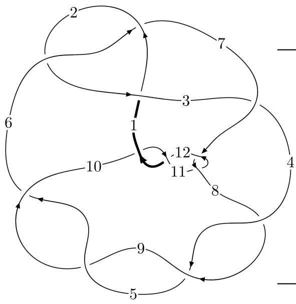
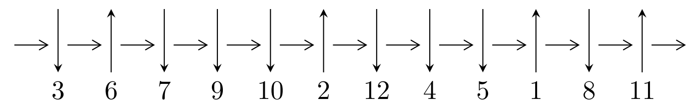
$12a_{0216}$ ($K12a_{0216}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 3.31230 \times 10^{33} u^{63} - 9.21845 \times 10^{33} u^{62} + \cdots + 2.52277 \times 10^{34} b - 5.95857 \times 10^{34},$$
$$1.05553 \times 10^{34} u^{63} - 2.85080 \times 10^{34} u^{62} + \cdots + 2.52277 \times 10^{34} a - 9.65444 \times 10^{33},\ u^{64} - 4u^{63} + \cdots + 32u +$$
$$I_2^u = \langle 2b + 2a - u + 2,\ 2a^2 - 2au + 2a - u + 3,\ u^2 - 2\rangle$$
$$I_3^u = \langle a^4 u - 2a^4 + 4a^3 u - 8a^3 + 4a^2 u - 8a^2 - 7au + 25b - 11a - 14u - 2,$$
$$a^5 + 2a^4 u + 2a^4 + 3a^3 u + 6a^3 + 8a^2 u + 10a^2 + 7au + 13a - u - 1,\ u^2 + u - 1\rangle$$
$$I_4^u = \langle au + b + 2a + u + 2,\ 2a^2 + au + 2a - u + 3,\ u^2 - 2\rangle$$

