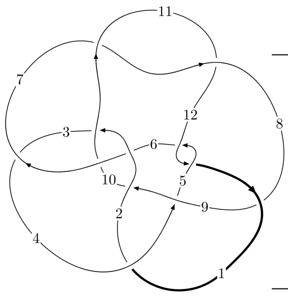
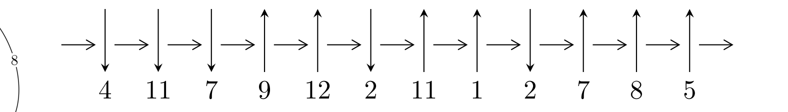
$12n_{0718}$ ($K12n_{0718}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 13u^5-14u^4+83u^3-84u^2+67b-74u-31,\ -24u^5+31u^4-179u^3+186u^2+67a+49u+16, \\
& u^6+8u^4+2u^3+4u^2+u+1\rangle \\
I_2^u = \langle & -1569393106u^{14}-7670004252u^{13}+\cdots+10430913127b-4860457910, \\
& 20548723543u^{14}+25409181453u^{13}+\cdots+10430913127a-34629938205, \\
& u^{15}+u^{14}+16u^{13}+15u^{12}+67u^{11}+68u^{10}-6u^9+55u^8-21u^7+47u^6-22u^5+20u^4-7u^3+6u^2-2u+ \\
I_3^u = \langle & 53383992u^{13}-54254216u^{12}+\cdots+162743197b+4010822, \\
& -157493798u^{13}+153482976u^{12}+\cdots+162743197a-113034563, \\
& u^{14}-u^{13}+2u^{12}-u^{11}-23u^{10}+20u^9+63u^8-19u^7-48u^6+20u^5+26u^4-6u^3-5u^2+u+1\rangle \\
I_4^u = \langle & -1.12905\times10^{44}u^{23}-4.55305\times10^{43}u^{22}+\cdots+2.57192\times10^{47}b-2.14246\times10^{47}, \\
& 6.26307\times10^{45}u^{23}+9.22804\times10^{44}u^{22}+\cdots+5.24028\times10^{48}a-1.07233\times10^{49}, \\
& u^{24}+23u^{22}+\cdots-507u+163\rangle \\
I_5^u = \langle & b+u-1,\ a-u+1,\ u^2-u+1\rangle \\
I_6^u = \langle & b^2-b+1,\ a-1,\ u+1\rangle
\end{aligned}$$

* 6 irreducible components of $\dim_{\mathbb{C}}=0$, with total 63 representations.

