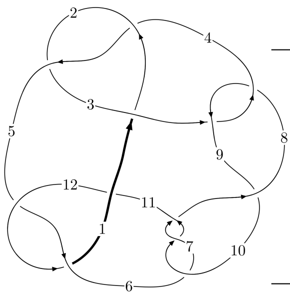
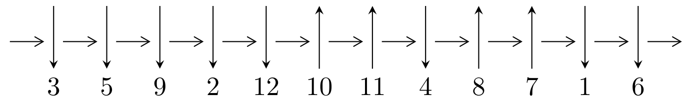
$12a_{0164}$ ($K12a_{0164}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

[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`).

$$
\begin{aligned}
I_1^u = \langle & 798299739247u^{24} + 2218887488039u^{23} + \cdots + 14116099211116d - 8843381349140, \\
& -364885635753u^{24} + 1117648334550u^{23} + \cdots + 28232198422232c - 44559223365168, \\
& 458802669672u^{24} + 367351897733u^{23} + \cdots + 7058049605558b - 1244576019090, \\
& -1687329917173u^{24} - 1804551705088u^{23} + \cdots + 28232198422232a - 30643572770096, \\
& u^{25} + 2u^{24} + \cdots - 16u - 8\rangle \\
I_2^u = \langle & d+1,\ 2u^{10}a + u^{10} + \cdots - 4a + 4,\ -u^{10}a + u^{10} + \cdots + b - 2,\ -3u^{10}a + u^{10} + \cdots + 2a^2 - 2a, \\
& u^{11} - 3u^{10} + 6u^9 - 7u^8 + 7u^7 - 3u^6 - 2u^5 + 8u^4 - 7u^3 + 5u^2 - 2u + 2\rangle \\
I_3^u = \langle & d+1,\ -u^7a - 3u^5a + u^5 - 2u^3a - 3au + c + a + u,\ -u^7a + u^7 + u^5 - u^3a + 2u^3 + b + u - 1, \\
& 2u^8a - 2u^8 + \cdots + 2a - 2,\ u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1\rangle \\
I_4^u = \langle & d+1,\ 2u^7c - u^8 + 2u^6c + 2u^5c - u^6 + 2u^4c + u^5 + 4u^3c - 2u^4 + 2u^2c + c^2 - u^2 + c + 2u, \\
& -u^7 - u^5 - 2u^3 + b - u,\ -u^5 + a - u,\ u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1\rangle \\
I_5^u = \langle & 2u^8 + 2u^7 + 4u^6 + 4u^5 + 6u^4 + 4u^3 + 4u^2 + d + 4u,\ 2u^8 + 2u^6 + 4u^4 + 2u^2 + c + 1,\ -u^7 - u^5 - 2u^3 + b - \\
& -u^5 + a - u,\ u^9 + u^8 + 2u^7 + u^6 + 3u^5 + u^4 + 2u^3 + u - 1\rangle
\end{aligned}
$$

$$
\begin{aligned}
I_1^v &= \langle a,\ d+1,\ c+a+1,\ b-1,\ v+1\rangle \\
I_2^v &= \langle c,\ d+1,\ b,\ a-1,\ v-1\rangle \\
I_3^v &= \langle a,\ d+1,\ c+a,\ b-1,\ v-1\rangle \\
I_4^v &= \langle a,\ da-c-1,\ dv+v-1,\ cv+av-a+v,\ b-1\rangle
\end{aligned}
$$

* 8 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 95 representations.
* 1 irreducible components of $\dim_{\mathbb{C}} = 1$