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

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 86 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. $\boldsymbol{I_1^u =}$
$\boldsymbol{\langle 3.31\times 10^{33}u^{63} - 9.22\times 10^{33}u^{62} + \cdots + 2.52\times 10^{34}b - 5.96\times 10^{34},\ 1.06\times 10^{34}u^{63} - 2.85\times 10^{34}u^{62} + \cdots + 2.52\times 10^{34}a - 9.65\times 10^{33},\ u^{64} - 4u^{63} + \cdots + 32u + 16\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^3 - 2u \\ u^5 - 3u^3 + u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.418403u^{63} + 1.13003u^{62} + \cdots + 7.82001u + 0.382692 \\ -0.131296u^{63} + 0.365410u^{62} + \cdots + 4.28462u + 2.36192 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.342599u^{63} + 0.737839u^{62} + \cdots + 11.5782u + 4.46198 \\ -0.263432u^{63} + 0.630688u^{62} + \cdots + 6.03905u + 1.99604 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0.790350u^{63} - 2.05902u^{62} + \cdots - 18.5463u - 5.88736 \\ 0.362768u^{63} - 0.965419u^{62} + \cdots - 6.85471u - 2.61286 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.203141u^{63} - 0.562340u^{62} + \cdots - 3.81650u - 1.43156 \\ 0.409877u^{63} - 1.08413u^{62} + \cdots - 8.12806u - 2.97524 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.549700u^{63} + 1.49544u^{62} + \cdots + 12.1046u + 2.74461 \\ -0.131296u^{63} + 0.365410u^{62} + \cdots + 4.28462u + 2.36192 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.768798u^{63} - 1.82001u^{62} + \cdots - 19.8193u - 8.43548 \\ 0.735613u^{63} - 1.86045u^{62} + \cdots - 15.0301u - 5.18940 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 2.52449u^{63} - 5.73943u^{62} + \cdots - 69.7334u - 34.4634$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{64} + 35u^{63} + \cdots + 416u + 49$
c_2, c_6	$u^{64} - 3u^{63} + \cdots - 16u + 7$
c_3	$u^{64} + 3u^{63} + \cdots - 4558u + 763$
c_4, c_5, c_8 c_9	$u^{64} + 4u^{63} + \cdots - 32u + 16$
c_7, c_{11}	$u^{64} + 3u^{63} + \cdots - 6u + 7$
c_{10}, c_{12}	$u^{64} - 19u^{63} + \cdots - 608u + 49$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{64} - 5y^{63} + \cdots - 30760y + 2401$
c_2, c_6	$y^{64} + 35y^{63} + \cdots + 416y + 49$
c_3	$y^{64} - 45y^{63} + \cdots + 15204664y + 582169$
c_4, c_5, c_8 c_9	$y^{64} - 76y^{63} + \cdots - 1024y + 256$
c_7, c_{11}	$y^{64} + 19y^{63} + \cdots + 608y + 49$
c_{10}, c_{12}	$y^{64} + 59y^{63} + \cdots + 133272y + 2401$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.873442 + 0.450062I$ $a = 0.316313 + 0.070275I$ $b = -0.799432 + 0.773699I$	$-4.38307 - 0.99571I$	0
$u = 0.873442 - 0.450062I$ $a = 0.316313 - 0.070275I$ $b = -0.799432 - 0.773699I$	$-4.38307 + 0.99571I$	0
$u = -0.819111 + 0.526710I$ $a = -1.11929 - 1.64147I$ $b = -0.751905 + 0.969822I$	$-3.78557 + 6.83757I$	0
$u = -0.819111 - 0.526710I$ $a = -1.11929 + 1.64147I$ $b = -0.751905 - 0.969822I$	$-3.78557 - 6.83757I$	0
$u = 0.824871 + 0.622233I$ $a = -0.92431 + 1.81972I$ $b = -0.773002 - 1.004690I$	$-6.66344 - 11.86030I$	0
$u = 0.824871 - 0.622233I$ $a = -0.92431 - 1.81972I$ $b = -0.773002 + 1.004690I$	$-6.66344 + 11.86030I$	0
$u = -0.879555 + 0.575858I$ $a = 0.533241 + 0.042734I$ $b = -0.858792 - 0.753406I$	$-7.43975 + 5.78092I$	0
