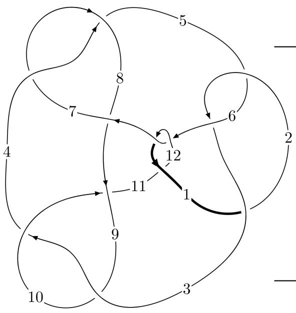
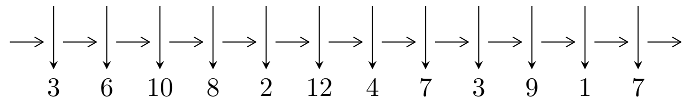
$12n_{0518}$ $(K12n_{0518})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle u^2 + b + u - 1,\ u^4 - u^2 + 2a + u + 1,\ u^5 - u^4 - u^3 + 2u^2 + 2u - 1\rangle$$

$$I_2^u = \langle u^6 a + u^5 a + u^6 + u^4 a + u^5 - u^4 + 4u^2 a - 2u^3 - au + 2u^2 + 2b + u - 2,$$
$$4u^6 a + 2u^5 a - u^6 - 2u^4 a - 2u^3 a + 2u^4 + 16u^2 a + u^3 + 4a^2 - 2u^2 - 2a + u + 3,\ u^7 + u^6 - u^4 + 3u^3 + u^2 -$$

$$I_3^u = \langle -898u^{13} + 485u^{12} + \cdots + 11257b - 16952,\ -21137u^{13} + 40486u^{12} + \cdots + 157598a - 1559,$$
$$u^{14} - 3u^{13} + 2u^{12} + 8u^{11} - 18u^{10} + 6u^9 + 27u^8 - 40u^7 + 5u^6 + 37u^5 - 36u^4 + 4u^3 + 20u^2 - 18u + 7\rangle$$

$$I_4^u = \langle -u^3 + b + u - 1,\ -u^2 + 2a + u,\ u^4 - u^2 + 2\rangle$$

$$I_5^u = \langle 2a^3 - 2a^2 + b + 5a - 3,\ 2a^4 - 2a^3 + 5a^2 - 4a + 1,\ u + 1\rangle$$

$$I_6^u = \langle -u^6 + 2u^5 - u^4 - 2u^2 + 2b + 4,\ -u^7 + 3u^6 - 4u^5 + 3u^4 - 3u^3 + 2u^2 + 2a + 2u - 2,$$
$$u^8 - 2u^7 + 2u^6 + u^4 - 2u^2 + 2u + 2\rangle$$

$$I_7^u = \langle u^4 + u^3 + b - u,\ -2u^5 - 4u^4 - 3u^3 + u^2 + a + 2u - 3,\ u^6 + u^5 - 2u^3 + 2u - 1\rangle$$

$$I_8^u = \langle 2u^5 + 3u^4 + 2u^3 - 2u^2 + b - 2u + 2,\ 4u^5 + 6u^4 + 4u^3 - 5u^2 + a - 2u + 5,\ u^6 + u^5 - 2u^3 + 2u - 1\rangle$$

$$I_9^u = \langle b - 5u - 6,\ 2a - 5,\ u^2 + 2u + 1\rangle$$

$$I_{10}^u = \langle b + u,\ 2a + 3,\ u^2 + 2u + 1\rangle$$

[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`).

$$I^u_{11} = \langle b,\ a+1,\ u-1\rangle$$
$$I^u_{12} = \langle u^3+b-u+1,\ -u^3+u^2+2a-u+1,\ u^4+1\rangle$$
$$I^u_{13} = \langle 2a^3+4a^2+b+6a+3,\ 2a^4+4a^3+6a^2+4a+1,\ u-1\rangle$$
$$I^u_{14} = \langle b-1,\ u+1\rangle$$