[2]All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

I. $\boldsymbol{I_1^u = \langle 7.98 \times 10^{11} u^{24} + 2.22 \times 10^{12} u^{23} + \cdots + 1.41 \times 10^{13} d - 8.84 \times 10^{12},\ -3.65 \times 10^{11} u^{24} + 1.12 \times 10^{12} u^{23} + \cdots + 2.82 \times 10^{13} c - 4.46 \times 10^{13},\ 4.59 \times 10^{11} u^{24} + 3.67 \times 10^{11} u^{23} + \cdots + 7.06 \times 10^{12} b - 1.24 \times 10^{12},\ -1.69 \times 10^{12} u^{24} - 1.80 \times 10^{12} u^{23} + \cdots + 2.82 \times 10^{13} a - 3.06 \times 10^{13},\ u^{25} + 2u^{24} + \cdots - 16u - 8 \rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.0597662u^{24} + 0.0639182u^{23} + \cdots - 0.107083u + 1.08541 \\ -0.0650042u^{24} - 0.0520472u^{23} + \cdots + 0.578878u + 0.176334 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 0.0129244u^{24} - 0.0395877u^{23} + \cdots + 0.145173u + 1.57831 \\ -0.0565524u^{24} - 0.157188u^{23} + \cdots - 1.05131u + 0.626475 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.0747149u^{24} + 0.105730u^{23} + \cdots + 0.724685u + 0.690091 \\ 0.00202430u^{24} + 0.0813992u^{23} + \cdots + 0.686595u - 0.973634 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.0597662u^{24} + 0.0639182u^{23} + \cdots - 0.107083u + 1.08541 \\ 0.0375166u^{24} + 0.0396045u^{23} + \cdots - 0.990575u - 0.621247 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0.0972828u^{24} + 0.103523u^{23} + \cdots - 1.09766u + 0.464165 \\ 0.0375166u^{24} + 0.0396045u^{23} + \cdots - 0.990575u - 0.621247 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.0159383u^{24} - 0.0332769u^{23} + \cdots - 0.0633916u + 1.31412 \\ -0.0587766u^{24} - 0.139007u^{23} + \cdots - 0.788077u + 0.624033 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0.0395277u^{24} + 0.0675081u^{23} + \cdots + 0.598270u + 0.845409 \\ -0.0839809u^{24} - 0.0749523u^{23} + \cdots + 1.66833u + 0.315163 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= \frac{8058725701665}{7058049605558} u^{24} + \frac{10736954342885}{7058049605558} u^{23} + \cdots - \frac{38478403451674}{3529024802779} u - \frac{29622418287164}{3529024802779}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{25} + 12u^{24} + \cdots + 3u + 1$
c_2, c_4, c_5 c_{12}	$u^{25} - 2u^{24} + \cdots - u + 1$
c_3, c_8	$u^{25} - 2u^{24} + \cdots - 16u + 8$
c_6, c_7, c_{10}	$u^{25} + 2u^{24} + \cdots + 8u + 4$
c_9	$u^{25} - 6u^{24} + \cdots + 64u + 64$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{25} + 8y^{24} + \cdots - 13y - 1$
c_2, c_4, c_5 c_{12}	$y^{25} - 12y^{24} + \cdots + 3y - 1$
c_3, c_8	$y^{25} + 6y^{24} + \cdots + 64y - 64$
c_6, c_7, c_{10}	$y^{25} - 22y^{24} + \cdots + 88y - 16$
c_9	$y^{25} + 14y^{24} + \cdots + 43008y - 4096$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.041130 + 0.234144I$ $a = 0.494693 + 0.148943I$ $b = 0.853442 - 0.558038I$ $c = 0.755058 + 0.911073I$ $d = 1.06504 + 1.52742I$	$3.14377 + 4.46824I$	$-1.00511 - 6.27335I$
$u = 1.041130 - 0.234144I$ $a = 0.494693 - 0.148943I$ $b = 0.853442 + 0.558038I$ $c = 0.755058 - 0.911073I$ $d = 1.06504 - 1.52742I$	$3.14377 - 4.46824I$	$-1.00511 + 6.27335I$
$u = -0.804646 + 0.457350I$ $a = 0.661026 + 0.327338I$ $b = 0.214886 - 0.601608I$ $c = 0.598042 + 0.576553I$ $d = 0.536475 + 0.287592I$	$2.41327 - 0.90505I$	$1.24488 - 0.76686I$
$u = -0.804646 - 0.457350I$ $a = 0.661026 - 0.327338I$ $b = 0.214886 + 0.601608I$ $c = 0.598042 - 0.576553I$ $d = 0.536475 - 0.287592I$	$2.41327 + 0.90505I$	$1.24488 + 0.76686I$
$u = -0.336133 + 1.048560I$ $a = 0.23291 - 1.77170I$ $b = -0.927060 + 0.554841I$ $c = -2.44072 - 0.00843I$ $d = 1.28789 + 1.63373I$	$0.70247 + 6.59785I$	$-2.96140 - 9.56947I$
$u = -0.336133 - 1.048560I$ $a = 0.23291 + 1.77170I$ $b = -0.927060 - 0.554841I$ $c = -2.44072 + 0.00843I$ $d = 1.28789 - 1.63373I$	$0.70247 - 6.59785I$	$-2.96140 + 9.56947I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.926049 + 0.758012I$ $a = 0.437271 + 0.092989I$ $b = 1.187970 - 0.465287I$ $c = 1.33714 + 0.95866I$ $d = 2.30915 + 1.75468I$	$-7.68831 + 5.75962I$	$-10.13195 - 4.49272I$
$u = 0.926049 - 0.758012I$ $a = 0.437271 - 0.092989I$ $b = 1.187970 + 0.465287I$ $c = 1.33714 - 0.95866I$ $d = 2.30915 - 1.75468I$	$-7.68831 - 5.75962I$	$-10.13195 + 4.49272I$
$u = -0.759240 + 0.251838I$ $a = 0.519076 - 0.093919I$ $b = 0.865432 + 0.337523I$ $c = 0.49147 - 1.32874I$ $d = 0.46170 - 2.46248I$	$-2.09943 - 2.64913I$	$-8.26724 + 7.08829I$
$u = -0.759240 - 0.251838I$ $a = 0.519076 + 0.093919I$ $b = 0.865432 - 0.337523I$ $c = 0.49147 + 1.32874I$ $d = 0.46170 + 2.46248I$	$-2.09943 + 2.64913I$	$-8.26724 - 7.08829I$
$u = -0.169266 + 0.764490I$ $a = 1.154810 + 0.812291I$ $b = -0.420684 - 0.407489I$ $c = 0.77118 + 1.56321I$ $d = 0.194809 - 0.625745I$	$1.62680 - 1.08260I$	$3.35440 + 3.89731I$
$u = -0.169266 - 0.764490I$ $a = 1.154810 - 0.812291I$ $b = -0.420684 + 0.407489I$ $c = 0.77118 - 1.56321I$ $d = 0.194809 + 0.625745I$	$1.62680 + 1.08260I$	$3.35440 - 3.89731I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.096683 + 1.217070I$ $a = 0.512583 - 1.088800I$ $b = -0.646064 + 0.751814I$ $c = -0.430370 - 0.686592I$ $d = 0.984764 + 0.859225I$	$8.85704 + 0.98974I$	$4.51267 - 2.53049I$
$u = 0.096683 - 1.217070I$ $a = 0.512583 + 1.088800I$ $b = -0.646064 - 0.751814I$ $c = -0.430370 + 0.686592I$ $d = 0.984764 - 0.859225I$	$8.85704 - 0.98974I$	$4.51267 + 2.53049I$
$u = -0.661369 + 1.057320I$ $a = 0.574734 + 0.631929I$ $b = -0.212320 - 0.866068I$ $c = 0.370547 + 0.605496I$ $d = 0.879125 - 0.241772I$	$4.06909 + 6.32284I$	$1.86961 - 4.09954I$
$u = -0.661369 - 1.057320I$ $a = 0.574734 - 0.631929I$ $b = -0.212320 + 0.866068I$ $c = 0.370547 - 0.605496I$ $d = 0.879125 + 0.241772I$	$4.06909 - 6.32284I$	$1.86961 + 4.09954I$
$u = -1.024310 + 0.754591I$ $a = 0.432415 - 0.103048I$ $b = 1.188320 + 0.521494I$ $c = 1.26644 - 0.88578I$ $d = 2.18015 - 1.59332I$	$-3.22783 - 10.10170I$	$-5.60475 + 6.88322I$
$u = -1.024310 - 0.754591I$ $a = 0.432415 + 0.103048I$ $b = 1.188320 - 0.521494I$ $c = 1.26644 + 0.88578I$ $d = 2.18015 + 1.59332I$	$-3.22783 + 10.10170I$	$-5.60475 - 6.88322I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.425565 + 1.220260I$ $a = -0.00331 + 1.51391I$ $b = -1.001440 - 0.660540I$ $c = -1.51553 - 0.69262I$ $d = 1.55274 - 1.36521I$	$6.70868 - 9.75196I$	$0.64851 + 8.69449I$
$u = 0.425565 - 1.220260I$ $a = -0.00331 - 1.51391I$ $b = -1.001440 + 0.660540I$ $c = -1.51553 + 0.69262I$ $d = 1.55274 + 1.36521I$	$6.70868 + 9.75196I$	$0.64851 - 8.69449I$
$u = 0.797713 + 1.033120I$ $a = -0.66380 + 1.63521I$ $b = -1.213130 - 0.525024I$ $c = -1.11526 - 2.93778I$ $d = 2.23603 - 1.53373I$	$-6.80818 - 12.11480I$	$-8.50713 + 8.67244I$
$u = 0.797713 - 1.033120I$ $a = -0.66380 - 1.63521I$ $b = -1.213130 + 0.525024I$ $c = -1.11526 + 2.93778I$ $d = 2.23603 + 1.53373I$	$-6.80818 + 12.11480I$	$-8.50713 - 8.67244I$
$u = -0.832592 + 1.087810I$ $a = -0.64807 - 1.52933I$ $b = -1.234910 + 0.554337I$ $c = -0.80559 + 2.69461I$ $d = 2.22655 + 1.42478I$	$-2.1296 + 16.8657I$	$-4.74649 - 10.33694I$
$u = -0.832592 - 1.087810I$ $a = -0.64807 + 1.52933I$ $b = -1.234910 - 0.554337I$ $c = -0.80559 - 2.69461I$ $d = 2.22655 - 1.42478I$	$-2.1296 - 16.8657I$	$-4.74649 + 10.33694I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.600838$ $a = 0.591322$ $b = 0.691126$ $c = -0.564782$ $d = -1.82889$	-1.26593	-6.81200