$u = -0.879555 - 0.575858I$ $a = 0.533241 - 0.042734I$ $b = -0.858792 + 0.753406I$	$-7.43975 - 5.78092I$	0
$u = 0.974065 + 0.497285I$ $a = -0.83168 + 1.35722I$ $b = -0.798463 - 0.924252I$	$-8.15312 - 3.18144I$	0
$u = 0.974065 - 0.497285I$ $a = -0.83168 - 1.35722I$ $b = -0.798463 + 0.924252I$	$-8.15312 + 3.18144I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.857795+0.198791I$ $a=-0.310940+0.261733I$ $b=0.651190-0.065793I$	$-3.65580+3.51727I$	$-12.68996-5.01598I$
$u=-0.857795-0.198791I$ $a=-0.310940-0.261733I$ $b=0.651190+0.065793I$	$-3.65580-3.51727I$	$-12.68996+5.01598I$
$u=-1.057340+0.437339I$ $a=0.206911+0.270794I$ $b=-0.815263-0.853921I$	$-8.36696-2.85624I$	0
$u=-1.057340-0.437339I$ $a=0.206911-0.270794I$ $b=-0.815263+0.853921I$	$-8.36696+2.85624I$	0
$u=0.142496+0.804798I$ $a=-0.47916+1.62652I$ $b=0.772417-0.938985I$	$-4.61047+7.11222I$	$-7.85412-5.57393I$
$u=0.142496-0.804798I$ $a=-0.47916-1.62652I$ $b=0.772417+0.938985I$	$-4.61047-7.11222I$	$-7.85412+5.57393I$
$u=-0.060512+0.798911I$ $a=-0.45707+1.46569I$ $b=0.803492-0.827725I$	$-4.95457-1.19128I$	$-8.68532+0.53231I$
$u=-0.060512-0.798911I$ $a=-0.45707-1.46569I$ $b=0.803492+0.827725I$	$-4.95457+1.19128I$	$-8.68532-0.53231I$
$u=0.679164+0.384679I$ $a=0.56201-2.37763I$ $b=0.240421+1.058780I$	$-0.09688-6.48785I$	$-5.34636+9.14112I$
$u=0.679164-0.384679I$ $a=0.56201+2.37763I$ $b=0.240421-1.058780I$	$-0.09688+6.48785I$	$-5.34636-9.14112I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.063045 + 0.685748I$ $a = -0.37731 - 1.58111I$ $b = 0.723329 + 0.880008I$	$-1.54119 - 2.76193I$	$-3.74007 + 2.60897I$
$u = -0.063045 - 0.685748I$ $a = -0.37731 + 1.58111I$ $b = 0.723329 - 0.880008I$	$-1.54119 + 2.76193I$	$-3.74007 - 2.60897I$
$u = -0.639376 + 0.195260I$ $a = -2.34545 - 0.43868I$ $b = -0.654214 + 0.889738I$	$-0.81009 + 5.04742I$	$-8.02999 - 8.42703I$
$u = -0.639376 - 0.195260I$ $a = -2.34545 + 0.43868I$ $b = -0.654214 - 0.889738I$	$-0.81009 - 5.04742I$	$-8.02999 + 8.42703I$
$u = -0.535329 + 0.395031I$ $a = 0.72597 + 2.21083I$ $b = 0.176464 - 0.974491I$	$1.96190 + 2.14353I$	$-0.48240 - 5.32337I$
$u = -0.535329 - 0.395031I$ $a = 0.72597 - 2.21083I$ $b = 0.176464 + 0.974491I$	$1.96190 - 2.14353I$	$-0.48240 + 5.32337I$
$u = -1.378940 + 0.142145I$ $a = -0.499258 - 0.680732I$ $b = -0.644422 + 0.661579I$	$-6.70970 + 3.00332I$	0
$u = -1.378940 - 0.142145I$ $a = -0.499258 + 0.680732I$ $b = -0.644422 - 0.661579I$	$-6.70970 - 3.00332I$	0
$u = -0.363836 + 0.462721I$ $a = 1.38698 + 2.18023I$ $b = -0.033354 - 0.884096I$	$2.47588 + 0.92435I$	$1.91401 - 4.19238I$
$u = -0.363836 - 0.462721I$ $a = 1.38698 - 2.18023I$ $b = -0.033354 + 0.884096I$	$2.47588 - 0.92435I$	$1.91401 + 4.19238I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.42295 + 0.10139I$ $a = -0.310419 - 0.898915I$ $b = -0.574977 + 0.965428I$	$-5.75578 + 1.76368I$	0
$u = 1.42295 - 0.10139I$ $a = -0.310419 + 0.898915I$ $b = -0.574977 - 0.965428I$	$-5.75578 - 1.76368I$	0
$u = -1.43142 + 0.07936I$ $a = -1.220480 - 0.666038I$ $b = -0.061312 + 0.624389I$	$-4.32668 - 1.79922I$	0
$u = -1.43142 - 0.07936I$ $a = -1.220480 + 0.666038I$ $b = -0.061312 - 0.624389I$	$-4.32668 + 1.79922I$	0
$u = 0.378088 + 0.391436I$ $a = 0.149787 - 1.097520I$ $b = 0.493469 + 0.542722I$	$-1.13035 - 0.98038I$	$-9.44439 + 5.04601I$