$$I^v_1 = \langle a,\ b+1,\ v+1\rangle$$

* 14 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 75 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. $\boldsymbol{I_1^u = \langle u^2 + b + u - 1,\ u^4 - u^2 + 2a + u + 1,\ u^5 - u^4 - u^3 + 2u^2 + 2u - 1\rangle}$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -\frac{1}{2}u^4 + \frac{1}{2}u^2 - \frac{1}{2}u - \frac{1}{2} \\ -u^2 - u + 1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} \frac{1}{2}u^4 - \frac{1}{2}u^2 + \frac{1}{2}u + \frac{1}{2} \\ u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -u \\ u^3 - u^2 - u + 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -\frac{1}{2}u^4 + u^3 + \frac{1}{2}u^2 - \frac{1}{2}u - \frac{1}{2} \\ u \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -\frac{1}{2}u^4 + u^3 + \frac{1}{2}u^2 - \frac{3}{2}u - \frac{1}{2} \\ u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 1 \\ -u^4 + u^3 - u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^4 - u^2 + 1 \\ u^3 - u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 2u^4 - 4u^3 + 6u^2 + 2u - 16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8, c_{10} c_{11}	$y^5 + 9y^4 + 37y^3 + 38y^2 + 44y - 1$
c_2, c_3, c_4 c_5, c_6, c_7 c_9, c_{12}	$y^5 - 3y^4 + 9y^3 - 10y^2 + 8y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.937261 + 0.495129I$ $a = 0.515459 - 0.123840I$ $b = 1.303956 + 0.433001I$	$-2.12840 + 7.92450I$	$-14.4593 - 11.6636I$
$u = -0.937261 - 0.495129I$ $a = 0.515459 + 0.123840I$ $b = 1.303956 - 0.433001I$	$-2.12840 - 7.92450I$	$-14.4593 + 11.6636I$
$u = 1.24407 + 0.86929I$ $a = 1.29939 - 1.06631I$ $b = -1.03612 - 3.03218I$	$8.2190 - 15.4874I$	$-13.2819 + 8.0512I$
$u = 1.24407 - 0.86929I$ $a = 1.29939 + 1.06631I$ $b = -1.03612 + 3.03218I$	$8.2190 + 15.4874I$	$-13.2819 - 8.0512I$
$u = 0.386387$ $a = -0.629690$ $b = 0.464319$	-0.666621	-14.5180

II.

$$I_2^u = \langle u^6a+u^6+\cdots+2b-2,\ 4u^6a-u^6+\cdots-2a+3,\ u^7+u^6-u^4+3u^3+u^2-1\rangle$$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 2u^6+u^5-u^4-u^3+10u^2-13$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$(u^7 + u^6 + 8u^5 + 3u^4 + 13u^3 + 3u^2 + 2u + 1)^2$
c_2, c_5, c_6 c_{12}	$(u^7 - u^6 + u^4 + 3u^3 - u^2 + 1)^2$
c_3, c_4, c_7 c_9	$u^{14} + 3u^{13} + \cdots + 18u + 7$
c_8, c_{10}	$u^{14} + 5u^{13} + \cdots + 44u + 49$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$(y^7+15y^6+84y^5+197y^4+181y^3+37y^2-2y-1)^2$
c_2, c_5, c_6 c_{12}	$(y^7-y^6+8y^5-3y^4+13y^3-3y^2+2y-1)^2$
c_3, c_4, c_7 c_9	$y^{14}-5y^{13}+\cdots-44y+49$
c_8, c_{10}	$y^{14}+7y^{13}+\cdots+1984y+2401$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.828738 + 0.848640I$ $a = 0.011269 - 1.123254I$ $b = -0.970381 - 0.889581I$	$0.10917 - 5.13113I$	$-11.29789 + 5.71003I$
$u = 0.828738 + 0.848640I$ $a = -0.395708 - 0.325161I$ $b = -1.78580 + 0.85701I$	$0.10917 - 5.13113I$	$-11.29789 + 5.71003I$
$u = 0.828738 - 0.848640I$ $a = 0.011269 + 1.123254I$ $b = -0.970381 + 0.889581I$	$0.10917 + 5.13113I$	$-11.29789 - 5.71003I$
$u = 0.828738 - 0.848640I$ $a = -0.395708 + 0.325161I$ $b = -1.78580 - 0.85701I$	$0.10917 + 5.13113I$	$-11.29789 - 5.71003I$
$u = -0.441920 + 0.538118I$ $a = 0.251395 - 0.220170I$ $b = 1.71953 + 0.74035I$	$-3.48230 + 1.31889I$	$-13.8490 - 4.9720I$
$u = -0.441920 + 0.538118I$ $a = 0.57883 + 2.23056I$ $b = -1.22991 + 1.18628I$	$-3.48230 + 1.31889I$	$-13.8490 - 4.9720I$
$u = -0.441920 - 0.538118I$ $a = 0.251395 + 0.220170I$ $b = 1.71953 - 0.74035I$	$-3.48230 - 1.31889I$	$-13.8490 + 4.9720I$
$u = -0.441920 - 0.538118I$ $a = 0.57883 - 2.23056I$ $b = -1.22991 - 1.18628I$	$-3.48230 - 1.31889I$	$-13.8490 + 4.9720I$
$u = 0.610544$ $a = -0.451001 + 0.791376I$ $b = 0.811414 - 0.457455I$	-0.187091	-9.45050
$u = 0.610544$ $a = -0.451001 - 0.791376I$ $b = 0.811414 + 0.457455I$	-0.187091	-9.45050

