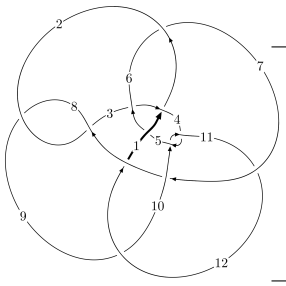
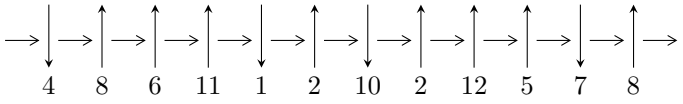
$12n_{0877}$ $(K12n_{0877})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -9.35659 \times 10^{83} u^{36} - 2.27819 \times 10^{84} u^{35} + \cdots + 9.11104 \times 10^{86} b + 1.23806 \times 10^{87}, \\
&\quad - 2.69779 \times 10^{87} u^{36} - 1.19660 \times 10^{88} u^{35} + \cdots + 1.76754 \times 10^{89} a - 1.89107 \times 10^{90}, \\
&\quad u^{37} + 5u^{36} + \cdots + 2744u + 388 \rangle \\
I_2^u &= \langle 3.32625 \times 10^{77} a u^{42} - 3.27571 \times 10^{78} u^{42} + \cdots + 1.71826 \times 10^{79} a - 1.65861 \times 10^{80}, \\
&\quad 5.05212 \times 10^{81} a u^{42} - 1.09660 \times 10^{82} u^{42} + \cdots + 1.99839 \times 10^{83} a - 3.99060 \times 10^{83}, \\
&\quad u^{43} - 3u^{42} + \cdots + 110u - 17 \rangle \\
I_3^u &= \langle 2.20191 \times 10^{25} u^{39} + 2.35786 \times 10^{25} u^{38} + \cdots + 1.03004 \times 10^{24} b - 1.37061 \times 10^{27}, \\
&\quad - 7.73943 \times 10^{26} u^{39} - 1.52201 \times 10^{26} u^{38} + \cdots + 1.95708 \times 10^{25} a + 9.28110 \times 10^{27}, \\
&\quad u^{40} - 6u^{38} + \cdots - 255u^2 - 19 \rangle \\
I_4^u &= \langle b,\ a^2 - a + 1,\ u + 1 \rangle \\
I_5^u &= \langle b - 2a,\ a^2 - a + 1,\ u - 1 \rangle
\end{aligned}$$

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

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 169 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. $\boldsymbol{I_1^u = \langle -9.36 \times 10^{83} u^{36} - 2.28 \times 10^{84} u^{35} + \cdots + 9.11 \times 10^{86} b + 1.24 \times 10^{87},\ -2.70 \times 10^{87} u^{36} - 1.20 \times 10^{88} u^{35} + \cdots + 1.77 \times 10^{89} a - 1.89 \times 10^{90},\ u^{37} + 5u^{36} + \cdots + 2744u + 388 \rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 0.0152630u^{36} + 0.0676983u^{35} + \cdots + 58.5223u + 10.6989 \\ 0.00102695u^{36} + 0.00250048u^{35} + \cdots - 1.09050u - 1.35885 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.0180233u^{36} + 0.0813561u^{35} + \cdots + 78.6888u + 17.0783 \\ 0.00546745u^{36} + 0.0219598u^{35} + \cdots + 15.1454u + 2.22914 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.0125559u^{36} + 0.0593963u^{35} + \cdots + 63.5435u + 14.8491 \\ 0.00546745u^{36} + 0.0219598u^{35} + \cdots + 15.1454u + 2.22914 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.00350220u^{36} + 0.0185379u^{35} + \cdots + 25.9914u + 8.51953 \\ 0.00861657u^{36} + 0.0375921u^{35} + \cdots + 31.1827u + 5.92203 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.00574521u^{36} - 0.0232586u^{35} + \cdots - 14.5732u - 0.619490 \\ 0.00876059u^{36} + 0.0373042u^{35} + \cdots + 32.3778u + 6.99306 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.00574521u^{36} - 0.0232586u^{35} + \cdots - 14.5732u - 0.619490 \\ 0.00338316u^{36} + 0.0164838u^{35} + \cdots + 19.6043u + 4.87169 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 0.0216125u^{36} + 0.0975640u^{35} + \cdots + 96.4003u + 24.3397 \\ 0.0235451u^{36} + 0.0984750u^{35} + \cdots + 81.0110u + 16.7723 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.0432275u^{36} + 0.192592u^{35} + \cdots + 178.923u + 37.6052 \\ -0.0104986u^{36} - 0.0434372u^{35} + \cdots - 34.9650u - 8.38565 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.0638114u^{36} - 0.256490u^{35} + \cdots - 174.364u - 30.2157$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{37} - u^{36} + \cdots + 8u - 1$
c_2, c_8	$u^{37} + 5u^{36} + \cdots + 2744u + 388$
c_3, c_9	$u^{37} + u^{36} + \cdots + 2u + 1$
c_4, c_{10}	$u^{37} + 5u^{36} + \cdots + 184u + 52$
c_5, c_{11}	$u^{37} + u^{36} + \cdots - 4u + 4$
c_6, c_{12}	$u^{37} - u^{36} + \cdots - 104u - 47$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{37} - 11y^{36} + \cdots + 32y - 1$
c_2, c_8	$y^{37} - 23y^{36} + \cdots + 3132720y - 150544$