II. $\boldsymbol{I_2^u = \langle d+1,\ 2u^{10}a + u^{10} + \cdots - 4a + 4,\ -u^{10}a + u^{10} + \cdots + b - 2,\ -3u^{10}a + u^{10} + \cdots + 2a^2 - 2a,\ u^{11} - 3u^{10} + \cdots - 2u + 2\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} a \\ u^{10}a - u^{10} + \cdots - u + 2 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -u^{10}a - \frac{1}{2}u^{10} + \cdots + 2a - 2 \\ -1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -\frac{3}{2}u^{10} + \frac{5}{2}u^9 + \cdots + \frac{1}{2}u^2 - \frac{3}{2}u \\ -u^{10} + 2u^9 - 3u^8 + 2u^7 - 2u^6 - u^5 + 3u^4 - 4u^3 + u^2 - u + 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} a \\ -u^{10}a + u^{10} + \cdots + u - 2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^{10}a + u^{10} + \cdots + a - 2 \\ -u^{10}a + u^{10} + \cdots + u - 2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -\frac{3}{2}u^{10} + \frac{9}{2}u^9 + \cdots - \frac{3}{2}u + 3 \\ 2u^9 - 3u^8 + 5u^7 - 3u^6 + 4u^5 + 3u^4 - 4u^3 + 6u^2 + 3 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -\frac{1}{2}u^{10} + \frac{1}{2}u^9 + \cdots + \frac{1}{2}u^2 + \frac{1}{2}u \\ -u^{10} + 2u^9 - 3u^8 + 3u^7 - 2u^6 + 3u^4 - 2u^3 + 2u^2 + 1 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= 2u^{10} - 8u^9 + 10u^8 - 10u^7 + 4u^6 - 4u^5 - 14u^4 + 12u^3 - 6u^2 - 8u - 12$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{22} + 11u^{21} + \cdots + 40u + 16$
c_2, c_4, c_5 c_{12}	$u^{22} - u^{21} + \cdots - 4u + 4$
c_3, c_8	$(u^{11} + 3u^{10} + 6u^9 + 7u^8 + 7u^7 + 3u^6 - 2u^5 - 8u^4 - 7u^3 - 5u^2 - 2u - 2)^2$
c_6, c_7, c_{10}	$(u^{11} + u^{10} - 5u^9 - 4u^8 + 9u^7 + 4u^6 - 5u^5 + 3u^4 - 3u^3 - 5u^2 + 3u - 1)^2$
c_9	$(u^{11} - 3u^{10} + \cdots - 16u + 4)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{22} - 3y^{21} + \cdots - 544y + 256$
c_2, c_4, c_5 c_{12}	$y^{22} - 11y^{21} + \cdots - 40y + 16$
c_3, c_8	$(y^{11} + 3y^{10} + \cdots - 16y - 4)^2$
c_6, c_7, c_{10}	$(y^{11} - 11y^{10} + \cdots - y - 1)^2$
c_9	$(y^{11} + 7y^{10} + \cdots + 24y - 16)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.992754$ $a = \ \ 0.541424 + 0.181355I$ $b = \ \ 0.660661 - 0.556253I$ $c = -0.173971 + 0.420983I$ $d = -1.00000$	3.69004	0.666830
$u = -0.992754$ $a = \ \ 0.541424 - 0.181355I$ $b = \ \ 0.660661 + 0.556253I$ $c = -0.173971 - 0.420983I$ $d = -1.00000$	3.69004	0.666830
$u = \ \ 0.762686 + 0.875309I$ $a = \ \ 0.432041 + 0.071853I$ $b = \ \ 1.252300 - 0.374583I$ $c = -1.077570 - 0.728230I$ $d = -1.00000$	$-7.89368 - 2.87937I$	$-10.41286 + 3.23335I$
$u = \ \ 0.762686 + 0.875309I$ $a = -0.83899 + 1.92556I$ $b = -1.190170 - 0.436468I$ $c = -0.92410 + 2.27150I$ $d = -1.00000$	$-7.89368 - 2.87937I$	$-10.41286 + 3.23335I$
$u = \ \ 0.762686 - 0.875309I$ $a = \ \ 0.432041 - 0.071853I$ $b = \ \ 1.252300 + 0.374583I$ $c = -1.077570 + 0.728230I$ $d = -1.00000$	$-7.89368 + 2.87937I$	$-10.41286 - 3.23335I$
$u = \ \ 0.762686 - 0.875309I$ $a = -0.83899 - 1.92556I$ $b = -1.190170 + 0.436468I$ $c = -0.92410 - 2.27150I$ $d = -1.00000$	$-7.89368 + 2.87937I$	$-10.41286 - 3.23335I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.958422+0.661375I$ $a = 0.580062-0.402139I$ $b = 0.164345+0.807203I$ $c = 0.034579-0.677196I$ $d = -1.00000$	$-0.20533+5.20915I$	$-2.55774-3.72118I$
$u = 0.958422+0.661375I$ $a = 0.445846+0.101514I$ $b = 1.132380-0.485520I$ $c = -0.435696+0.436381I$ $d = -1.00000$	$-0.20533+5.20915I$	$-2.55774-3.72118I$
$u = 0.958422-0.661375I$ $a = 0.580062+0.402139I$ $b = 0.164345-0.807203I$ $c = 0.034579+0.677196I$ $d = -1.00000$	$-0.20533-5.20915I$	$-2.55774+3.72118I$
$u = 0.958422-0.661375I$ $a = 0.445846-0.101514I$ $b = 1.132380+0.485520I$ $c = -0.435696-0.436381I$ $d = -1.00000$	$-0.20533-5.20915I$	$-2.55774+3.72118I$
$u = -0.273627+1.210650I$ $a = 0.547051+0.920222I$ $b = -0.522674-0.802934I$ $c = 1.04176-1.12578I$ $d = -1.00000$	$8.10965+4.33574I$	$3.31243-3.68401I$
$u = -0.273627+1.210650I$ $a = 0.21367-1.45637I$ $b = -0.901383+0.672173I$ $c = 0.872371-0.074382I$ $d = -1.00000$	$8.10965+4.33574I$	$3.31243-3.68401I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.273627 - 1.210650I$ $a = 0.547051 - 0.920222I$ $b = -0.522674 + 0.802934I$ $c = 1.04176 + 1.12578I$ $d = -1.00000$	$8.10965 - 4.33574I$	$3.31243 + 3.68401I$
$u = -0.273627 - 1.210650I$ $a = 0.21367 + 1.45637I$ $b = -0.901383 - 0.672173I$ $c = 0.872371 + 0.074382I$ $d = -1.00000$	$8.10965 - 4.33574I$	$3.31243 + 3.68401I$
$u = 0.764438 + 1.080520I$ $a = 0.535931 - 0.594839I$ $b = -0.163987 + 0.927905I$ $c = 0.36336 + 1.80240I$ $d = -1.00000$	$1.11929 - 11.51290I$	$-1.55919 + 7.44023I$
$u = 0.764438 + 1.080520I$ $a = -0.56921 + 1.60575I$ $b = -1.196120 - 0.553243I$ $c = -0.063151 + 0.595914I$ $d = -1.00000$	$1.11929 - 11.51290I$	$-1.55919 + 7.44023I$
$u = 0.764438 - 1.080520I$ $a = 0.535931 + 0.594839I$ $b = -0.163987 - 0.927905I$ $c = 0.36336 - 1.80240I$ $d = -1.00000$	$1.11929 + 11.51290I$	$-1.55919 - 7.44023I$
$u = 0.764438 - 1.080520I$ $a = -0.56921 - 1.60575I$ $b = -1.196120 + 0.553243I$ $c = -0.063151 - 0.595914I$ $d = -1.00000$	$1.11929 + 11.51290I$	$-1.55919 - 7.44023I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.215541 + 0.601634I$ $a = 0.466364 - 0.019525I$ $b = 1.140500 + 0.089613I$ $c = -1.154200 + 0.288451I$ $d = -1.00000$	$-2.97495 + 0.92758I$	$-6.11605 - 7.40073I$
$u = -0.215541 + 0.601634I$ $a = 2.14581 - 3.56073I$ $b = -0.875845 + 0.206022I$ $c = 2.01661 - 3.69343I$ $d = -1.00000$	$-2.97495 + 0.92758I$	$-6.11605 - 7.40073I$
$u = -0.215541 - 0.601634I$ $a = 0.466364 + 0.019525I$ $b = 1.140500 - 0.089613I$ $c = -1.154200 - 0.288451I$ $d = -1.00000$	$-2.97495 - 0.92758I$	$-6.11605 + 7.40073I$
$u = -0.215541 - 0.601634I$ $a = 2.14581 + 3.56073I$ $b = -0.875845 - 0.206022I$ $c = 2.01661 + 3.69343I$ $d = -1.00000$	$-2.97495 - 0.92758I$	$-6.11605 + 7.40073I$

