - 2,\ u - 1\rangle}$$

(i) Arc colorings

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

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

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

$$a_4 = \begin{pmatrix} a \\ -\frac{3}{2}a^4 + 2a^3 - 12a^2 + \frac{25}{2}a - 4 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} -a^4 + \frac{3}{2}a^3 - \frac{17}{2}a^2 + \frac{19}{2}a - 2 \\ -\frac{1}{2}a^3 + \frac{1}{2}a^2 - \frac{7}{2}a + 2 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} -\frac{3}{2}a^4 + 2a^3 - 12a^2 + \frac{27}{2}a - 4 \\ -\frac{3}{2}a^4 + 2a^3 - 12a^2 + \frac{25}{2}a - 4 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -2a^4 + \frac{5}{2}a^3 - \frac{31}{2}a^2 + \frac{31}{2}a - 4 \\ -a^4 + a^3 - 8a^2 + 6a - 2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} a^4 - 2a^3 + 8a^2 - 13a + 5 \\ -1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 2a^4 - \frac{5}{2}a^3 + \frac{31}{2}a^2 - \frac{31}{2}a + 4 \\ a^4 - a^3 + 8a^2 - 6a + 2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} a^3 - a^2 + 6a - 2 \\ -\frac{3}{2}a^4 + 2a^3 - 12a^2 + \frac{27}{2}a - 4 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^5 + 2y^4 - 5y^3 - 2y^2 + 37y - 1$
c_2, c_4, c_{10}	$y^5 + 2y^4 + 3y^3 + 6y^2 + 5y - 1$
c_3, c_5, c_8 c_9	$y^5 + 2y^4 + 3y^3 + 2y^2 + y - 1$
c_7, c_{11}, c_{12}	$(y - 1)^5$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = 0.669275 + 0.346167I$ $b = 0.707729 - 0.841955I$	1.64493	6.00000
$u = 1.00000$ $a = 0.669275 - 0.346167I$ $b = 0.707729 + 0.841955I$	1.64493	6.00000
$u = 1.00000$ $a = 0.472355$ $b = -0.636883$	1.64493	6.00000
$u = 1.00000$ $a = 0.09455 + 2.72921I$ $b = -0.389287 - 1.070680I$	1.64493	6.00000
$u = 1.00000$ $a = 0.09455 - 2.72921I$ $b = -0.389287 + 1.070680I$	1.64493	6.00000

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8v + 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = -0.500000 + 0.866025I$ $a = 0$ $b = 0.500000 + 0.866025I$	$-4.05977I$	$6.00000 + 6.92820I$
$v = -0.500000 - 0.866025I$ $a = 0$ $b = 0.500000 - 0.866025I$	$4.05977I$	$6.00000 - 6.92820I$

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

(i) Arc colorings

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

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

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

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

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

$$a_9 = \begin{pmatrix} 1 \\ b - 1 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} b \\ b \end{pmatrix}$$

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

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

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

$$a_{10} = \begin{pmatrix} -b + 2 \\ b \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

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

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^2-u+1)^6(u^5+2u^4+3u^3+6u^2+5u-1)$ $\cdot(u^{44}+51u^{43}+\cdots-38168u+2401)$
c_2	$(u^2+u+1)^6(u^5-2u^4+3u^3-2u^2+u+1)$ $\cdot(u^{44}-11u^{43}+\cdots-796u+49)$
c_3	$((u^2-u+1)^4)(u^2+u+1)^2(u^5+u^3+u-1)(u^{44}+3u^{43}+\cdots-4u+7)$
c_4	$(u^2-u+1)^6(u^5-2u^4+3u^3-2u^2+u+1)$ $\cdot(u^{44}-11u^{43}+\cdots-796u+49)$
c_5	$((u^2-u+1)^4)(u^2+u+1)^2(u^5+u^3+u-1)(u^{44}-3u^{43}+\cdots-14u+7)$
c_6	$((u+1)^2)(u^2-u+1)(u^4-2u^3+\cdots-10u+7)(u^4+4u^3+\cdots+8u+7)$ $\cdot(u^5-2u^4+3u^3-6u^2+5u+1)(u^{44}+2u^{43}+\cdots-7517u+13159)$
c_7, c_{11}, c_{12}	$u^4(u-1)^5(u^2-2)^4(u^{44}+4u^{43}+\cdots+32u+16)$
c_8	$((u+1)^2)(u^2-u+1)(u^4-4u^3+\cdots-8u+7)(u^4+2u^3+\cdots+10u+7)$ $\cdot(u^5+u^3+u-1)(u^{44}-2u^{43}+\cdots-2.32561\times10^7u+7050439)$
c_9	$((u^2-u+1)^2)(u^2+u+1)^4(u^5+u^3+u-1)(u^{44}-3u^{43}+\cdots-14u+7)$
c_{10}	$(u^2+u+1)^6(u^5+2u^4+3u^3+2u^2+u-1)$ $\cdot(u^{44}+27u^{43}+\cdots+476u+49)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y^2+y+1)^6(y^5+2y^4-5y^3-2y^2+37y-1)$ $\cdot\,(y^{44}-109y^{43}+\cdots-778696200y+5764801)$
c_2, c_4	$(y^2+y+1)^6(y^5+2y^4+3y^3+6y^2+5y-1)$ $\cdot\,(y^{44}+51y^{43}+\cdots-38168y+2401)$
c_3	$(y^2+y+1)^6(y^5+2y^4+3y^3+2y^2+y-1)$ $\cdot\,(y^{44}+11y^{43}+\cdots+796y+49)$
c_5, c_9	$(y^2+y+1)^6(y^5+2y^4+3y^3+2y^2+y-1)$ $\cdot\,(y^{44}+27y^{43}+\cdots+476y+49)$
c_6	$((y-1)^2)(y^2+y+1)(y^4+14y^2+48y+49)(y^4+6y^3+\cdots-30y+49)$ $\cdot\,(y^5+2y^4-5y^3-2y^2+37y-1)$ $\cdot\,(y^{44}+26y^{43}+\cdots+5158564319y+173159281)$
c_7, c_{11}, c_{12}	$y^4(y-2)^8(y-1)^5(y^{44}-36y^{43}+\cdots+1024y+256)$
c_8	$((y-1)^2)(y^2+y+1)(y^4+14y^2+48y+49)(y^4+6y^3+\cdots-30y+49)$ $\cdot\,(y^5+2y^4+3y^3+2y^2+y-1)$ $\cdot\,(y^{44}-50y^{43}+\cdots-570620658530165y+49708690092721)$
c_{10}	$(y^2+y+1)^6(y^5+2y^4+3y^3+6y^2+5y-1)$ $\cdot\,(y^{44}-13y^{43}+\cdots+67816y+2401)$