$u = 0.378088 - 0.391436I$ $a = 0.149787 + 1.097520I$ $b = 0.493469 - 0.542722I$	$-1.13035 + 0.98038I$	$-9.44439 - 5.04601I$
$u = 1.45615 + 0.08976I$ $a = -1.01574 + 1.04774I$ $b = -0.145990 - 0.826005I$	$-3.41948 - 2.73930I$	0
$u = 1.45615 - 0.08976I$ $a = -1.01574 - 1.04774I$ $b = -0.145990 + 0.826005I$	$-3.41948 + 2.73930I$	0
$u = 0.269672 + 0.456052I$ $a = 2.17570 - 2.31816I$ $b = -0.187057 + 0.849183I$	$1.13367 + 3.50081I$	$-0.27253 - 1.56313I$
$u = 0.269672 - 0.456052I$ $a = 2.17570 + 2.31816I$ $b = -0.187057 - 0.849183I$	$1.13367 - 3.50081I$	$-0.27253 + 1.56313I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.345458 + 0.308634I$ $a = -0.16531 - 1.86311I$ $b = 0.537021 + 0.956459I$	$-0.00299 - 3.22788I$	$-5.50185 - 1.31175I$
$u = -0.345458 - 0.308634I$ $a = -0.16531 + 1.86311I$ $b = 0.537021 - 0.956459I$	$-0.00299 + 3.22788I$	$-5.50185 + 1.31175I$
$u = 0.162481 + 0.408835I$ $a = 1.44324 - 0.12966I$ $b = -0.318816 + 0.244523I$	$-0.51706 - 1.49158I$	$-5.11534 + 4.83543I$
$u = 0.162481 - 0.408835I$ $a = 1.44324 + 0.12966I$ $b = -0.318816 - 0.244523I$	$-0.51706 + 1.49158I$	$-5.11534 - 4.83543I$
$u = 1.57045 + 0.06947I$ $a = -0.56984 + 1.35554I$ $b = -0.279628 - 1.103440I$	$-5.18358 - 3.62251I$	0
$u = 1.57045 - 0.06947I$ $a = -0.56984 - 1.35554I$ $b = -0.279628 + 1.103440I$	$-5.18358 + 3.62251I$	0
$u = 1.61840 + 0.04481I$ $a = 1.367660 - 0.140722I$ $b = 0.774064 + 0.910389I$	$-8.72706 - 5.87646I$	0
$u = 1.61840 - 0.04481I$ $a = 1.367660 + 0.140722I$ $b = 0.774064 - 0.910389I$	$-8.72706 + 5.87646I$	0
$u = -1.61803 + 0.10068I$ $a = -0.52547 - 1.48304I$ $b = -0.253191 + 1.186100I$	$-8.02622 + 8.25020I$	0
$u = -1.61803 - 0.10068I$ $a = -0.52547 + 1.48304I$ $b = -0.253191 - 1.186100I$	$-8.02622 - 8.25020I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.65295 + 0.15535I$ $a = 1.21356 - 0.98307I$ $b = 0.785284 + 1.028100I$	$-12.2488 - 9.4695I$	0
$u = 1.65295 - 0.15535I$ $a = 1.21356 + 0.98307I$ $b = 0.785284 - 1.028100I$	$-12.2488 + 9.4695I$	0
$u = 1.65992 + 0.04982I$ $a = -0.142293 + 0.110211I$ $b = -0.885583 - 0.091250I$	$-12.43950 - 4.45006I$	0
$u = 1.65992 - 0.04982I$ $a = -0.142293 - 0.110211I$ $b = -0.885583 + 0.091250I$	$-12.43950 + 4.45006I$	0
$u = -1.65878 + 0.18881I$ $a = 1.14079 + 1.15178I$ $b = 0.784282 - 1.059400I$	$-15.1084 + 14.9979I$	0
$u = -1.65878 - 0.18881I$ $a = 1.14079 - 1.15178I$ $b = 0.784282 + 1.059400I$	$-15.1084 - 14.9979I$	0
$u = -1.66569 + 0.12660I$ $a = 0.219521 + 0.247710I$ $b = 0.899613 + 0.742060I$	$-13.14280 + 3.23432I$	0
$u = -1.66569 - 0.12660I$ $a = 0.219521 - 0.247710I$ $b = 0.899613 - 0.742060I$	$-13.14280 - 3.23432I$	0
$u = 1.67592 + 0.16565I$ $a = 0.056375 - 0.215125I$ $b = 0.934162 - 0.708886I$	$-16.2081 - 8.6708I$	0
$u = 1.67592 - 0.16565I$ $a = 0.056375 + 0.215125I$ $b = 0.934162 + 0.708886I$	$-16.2081 + 8.6708I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.69835 + 0.12447I$ $a = 0.974819 + 0.805892I$ $b = 0.834072 - 1.009660I$	$-17.4538 + 5.5952I$	0
$u = -1.69835 - 0.12447I$ $a = 0.974819 - 0.805892I$ $b = 0.834072 + 1.009660I$	$-17.4538 - 5.5952I$	0
$u = 1.71155 + 0.09018I$ $a = 0.321141 - 0.008755I$ $b = 0.926120 - 0.804268I$	$-18.1024 + 0.8823I$	0
$u = 1.71155 - 0.09018I$ $a = 0.321141 + 0.008755I$ $b = 0.926120 + 0.804268I$	$-18.1024 - 0.8823I$	0