[1]The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

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

I. $\boldsymbol{I_1^u = \langle 13u^5 - 14u^4 + \cdots + 67b - 31,\ -24u^5 + 31u^4 + \cdots + 67a + 16,\ u^6 + 8u^4 + 2u^3 + 4u^2 + u + 1\rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.358209u^5 - 0.462687u^4 + \cdots - 0.731343u - 0.238806 \\ -0.194030u^5 + 0.208955u^4 + \cdots + 1.10448u + 0.462687 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.462687u^5 - 0.194030u^4 + \cdots - 0.597015u + 0.641791 \\ 0.208955u^5 + 0.313433u^4 + \cdots + 0.656716u + 0.194030 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.358209u^5 - 0.462687u^4 + \cdots - 0.731343u - 0.238806 \\ u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.208955u^5 - 0.313433u^4 + \cdots - 1.65672u - 1.19403 \\ -0.194030u^5 + 0.208955u^4 + \cdots + 1.10448u + 0.462687 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.671642u^5 - 0.507463u^4 + \cdots - 2.25373u + 0.447761 \\ 0.268657u^5 + 0.402985u^4 + \cdots + 1.70149u + 0.820896 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.164179u^5 - 0.253731u^4 + \cdots + 0.373134u + 0.223881 \\ -0.194030u^5 + 0.208955u^4 + \cdots + 1.10448u + 0.462687 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.402985u^5 - 0.104478u^4 + \cdots + 0.447761u + 1.26866 \\ 0.522388u^5 + 0.283582u^4 + \cdots + 1.64179u - 0.0149254 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.208955u^5 + 0.313433u^4 + \cdots + 1.65672u + 1.19403 \\ 0.164179u^5 - 0.253731u^4 + \cdots + 0.373134u - 0.776119 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.373134u^5 + 0.0597015u^4 + \cdots + 2.02985u + 0.417910 \\ 0.164179u^5 - 0.253731u^4 + \cdots + 0.373134u - 0.776119 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{193}{67}u^5 + \frac{122}{67}u^4 + \frac{1526}{67}u^3 + \frac{1335}{67}u^2 + \frac{999}{67}u + \frac{720}{67}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^6 + 2y^5 + 9y^4 + y^3 + 16y^2 + 7y + 1$
c_2, c_3	$y^6 + 16y^5 + 72y^4 + 62y^3 + 28y^2 + 7y + 1$
c_4, c_8	$y^6 + 8y^4 - 2y^3 + 4y^2 - y + 1$
c_5, c_{12}	$(y^3 + 2y^2 + 5y - 1)^2$
c_6	$y^6 + 13y^5 + 65y^4 + 104y^3 + 78y^2 - 9y + 1$
c_7, c_{10}, c_{11}	$y^6 - 9y^5 + 28y^4 - 35y^3 + 21y^2 - 6y + 1$
c_9	$y^6 + y^5 + 33y^4 + 8y^3 + 10y^2 - y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.175218 + 0.614017I$ $a = 0.08270 - 1.43799I$ $b = 0.455994 + 1.129810I$	$1.18623 - 4.16039I$	$2.50198 + 9.24184I$
$u = 0.175218 - 0.614017I$ $a = 0.08270 + 1.43799I$ $b = 0.455994 - 1.129810I$	$1.18623 + 4.16039I$	$2.50198 - 9.24184I$
$u = -0.307599 + 0.479689I$ $a = 0.877439 + 0.479689I$ $b = -0.284920 + 0.155763I$	$1.134710 - 0.529643I$	$7.45884 + 1.83935I$
$u = -0.307599 - 0.479689I$ $a = 0.877439 - 0.479689I$ $b = -0.284920 - 0.155763I$	$1.134710 + 0.529643I$	$7.45884 - 1.83935I$
$u = 0.13238 + 2.74513I$ $a = 0.039862 + 0.693124I$ $b = -0.67107 - 2.43695I$	$14.1284 - 13.7510I$	$4.53918 + 6.26128I$
$u = 0.13238 - 2.74513I$ $a = 0.039862 - 0.693124I$ $b = -0.67107 + 2.43695I$	$14.1284 + 13.7510I$	$4.53918 - 6.26128I$

II.