c_3, c_9	$y^{37} - 37y^{36} + \cdots + 30y - 1$
c_4, c_{10}	$y^{37} + 13y^{36} + \cdots - 5872y - 2704$
c_5, c_{11}	$y^{37} - 5y^{36} + \cdots - 976y - 16$
c_6, c_{12}	$y^{37} - 31y^{36} + \cdots + 16456y - 2209$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.023680+0.207468I$ $a=-0.224911+0.827302I$ $b=\ \ 0.956147+0.338744I$	$5.14523-0.88050I$	$13.89731-1.40909I$
$u=-1.023680-0.207468I$ $a=-0.224911-0.827302I$ $b=\ \ 0.956147-0.338744I$	$5.14523+0.88050I$	$13.89731+1.40909I$
$u=-0.513603+0.927764I$ $a=-0.362915+1.130270I$ $b=-0.266581+1.169590I$	$-2.71819-6.93203I$	$1.49325+6.38376I$
$u=-0.513603-0.927764I$ $a=-0.362915-1.130270I$ $b=-0.266581-1.169590I$	$-2.71819+6.93203I$	$1.49325-6.38376I$
$u=-0.203243+0.874057I$ $a=\ \ 0.21000+1.77056I$ $b=-0.05883+1.53025I$	$-5.67964+1.01449I$	$4.29448-6.92334I$
$u=-0.203243-0.874057I$ $a=\ \ 0.21000-1.77056I$ $b=-0.05883-1.53025I$	$-5.67964-1.01449I$	$4.29448+6.92334I$
$u=\ \ 0.393345+0.759798I$ $a=\ \ 0.341465+0.953652I$ $b=\ \ 0.130643+0.919943I$	$-0.18355+2.03501I$	$3.27155-3.11294I$
$u=\ \ 0.393345-0.759798I$ $a=\ \ 0.341465-0.953652I$ $b=\ \ 0.130643-0.919943I$	$-0.18355-2.03501I$	$3.27155+3.11294I$
$u=-0.259763+1.213030I$ $a=\ \ 0.172358+0.907964I$ $b=\ \ 0.13042+1.58902I$	$-5.01261+1.59452I$	$-0.74857-4.14264I$
$u=-0.259763-1.213030I$ $a=\ \ 0.172358-0.907964I$ $b=\ \ 0.13042-1.58902I$	$-5.01261-1.59452I$	$-0.74857+4.14264I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.255890 + 0.068162I$ $a = -0.132967 + 0.395325I$ $b = -1.177290 + 0.087112I$	$3.63356 + 3.81297I$	$10.07806 - 5.49647I$
$u = 1.255890 - 0.068162I$ $a = -0.132967 - 0.395325I$ $b = -1.177290 - 0.087112I$	$3.63356 - 3.81297I$	$10.07806 + 5.49647I$
$u = -0.452009 + 0.440661I$ $a = 1.136500 + 0.492247I$ $b = -0.989885 - 0.684757I$	$-1.67227 + 2.60991I$	$-2.01632 - 5.81175I$
$u = -0.452009 - 0.440661I$ $a = 1.136500 - 0.492247I$ $b = -0.989885 + 0.684757I$	$-1.67227 - 2.60991I$	$-2.01632 + 5.81175I$
$u = -1.381620 + 0.001380I$ $a = -0.716115 + 0.134351I$ $b = -0.596037 + 0.248959I$	$0.77318 + 3.37059I$	$-2.04958 - 4.00982I$
$u = -1.381620 - 0.001380I$ $a = -0.716115 - 0.134351I$ $b = -0.596037 - 0.248959I$	$0.77318 - 3.37059I$	$-2.04958 + 4.00982I$
$u = 1.45601$ $a = 0.621894$ $b = 0.272503$	3.33967	2.87470
$u = 0.473903 + 0.174617I$ $a = 0.614985 + 0.716675I$ $b = 0.514605 + 0.316308I$	$1.022900 + 0.779663I$	$7.50935 - 3.53502I$
$u = 0.473903 - 0.174617I$ $a = 0.614985 - 0.716675I$ $b = 0.514605 - 0.316308I$	$1.022900 - 0.779663I$	$7.50935 + 3.53502I$
$u = -0.04479 + 1.52449I$ $a = -0.568234 + 0.602533I$ $b = 0.29065 + 1.60332I$	$2.46403 - 4.84771I$	$7.83065 + 5.43608I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.04479-1.52449I$ $a=-0.568234-0.602533I$ $b=\ \ 0.29065-1.60332I$	$2.46403+4.84771I$	$7.83065-5.43608I$
$u=-1.53849+0.44250I$ $a=-0.509830-0.453544I$ $b=\ \ 1.61671-1.81990I$	$-0.30645-7.70638I$	$0.+7.90475I$
$u=-1.53849-0.44250I$ $a=-0.509830+0.453544I$ $b=\ \ 1.61671+1.81990I$	$-0.30645+7.70638I$	$0.-7.90475I$
$u=-0.353652+0.059931I$ $a=-1.80596+0.93479I$ $b=-0.562272-0.178009I$	$-0.91481+3.77913I$	$5.64104-2.45174I$
$u=-0.353652-0.059931I$ $a=-1.80596-0.93479I$ $b=-0.562272+0.178009I$	$-0.91481-3.77913I$	$5.64104+2.45174I$
$u=-1.67250$ $a=-0.101046$ $b=\ \ 2.66187$	8.44157	14.5320
$u=-1.45646+0.84376I$ $a=-0.737564+0.407660I$ $b=\ \ 0.303225+0.408038I$	$6.74334-2.70316I$	0
$u=-1.45646-0.84376I$ $a=-0.737564-0.407660I$ $b=\ \ 0.303225-0.408038I$	$6.74334+2.70316I$	0
$u=\ \ 1.74832$ $a=\ \ 0.405395$ $b=-3.70278$	7.10544	0
$u=-0.00849+1.76143I$ $a=\ \ 0.643665+0.717640I$ $b=-0.11867+1.49405I$	$-0.02411+10.88880I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.00849-1.76143I$ $a=\ \ 0.643665-0.717640I$ $b=-0.11867-1.49405I$	$-0.02411-10.88880I$	0