II. $I_2^u = \langle 2b + 2a - u + 2,\ 2a^2 - 2au + 2a - u + 3,\ u^2 - 2 \rangle$

(i) Arc colorings

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

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

$$a_9 = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u \\ -u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0 \\ -u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} a \\ -a + \frac{1}{2}u - 1 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} \frac{1}{2}au + \frac{1}{2}u - \frac{1}{2} \\ -a + \frac{1}{2}u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} \frac{1}{2}au - \frac{1}{2} \\ u + 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} \frac{1}{2}au - \frac{1}{2} \\ au + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} \frac{1}{2}u - 1 \\ -a + \frac{1}{2}u - 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{1}{2}au + \frac{1}{2}u - \frac{1}{2} \\ -a + \frac{1}{2}u \end{pmatrix}$$

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.41421$ $a = 0.207107 + 0.866025I$ $b = -0.500000 - 0.866025I$	$-4.93480 - 4.05977I$	$-8.00000 + 6.92820I$
$u = 1.41421$ $a = 0.207107 - 0.866025I$ $b = -0.500000 + 0.866025I$	$-4.93480 + 4.05977I$	$-8.00000 - 6.92820I$
$u = -1.41421$ $a = -1.20711 + 0.86603I$ $b = -0.500000 - 0.866025I$	$-4.93480 - 4.05977I$	$-8.00000 + 6.92820I$
$u = -1.41421$ $a = -1.20711 - 0.86603I$ $b = -0.500000 + 0.866025I$	$-4.93480 + 4.05977I$	$-8.00000 - 6.92820I$

III. $\boldsymbol{I^u_3 = \langle a^4u + 4a^3u + \cdots - 11a - 2,\ 2a^4u + 3a^3u + \cdots + 13a - 1,\ u^2 + u - 1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ -u+1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ -u+1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} a \\ -0.0400000a^4u - 0.160000a^3u + \cdots + 0.440000a + 0.0800000 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.320000a^4u + 0.280000a^3u + \cdots + 0.680000a + 0.960000 \\ 0.640000a^4u - 0.440000a^3u + \cdots + 0.360000a - 0.0800000 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.0400000a^4u - 0.160000a^3u + \cdots + 1.44000a + 0.0800000 \\ -0.0400000a^4u - 0.160000a^3u + \cdots + 0.440000a + 0.0800000 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} a \\ -0.0400000a^4u - 0.160000a^3u + \cdots + 0.440000a + 0.0800000 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.0400000a^4u - 0.160000a^3u + \cdots + 1.44000a + 0.0800000 \\ -0.0400000a^4u - 0.160000a^3u + \cdots + 0.440000a + 0.0800000 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -1.04000a^4u - 0.160000a^3u + \cdots - 1.36000a - 0.320000 \\ -0.560000a^4u - 0.240000a^3u + \cdots - 0.240000a - 0.0800000 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{10}+4u^9+10u^8+16u^7+19u^6+13u^5+4u^4-5u^3-5u^2-3u+1$
c_2, c_6, c_7 c_{11}	$u^{10}+2u^8+3u^6-u^5+2u^4-u^3+u^2-u-1$
c_3	$u^{10}+2u^8+2u^7-3u^6-3u^5-8u^4+u^3+9u^2-5u-5$
c_4, c_5, c_8 c_9	$(u^2-u-1)^5$
c_{10}, c_{12}	$u^{10}-4u^9+10u^8-16u^7+19u^6-13u^5+4u^4+5u^3-5u^2+3u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}, c_{12}	$y^{10} + 4y^9 + \cdots - 19y + 1$
c_2, c_6, c_7 c_{11}	$y^{10} + 4y^9 + 10y^8 + 16y^7 + 19y^6 + 13y^5 + 4y^4 - 5y^3 - 5y^2 - 3y + 1$
c_3	$y^{10} + 4y^9 + \cdots - 115y + 25$
c_4, c_5, c_8 c_9	$(y^2 - 3y + 1)^5$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = 0.0866109$ $b = 0.481001$	-0.986960	-10.0000
$u = 0.618034$ $a = -1.73755 + 0.98693I$ $b = -0.643219 + 0.835211I$	-0.986960	-10.0000
$u = 0.618034$ $a = -1.73755 - 0.98693I$ $b = -0.643219 - 0.835211I$	-0.986960	-10.0000
$u = 0.618034$ $a = 0.07621 + 2.16163I$ $b = 0.402718 - 0.997003I$	-0.986960	-10.0000
$u = 0.618034$ $a = 0.07621 - 2.16163I$ $b = 0.402718 + 0.997003I$	-0.986960	-10.0000
$u = -1.61803$ $a = 1.122050 + 0.202875I$ $b = 0.786437 + 0.860119I$	-8.88264	-10.0000
$u = -1.61803$ $a = 1.122050 - 0.202875I$ $b = 0.786437 - 0.860119I$	-8.88264	-10.0000
$u = -1.61803$ $a = -0.380191 + 1.332290I$ $b = -0.388630 - 1.160270I$	-8.88264	-10.0000
$u = -1.61803$ $a = -0.380191 - 1.332290I$ $b = -0.388630 + 1.160270I$	-8.88264	-10.0000
$u = -1.61803$ $a = -0.247641$ $b = -0.795614$	-8.88264	-10.0000