$\boldsymbol{I_2^u = \langle -1.57\times 10^9 u^{14} - 7.67\times 10^9 u^{13} + \cdots + 1.04\times 10^{10} b - 4.86\times 10^9,\ 2.05\times 10^{10} u^{14} + 2.54\times 10^{10} u^{13} + \cdots + 1.04\times 10^{10} a - 3.46\times 10^{10},\ u^{15} + u^{14} + \cdots - 2u + 1\rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -1.96998u^{14} - 2.43595u^{13} + \cdots - 8.60582u + 3.31993 \\ 0.150456u^{14} + 0.735315u^{13} + \cdots + 2.03805u + 0.465967 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.465967u^{14} - 0.315511u^{13} + \cdots - 0.620033u + 2.96998 \\ 0.584859u^{14} + 0.726095u^{13} + \cdots + 0.766879u - 0.150456 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -1.96998u^{14} - 2.43595u^{13} + \cdots - 8.60582u + 3.31993 \\ u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -1.55974u^{14} - 0.980765u^{13} + \cdots - 5.08122u + 3.74389 \\ 0.150456u^{14} + 0.735315u^{13} + \cdots + 2.03805u + 0.465967 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -2.12527u^{14} - 2.81645u^{13} + \cdots - 2.52477u + 1.85292 \\ 0.665898u^{14} + 0.835107u^{13} + \cdots + 1.04529u + 0.832419 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -1.81953u^{14} - 1.70064u^{13} + \cdots - 6.56777u + 3.78590 \\ 0.150456u^{14} + 0.735315u^{13} + \cdots + 2.03805u + 0.465967 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -2.60944u^{14} - 4.20613u^{13} + \cdots - 7.32190u + 1.21409 \\ -0.774010u^{14} - 0.545592u^{13} + \cdots - 2.36170u + 2.98355 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1.55974u^{14} + 0.980765u^{13} + \cdots + 5.08122u - 3.74389 \\ -0.552009u^{14} - 1.50756u^{13} + \cdots - 2.75574u + 0.113009 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1.00773u^{14} - 0.526796u^{13} + \cdots + 2.32548u - 3.63089 \\ -0.552009u^{14} - 1.50756u^{13} + \cdots - 2.75574u + 0.113009 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{61025071082}{10430913127}u^{14} - \frac{87492839805}{10430913127}u^{13} + \cdots - \frac{60233840046}{10430913127}u + \frac{63546445223}{10430913127}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{15} - 8u^{14} + \cdots - 26u + 4$
c_2, c_3	$u^{15} - u^{14} + \cdots - 2u - 1$
c_4, c_8	$u^{15} + u^{12} + \cdots + 6u^2 - 1$
c_5, c_{12}	$u^{15} - 8u^{14} + \cdots - 128u + 32$
c_6	$u^{15} + 4u^{14} + \cdots + 14u + 1$
c_7, c_{10}, c_{11}	$u^{15} - 6u^{14} + \cdots + 28u - 16$
c_9	$u^{15} + 4u^{14} + \cdots - 18u - 9$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{15} + 2y^{13} + \cdots - 68y - 16$
c_2, c_3	$y^{15} + 31y^{14} + \cdots - 8y - 1$
c_4, c_8	$y^{15} + 12y^{13} + \cdots + 12y - 1$
c_5, c_{12}	$y^{15} + 2y^{14} + \cdots - 3584y - 1024$
c_6	$y^{15} + 26y^{14} + \cdots + 34y - 1$
c_7, c_{10}, c_{11}	$y^{15} - 20y^{14} + \cdots - 1232y - 256$
c_9	$y^{15} + 14y^{14} + \cdots - 288y - 81$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.358852 + 0.655382I$ $a = 0.37132 + 1.53080I$ $b = 0.249515 + 0.020338I$	$0.647850 + 0.593610I$	$0.397147 - 0.414996I$
$u = -0.358852 - 0.655382I$ $a = 0.37132 - 1.53080I$ $b = 0.249515 - 0.020338I$	$0.647850 - 0.593610I$	$0.397147 + 0.414996I$
$u = -0.362442 + 0.521099I$ $a = -1.62550 - 1.14103I$ $b = -0.565588 + 1.295060I$	$6.17652 - 3.16479I$	$8.46791 + 3.96283I$
$u = -0.362442 - 0.521099I$ $a = -1.62550 + 1.14103I$ $b = -0.565588 - 1.295060I$	$6.17652 + 3.16479I$	$8.46791 - 3.96283I$
$u = 0.495956 + 0.351454I$ $a = 0.594839 + 0.597610I$ $b = 0.360462 + 0.632001I$	$-1.23951 - 1.59759I$	$-0.60489 + 4.37134I$
$u = 0.495956 - 0.351454I$ $a = 0.594839 - 0.597610I$ $b = 0.360462 - 0.632001I$	$-1.23951 + 1.59759I$	$-0.60489 - 4.37134I$
$u = 0.177403 + 0.564115I$ $a = -1.56471 - 0.13961I$ $b = 0.654033 + 0.290971I$	$-2.12993 + 3.66119I$	$1.84247 - 2.75515I$
$u = 0.177403 - 0.564115I$ $a = -1.56471 + 0.13961I$ $b = 0.654033 - 0.290971I$	$-2.12993 - 3.66119I$	$1.84247 + 2.75515I$
$u = 0.361509 + 0.466401I$ $a = 2.32217 - 1.05813I$ $b = 0.51667 + 1.34137I$	$2.58286 + 9.32736I$	$5.11705 - 6.33212I$
$u = 0.361509 - 0.466401I$ $a = 2.32217 + 1.05813I$ $b = 0.51667 - 1.34137I$	$2.58286 - 9.32736I$	$5.11705 + 6.33212I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.47475$ $a = 0.909455$ $b = 0.503214$	2.65817	1.30990
$u = 0.30799 + 2.79469I$ $a = -0.133260 + 0.638046I$ $b = 0.23778 - 2.35751I$	$16.9670 + 6.2281I$	$6.62700 - 4.47239I$
$u = 0.30799 - 2.79469I$ $a = -0.133260 - 0.638046I$ $b = 0.23778 + 2.35751I$	$16.9670 - 6.2281I$	$6.62700 + 4.47239I$
$u = -0.38419 + 2.88575I$ $a = 0.080416 + 0.603207I$ $b = 0.29553 - 2.22676I$	$11.03220 + 4.65884I$	$2.00000 - 4.62633I$
$u = -0.38419 - 2.88575I$ $a = 0.080416 - 0.603207I$ $b = 0.29553 + 2.22676I$	$11.03220 - 4.65884I$	$2.00000 + 4.62633I$

III.