$u=\ \ 1.66398+0.63157I$ $a=\ \ 0.300742-0.721731I$ $b=-0.84961-2.41654I$	$8.0218+12.6732I$	0
$u=\ \ 1.66398-0.63157I$ $a=\ \ 0.300742+0.721731I$ $b=-0.84961+2.41654I$	$8.0218-12.6732I$	0
$u=-1.66761+0.70883I$ $a=-0.330845-0.831651I$ $b=\ \ 0.67399-2.28474I$	$5.3307-19.4688I$	0
$u=-1.66761-0.70883I$ $a=-0.330845+0.831651I$ $b=\ \ 0.67399+2.28474I$	$5.3307+19.4688I$	0
$u=\ \ 1.85036+0.61716I$ $a=\ \ 0.769394+0.240989I$ $b=-0.113001+0.215300I$	$6.00980-1.88404I$	0
$u=\ \ 1.85036-0.61716I$ $a=\ \ 0.769394-0.240989I$ $b=-0.113001-0.215300I$	$6.00980+1.88404I$	0

II. $I_2^u = \langle 3.33\times 10^{77}au^{42} - 3.28\times 10^{78}u^{42} + \cdots + 1.72\times 10^{79}a - 1.66\times 10^{80},\ 5.05\times 10^{81}au^{42} - 1.10\times 10^{82}u^{42} + \cdots + 2.00\times 10^{83}a - 3.99\times 10^{83},\ u^{43} - 3u^{42} + \cdots + 110u - 17\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} a \\ -0.00287322au^{42} + 0.0282956u^{42} + \cdots - 0.148423a + 1.43271 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.0460162au^{42} + 0.106090u^{42} + \cdots - 2.56707a + 5.57201 \\ 0.00293218au^{42} - 0.0252712u^{42} + \cdots + 0.473351a - 0.516706 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.0489483au^{42} + 0.131361u^{42} + \cdots - 3.04042a + 6.08871 \\ 0.00293218au^{42} - 0.0252712u^{42} + \cdots + 0.473351a - 0.516706 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.00873077au^{42} + 0.106037u^{42} + \cdots - 1.17990a + 5.44946 \\ 0.0460162u^{42} - 0.137175u^{41} + \cdots - 10.6374u + 2.56707 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.0278442au^{42} - 0.0717915u^{42} + \cdots - 1.80262a - 7.63595 \\ -0.000873541au^{42} - 0.0982682u^{42} + \cdots - 0.782275a - 4.47485 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.0278442au^{42} - 0.0717915u^{42} + \cdots - 1.80262a - 7.63595 \\ -0.00293545au^{42} - 0.0837892u^{42} + \cdots - 0.832122a - 3.94930 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 0.00984394au^{42} - 0.125943u^{42} + \cdots + 1.79971a - 5.22417 \\ 0.00422200au^{42} - 0.0543645u^{42} + \cdots - 0.723111a - 3.46387 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0425359au^{42} - 0.0109791u^{42} + \cdots - 3.72010a + 0.0400840 \\ -0.00613998au^{42} - 0.0134470u^{42} + \cdots - 0.167347a - 0.720202 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.260099u^{42} - 0.756964u^{41} + \cdots - 62.4522u + 23.1375$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{86} - 7u^{85} + \cdots - 55u + 3$
c_2, c_8	$(u^{43} - 3u^{42} + \cdots + 110u - 17)^2$
c_3, c_9	$u^{86} + 4u^{85} + \cdots + 3742879u + 515187$
c_4, c_{10}	$(u^{43} - 2u^{42} + \cdots + 8u - 5)^2$
c_5, c_{11}	$u^{86} + 2u^{85} + \cdots - 1380u + 529$
c_6, c_{12}	$u^{86} - 2u^{85} + \cdots + 2676206273u + 339660187$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{86} - 7y^{85} + \cdots - 31y + 9$
c_2, c_8	$(y^{43} - 39y^{42} + \cdots + 4960y - 289)^2$
c_3, c_9	$y^{86} - 28y^{85} + \cdots - 1722726646621y + 265417644969$
c_4, c_{10}	$(y^{43} + 20y^{42} + \cdots - 446y - 25)^2$
c_5, c_{11}	$y^{86} + 32y^{85} + \cdots + 34272852y + 279841$
c_6, c_{12}	$y^{86} - 10y^{85} + \cdots - 3384577457419862375y + 115369042632874969$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.115680+0.088438I$ $a=-0.530621-0.816347I$ $b=-0.36669-1.40614I$	$2.05988-4.53064I$	$6.07841+4.88354I$
$u=-1.115680+0.088438I$ $a=\ \ 0.016420+0.564275I$ $b=-0.685045-0.446535I$	$2.05988-4.53064I$	$6.07841+4.88354I$
$u=-1.115680-0.088438I$ $a=-0.530621+0.816347I$ $b=-0.36669+1.40614I$	$2.05988+4.53064I$	$6.07841-4.88354I$
$u=-1.115680-0.088438I$ $a=\ \ 0.016420-0.564275I$ $b=-0.685045+0.446535I$	$2.05988+4.53064I$	$6.07841-4.88354I$
$u=\ \ 1.194820+0.508478I$ $a=\ \ 0.529082+0.865996I$ $b=-0.128273+0.357532I$	$3.19067+2.37658I$	$0.-11.61854I$
$u=\ \ 1.194820+0.508478I$ $a=\ \ 0.127113-0.366982I$ $b=-2.67295-2.83110I$	$3.19067+2.37658I$	$0.-11.61854I$