IV. $\boldsymbol{I_4^u = \langle au + b + 2a + u + 2,\ 2a^2 + au + 2a - u + 3,\ u^2 - 2\rangle}$

(i) Arc colorings

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

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

$$a_9 = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u \\ -u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0 \\ -u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} a \\ -au - 2a - u - 2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -au - a - \frac{1}{2}u - 1 \\ -au - 2a - u - 1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -au - a - u - 1 \\ -au - 2a - 2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -au - a - u - 1 \\ -3au - 4a - 2u - 4 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -au - a - u - 2 \\ -au - 2a - u - 2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -au - a - \frac{1}{2}u - 1 \\ -au - 2a - u - 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ \ 1.41421$ $a = -0.853553 + 0.253653I$ $b = -0.500000 - 0.866025I$	-4.93480	-8.00000
$u = \ \ 1.41421$ $a = -0.853553 - 0.253653I$ $b = -0.500000 + 0.866025I$	-4.93480	-8.00000
$u = -1.41421$ $a = -0.14645 + 1.47840I$ $b = -0.500000 - 0.866025I$	-4.93480	-8.00000
$u = -1.41421$ $a = -0.14645 - 1.47840I$ $b = -0.500000 + 0.866025I$	-4.93480	-8.00000

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 8v - 2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_2^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	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	$(u^2-u+1)^6$ $\cdot\,(u^{10}+4u^9+10u^8+16u^7+19u^6+13u^5+4u^4-5u^3-5u^2-3u+1)$ $\cdot\,(u^{64}+35u^{63}+\cdots+416u+49)$
c_2	$((u^2-u+1)^4)(u^2+u+1)^2(u^{10}+2u^8+\cdots-u-1)$ $\cdot\,(u^{64}-3u^{63}+\cdots-16u+7)$
c_3	$(u^2-u+1)^2(u^2+u+1)^4$ $\cdot\,(u^{10}+2u^8+2u^7-3u^6-3u^5-8u^4+u^3+9u^2-5u-5)$ $\cdot\,(u^{64}+3u^{63}+\cdots-4558u+763)$
c_4, c_5, c_8 c_9	$u^4(u^2-2)^4(u^2-u-1)^5(u^{64}+4u^{63}+\cdots-32u+16)$
c_6	$((u^2-u+1)^2)(u^2+u+1)^4(u^{10}+2u^8+\cdots-u-1)$ $\cdot\,(u^{64}-3u^{63}+\cdots-16u+7)$
c_7	$((u^2-u+1)^2)(u^2+u+1)^4(u^{10}+2u^8+\cdots-u-1)$ $\cdot\,(u^{64}+3u^{63}+\cdots-6u+7)$
c_{10}	$(u^2+u+1)^6$ $\cdot\,(u^{10}-4u^9+10u^8-16u^7+19u^6-13u^5+4u^4+5u^3-5u^2+3u+1)$ $\cdot\,(u^{64}-19u^{63}+\cdots-608u+49)$
c_{11}	$((u^2-u+1)^4)(u^2+u+1)^2(u^{10}+2u^8+\cdots-u-1)$ $\cdot\,(u^{64}+3u^{63}+\cdots-6u+7)$
c_{12}	$(u^2-u+1)^6$ $\cdot\,(u^{10}-4u^9+10u^8-16u^7+19u^6-13u^5+4u^4+5u^3-5u^2+3u+1)$ $\cdot\,(u^{64}-19u^{63}+\cdots-608u+49)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y^2+y+1)^6)(y^{10}+4y^9+\cdots-19y+1)$ $\cdot\,(y^{64}-5y^{63}+\cdots-30760y+2401)$
c_2, c_6	$(y^2+y+1)^6$ $\cdot\,(y^{10}+4y^9+10y^8+16y^7+19y^6+13y^5+4y^4-5y^3-5y^2-3y+1)$ $\cdot\,(y^{64}+35y^{63}+\cdots+416y+49)$
c_3	$((y^2+y+1)^6)(y^{10}+4y^9+\cdots-115y+25)$ $\cdot\,(y^{64}-45y^{63}+\cdots+15204664y+582169)$
c_4, c_5, c_8 c_9	$y^4(y-2)^8(y^2-3y+1)^5(y^{64}-76y^{63}+\cdots-1024y+256)$
c_7, c_{11}	$(y^2+y+1)^6$ $\cdot\,(y^{10}+4y^9+10y^8+16y^7+19y^6+13y^5+4y^4-5y^3-5y^2-3y+1)$ $\cdot\,(y^{64}+19y^{63}+\cdots+608y+49)$
c_{10}, c_{12}	$((y^2+y+1)^6)(y^{10}+4y^9+\cdots-19y+1)$ $\cdot\,(y^{64}+59y^{63}+\cdots+133272y+2401)$