$\boldsymbol{I_3^u = \langle 5.34\times 10^7 u^{13} - 5.43\times 10^7 u^{12} + \cdots + 1.63\times 10^8 b + 4.01\times 10^6,\ -1.57\times 10^8 u^{13} + 1.53\times 10^8 u^{12} + \cdots + 1.63\times 10^8 a - 1.13\times 10^8,\ u^{14} - u^{13} + \cdots + u + 1\rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.967744u^{13} - 0.943099u^{12} + \cdots - 7.60104u + 0.694558 \\ -0.328026u^{13} + 0.333373u^{12} + \cdots - 1.99239u - 0.0246451 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.0246451u^{13} + 0.352671u^{12} + \cdots + 0.273186u + 1.96774 \\ -0.00534722u^{13} + 0.173641u^{12} + \cdots - 0.303381u - 0.328026 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.967744u^{13} - 0.943099u^{12} + \cdots - 7.60104u + 0.694558 \\ -u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -1.00142u^{13} + 1.17112u^{12} + \cdots + 10.0376u - 0.867819 \\ 0.328026u^{13} - 0.333373u^{12} + \cdots + 1.99239u + 0.0246451 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.115338u^{13} - 0.488695u^{12} + \cdots + 1.49454u + 2.39877 \\ 0.127699u^{13} - 0.330520u^{12} + \cdots + 0.882317u + 0.772326 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.639718u^{13} - 0.609726u^{12} + \cdots - 9.59343u + 0.669913 \\ -0.328026u^{13} + 0.333373u^{12} + \cdots - 1.99239u - 0.0246451 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.495091u^{13} + 0.698721u^{12} + \cdots - 12.6713u - 2.60480 \\ -0.333373u^{13} + 0.507014u^{12} + \cdots - 2.29577u - 1.35267 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1.00142u^{13} - 1.17112u^{12} + \cdots - 10.0376u + 0.867819 \\ -0.742720u^{13} + 0.616688u^{12} + \cdots - 0.824103u + 0.145057 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.258696u^{13} - 0.554431u^{12} + \cdots - 10.8617u + 1.01288 \\ -0.742720u^{13} + 0.616688u^{12} + \cdots - 0.824103u + 0.145057 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{585676500}{162743197}u^{13} + \frac{980281103}{162743197}u^{12} + \cdots + \frac{608482609}{162743197}u - \frac{380597444}{162743197}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{14} - 9u^{13} + \cdots - 39u + 9$
c_2	$u^{14} - u^{13} + \cdots + u + 1$
c_3	$u^{14} + u^{13} + \cdots - u + 1$
c_4, c_8	$u^{14} + 2u^{12} + \cdots - u + 1$
c_5	$u^{14} + 5u^{13} + \cdots + 4u + 5$
c_6	$u^{14} + u^{13} + \cdots - u + 1$
c_7	$u^{14} - 4u^{13} + \cdots + 4u + 1$
c_9	$u^{14} - u^{13} + \cdots + 3u + 5$
c_{10}, c_{11}	$u^{14} + 4u^{13} + \cdots - 4u + 1$
c_{12}	$u^{14} - 5u^{13} + \cdots - 4u + 5$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{14} - y^{13} + \cdots + 441y + 81$
c_2, c_3	$y^{14} + 3y^{13} + \cdots - 11y + 1$
c_4, c_8	$y^{14} + 4y^{13} + \cdots + 9y + 1$
c_5, c_{12}	$y^{14} + 5y^{13} + \cdots + 194y + 25$
c_6	$y^{14} + 7y^{13} + \cdots - 9y + 1$
c_7, c_{10}, c_{11}	$y^{14} - 20y^{13} + \cdots + 8y + 1$
c_9	$y^{14} + 7y^{13} + \cdots - 159y + 25$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.790557 + 0.311356I$ $a = 0.222610 - 0.126329I$ $b = 0.845913 - 0.487651I$	$-2.48510 + 1.52387I$	$-12.05484 - 4.31807I$
$u = -0.790557 - 0.311356I$ $a = 0.222610 + 0.126329I$ $b = 0.845913 + 0.487651I$	$-2.48510 - 1.52387I$	$-12.05484 + 4.31807I$
$u = 0.651265 + 0.441006I$ $a = 0.654355 + 0.591336I$ $b = -0.840663 + 0.070677I$	$-3.27577 - 5.02886I$	$-3.36805 + 4.35249I$
$u = 0.651265 - 0.441006I$ $a = 0.654355 - 0.591336I$ $b = -0.840663 - 0.070677I$	$-3.27577 + 5.02886I$	$-3.36805 - 4.35249I$
$u = -1.286040 + 0.174398I$ $a = -0.962915 - 0.327892I$ $b = -0.424318 - 0.274794I$	$0.42007 + 8.20640I$	$2.95833 - 6.07795I$
$u = -1.286040 - 0.174398I$ $a = -0.962915 + 0.327892I$ $b = -0.424318 + 0.274794I$	$0.42007 - 8.20640I$	$2.95833 + 6.07795I$
$u = 0.449003 + 0.276873I$ $a = -2.83110 + 0.52067I$ $b = -0.932191 - 0.915727I$	$1.86269 - 0.47837I$	$4.00892 + 2.29799I$
$u = 0.449003 - 0.276873I$ $a = -2.83110 - 0.52067I$ $b = -0.932191 + 0.915727I$	$1.86269 + 0.47837I$	$4.00892 - 2.29799I$
$u = -0.365580 + 0.259701I$ $a = 2.22502 + 1.59201I$ $b = 0.815180 - 0.576796I$	$1.08385 + 2.12480I$	$2.10872 - 3.90851I$
$u = -0.365580 - 0.259701I$ $a = 2.22502 - 1.59201I$ $b = 0.815180 + 0.576796I$	$1.08385 - 2.12480I$	$2.10872 + 3.90851I$

	Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$1.75681 + 0.66656I$		
$a =$	$0.711754 - 0.230141I$	$2.71530 - 0.58653I$	$-0.31767 + 11.02629I$
$b =$	$0.662699 + 0.392339I$		
$u =$	$1.75681 - 0.66656I$		
$a =$	$0.711754 + 0.230141I$	$2.71530 + 0.58653I$	$-0.31767 - 11.02629I$
$b =$	$0.662699 - 0.392339I$		
$u =$	$0.08510 + 2.59262I$		
$a =$	$-0.019722 - 0.738947I$	$14.4834 - 3.0320I$	$4.66457 + 0.35258I$
$b =$	$0.37338 + 2.36028I$		
$u =$	$0.08510 - 2.59262I$		
$a =$	$-0.019722 + 0.738947I$	$14.4834 + 3.0320I$	$4.66457 - 0.35258I$
$b =$	$0.37338 - 2.36028I$		

IV. $\boldsymbol{I_4^u = \langle -1.13 \times 10^{44} u^{23} - 4.55 \times 10^{43} u^{22} + \cdots + 2.57 \times 10^{47} b - 2.14 \times 10^{47},\ 6.26 \times 10^{45} u^{23} + 9.23 \times 10^{44} u^{22} + \cdots + 5.24 \times 10^{48} a - 1.07 \times 10^{49},\ u^{24} + 23u^{22} + \cdots - 507u + 163 \rangle}$