$u=\ \ 1.194820-0.508478I$ $a=\ \ 0.529082-0.865996I$ $b=-0.128273-0.357532I$	$3.19067-2.37658I$	$0.+11.61854I$
$u=\ \ 1.194820-0.508478I$ $a=\ \ 0.127113+0.366982I$ $b=-2.67295+2.83110I$	$3.19067-2.37658I$	$0.+11.61854I$
$u=\ \ 1.337540+0.195957I$ $a=\ \ 0.751109-0.509623I$ $b=\ \ 0.64184-1.29054I$	$0.786358+1.135550I$	0
$u=\ \ 1.337540+0.195957I$ $a=-0.162295-0.099306I$ $b=\ \ 0.298914-0.668145I$	$0.786358+1.135550I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.337540 - 0.195957I$ $a = 0.751109 + 0.509623I$ $b = 0.64184 + 1.29054I$	$0.786358 - 1.135550I$	0
$u = 1.337540 - 0.195957I$ $a = -0.162295 + 0.099306I$ $b = 0.298914 + 0.668145I$	$0.786358 - 1.135550I$	0
$u = 0.294990 + 0.528224I$ $a = -0.435664 - 0.275251I$ $b = -0.033816 + 0.763184I$	$1.43197 + 1.52483I$	$4.77881 - 4.92385I$
$u = 0.294990 + 0.528224I$ $a = 1.39558 + 0.81111I$ $b = 0.066598 + 0.867420I$	$1.43197 + 1.52483I$	$4.77881 - 4.92385I$
$u = 0.294990 - 0.528224I$ $a = -0.435664 + 0.275251I$ $b = -0.033816 - 0.763184I$	$1.43197 - 1.52483I$	$4.77881 + 4.92385I$
$u = 0.294990 - 0.528224I$ $a = 1.39558 - 0.81111I$ $b = 0.066598 - 0.867420I$	$1.43197 - 1.52483I$	$4.77881 + 4.92385I$
$u = 0.213109 + 1.378840I$ $a = 0.083822 + 1.308350I$ $b = 0.326802 + 1.369390I$	$-4.20801 + 3.81011I$	0
$u = 0.213109 + 1.378840I$ $a = -0.300600 - 0.256235I$ $b = 1.38339 - 1.96236I$	$-4.20801 + 3.81011I$	0
$u = 0.213109 - 1.378840I$ $a = 0.083822 - 1.308350I$ $b = 0.326802 - 1.369390I$	$-4.20801 - 3.81011I$	0
$u = 0.213109 - 1.378840I$ $a = -0.300600 + 0.256235I$ $b = 1.38339 + 1.96236I$	$-4.20801 - 3.81011I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.399740 + 0.139228I$ $a = 0.427844 - 0.842577I$ $b = -0.44234 - 3.01249I$	$4.07903 + 8.22022I$	0
$u = 1.399740 + 0.139228I$ $a = 0.090161 - 0.501687I$ $b = -0.299763 - 0.437113I$	$4.07903 + 8.22022I$	0
$u = 1.399740 - 0.139228I$ $a = 0.427844 + 0.842577I$ $b = -0.44234 + 3.01249I$	$4.07903 - 8.22022I$	0
$u = 1.399740 - 0.139228I$ $a = 0.090161 + 0.501687I$ $b = -0.299763 + 0.437113I$	$4.07903 - 8.22022I$	0
$u = -1.40247 + 0.29057I$ $a = -0.775681 + 0.883009I$ $b = -0.57870 + 1.57791I$	$2.64500 + 3.06546I$	0
$u = -1.40247 + 0.29057I$ $a = 0.660428 - 0.286945I$ $b = -0.316631 + 0.132705I$	$2.64500 + 3.06546I$	0
$u = -1.40247 - 0.29057I$ $a = -0.775681 - 0.883009I$ $b = -0.57870 - 1.57791I$	$2.64500 - 3.06546I$	0
$u = -1.40247 - 0.29057I$ $a = 0.660428 + 0.286945I$ $b = -0.316631 - 0.132705I$	$2.64500 - 3.06546I$	0
$u = -1.47287 + 0.24746I$ $a = -0.103512 - 0.862014I$ $b = 0.58468 - 2.98444I$	$6.94974 - 4.89323I$	0
$u = -1.47287 + 0.24746I$ $a = -0.159985 + 0.026947I$ $b = 0.243337 - 0.145539I$	$6.94974 - 4.89323I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.47287-0.24746I$ $a=-0.103512+0.862014I$ $b=\ \ 0.58468+2.98444I$	$6.94974+4.89323I$	0
$u=-1.47287-0.24746I$ $a=-0.159985-0.026947I$ $b=\ \ 0.243337+0.145539I$	$6.94974+4.89323I$	0
$u=\ \ 0.285156+0.399219I$ $a=\ \ 0.815991+0.837097I$ $b=\ \ 0.906247-0.313562I$	$0.47321+2.39024I$	$2.04869-4.02922I$
$u=\ \ 0.285156+0.399219I$ $a=\ \ 1.03908+2.24033I$ $b=-0.105611+0.731929I$	$0.47321+2.39024I$	$2.04869-4.02922I$
$u=\ \ 0.285156-0.399219I$ $a=\ \ 0.815991-0.837097I$ $b=\ \ 0.906247+0.313562I$	$0.47321-2.39024I$	$2.04869+4.02922I$
$u=\ \ 0.285156-0.399219I$ $a=\ \ 1.03908-2.24033I$ $b=-0.105611-0.731929I$	$0.47321-2.39024I$	$2.04869+4.02922I$
$u=\ \ 0.26091+1.49221I$ $a=-0.742276+0.668844I$ $b=\ \ 0.036986+1.190880I$	$1.47280-1.84076I$	0
$u=\ \ 0.26091+1.49221I$ $a=\ \ 0.864713+0.676358I$ $b=\ \ 0.100868+1.121450I$	$1.47280-1.84076I$	0
$u=\ \ 0.26091-1.49221I$ $a=-0.742276-0.668844I$ $b=\ \ 0.036986-1.190880I$	$1.47280+1.84076I$	0