III. $\boldsymbol{I^u_3 = \langle d+1,\ -u^7a-3u^5a+\cdots+c+a,\ -u^7a+u^7+\cdots+b-1,\ 2u^8a-2u^8+\cdots+2a-2,\ u^9+u^8+\cdots+u-1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^7-4u^6-4u^5-4u^4-8u^3-4u^2-6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{18} + 13u^{17} + \cdots + 12u + 1$
c_2, c_4, c_6 c_7, c_{10}	$u^{18} + u^{17} + \cdots - 2u - 1$
c_3, c_8	$(u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1)^2$
c_5, c_{12}	$(u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1)^2$
c_9	$(u^9 - 3u^8 + 8u^7 - 13u^6 + 17u^5 - 17u^4 + 12u^3 - 6u^2 + u + 1)^2$
c_{11}	$(u^9 + 5u^8 + 12u^7 + 15u^6 + 9u^5 - u^4 - 4u^3 - 2u^2 + u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{18} - 17y^{17} + \cdots - 156y + 1$
c_2, c_4, c_6 c_7, c_{10}	$y^{18} - 13y^{17} + \cdots - 12y + 1$
c_3, c_8	$(y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1)^2$
c_5, c_{12}	$(y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1)^2$
c_9	$(y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1)^2$
c_{11}	$(y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.140343+0.966856I$ $a = 0.848261-1.052190I$ $b = -0.535620+0.576021I$ $c = 1.90798+1.04029I$ $d = -1.00000$	$1.78344-2.09337I$	$0.51499+4.16283I$
$u = 0.140343+0.966856I$ $a = 0.432824+0.012312I$ $b = 1.308540-0.065670I$ $c = -0.899132-0.444549I$ $d = -1.00000$	$1.78344-2.09337I$	$0.51499+4.16283I$
$u = 0.140343-0.966856I$ $a = 0.848261+1.052190I$ $b = -0.535620-0.576021I$ $c = 1.90798-1.04029I$ $d = -1.00000$	$1.78344+2.09337I$	$0.51499-4.16283I$
$u = 0.140343-0.966856I$ $a = 0.432824-0.012312I$ $b = 1.308540+0.065670I$ $c = -0.899132+0.444549I$ $d = -1.00000$	$1.78344+2.09337I$	$0.51499-4.16283I$
$u = 0.628449+0.875112I$ $a = 0.435786+0.058681I$ $b = 1.253840-0.303492I$ $c = -0.559107+0.407789I$ $d = -1.00000$	$-0.61694-2.45442I$	$-2.32792+2.91298I$
$u = 0.628449+0.875112I$ $a = -0.55382+2.15000I$ $b = -1.112360-0.436175I$ $c = 0.109615+1.224890I$ $d = -1.00000$	$-0.61694-2.45442I$	$-2.32792+2.91298I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.628449 - 0.875112I$ $a = 0.435786 - 0.058681I$ $b = 1.253840 + 0.303492I$ $c = -0.559107 - 0.407789I$ $d = -1.00000$	$-0.61694 + 2.45442I$	$-2.32792 - 2.91298I$
$u = 0.628449 - 0.875112I$ $a = -0.55382 - 2.15000I$ $b = -1.112360 + 0.436175I$ $c = 0.109615 - 1.224890I$ $d = -1.00000$	$-0.61694 + 2.45442I$	$-2.32792 - 2.91298I$
$u = -0.796005 + 0.733148I$ $a = 0.633756 + 0.458467I$ $b = 0.035822 - 0.749326I$ $c = 0.123475 + 0.714951I$ $d = -1.00000$	$-4.37135 - 1.33617I$	$-7.28409 + 0.70175I$
$u = -0.796005 + 0.733148I$ $a = -1.21946 - 2.08021I$ $b = -1.209730 + 0.357771I$ $c = -1.26364 - 2.41694I$ $d = -1.00000$	$-4.37135 - 1.33617I$	$-7.28409 + 0.70175I$
$u = -0.796005 - 0.733148I$ $a = 0.633756 - 0.458467I$ $b = 0.035822 + 0.749326I$ $c = 0.123475 - 0.714951I$ $d = -1.00000$	$-4.37135 + 1.33617I$	$-7.28409 - 0.70175I$
$u = -0.796005 - 0.733148I$ $a = -1.21946 + 2.08021I$ $b = -1.209730 - 0.357771I$ $c = -1.26364 + 2.41694I$ $d = -1.00000$	$-4.37135 + 1.33617I$	$-7.28409 - 0.70175I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.728966 + 0.986295I$ $a = 0.583232 + 0.580415I$ $b = -0.138557 - 0.857281I$ $c = 0.41356 - 1.98115I$ $d = -1.00000$	$-3.59813 + 7.08493I$	$-5.57680 - 5.91335I$
$u = -0.728966 + 0.986295I$ $a = 0.422628 - 0.065267I$ $b = 1.311030 + 0.356898I$ $c = -1.023380 + 0.710048I$ $d = -1.00000$	$-3.59813 + 7.08493I$	$-5.57680 - 5.91335I$
$u = -0.728966 - 0.986295I$ $a = 0.583232 - 0.580415I$ $b = -0.138557 + 0.857281I$ $c = 0.41356 + 1.98115I$ $d = -1.00000$	$-3.59813 - 7.08493I$	$-5.57680 + 5.91335I$
$u = -0.728966 - 0.986295I$ $a = 0.422628 + 0.065267I$ $b = 1.311030 - 0.356898I$ $c = -1.023380 - 0.710048I$ $d = -1.00000$	$-3.59813 - 7.08493I$	$-5.57680 + 5.91335I$
$u = 0.512358$ $a = 0.777682$ $b = 0.285873$ $c = 0.168784$ $d = -1.00000$	-1.19845	-8.65230
$u = 0.512358$ $a = -8.94409$ $b = -1.11181$ $c = -8.78753$ $d = -1.00000$	-1.19845	-8.65230