(i) Arc colorings

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

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

$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.00119518u^{23} - 0.000176098u^{22} + \cdots - 4.63707u + 2.04632 \\ 0.000438993u^{23} + 0.000177030u^{22} + \cdots + 2.63368u + 0.833021 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.000916187u^{23} - 0.000184171u^{22} + \cdots - 0.122354u + 3.09669 \\ 0.000590316u^{23} + 0.000590123u^{22} + \cdots + 4.74285u + 0.522808 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.00119518u^{23} - 0.000176098u^{22} + \cdots - 4.63707u + 2.04632 \\ 0.000297902u^{23} + 0.0000128219u^{22} + \cdots + 2.52815u + 0.804317 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.000437714u^{23} + 0.000247445u^{22} + \cdots + 1.38888u + 0.570111 \\ -0.000184171u^{23} + 0.000425432u^{22} + \cdots + 2.63218u + 0.149338 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.00343719u^{23} - 0.000380507u^{22} + \cdots - 11.7851u - 1.62097 \\ -0.00160994u^{23} - 0.000560518u^{22} + \cdots - 7.70778u + 0.658868 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.000756187u^{23} + 9.31402 \times 10^{-7}u^{22} + \cdots - 2.00339u + 2.87935 \\ 0.000438993u^{23} + 0.000177030u^{22} + \cdots + 2.63368u + 0.833021 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.00118185u^{23} - 0.000522705u^{22} + \cdots + 0.0140662u + 3.34301 \\ 0.000423989u^{23} + 0.000706459u^{22} + \cdots + 5.79076u + 0.302312 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.000437714u^{23} - 0.000247445u^{22} + \cdots - 1.38888u - 0.570111 \\ 1.47188 \times 10^{-6}u^{23} - 0.000188058u^{22} + \cdots - 0.828986u - 0.109005 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.000439185u^{23} - 0.000435503u^{22} + \cdots - 2.21787u - 0.679116 \\ 1.47188 \times 10^{-6}u^{23} - 0.000188058u^{22} + \cdots - 0.828986u - 0.109005 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.00110204u^{23} - 0.000567243u^{22} + \cdots - 7.49840u + 5.00882$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^6 + u^5 + 2u^4 + u^3 + 3u^2 + u + 2)^4$
c_2, c_3	$u^{24} + 23u^{22} + \cdots + 507u + 163$
c_4, c_8	$u^{24} + 2u^{23} + \cdots + 7u + 1$
c_5, c_{12}	$(u^2 + u + 1)^{12}$
c_6	$u^{24} - 3u^{23} + \cdots - 412u + 2467$
c_7, c_{10}, c_{11}	$(u^6 + 2u^5 - 3u^4 - 5u^3 + 4u^2 + 4u + 1)^4$
c_9	$u^{24} + 11u^{22} + \cdots - 5445u + 1525$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^6+3y^5+8y^4+13y^3+15y^2+11y+4)^4$
c_2, c_3	$y^{24}+46y^{23}+\cdots+573599y+26569$
c_4, c_8	$y^{24}+2y^{23}+\cdots-29y+1$
c_5, c_{12}	$(y^2+y+1)^{12}$
c_6	$y^{24}+41y^{23}+\cdots+45336538y+6086089$
c_7, c_{10}, c_{11}	$(y^6-10y^5+37y^4-63y^3+50y^2-8y+1)^4$
c_9	$y^{24}+22y^{23}+\cdots+10441175y+2325625$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.257453 + 1.064070I$ $a = 0.247709 - 0.266585I$ $b = -1.45282 + 0.06524I$	$-1.92892 - 5.38658I$	$4.19329 + 5.73346I$
$u = 0.257453 - 1.064070I$ $a = 0.247709 + 0.266585I$ $b = -1.45282 - 0.06524I$	$-1.92892 + 5.38658I$	$4.19329 - 5.73346I$
$u = 0.261438 + 0.846267I$ $a = 0.06541 + 1.48893I$ $b = 0.662123 - 0.986027I$	$2.96813 + 2.91160I$	$7.96296 - 5.29088I$
$u = 0.261438 - 0.846267I$ $a = 0.06541 - 1.48893I$ $b = 0.662123 + 0.986027I$	$2.96813 - 2.91160I$	$7.96296 + 5.29088I$
$u = 1.055090 + 0.407250I$ $a = 0.348669 + 0.050187I$ $b = 0.385166 + 0.518251I$	$-1.92892 - 1.32681I$	$4.19329 - 1.19474I$
$u = 1.055090 - 0.407250I$ $a = 0.348669 - 0.050187I$ $b = 0.385166 - 0.518251I$	$-1.92892 + 1.32681I$	$4.19329 + 1.19474I$
$u = -0.973308 + 0.878078I$ $a = 0.931219 + 0.383298I$ $b = 0.29104 - 1.39305I$	$2.96813 - 1.14816I$	$7.96296 + 1.63733I$
$u = -0.973308 - 0.878078I$ $a = 0.931219 - 0.383298I$ $b = 0.29104 + 1.39305I$	$2.96813 + 1.14816I$	$7.96296 - 1.63733I$
$u = 1.363340 + 0.050417I$ $a = -0.922481 - 0.292010I$ $b = -1.41068 - 1.51509I$	$2.96813 - 2.91160I$	$7.96296 + 5.29088I$
$u = 1.363340 - 0.050417I$ $a = -0.922481 + 0.292010I$ $b = -1.41068 + 1.51509I$	$2.96813 + 2.91160I$	$7.96296 - 5.29088I$