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.19209 + 0.98985I$ $a = 0.978445 + 0.731013I$ $b = -1.01911 + 1.81521I$	$10.04640 + 7.93647I$	$-11.12788 - 4.07397I$
$u = -1.19209 + 0.98985I$ $a = -0.97323 - 1.05400I$ $b = 0.97426 - 2.78584I$	$10.04640 + 7.93647I$	$-11.12788 - 4.07397I$
$u = -1.19209 - 0.98985I$ $a = 0.978445 - 0.731013I$ $b = -1.01911 - 1.81521I$	$10.04640 - 7.93647I$	$-11.12788 + 4.07397I$
$u = -1.19209 - 0.98985I$ $a = -0.97323 + 1.05400I$ $b = 0.97426 + 2.78584I$	$10.04640 - 7.93647I$	$-11.12788 + 4.07397I$

III. $\boldsymbol{I_3^u = \langle -898u^{13} + 485u^{12} + \cdots + 11257b - 16952,\ -21137u^{13} + 40486u^{12} + \cdots + 157598a - 1559,\ u^{14} - 3u^{13} + \cdots - 18u + 7\rangle}$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -u^2 + 1 \\ -u^2 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.134120u^{13} - 0.256894u^{12} + \cdots + 0.0964923u + 0.00989226 \\ 0.0797726u^{13} - 0.0430843u^{12} + \cdots - 0.739362u + 1.50591 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.101099u^{13} + 0.186881u^{12} + \cdots + 0.264020u + 0.00957499 \\ -0.0945190u^{13} + 0.218087u^{12} + \cdots - 0.422404u - 0.107222 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.0552672u^{13} + 0.00848996u^{12} + \cdots - 0.694070u - 0.311768 \\ -0.0875899u^{13} + 0.437061u^{12} + \cdots - 3.55121u + 2.25966 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.111772u^{13} - 0.408203u^{12} + \cdots + 3.58886u - 2.27231 \\ 0.0421071u^{13} - 0.0539220u^{12} + \cdots + 0.678778u - 0.0781736 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.0696646u^{13} - 0.354281u^{12} + \cdots + 2.91008u - 2.19413 \\ 0.0421071u^{13} - 0.0539220u^{12} + \cdots + 0.678778u - 0.0781736 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.322809u^{13} + 0.880836u^{12} + \cdots - 4.38369u + 1.25934 \\ -1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.357987u^{13} + 1.15373u^{12} + \cdots - 7.19127u + 2.70440 \\ -0.209470u^{13} + 0.534068u^{12} + \cdots - 3.49063u + 0.831927 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{3768}{11257}u^{13} + \frac{10810}{11257}u^{12} + \cdots + \frac{4236}{11257}u - \frac{140628}{11257}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u^{14} + 5u^{13} + \cdots + 44u + 49$