$u=\ \ 0.26091-1.49221I$ $a=\ \ 0.864713-0.676358I$ $b=\ \ 0.100868-1.121450I$	$1.47280+1.84076I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.473826+0.064283I$ $a=-1.54698-0.84528I$ $b=-0.25071-1.60585I$	$-5.62558-0.60241I$	$3.49360+2.24885I$
$u=-0.473826+0.064283I$ $a=\ \ 2.74140-0.91558I$ $b=-0.206993+0.451612I$	$-5.62558-0.60241I$	$3.49360+2.24885I$
$u=-0.473826-0.064283I$ $a=-1.54698+0.84528I$ $b=-0.25071+1.60585I$	$-5.62558+0.60241I$	$3.49360-2.24885I$
$u=-0.473826-0.064283I$ $a=\ \ 2.74140+0.91558I$ $b=-0.206993-0.451612I$	$-5.62558+0.60241I$	$3.49360-2.24885I$
$u=\ \ 0.169794+0.434125I$ $a=-2.23282-0.47524I$ $b=-0.511531-0.638166I$	$-0.38058-6.28025I$	$0.64015+9.26219I$
$u=\ \ 0.169794+0.434125I$ $a=-2.55925+1.01168I$ $b=\ \ 0.145150+1.155370I$	$-0.38058-6.28025I$	$0.64015+9.26219I$
$u=\ \ 0.169794-0.434125I$ $a=-2.23282+0.47524I$ $b=-0.511531+0.638166I$	$-0.38058+6.28025I$	$0.64015-9.26219I$
$u=\ \ 0.169794-0.434125I$ $a=-2.55925-1.01168I$ $b=\ \ 0.145150-1.155370I$	$-0.38058+6.28025I$	$0.64015-9.26219I$
$u=-0.03772+1.56297I$ $a=-0.120715-0.856591I$ $b=\ \ 0.05713-1.83396I$	$-8.16558-1.16224I$	0
$u=-0.03772+1.56297I$ $a=\ \ 0.11469+1.74498I$ $b=\ \ 0.04099+1.67869I$	$-8.16558-1.16224I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.03772-1.56297I$ $a=-0.120715+0.856591I$ $b=\ \ 0.05713+1.83396I$	$-8.16558+1.16224I$	0
$u=-0.03772-1.56297I$ $a=\ \ 0.11469-1.74498I$ $b=\ \ 0.04099-1.67869I$	$-8.16558+1.16224I$	0
$u=\ \ 1.53711+0.31414I$ $a=\ \ 0.768268+0.635630I$ $b=-0.056706+0.707806I$	$4.44405+0.89151I$	0
$u=\ \ 1.53711+0.31414I$ $a=-0.062562+0.463261I$ $b=\ \ 1.15312+3.42175I$	$4.44405+0.89151I$	0
$u=\ \ 1.53711-0.31414I$ $a=\ \ 0.768268-0.635630I$ $b=-0.056706-0.707806I$	$4.44405-0.89151I$	0
$u=\ \ 1.53711-0.31414I$ $a=-0.062562-0.463261I$ $b=\ \ 1.15312-3.42175I$	$4.44405-0.89151I$	0
$u=-0.194415+0.346795I$ $a=-1.065970-0.131400I$ $b=-0.14265+2.22850I$	$-0.28736+3.36637I$	$11.88280+1.35996I$
$u=-0.194415+0.346795I$ $a=\ \ 3.21301+0.74244I$ $b=-0.589464+0.006918I$	$-0.28736+3.36637I$	$11.88280+1.35996I$
$u=-0.194415-0.346795I$ $a=-1.065970+0.131400I$ $b=-0.14265-2.22850I$	$-0.28736-3.36637I$	$11.88280-1.35996I$
$u=-0.194415-0.346795I$ $a=\ \ 3.21301-0.74244I$ $b=-0.589464-0.006918I$	$-0.28736-3.36637I$	$11.88280-1.35996I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.60996 + 0.08161I$ $a = 0.884676 + 0.826488I$ $b = 0.66083 + 1.52938I$	$1.31869 - 7.19355I$	0
$u = 1.60996 + 0.08161I$ $a = -0.634090 - 0.080905I$ $b = 0.135911 + 0.270762I$	$1.31869 - 7.19355I$	0
$u = 1.60996 - 0.08161I$ $a = 0.884676 - 0.826488I$ $b = 0.66083 - 1.52938I$	$1.31869 + 7.19355I$	0
$u = 1.60996 - 0.08161I$ $a = -0.634090 + 0.080905I$ $b = 0.135911 - 0.270762I$	$1.31869 + 7.19355I$	0
$u = -1.62004 + 0.05900I$ $a = -0.169701 - 0.719649I$ $b = 0.24164 - 2.95574I$	$7.35319 - 4.35321I$	0
$u = -1.62004 + 0.05900I$ $a = -0.516824 - 0.337282I$ $b = 0.055828 - 0.398375I$	$7.35319 - 4.35321I$	0
$u = -1.62004 - 0.05900I$ $a = -0.169701 + 0.719649I$ $b = 0.24164 + 2.95574I$	$7.35319 + 4.35321I$	0
$u = -1.62004 - 0.05900I$ $a = -0.516824 + 0.337282I$ $b = 0.055828 + 0.398375I$	$7.35319 + 4.35321I$	0
$u = -1.63959 + 0.12969I$ $a = -0.629016 - 0.711882I$ $b = 0.62535 - 1.60664I$	$3.95952 - 9.14255I$	0
$u = -1.63959 + 0.12969I$ $a = 0.220903 + 0.413033I$ $b = -1.26345 + 3.62757I$	$3.95952 - 9.14255I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.63959-0.12969I$ $a=-0.629016+0.711882I$ $b=\ \ 0.62535+1.60664I$	$3.95952+9.14255I$	0
$u=-1.63959-0.12969I$ $a=\ \ 0.220903-0.413033I$ $b=-1.26345-3.62757I$	$3.95952+9.14255I$	0
$u=\ \ 0.256452+0.097043I$ $a=\ \ 1.72057-2.43295I$ $b=-0.01397-1.83611I$	$-3.48797+8.65451I$	$10.96127-3.30272I$
$u=\ \ 0.256452+0.097043I$ $a=-1.71936+5.75556I$ $b=\ \ 0.717391+0.308677I$	$-3.48797+8.65451I$	$10.96127-3.30272I$
$u=\ \ 0.256452-0.097043I$ $a=\ \ 1.72057+2.43295I$ $b=-0.01397+1.83611I$	$-3.48797-8.65451I$	$10.96127+3.30272I$