IV. $\boldsymbol{I_4^u = \langle d+1,\ 2u^7c - u^8 + \cdots + c^2 + c,\ -u^7 - u^5 - 2u^3 + b - u,\ -u^5 + a - u,\ u^9 + u^8 + \cdots + u - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^7 - 4u^6 - 4u^5 - 4u^4 - 8u^3 - 4u^2 - 6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^9 + 5u^8 + 12u^7 + 15u^6 + 9u^5 - u^4 - 4u^3 - 2u^2 + u + 1)^2$
c_2, c_4	$(u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1)^2$
c_3, c_8	$(u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1)^2$
c_5, c_6, c_7 c_{10}, c_{12}	$u^{18} + u^{17} + \cdots - 2u - 1$
c_9	$(u^9 - 3u^8 + 8u^7 - 13u^6 + 17u^5 - 17u^4 + 12u^3 - 6u^2 + u + 1)^2$
c_{11}	$u^{18} + 13u^{17} + \cdots + 12u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1)^2$
c_2, c_4	$(y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1)^2$
c_3, c_8	$(y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1)^2$
c_5, c_6, c_7 c_{10}, c_{12}	$y^{18} - 13y^{17} + \cdots - 12y + 1$
c_9	$(y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1)^2$
c_{11}	$y^{18} - 17y^{17} + \cdots - 156y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.140343 + 0.966856I$ $a = 0.72777 + 1.63562I$ $b = -0.772920 - 0.510351I$ $c = 1.76865 + 0.20308I$ $d = -1.00000$	$1.78344 - 2.09337I$	$0.51499 + 4.16283I$
$u = 0.140343 + 0.966856I$ $a = 0.72777 + 1.63562I$ $b = -0.772920 - 0.510351I$ $c = 0.48884 + 1.87834I$ $d = -1.00000$	$1.78344 - 2.09337I$	$0.51499 + 4.16283I$
$u = 0.140343 - 0.966856I$ $a = 0.72777 - 1.63562I$ $b = -0.772920 + 0.510351I$ $c = 1.76865 - 0.20308I$ $d = -1.00000$	$1.78344 + 2.09337I$	$0.51499 - 4.16283I$
$u = 0.140343 - 0.966856I$ $a = 0.72777 - 1.63562I$ $b = -0.772920 + 0.510351I$ $c = 0.48884 - 1.87834I$ $d = -1.00000$	$1.78344 + 2.09337I$	$0.51499 - 4.16283I$
$u = 0.628449 + 0.875112I$ $a = 0.668544 - 0.575994I$ $b = -0.141484 + 0.739668I$ $c = 0.209391 - 0.831348I$ $d = -1.00000$	$-0.61694 - 2.45442I$	$-2.32792 + 2.91298I$
$u = 0.628449 + 0.875112I$ $a = 0.668544 - 0.575994I$ $b = -0.141484 + 0.739668I$ $c = 0.62665 + 2.28784I$ $d = -1.00000$	$-0.61694 - 2.45442I$	$-2.32792 + 2.91298I$