c_2, c_5, c_6 c_{12}	$u^{14} + 3u^{13} + \cdots + 18u + 7$
c_3, c_4, c_7 c_9	$(u^7 - u^6 + u^4 + 3u^3 - u^2 + 1)^2$
c_8, c_{10}	$(u^7 + u^6 + 8u^5 + 3u^4 + 13u^3 + 3u^2 + 2u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{14} + 7y^{13} + \cdots + 1984y + 2401$
c_2, c_5, c_6 c_{12}	$y^{14} - 5y^{13} + \cdots - 44y + 49$
c_3, c_4, c_7 c_9	$(y^7 - y^6 + 8y^5 - 3y^4 + 13y^3 - 3y^2 + 2y - 1)^2$
c_8, c_{10}	$(y^7 + 15y^6 + 84y^5 + 197y^4 + 181y^3 + 37y^2 - 2y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.055750 + 0.340120I$ $a = 1.06312 + 0.98114I$ $b = -0.175488 + 0.424946I$	$-3.48230 + 1.31889I$	$-13.8490 - 4.9720I$
$u = -1.055750 - 0.340120I$ $a = 1.06312 - 0.98114I$ $b = -0.175488 - 0.424946I$	$-3.48230 - 1.31889I$	$-13.8490 + 4.9720I$
$u = 0.668117 + 0.582359I$ $a = 0.124005 + 0.615095I$ $b = 1.10865$	-0.187091	$-9.45047 + 0.I$
$u = 0.668117 - 0.582359I$ $a = 0.124005 - 0.615095I$ $b = 1.10865$	-0.187091	$-9.45047 + 0.I$
$u = 1.177859 + 0.244275I$ $a = 0.045270 + 0.188069I$ $b = -0.175488 + 0.424946I$	$-3.48230 + 1.31889I$	$-13.8490 - 4.9720I$
$u = 1.177859 - 0.244275I$ $a = 0.045270 - 0.188069I$ $b = -0.175488 - 0.424946I$	$-3.48230 - 1.31889I$	$-13.8490 + 4.9720I$
$u = 0.251958 + 0.745305I$ $a = -0.750002 - 0.183784I$ $b = 0.171189 - 0.644973I$	$0.10917 - 5.13113I$	$-11.29789 + 5.71003I$
$u = 0.251958 - 0.745305I$ $a = -0.750002 + 0.183784I$ $b = 0.171189 + 0.644973I$	$0.10917 + 5.13113I$	$-11.29789 - 5.71003I$
$u = -1.302132 + 0.252907I$ $a = -0.579931 - 0.820184I$ $b = 0.171189 + 0.644973I$	$0.10917 + 5.13113I$	$-11.29789 - 5.71003I$
$u = -1.302132 - 0.252907I$ $a = -0.579931 + 0.820184I$ $b = 0.171189 - 0.644973I$	$0.10917 - 5.13113I$	$-11.29789 + 5.71003I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.70316 + 1.23343I$ $a = 0.94800 - 1.24603I$ $b = -0.05002 - 3.09525I$	$10.04640 + 7.93647I$	$-11.12788 - 4.07397I$
$u = 0.70316 - 1.23343I$ $a = 0.94800 + 1.24603I$ $b = -0.05002 + 3.09525I$	$10.04640 - 7.93647I$	$-11.12788 + 4.07397I$
$u = 1.05678 + 1.07858I$ $a = -0.921887 + 0.849036I$ $b = -0.05002 + 3.09525I$	$10.04640 - 7.93647I$	$-11.12788 + 4.07397I$
$u = 1.05678 - 1.07858I$ $a = -0.921887 - 0.849036I$ $b = -0.05002 - 3.09525I$	$10.04640 + 7.93647I$	$-11.12788 - 4.07397I$