$u=\ \ 0.256452-0.097043I$ $a=-1.71936-5.75556I$ $b=\ \ 0.717391-0.308677I$	$-3.48797-8.65451I$	$10.96127+3.30272I$
$u=-1.64625+0.57157I$ $a=-0.206383-0.751197I$ $b=\ \ 0.65091-2.37486I$	$7.57975-5.62049I$	0
$u=-1.64625+0.57157I$ $a=-0.731761+0.237535I$ $b=-0.1289710+0.0080917I$	$7.57975-5.62049I$	0
$u=-1.64625-0.57157I$ $a=-0.206383+0.751197I$ $b=\ \ 0.65091+2.37486I$	$7.57975+5.62049I$	0
$u=-1.64625-0.57157I$ $a=-0.731761-0.237535I$ $b=-0.1289710-0.0080917I$	$7.57975+5.62049I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ 1.81032$ $a = \ 0.704212$ $b = -1.95016$	7.04633	0
$u = \ 1.81032$ $a = \ 0.137336$ $b = -10.9556$	7.04633	0
$u = \ 1.63813 + 0.86204I$ $a = \ 0.940907 + 0.346569I$ $b = \ 0.275684 + 0.126572I$	$5.43168 + 10.49420I$	0
$u = \ 1.63813 + 0.86204I$ $a = \ 0.314823 - 0.765184I$ $b = -0.60244 - 2.02673I$	$5.43168 + 10.49420I$	0
$u = \ 1.63813 - 0.86204I$ $a = \ 0.940907 - 0.346569I$ $b = \ 0.275684 - 0.126572I$	$5.43168 - 10.49420I$	0
$u = \ 1.63813 - 0.86204I$ $a = \ 0.314823 + 0.765184I$ $b = -0.60244 + 2.02673I$	$5.43168 - 10.49420I$	0

III. $I_3^u = \langle 2.20 \times 10^{25} u^{39} + 2.36 \times 10^{25} u^{38} + \cdots + 1.03 \times 10^{24} b - 1.37 \times 10^{27},\ -7.74 \times 10^{26} u^{39} - 1.52 \times 10^{26} u^{38} + \cdots + 1.96 \times 10^{25} a + 9.28 \times 10^{27},\ u^{40} - 6u^{38} + \cdots - 255u^2 - 19 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 39.5458u^{39} + 7.77693u^{38} + \cdots - 2324.41u - 474.232 \\ -21.3768u^{39} - 22.8909u^{38} + \cdots + 1244.77u + 1330.64 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -58.1679u^{39} + 3.29014u^{38} + \cdots + 3449.07u - 137.870 \\ -5.80256u^{39} + 11.6925u^{38} + \cdots + 359.869u - 685.518 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -52.3653u^{39} - 8.40239u^{38} + \cdots + 3089.20u + 547.648 \\ -5.80256u^{39} + 11.6925u^{38} + \cdots + 359.869u - 685.518 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -70.0334u^{39} - 21.3768u^{38} + \cdots + 4061.56u + 1244.77 \\ 7.77693u^{39} + 12.7669u^{38} + \cdots - 474.232u - 751.370 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 36.0799u^{39} - 5.80256u^{38} + \cdots - 2110.89u + 359.869 \\ 3.29014u^{39} - 18.6530u^{38} + \cdots - 137.870u + 1105.19 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 36.0799u^{39} - 5.80256u^{38} + \cdots - 2110.89u + 359.869 \\ -8.40239u^{39} - 16.8892u^{38} + \cdots + 547.648u + 994.941 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -19.8101u^{39} - 2.40796u^{38} + \cdots + 1124.82u + 148.776 \\ -21.0277u^{39} - 13.7029u^{38} + \cdots + 1259.48u + 794.359 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -41.8084u^{39} - 21.0277u^{38} + \cdots + 2425.85u + 1259.48 \\ -2.40796u^{39} - 6.63080u^{38} + \cdots + 148.776u + 376.393 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{1498550232586074740005959 71}{515021663836420099366239}u^{38} - \frac{9483928402393522760137375 78}{515021663836420099366239}u^{36} + \cdots - \frac{899119889460802097456704671 97}{515021663836420099366239}u^2 - \frac{867101979787082031401347 6786}{515021663836420099366239}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{40} - 12u^{39} + \cdots + 15u + 1$
c_2, c_8	$u^{40} - 6u^{38} + \cdots - 255u^2 - 19$
c_3, c_9	$u^{40} + 5u^{39} + \cdots - 3u + 1$
c_4, c_{10}	$u^{40} + 8u^{38} + \cdots - 297u^2 - 19$
c_5, c_{11}	$u^{40} - 5u^{39} + \cdots - 36u - 36$
c_6, c_{12}	$u^{40} + 5u^{39} + \cdots - 81u + 27$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{40} - 24y^{39} + \cdots - 235y + 1$
c_2, c_8	$(y^{20} - 6y^{19} + \cdots - 255y - 19)^2$
c_3, c_9	$y^{40} - 31y^{39} + \cdots + 41y + 1$
c_4, c_{10}	$(y^{20} + 8y^{19} + \cdots - 297y - 19)^2$
c_5, c_{11}	$y^{40} - y^{39} + \cdots - 27216y + 1296$