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.628449 - 0.875112I$ $a = 0.668544 + 0.575994I$ $b = -0.141484 - 0.739668I$ $c = 0.209391 + 0.831348I$ $d = -1.00000$	$-0.61694 + 2.45442I$	$-2.32792 - 2.91298I$
$u = 0.628449 - 0.875112I$ $a = 0.668544 + 0.575994I$ $b = -0.141484 - 0.739668I$ $c = 0.62665 - 2.28784I$ $d = -1.00000$	$-0.61694 + 2.45442I$	$-2.32792 - 2.91298I$
$u = -0.796005 + 0.733148I$ $a = 0.445546 - 0.080250I$ $b = 1.173910 + 0.391555I$ $c = -0.485156 - 0.408132I$ $d = -1.00000$	$-4.37135 - 1.33617I$	$-7.28409 + 0.70175I$
$u = -0.796005 + 0.733148I$ $a = 0.445546 - 0.080250I$ $b = 1.173910 + 0.391555I$ $c = -1.156890 + 0.759007I$ $d = -1.00000$	$-4.37135 - 1.33617I$	$-7.28409 + 0.70175I$
$u = -0.796005 - 0.733148I$ $a = 0.445546 + 0.080250I$ $b = 1.173910 - 0.391555I$ $c = -0.485156 + 0.408132I$ $d = -1.00000$	$-4.37135 + 1.33617I$	$-7.28409 - 0.70175I$
$u = -0.796005 - 0.733148I$ $a = 0.445546 + 0.080250I$ $b = 1.173910 - 0.391555I$ $c = -1.156890 - 0.759007I$ $d = -1.00000$	$-4.37135 + 1.33617I$	$-7.28409 - 0.70175I$