IV. $I_4^u = \langle -u^3 + b + u - 1,\ -u^2 + 2a + u,\ u^4 - u^2 + 2 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u^2 - 20$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.978318 + 0.676097I$ $a = -0.239159 + 0.323389I$ $b = -0.383551 + 0.956145I$	$-2.46740 - 5.33349I$	$-18.0000 + 5.2915I$
$u = 0.978318 - 0.676097I$ $a = -0.239159 - 0.323389I$ $b = -0.383551 - 0.956145I$	$-2.46740 + 5.33349I$	$-18.0000 - 5.2915I$
$u = -0.978318 + 0.676097I$ $a = 0.739159 - 0.999486I$ $b = 2.38355 + 0.95615I$	$-2.46740 + 5.33349I$	$-18.0000 - 5.2915I$
$u = -0.978318 - 0.676097I$ $a = 0.739159 + 0.999486I$ $b = 2.38355 - 0.95615I$	$-2.46740 - 5.33349I$	$-18.0000 + 5.2915I$

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

(i) Arc colorings

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

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

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

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

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

$$a_8 = \begin{pmatrix} a \\ -2a^3 + 2a^2 - 5a + 3 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -a \\ -4a^3 + 2a^2 - 8a + 4 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 1 \\ 2a^3 + 5a - 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 4a^3 - 2a^2 + 9a - 4 \\ 2a^3 - 2a^2 + 5a - 3 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 2a^3 + 4a - 1 \\ 2a^3 - 2a^2 + 5a - 3 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -1 \\ -2a^3 - 5a \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -1 \\ -2a^3 - 5a + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -16a^3 + 8a^2 - 32a - 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = \quad 0.04738 + 1.47756I$ $b = -0.978318 - 0.676097I$	$-2.46740 - 5.33349I$	$-18.0000 + 5.2915I$
$u = -1.00000$ $a = \quad 0.04738 - 1.47756I$ $b = -0.978318 + 0.676097I$	$-2.46740 + 5.33349I$	$-18.0000 - 5.2915I$
$u = -1.00000$ $a = \quad 0.452616 + 0.154683I$ $b = \quad 0.978318 - 0.676097I$	$-2.46740 + 5.33349I$	$-18.0000 - 5.2915I$
$u = -1.00000$ $a = \quad 0.452616 - 0.154683I$ $b = \quad 0.978318 + 0.676097I$	$-2.46740 - 5.33349I$	$-18.0000 + 5.2915I$

VI. $I_6^u = \langle -u^6 + 2u^5 - u^4 - 2u^2 + 2b + 4,\ -u^7 + 3u^6 + \cdots + 2a - 2,\ u^8 - 2u^7 + 2u^6 + u^4 - 2u^2 + 2u + 2 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8, c_{10} c_{11}	$y^8 + 12y^7 + 46y^6 + 76y^5 + 129y^4 + 112y^3 + 200y^2 - 80y + 16$
c_2, c_3, c_4 c_5, c_6, c_7 c_9, c_{12}	$y^8 + 6y^6 + 5y^4 + 4y^3 + 8y^2 - 12y + 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.358336 + 1.049708I$ $a = -0.208739 - 0.611478I$ $b = -0.743190 - 0.752297I$	3.87851	$-7.20933 + 0.I$
$u = -0.358336 - 1.049708I$ $a = -0.208739 + 0.611478I$ $b = -0.743190 + 0.752297I$	3.87851	$-7.20933 + 0.I$
$u = 1.001167 + 0.618491I$ $a = -0.557384 - 0.409315I$ $b = -1.16144 + 0.94397I$	$-1.22898 - 4.85117I$	$-10.92071 + 2.27864I$
$u = 1.001167 - 0.618491I$ $a = -0.557384 + 0.409315I$ $b = -1.16144 - 0.94397I$	$-1.22898 + 4.85117I$	$-10.92071 - 2.27864I$
$u = -0.696290 + 0.136038I$ $a = 0.217827 + 1.126200I$ $b = -1.314927 - 0.483896I$	$-1.22898 - 4.85117I$	$-10.92071 + 2.27864I$
$u = -0.696290 - 0.136038I$ $a = 0.217827 - 1.126200I$ $b = -1.314927 + 0.483896I$	$-1.22898 + 4.85117I$	$-10.92071 - 2.27864I$
$u = 1.05346 + 1.10563I$ $a = -0.951704 + 0.998833I$ $b = 1.21955 + 2.32947I$	10.0940	$-10.94925 + 0.I$
$u = 1.05346 - 1.10563I$ $a = -0.951704 - 0.998833I$ $b = 1.21955 - 2.32947I$	10.0940	$-10.94925 + 0.I$

