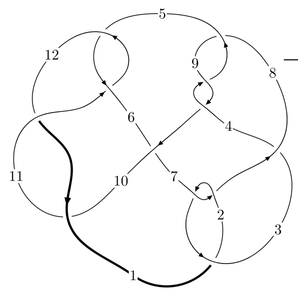
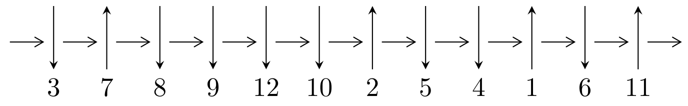
$12a_{0524}$ ($K12a_{0524}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 1.19165 \times 10^{29} u^{63} + 7.17172 \times 10^{28} u^{62} + \cdots + 8.78717 \times 10^{29} b + 1.18770 \times 10^{30},$$
$$1.42661 \times 10^{31} u^{63} - 8.31260 \times 10^{30} u^{62} + \cdots + 7.02973 \times 10^{30} a + 1.31917 \times 10^{31},\ u^{64} - u^{63} + \cdots - 2u + 1\rangle$$
$$I_2^u = \langle -u^4 - 2u^2 + b,\ u^4 + u^2 + a - 1,\ u^{27} + 9u^{25} + \cdots - u - 1\rangle$$
$$I_3^u = \langle b + 1,\ a^3 - a^2 u - 3a^2 + 2au + a + 1,\ u^2 + 1\rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 97 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.
$\boldsymbol{I_1^u = \langle 1.19\times10^{29}u^{63}+7.17\times10^{28}u^{62}+\cdots+8.79\times10^{29}b+1.19\times10^{30},\ 1.43\times10^{31}u^{63}-8.31\times10^{30}u^{62}+\cdots+7.03\times10^{30}a+1.32\times10^{31},\ u^{64}-u^{63}+\cdots-2u+1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_8 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_7 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_3 = \begin{pmatrix}u\\u^3+u\end{pmatrix}$$
$$a_4 = \begin{pmatrix}-u^3\\u^3+u\end{pmatrix}$$
$$a_1 = \begin{pmatrix}u^3\\u^5+u^3+u\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-2.02940u^{63}+1.18249u^{62}+\cdots-2.99982u-1.87655\\-0.135612u^{63}-0.0816158u^{62}+\cdots+0.389219u-1.35163\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-2.09643u^{63}+1.12088u^{62}+\cdots-3.17116u-1.64675\\-0.314315u^{63}-0.0337323u^{62}+\cdots-0.348072u-1.64704\end{pmatrix}$$
$$a_6 = \begin{pmatrix}-1.85442u^{63}+0.738976u^{62}+\cdots-1.32676u-3.25750\\-0.355484u^{63}+0.0412247u^{62}+\cdots-0.0480554u-2.11408\end{pmatrix}$$
$$a_9 = \begin{pmatrix}-2.16501u^{63}+1.10088u^{62}+\cdots-2.61060u-2.22819\\-0.314049u^{63}-0.0375849u^{62}+\cdots-0.543961u-1.53479\end{pmatrix}$$
$$a_5 = \begin{pmatrix}-2.41577u^{63}+2.96723u^{62}+\cdots-13.7211u+4.47906\\-0.534793u^{63}+0.848842u^{62}+\cdots-4.03951u+1.61355\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-2.57675u^{63}+2.92049u^{62}+\cdots-15.0731u+4.77964\\-0.807524u^{63}+1.17773u^{62}+\cdots-5.99028u+1.80950\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -2.60252u^{63}+1.80827u^{62}+\cdots-15.4271u+3.07685$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{64} + 31u^{63} + \cdots + 8u + 1$
c_2, c_7	$u^{64} + u^{63} + \cdots + 2u + 1$
c_3	$u^{64} + 2u^{63} + \cdots + 1984u + 128$
c_4, c_8, c_9	$u^{64} + u^{63} + \cdots + 16u + 1$
c_5, c_{11}	$u^{64} + 2u^{63} + \cdots + u + 2$