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.728966 + 0.986295I$ $a = -0.61569 - 1.78625I$ $b = -1.172470 + 0.500383I$ $c = -0.058202 - 0.817156I$ $d = -1.00000$	$-3.59813 + 7.08493I$	$-5.57680 - 5.91335I$
$u = -0.728966 + 0.986295I$ $a = -0.61569 - 1.78625I$ $b = -1.172470 + 0.500383I$ $c = -0.73020 - 2.13952I$ $d = -1.00000$	$-3.59813 + 7.08493I$	$-5.57680 - 5.91335I$
$u = -0.728966 - 0.986295I$ $a = -0.61569 + 1.78625I$ $b = -1.172470 - 0.500383I$ $c = -0.058202 + 0.817156I$ $d = -1.00000$	$-3.59813 - 7.08493I$	$-5.57680 + 5.91335I$
$u = -0.728966 - 0.986295I$ $a = -0.61569 + 1.78625I$ $b = -1.172470 - 0.500383I$ $c = -0.73020 + 2.13952I$ $d = -1.00000$	$-3.59813 - 7.08493I$	$-5.57680 + 5.91335I$
$u = 0.512358$ $a = 0.547665$ $b = 0.825933$ $c = -0.316966$ $d = -1.00000$	-1.19845	-8.65230
$u = 0.512358$ $a = 0.547665$ $b = 0.825933$ $c = -2.00921$ $d = -1.00000$	-1.19845	-8.65230

V. $\boldsymbol{I^u_5 = \langle 2u^8+2u^7+\cdots+d+4u,\ 2u^8+2u^6+\cdots+c+1,\ -u^7-u^5-2u^3+ b-u,\ -u^5+a-u,\ u^9+u^8+\cdots+u-1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^7-4u^6-4u^5-4u^4-8u^3-4u^2-6$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^9 + 5u^8 + 12u^7 + 15u^6 + 9u^5 - u^4 - 4u^3 - 2u^2 + u + 1$
c_2, c_4, c_5 c_6, c_7, c_{10} c_{12}	$u^9 - u^8 - 2u^7 + 3u^6 + u^5 - 3u^4 + 2u^3 - u + 1$
c_3, c_8	$u^9 - u^8 + 2u^7 - u^6 + 3u^5 - u^4 + 2u^3 + u + 1$
c_9	$u^9 - 3u^8 + 8u^7 - 13u^6 + 17u^5 - 17u^4 + 12u^3 - 6u^2 + u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1$
c_2, c_4, c_5 c_6, c_7, c_{10} c_{12}	$y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1$
c_3, c_8	$y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1$
c_9	$y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.140343 + 0.966856I$ $a = 0.72777 + 1.63562I$ $b = -0.772920 - 0.510351I$ $c = -1.76992 + 1.63785I$ $d = 0.75135 - 1.48568I$	$1.78344 - 2.09337I$	$0.51499 + 4.16283I$
$u = 0.140343 - 0.966856I$ $a = 0.72777 - 1.63562I$ $b = -0.772920 + 0.510351I$ $c = -1.76992 - 1.63785I$ $d = 0.75135 + 1.48568I$	$1.78344 + 2.09337I$	$0.51499 - 4.16283I$
$u = 0.628449 + 0.875112I$ $a = 0.668544 - 0.575994I$ $b = -0.141484 + 0.739668I$ $c = 0.472416 - 0.682058I$ $d = 0.714469 + 0.176194I$	$-0.61694 - 2.45442I$	$-2.32792 + 2.91298I$
$u = 0.628449 - 0.875112I$ $a = 0.668544 + 0.575994I$ $b = -0.141484 - 0.739668I$ $c = 0.472416 + 0.682058I$ $d = 0.714469 - 0.176194I$	$-0.61694 + 2.45442I$	$-2.32792 - 2.91298I$
$u = -0.796005 + 0.733148I$ $a = 0.445546 - 0.080250I$ $b = 1.173910 + 0.391555I$ $c = 1.44301 - 1.09794I$ $d = 2.50189 - 2.05286I$	$-4.37135 - 1.33617I$	$-7.28409 + 0.70175I$
$u = -0.796005 - 0.733148I$ $a = 0.445546 + 0.080250I$ $b = 1.173910 - 0.391555I$ $c = 1.44301 + 1.09794I$ $d = 2.50189 + 2.05286I$	$-4.37135 + 1.33617I$	$-7.28409 - 0.70175I$

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.728966 + 0.986295I$ $a = -0.61569 - 1.78625I$ $b = -1.172470 + 0.500383I$ $c = -1.72233 + 3.04233I$ $d = \ \ 2.17857 + 1.68557I$	$-3.59813 + 7.08493I$	$-5.57680 - 5.91335I$
$u = -0.728966 - 0.986295I$ $a = -0.61569 + 1.78625I$ $b = -1.172470 - 0.500383I$ $c = -1.72233 - 3.04233I$ $d = \ \ 2.17857 - 1.68557I$	$-3.59813 - 7.08493I$	$-5.57680 + 5.91335I$
$u = \ \ 0.512358$ $a = \ \ 0.547665$ $b = \ \ 0.825933$ $c = -1.84635$ $d = -4.29257$	-1.19845	-8.65230