Solutions to I_4^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.334830+0.354644I$ $a=-0.279369+0.071822I$ $b=-0.137180-0.680632I$	$-1.92892+5.38658I$	$4.19329-5.73346I$
$u=-1.334830-0.354644I$ $a=-0.279369-0.071822I$ $b=-0.137180+0.680632I$	$-1.92892-5.38658I$	$4.19329+5.73346I$
$u=-0.528305+0.131092I$ $a=\quad 2.41293-0.24285I$ $b=-0.374948+0.480247I$	$2.96813-1.14816I$	$7.96296+1.63733I$
$u=-0.528305-0.131092I$ $a=\quad 2.41293+0.24285I$ $b=-0.374948-0.480247I$	$2.96813+1.14816I$	$7.96296-1.63733I$
$u=\quad 0.097980+0.171071I$ $a=\quad 1.73398-1.03783I$ $b=\quad 1.055780+0.485788I$	$-1.92892-1.32681I$	$4.19329-1.19474I$
$u=\quad 0.097980-0.171071I$ $a=\quad 1.73398+1.03783I$ $b=\quad 1.055780-0.485788I$	$-1.92892+1.32681I$	$4.19329+1.19474I$
$u=\quad 0.31655+2.39342I$ $a=\quad 0.164927-0.770147I$ $b=\quad 0.15146+1.82908I$	$14.5877+0.3793I$	$5.34374+0.53819I$
$u=\quad 0.31655-2.39342I$ $a=\quad 0.164927+0.770147I$ $b=\quad 0.15146-1.82908I$	$14.5877-0.3793I$	$5.34374-0.53819I$
$u=-0.08751+2.56563I$ $a=-0.083936-0.735940I$ $b=-0.11921+2.32826I$	$14.5877-4.4391I$	$5.34374+6.39001I$
$u=-0.08751-2.56563I$ $a=-0.083936+0.735940I$ $b=-0.11921-2.32826I$	$14.5877+4.4391I$	$5.34374-6.39001I$

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.34061 + 2.54807I$ $a = -0.039494 - 0.738614I$ $b = -1.11776 + 2.21280I$	$14.5877 + 4.4391I$	$5.34374 - 6.39001I$
$u = -0.34061 - 2.54807I$ $a = -0.039494 + 0.738614I$ $b = -1.11776 - 2.21280I$	$14.5877 - 4.4391I$	$5.34374 + 6.39001I$
$u = -0.08729 + 2.75540I$ $a = -0.076498 - 0.685495I$ $b = 0.56702 + 2.84260I$	$14.5877 - 0.3793I$	$5.34374 + 0.I$
$u = -0.08729 - 2.75540I$ $a = -0.076498 + 0.685495I$ $b = 0.56702 - 2.84260I$	$14.5877 + 0.3793I$	$5.34374 + 0.I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u+5$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.500000 + 0.866025I$ $a = -0.500000 + 0.866025I$ $b = 0.500000 - 0.866025I$	$1.64493 + 2.02988I$	$3.00000 - 3.46410I$
$u = 0.500000 - 0.866025I$ $a = -0.500000 - 0.866025I$ $b = 0.500000 + 0.866025I$	$1.64493 - 2.02988I$	$3.00000 + 3.46410I$

VI. $I_6^u = \langle b^2 - b + 1,\ a - 1,\ u + 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4b + 1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_6^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = \quad 1.00000$ $b = \quad 0.500000 + 0.866025I$	$1.64493 - 2.02988I$	$3.00000 + 3.46410I$
$u = -1.00000$ $a = \quad 1.00000$ $b = \quad 0.500000 - 0.866025I$	$1.64493 + 2.02988I$	$3.00000 - 3.46410I$