c_6, c_{12}	$y^{40} + 11y^{39} + \cdots + 104247y + 729$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.929042I$ $a = 1.008700 + 0.535913I$ $b = 0.116734 + 0.879504I$	1.39660	4.42730
$u = -0.929042I$ $a = 1.008700 - 0.535913I$ $b = 0.116734 - 0.879504I$	1.39660	4.42730
$u = 1.178850 + 0.209458I$ $a = -0.703351 - 0.338282I$ $b = 0.022042 + 0.625498I$	$1.32275 - 5.63915I$	$0. + 7.01051I$
$u = 1.178850 - 0.209458I$ $a = -0.703351 + 0.338282I$ $b = 0.022042 - 0.625498I$	$1.32275 + 5.63915I$	$0. - 7.01051I$
$u = -1.178850 + 0.209458I$ $a = -0.749427 + 0.898373I$ $b = -0.72110 + 1.23469I$	$1.32275 + 5.63915I$	$0. - 7.01051I$
$u = -1.178850 - 0.209458I$ $a = -0.749427 - 0.898373I$ $b = -0.72110 - 1.23469I$	$1.32275 - 5.63915I$	$0. + 7.01051I$
$u = 1.199010 + 0.348364I$ $a = 0.137760 + 0.349959I$ $b = -2.07637 + 0.88877I$	$3.52609 + 1.74568I$	0
$u = 1.199010 - 0.348364I$ $a = 0.137760 - 0.349959I$ $b = -2.07637 - 0.88877I$	$3.52609 - 1.74568I$	0
$u = -1.199010 + 0.348364I$ $a = -0.548822 + 0.771359I$ $b = 0.239946 + 0.310271I$	$3.52609 - 1.74568I$	0
$u = -1.199010 - 0.348364I$ $a = -0.548822 - 0.771359I$ $b = 0.239946 - 0.310271I$	$3.52609 + 1.74568I$	0

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.136984 + 1.302140I$ $a = -0.305822 - 0.314089I$ $b = 1.73222 - 1.78973I$	$-4.33120 + 3.94595I$	0
$u = 0.136984 - 1.302140I$ $a = -0.305822 + 0.314089I$ $b = 1.73222 + 1.78973I$	$-4.33120 - 3.94595I$	0
$u = -0.136984 + 1.302140I$ $a = -0.108453 + 1.343220I$ $b = -0.330792 + 1.302590I$	$-4.33120 - 3.94595I$	0
$u = -0.136984 - 1.302140I$ $a = -0.108453 - 1.343220I$ $b = -0.330792 - 1.302590I$	$-4.33120 + 3.94595I$	0
$u = 0.050813 + 0.653192I$ $a = 0.54749 + 2.31274I$ $b = -0.068034 + 1.252060I$	$-6.41705 - 0.11934I$	$-5.06037 - 1.90424I$
$u = 0.050813 - 0.653192I$ $a = 0.54749 - 2.31274I$ $b = -0.068034 - 1.252060I$	$-6.41705 + 0.11934I$	$-5.06037 + 1.90424I$
$u = -0.050813 + 0.653192I$ $a = 0.27250 + 1.80754I$ $b = -0.22773 + 1.58802I$	$-6.41705 + 0.11934I$	$-5.06037 + 1.90424I$
$u = -0.050813 - 0.653192I$ $a = 0.27250 - 1.80754I$ $b = -0.22773 - 1.58802I$	$-6.41705 - 0.11934I$	$-5.06037 - 1.90424I$
$u = -0.226986 + 0.550089I$ $a = -0.27141 + 1.59457I$ $b = 0.11892 + 1.82807I$	$-3.85848 - 8.80900I$	$-7.98418 + 11.33270I$
$u = -0.226986 - 0.550089I$ $a = -0.27141 - 1.59457I$ $b = 0.11892 - 1.82807I$	$-3.85848 + 8.80900I$	$-7.98418 - 11.33270I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.226986 + 0.550089I$ $a = 1.45723 + 2.48719I$ $b = 0.511984 + 0.415389I$	$-3.85848 + 8.80900I$	$-7.98418 - 11.33270I$
$u = 0.226986 - 0.550089I$ $a = 1.45723 - 2.48719I$ $b = 0.511984 - 0.415389I$	$-3.85848 - 8.80900I$	$-7.98418 + 11.33270I$
$u = -0.004800 + 0.571260I$ $a = -1.58528 + 1.61394I$ $b = 0.152978 + 0.082715I$	$-0.55712 - 3.66399I$	$-1.27961 + 13.86053I$
$u = -0.004800 - 0.571260I$ $a = -1.58528 - 1.61394I$ $b = 0.152978 - 0.082715I$	$-0.55712 + 3.66399I$	$-1.27961 - 13.86053I$
$u = 0.004800 + 0.571260I$ $a = 0.712428 + 0.739925I$ $b = -1.00518 + 2.26941I$	$-0.55712 + 3.66399I$	$-1.27961 - 13.86053I$
$u = 0.004800 - 0.571260I$ $a = 0.712428 - 0.739925I$ $b = -1.00518 - 2.26941I$	$-0.55712 - 3.66399I$	$-1.27961 + 13.86053I$
$u = 1.47284 + 0.15553I$ $a = 0.552345 - 0.801614I$ $b = -0.36950 - 2.22670I$	$3.28324 + 7.83214I$	0
$u = 1.47284 - 0.15553I$ $a = 0.552345 + 0.801614I$ $b = -0.36950 + 2.22670I$	$3.28324 - 7.83214I$	0
$u = -1.47284 + 0.15553I$ $a = -0.152691 + 0.262120I$ $b = -0.285395 + 0.888432I$	$3.28324 - 7.83214I$	0
$u = -1.47284 - 0.15553I$ $a = -0.152691 - 0.262120I$ $b = -0.285395 - 0.888432I$	$3.28324 + 7.83214I$	0

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.51156 + 0.26431I$ $a = 0.355371 + 0.035389I$ $b = 0.0104865 - 0.1040000I$	$6.77206 + 4.79490I$	0
$u = 1.51156 - 0.26431I$ $a = 0.355371 - 0.035389I$ $b = 0.0104865 + 0.1040000I$	$6.77206 - 4.79490I$	0