VII.

$\boldsymbol{I^u_7 = \langle u^4+u^3+b-u,\ -2u^5-4u^4-3u^3+u^2+a+2u-3,\ u^6+u^5-2u^3+2u-1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8, c_{10} c_{11}	$y^6 + 7y^5 + 12y^4 - 42y^3 - 8y^2 + 1$
c_2, c_3, c_4 c_5, c_6, c_7 c_9, c_{12}	$y^6 - y^5 + 4y^4 - 10y^3 + 8y^2 - 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.14526$ $a=\ \ 2.41334$ $b=-1.36347$	-5.87476	-10.0000
$u=\ \ 0.623490+0.407699I$ $a=\ \ 0.044073+0.916092I$ $b=\ \ 0.900969-0.226256I$	-0.234991	-10.0000
$u=\ \ 0.623490-0.407699I$ $a=\ \ 0.044073-0.916092I$ $b=\ \ 0.900969+0.226256I$	-0.234991	-10.0000
$u=\ \ 0.700221$ $a=\ \ 3.43751$ $b=\ \ 0.116492$	-5.87476	-10.0000
$u=-0.90097+1.19801I$ $a=-0.969501-0.960732I$ $b=\ \ 0.22252-2.69191I$	11.0446	-10.0000
$u=-0.90097-1.19801I$ $a=-0.969501+0.960732I$ $b=\ \ 0.22252+2.69191I$	11.0446	-10.0000

VIII. $\boldsymbol{I_8^u = \langle 2u^5+3u^4+2u^3-2u^2+b-2u+2,\ 4u^5+6u^4+4u^3-5u^2+a-2u+5,\ u^6+u^5-2u^3+2u-1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8, c_{10} c_{11}	$y^6 + 7y^5 + 12y^4 - 42y^3 - 8y^2 + 1$
c_2, c_3, c_4 c_5, c_6, c_7 c_9, c_{12}	$y^6 - y^5 + 4y^4 - 10y^3 + 8y^2 - 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_8^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.14526$ $a = \quad 2.83514$ $b = \quad 0.116492$	-5.87476	-10.0000
$u = \quad 0.623490 + 0.407699I$ $a = -0.222521 + 0.145506I$ $b = \quad 0.900969 + 0.226256I$	-0.234991	-10.0000
$u = \quad 0.623490 - 0.407699I$ $a = -0.222521 - 0.145506I$ $b = \quad 0.900969 - 0.226256I$	-0.234991	-10.0000
$u = \quad 0.700221$ $a = -4.63708$ $b = -1.36347$	-5.87476	-10.0000
$u = -0.90097 + 1.19801I$ $a = \quad 0.623490 + 0.829051I$ $b = \quad 0.22252 + 2.69191I$	11.0446	-10.0000
$u = -0.90097 - 1.19801I$ $a = \quad 0.623490 - 0.829051I$ $b = \quad 0.22252 - 2.69191I$	11.0446	-10.0000