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^4(u^6-4u^5+9u^4-11u^3+8u^2-3u+1)$ $\cdot((u^6+u^5+2u^4+u^3+3u^2+u+2)^4)(u^{14}-9u^{13}+\cdots-39u+9)$ $\cdot(u^{15}-8u^{14}+\cdots-26u+4)$
c_2	$(u+1)^2(u^2-u+1)(u^6+8u^4-2u^3+4u^2-u+1)$ $\cdot(u^{14}-u^{13}+\cdots+u+1)(u^{15}-u^{14}+\cdots-2u-1)$ $\cdot(u^{24}+23u^{22}+\cdots+507u+163)$
c_3	$(u-1)^2(u^2+u+1)(u^6+8u^4-2u^3+4u^2-u+1)$ $\cdot(u^{14}+u^{13}+\cdots-u+1)(u^{15}-u^{14}+\cdots-2u-1)$ $\cdot(u^{24}+23u^{22}+\cdots+507u+163)$
c_4, c_8	$((u+1)^2)(u^2-u+1)(u^6-2u^3+\cdots-3u+1)(u^{14}+2u^{12}+\cdots-u+1)$ $\cdot(u^{15}+u^{12}+\cdots+6u^2-1)(u^{24}+2u^{23}+\cdots+7u+1)$
c_5	$(u^2-u+1)^2(u^2+u+1)^{12}(u^3-2u^2+3u-1)^2$ $\cdot(u^{14}+5u^{13}+\cdots+4u+5)(u^{15}-8u^{14}+\cdots-128u+32)$
c_6	$((u^2+u+1)^2)(u^6-u^5+\cdots-5u+1)(u^{14}+u^{13}+\cdots-u+1)$ $\cdot(u^{15}+4u^{14}+\cdots+14u+1)(u^{24}-3u^{23}+\cdots-412u+2467)$
c_7	$(u+1)^4(u^6-3u^5+5u^3-u^2-2u+1)$ $\cdot((u^6+2u^5+\cdots+4u+1)^4)(u^{14}-4u^{13}+\cdots+4u+1)$ $\cdot(u^{15}-6u^{14}+\cdots+28u-16)$
c_9	$(u+1)^2(u^2-u+1)(u^6-5u^5+13u^4-16u^3+12u^2-5u+1)$ $\cdot(u^{14}-u^{13}+\cdots+3u+5)(u^{15}+4u^{14}+\cdots-18u-9)$ $\cdot(u^{24}+11u^{22}+\cdots-5445u+1525)$
c_{10}, c_{11}	$(u-1)^4(u^6-3u^5+5u^3-u^2-2u+1)$ $\cdot((u^6+2u^5+\cdots+4u+1)^4)(u^{14}+4u^{13}+\cdots-4u+1)$ $\cdot(u^{15}-6u^{14}+\cdots+28u-16)$
c_{12}	$((u^2+u+1)^{14})(u^3-2u^2+3u-1)^2(u^{14}-5u^{13}+\cdots-4u+5)$ $\cdot(u^{15}-8u^{14}+\cdots-128u+32)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^4(y^6+2y^5+9y^4+y^3+16y^2+7y+1)$ $\cdot(y^6+3y^5+8y^4+13y^3+15y^2+11y+4)^4$ $\cdot(y^{14}-y^{13}+\cdots+441y+81)(y^{15}+2y^{13}+\cdots-68y-16)$
c_2, c_3	$(y-1)^2(y^2+y+1)(y^6+16y^5+72y^4+62y^3+28y^2+7y+1)$ $\cdot(y^{14}+3y^{13}+\cdots-11y+1)(y^{15}+31y^{14}+\cdots-8y-1)$ $\cdot(y^{24}+46y^{23}+\cdots+573599y+26569)$
c_4, c_8	$(y-1)^2(y^2+y+1)(y^6+8y^4-2y^3+4y^2-y+1)$ $\cdot(y^{14}+4y^{13}+\cdots+9y+1)(y^{15}+12y^{13}+\cdots+12y-1)$ $\cdot(y^{24}+2y^{23}+\cdots-29y+1)$
c_5, c_{12}	$((y^2+y+1)^{14})(y^3+2y^2+5y-1)^2(y^{14}+5y^{13}+\cdots+194y+25)$ $\cdot(y^{15}+2y^{14}+\cdots-3584y-1024)$
c_6	$(y^2+y+1)^2(y^6+13y^5+65y^4+104y^3+78y^2-9y+1)$ $\cdot(y^{14}+7y^{13}+\cdots-9y+1)(y^{15}+26y^{14}+\cdots+34y-1)$ $\cdot(y^{24}+41y^{23}+\cdots+45336538y+6086089)$
c_7, c_{10}, c_{11}	$(y-1)^4(y^6-10y^5+37y^4-63y^3+50y^2-8y+1)^4$ $\cdot(y^6-9y^5+\cdots-6y+1)(y^{14}-20y^{13}+\cdots+8y+1)$ $\cdot(y^{15}-20y^{14}+\cdots-1232y-256)$
c_9	$(y-1)^2(y^2+y+1)(y^6+y^5+33y^4+8y^3+10y^2-y+1)$ $\cdot(y^{14}+7y^{13}+\cdots-159y+25)(y^{15}+14y^{14}+\cdots-288y-81)$ $\cdot(y^{24}+22y^{23}+\cdots+10441175y+2325625)$