$u = -1.51156 + 0.26431I$ $a = -0.112338 - 0.872812I$ $b = 0.51658 - 2.86042I$	$6.77206 - 4.79490I$	0
$u = -1.51156 - 0.26431I$ $a = -0.112338 + 0.872812I$ $b = 0.51658 + 2.86042I$	$6.77206 + 4.79490I$	0
$u = 0.05303 + 1.61259I$ $a = -0.082693 - 0.843305I$ $b = 0.05758 - 1.82287I$	$-8.09446 - 1.28532I$	0
$u = 0.05303 - 1.61259I$ $a = -0.082693 + 0.843305I$ $b = 0.05758 + 1.82287I$	$-8.09446 + 1.28532I$	0
$u = -0.05303 + 1.61259I$ $a = -0.05806 + 1.72700I$ $b = -0.06640 + 1.70162I$	$-8.09446 + 1.28532I$	0
$u = -0.05303 - 1.61259I$ $a = -0.05806 - 1.72700I$ $b = -0.06640 - 1.70162I$	$-8.09446 - 1.28532I$	0
$u = 1.83596$ $a = 0.0349025$ $b = -14.4201$	7.08706	0
$u = -1.83596$ $a = -0.765863$ $b = 1.76221$	7.08706	0

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4a + 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_7, c_9, c_{10}	$y^2 + y + 1$
c_2, c_8, c_{12}	$(y-1)^2$
c_5	$y^2 + 4y + 16$
c_6	$(y+3)^2$
c_{11}	y^2

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.00000$ $a=\quad 0.500000+0.866025I$ $b=\quad 0$	$1.64493-2.02988I$	$6.00000+3.46410I$
$u=-1.00000$ $a=\quad 0.500000-0.866025I$ $b=\quad 0$	$1.64493+2.02988I$	$6.00000-3.46410I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4a+4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_7, c_9, c_{10}	$y^2 + y + 1$
c_2, c_6, c_8	$(y-1)^2$
c_5	y^2
c_{11}	$y^2 + 4y + 16$
c_{12}	$(y+3)^2$

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_5^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	1.00000		
$a=$	$0.500000+0.866025I$	$1.64493-2.02988I$	$6.00000+3.46410I$
$b=$	$1.00000+1.73205I$		
$u=$	1.00000		
$a=$	$0.500000-0.866025I$	$1.64493+2.02988I$	$6.00000-3.46410I$
$b=$	$1.00000-1.73205I$		

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8b-4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v=-1.00000$ $a=\quad 0$ $b=-0.500000+0.866025I$	$4.05977I$	$0.-6.92820I$
$v=-1.00000$ $a=\quad 0$ $b=-0.500000-0.866025I$	$-4.05977I$	$0.+6.92820I$

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_7	$((u^2-u+1)^2)(u^2+u+1)(u^{37}-u^{36}+\cdots+8u-1)$ $\cdot(u^{40}-12u^{39}+\cdots+15u+1)(u^{86}-7u^{85}+\cdots-55u+3)$
c_2, c_8	$u^2(u-1)^2(u+1)^2(u^{37}+5u^{36}+\cdots+2744u+388)$ $\cdot(u^{40}-6u^{38}+\cdots-255u^2-19)(u^{43}-3u^{42}+\cdots+110u-17)^2$
c_3, c_9	$(u^2-u+1)(u^2+u+1)^2(u^{37}+u^{36}+\cdots+2u+1)$ $\cdot(u^{40}+5u^{39}+\cdots-3u+1)(u^{86}+4u^{85}+\cdots+3742879u+515187)$
c_4, c_{10}	$u^2(u^2-u+1)(u^2+u+1)(u^{37}+5u^{36}+\cdots+184u+52)$ $\cdot(u^{40}+8u^{38}+\cdots-297u^2-19)(u^{43}-2u^{42}+\cdots+8u-5)^2$
c_5, c_{11}	$u^2(u^2+u+1)(u^2+2u+4)(u^{37}+u^{36}+\cdots-4u+4)$ $\cdot(u^{40}-5u^{39}+\cdots-36u-36)(u^{86}+2u^{85}+\cdots-1380u+529)$
c_6, c_{12}	$((u-1)^2)(u^2+3)(u^2-u+1)(u^{37}-u^{36}+\cdots-104u-47)$ $\cdot(u^{40}+5u^{39}+\cdots-81u+27)$ $\cdot(u^{86}-2u^{85}+\cdots+2676206273u+339660187)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_7	$((y^2+y+1)^3)(y^{37}-11y^{36}+\cdots+32y-1)$ $\cdot(y^{40}-24y^{39}+\cdots-235y+1)(y^{86}-7y^{85}+\cdots-31y+9)$
c_2, c_8	$y^2(y-1)^4(y^{20}-6y^{19}+\cdots-255y-19)^2$ $\cdot(y^{37}-23y^{36}+\cdots+3132720y-150544)$ $\cdot(y^{43}-39y^{42}+\cdots+4960y-289)^2$
c_3, c_9	$((y^2+y+1)^3)(y^{37}-37y^{36}+\cdots+30y-1)$ $\cdot(y^{40}-31y^{39}+\cdots+41y+1)$ $\cdot(y^{86}-28y^{85}+\cdots-1722726646621y+265417644969)$
c_4, c_{10}	$y^2(y^2+y+1)^2(y^{20}+8y^{19}+\cdots-297y-19)^2$ $\cdot(y^{37}+13y^{36}+\cdots-5872y-2704)(y^{43}+20y^{42}+\cdots-446y-25)^2$
c_5, c_{11}	$y^2(y^2+y+1)(y^2+4y+16)(y^{37}-5y^{36}+\cdots-976y-16)$ $\cdot(y^{40}-y^{39}+\cdots-27216y+1296)$ $\cdot(y^{86}+32y^{85}+\cdots+34272852y+279841)$
c_6, c_{12}	$((y-1)^2)(y+3)^2(y^2+y+1)(y^{37}-31y^{36}+\cdots+16456y-2209)$ $\cdot(y^{40}+11y^{39}+\cdots+104247y+729)$ $\cdot(y^{86}-10y^{85}+\cdots-3384577457419862375y+115369042632874969)$