IX. $\boldsymbol{I^u_9 = \langle b - 5u - 6,\ 2a - 5,\ u^2 + 2u + 1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ 2u+1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 2u+2 \\ 2u+1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u \\ -2u-2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 2.5 \\ 5u+6 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -\frac{3}{2}u \\ 2u+3 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 3u+4 \\ 4u+4 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u+\frac{1}{2} \\ u+2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -2u-\frac{3}{2} \\ u+2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -2u-3 \\ -2u-3 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -4u-5 \\ -2u-2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -24$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_9^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = \quad 2.50000$ $b = \quad 1.00000$	-6.57974	-24.0000
$u = -1.00000$ $a = \quad 2.50000$ $b = \quad 1.00000$	-6.57974	-24.0000

X. $I_{10}^u = \langle b+u,\ 2a+3,\ u^2+2u+1\rangle$

(i) Arc colorings

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

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

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

$$a_1 = \begin{pmatrix}2u+2\\2u+1\end{pmatrix}$$

$$a_5 = \begin{pmatrix}u\\-2u-2\end{pmatrix}$$

$$a_8 = \begin{pmatrix}-1.5\\-u\end{pmatrix}$$

$$a_4 = \begin{pmatrix}-\frac{1}{2}u-3\\-2u-1\end{pmatrix}$$

$$a_7 = \begin{pmatrix}3u+4\\0\end{pmatrix}$$

$$a_9 = \begin{pmatrix}-5u-\frac{15}{2}\\-u\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}-4u-\frac{15}{2}\\-u\end{pmatrix}$$

$$a_{12} = \begin{pmatrix}-2u-3\\2u+1\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}-4u-5\\2u+2\end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -24$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_{10}^{u}	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = -1.50000$ $b = 1.00000$	-6.57974	-24.0000
$u = -1.00000$ $a = -1.50000$ $b = 1.00000$	-6.57974	-24.0000

XI. $I^u_{11} = \langle b,\ a+1,\ u-1\rangle$

(i) Arc colorings

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

(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_6 c_{11}	$u - 1$
c_3, c_4, c_7 c_8, c_9, c_{10}	u
c_5, c_{12}	$u + 1$

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_{11}^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 1.00000$ $a = -1.00000$ $b = \quad 0$	-3.28987	-12.0000

XII. $I^u_{12} = \langle u^3 + b - u + 1,\ -u^3 + u^2 + 2a - u + 1,\ u^4 + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_{12}	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.707107 + 0.707107I$ $a = -0.500000 + 0.207107I$ $b = 0.414214$	-1.64493	-16.0000
$u = 0.707107 - 0.707107I$ $a = -0.500000 - 0.207107I$ $b = 0.414214$	-1.64493	-16.0000
$u = -0.707107 + 0.707107I$ $a = -0.500000 + 1.207107I$ $b = -2.41421$	-1.64493	-16.0000
$u = -0.707107 - 0.707107I$ $a = -0.500000 - 1.207107I$ $b = -2.41421$	-1.64493	-16.0000

XIII. $\boldsymbol{I^u_{13} = \langle 2a^3+4a^2+b+6a+3,\ 2a^4+4a^3+6a^2+4a+1,\ u-1\rangle}$

(i) Arc colorings

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ -1 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} a \\ -2a^3-4a^2-6a-3 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -a \\ -4a^3-6a^2-8a-3 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -1 \\ -2a^2-2a-2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 4a^3+6a^2+9a+3 \\ 2a^3+2a^2+4a+1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 2a^3+4a^2+5a+2 \\ 2a^3+2a^2+4a+1 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -1 \\ -2a^2-2a-3 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -1 \\ -2a^2-2a-2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_{13}^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -0.500000 + 1.207107I$ $b = 0.707107 - 0.707107I$	-1.64493	-16.0000
$u = 1.00000$ $a = -0.500000 - 1.207107I$ $b = 0.707107 + 0.707107I$	-1.64493	-16.0000
$u = 1.00000$ $a = -0.500000 + 0.207107I$ $b = -0.707107 - 0.707107I$	-1.64493	-16.0000
$u = 1.00000$ $a = -0.500000 - 0.207107I$ $b = -0.707107 + 0.707107I$	-1.64493	-16.0000