VI. $\boldsymbol{I_1^v = \langle a,\ d+1,\ c+a+1,\ b-1,\ v+1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix}1\\0\end{pmatrix}$$

$$a_9 = \begin{pmatrix}-1\\0\end{pmatrix}$$

$$a_4 = \begin{pmatrix}1\\0\end{pmatrix}$$

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

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

$$a_6 = \begin{pmatrix}-1\\0\end{pmatrix}$$

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

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

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

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

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

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -1.00000$ $a = 0$ $b = 1.00000$ $c = -1.00000$ $d = -1.00000$	-3.28987	-12.0000

VII. $I_2^v = \langle c,\ d+1,\ b,\ a-1,\ v-1\rangle$

(i) Arc colorings

$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

$a_4 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

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

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

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

$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$

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

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

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

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

$a_7 = \begin{pmatrix} 2 \\ 1 \end{pmatrix}$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

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

VIII. $I_3^v = \langle a,\ d+1,\ c+a,\ b-1,\ v-1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 1.00000$		
$a = 0$		
$b = 1.00000$	0	0
$c = 0$		
$d = -1.00000$		

IX. $\boldsymbol{I_4^v = \langle a,\ da - c - 1,\ dv + v - 1,\ cv + av - a + v,\ b - 1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= d^2 + v^2 + 2d - 7$

(iv) u-Polynomials at the component : It cannot be defined for a positive dimension component.

(v) Riley Polynomials at the component : It cannot be defined for a positive dimension component.

(iv) Complex Volumes and Cusp Shapes

Solution to I_4^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = \cdots$		
$a = \cdots$		
$b = \cdots$	-1.64493	$-9.16360 - 0.46474I$
$c = \cdots$		
$d = \cdots$		

X. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u(u-1)^2(u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1)^3$ $\cdot(u^{18}+13u^{17}+\cdots+12u+1)(u^{22}+11u^{21}+\cdots+40u+16)$ $\cdot(u^{25}+12u^{24}+\cdots+3u+1)$
c_2	$u(u-1)^2(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)^3$ $\cdot(u^{18}+u^{17}+\cdots-2u-1)(u^{22}-u^{21}+\cdots-4u+4)$ $\cdot(u^{25}-2u^{24}+\cdots-u+1)$
c_3, c_8	$u^3(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)^5$ $\cdot(u^{11}+3u^{10}+6u^9+7u^8+7u^7+3u^6-2u^5-8u^4-7u^3-5u^2-2u-2)^2$ $\cdot(u^{25}-2u^{24}+\cdots-16u+8)$
c_4	$u(u+1)^2(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)^3$ $\cdot(u^{18}+u^{17}+\cdots-2u-1)(u^{22}-u^{21}+\cdots-4u+4)$ $\cdot(u^{25}-2u^{24}+\cdots-u+1)$
c_5, c_{12}	$u(u-1)(u+1)(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)^3$ $\cdot(u^{18}+u^{17}+\cdots-2u-1)(u^{22}-u^{21}+\cdots-4u+4)$ $\cdot(u^{25}-2u^{24}+\cdots-u+1)$
c_6, c_7	$u(u+1)^2(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)$ $\cdot(u^{11}+u^{10}-5u^9-4u^8+9u^7+4u^6-5u^5+3u^4-3u^3-5u^2+3u-1)^2$ $\cdot((u^{18}+u^{17}+\cdots-2u-1)^2)(u^{25}+2u^{24}+\cdots+8u+4)$
c_9	$u^3(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)^5$ $\cdot((u^{11}-3u^{10}+\cdots-16u+4)^2)(u^{25}-6u^{24}+\cdots+64u+64)$
c_{10}	$u(u-1)^2(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)$ $\cdot(u^{11}+u^{10}-5u^9-4u^8+9u^7+4u^6-5u^5+3u^4-3u^3-5u^2+3u-1)^2$ $\cdot((u^{18}+u^{17}+\cdots-2u-1)^2)(u^{25}+2u^{24}+\cdots+8u+4)$

XI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y(y-1)^2(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)^3$ $\cdot\,(y^{18}-17y^{17}+\cdots-156y+1)(y^{22}-3y^{21}+\cdots-544y+256)$ $\cdot\,(y^{25}+8y^{24}+\cdots-13y-1)$
c_2, c_4, c_5 c_{12}	$y(y-1)^2(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)^3$ $\cdot\,(y^{18}-13y^{17}+\cdots-12y+1)(y^{22}-11y^{21}+\cdots-40y+16)$ $\cdot\,(y^{25}-12y^{24}+\cdots+3y-1)$
c_3, c_8	$y^3(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)^5$ $\cdot\,((y^{11}+3y^{10}+\cdots-16y-4)^2)(y^{25}+6y^{24}+\cdots+64y-64)$
c_6, c_7, c_{10}	$y(y-1)^2(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)$ $\cdot\,((y^{11}-11y^{10}+\cdots-y-1)^2)(y^{18}-13y^{17}+\cdots-12y+1)^2$ $\cdot\,(y^{25}-22y^{24}+\cdots+88y-16)$
c_9	$y^3(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)^5$ $\cdot\,((y^{11}+7y^{10}+\cdots+24y-16)^2)(y^{25}+14y^{24}+\cdots+43008y-4096)$