XIV. $I^u_{14} = \langle b - 1,\ u + 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -24$

(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_{14}^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=\cdots$ $a=\cdots$ $b=\cdots$	-6.57974	-24.0000

XV. $\boldsymbol{I_1^v = \langle a,\ b+1,\ v+1 \rangle}$

(i) Arc colorings

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

(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_6, c_{11}, c_{12}	u
c_3, c_7, c_8 c_{10}	$u+1$
c_4, c_9	$u-1$

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

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

XVI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_{11}	$u(u-1)^{13}(u^2+1)^2(u^2-u+2)^2(u^5+3u^4+9u^3+10u^2+8u+1)$ $\cdot(u^6+u^5+4u^4+10u^3+8u^2+4u+1)^2$ $\cdot(u^7+u^6+8u^5+3u^4+13u^3+3u^2+2u+1)^2$ $\cdot(u^8+6u^6+\cdots+12u+4)(u^{14}+5u^{13}+\cdots+44u+49)$
c_2, c_4, c_6 c_9	$u(u-1)^5(u+1)^8(u^4+1)(u^4-u^2+2)(u^5+u^4+\cdots+2u+1)$ $\cdot(u^6-u^5+2u^3-2u-1)^2(u^7-u^6+u^4+3u^3-u^2+1)^2$ $\cdot(u^8+2u^7+2u^6+u^4-2u^2-2u+2)(u^{14}+3u^{13}+\cdots+18u+7)$
c_3, c_5, c_7 c_{12}	$u(u-1)^8(u+1)^5(u^4+1)(u^4-u^2+2)(u^5+u^4+\cdots+2u+1)$ $\cdot(u^6-u^5+2u^3-2u-1)^2(u^7-u^6+u^4+3u^3-u^2+1)^2$ $\cdot(u^8+2u^7+2u^6+u^4-2u^2-2u+2)(u^{14}+3u^{13}+\cdots+18u+7)$
c_8, c_{10}	$u(u+1)^{13}(u^2+1)^2(u^2+u+2)^2(u^5+3u^4+9u^3+10u^2+8u+1)$ $\cdot(u^6+u^5+4u^4+10u^3+8u^2+4u+1)^2$ $\cdot(u^7+u^6+8u^5+3u^4+13u^3+3u^2+2u+1)^2$ $\cdot(u^8+6u^6+\cdots+12u+4)(u^{14}+5u^{13}+\cdots+44u+49)$

XVII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_8, c_{10} c_{11}	$y(y-1)^{13}(y+1)^4(y^2+3y+4)^2(y^5+9y^4+\cdots+44y-1)$ $\cdot(y^6+7y^5+12y^4-42y^3-8y^2+1)^2$ $\cdot(y^7+15y^6+84y^5+197y^4+181y^3+37y^2-2y-1)^2$ $\cdot(y^8+12y^7+46y^6+76y^5+129y^4+112y^3+200y^2-80y+16)$ $\cdot(y^{14}+7y^{13}+\cdots+1984y+2401)$
c_2, c_3, c_4 c_5, c_6, c_7 c_9, c_{12}	$y(y-1)^{13}(y^2+1)^2(y^2-y+2)^2(y^5-3y^4+9y^3-10y^2+8y-1)$ $\cdot(y^6-y^5+4y^4-10y^3+8y^2-4y+1)^2$ $\cdot(y^7-y^6+8y^5-3y^4+13y^3-3y^2+2y-1)^2$ $\cdot(y^8+6y^6+\cdots-12y+4)(y^{14}-5y^{13}+\cdots-44y+49)$