c_6	$u^{64} - 10u^{63} + \cdots - 14873u + 1862$
c_{10}, c_{12}	$u^{64} - 20u^{63} + \cdots - 19u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{64} + 11y^{63} + \cdots - 40y + 1$
c_2, c_7	$y^{64} + 31y^{63} + \cdots + 8y + 1$
c_3	$y^{64} - 30y^{63} + \cdots + 1945600y + 16384$
c_4, c_8, c_9	$y^{64} + 59y^{63} + \cdots + 104y + 1$
c_5, c_{11}	$y^{64} + 20y^{63} + \cdots + 19y + 4$
c_6	$y^{64} - 12y^{63} + \cdots - 37020813y + 3467044$
c_{10}, c_{12}	$y^{64} + 48y^{63} + \cdots + 879y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.740864 + 0.662784I$ $a = -1.076250 + 0.014411I$ $b = 0.049744 + 0.197245I$	$6.16267 + 3.38539I$	$2.09489 - 2.71260I$
$u = -0.740864 - 0.662784I$ $a = -1.076250 - 0.014411I$ $b = 0.049744 - 0.197245I$	$6.16267 - 3.38539I$	$2.09489 + 2.71260I$
$u = -0.445418 + 0.865420I$ $a = -0.339938 - 0.644967I$ $b = 0.121992 + 1.067110I$	$-1.53101 - 1.39020I$	$-5.91926 + 3.88104I$
$u = -0.445418 - 0.865420I$ $a = -0.339938 + 0.644967I$ $b = 0.121992 - 1.067110I$	$-1.53101 + 1.39020I$	$-5.91926 - 3.88104I$
$u = -0.021735 + 1.036710I$ $a = 1.165230 + 0.128138I$ $b = -0.0067591 - 0.0148508I$	$-4.65557 - 2.80220I$	$-13.46250 + 3.05850I$
$u = -0.021735 - 1.036710I$ $a = 1.165230 - 0.128138I$ $b = -0.0067591 + 0.0148508I$	$-4.65557 + 2.80220I$	$-13.46250 - 3.05850I$
$u = 0.510043 + 0.798911I$ $a = -0.241579 + 1.067010I$ $b = -0.181458 - 1.313360I$	$-0.86573 + 6.45035I$	$-3.51752 - 9.65683I$
$u = 0.510043 - 0.798911I$ $a = -0.241579 - 1.067010I$ $b = -0.181458 + 1.313360I$	$-0.86573 - 6.45035I$	$-3.51752 + 9.65683I$
$u = -0.715186 + 0.790541I$ $a = -0.816990 + 0.099941I$ $b = 0.096344 - 0.304633I$	$9.65441 - 2.68529I$	$5.74999 + 0.I$
$u = -0.715186 - 0.790541I$ $a = -0.816990 - 0.099941I$ $b = 0.096344 + 0.304633I$	$9.65441 + 2.68529I$	$5.74999 + 0.I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.636482 + 0.681496I$ $a = -1.048850 + 0.124326I$ $b = -0.239480 - 0.007765I$	$4.80153 + 1.37625I$	$-0.64369 - 3.25078I$
$u = 0.636482 - 0.681496I$ $a = -1.048850 - 0.124326I$ $b = -0.239480 + 0.007765I$	$4.80153 - 1.37625I$	$-0.64369 + 3.25078I$
$u = 0.897043 + 0.224964I$ $a = -0.162901 + 0.141407I$ $b = -1.21809 - 1.38009I$	$1.29409 - 11.08640I$	$-1.19961 + 7.21378I$
$u = 0.897043 - 0.224964I$ $a = -0.162901 - 0.141407I$ $b = -1.21809 + 1.38009I$	$1.29409 + 11.08640I$	$-1.19961 - 7.21378I$
$u = 0.631106 + 0.872776I$ $a = -0.402460 + 0.142378I$ $b = -0.248913 + 0.600652I$	$4.24624 + 3.53311I$	0
$u = 0.631106 - 0.872776I$ $a = -0.402460 - 0.142378I$ $b = -0.248913 - 0.600652I$	$4.24624 - 3.53311I$	0
$u = 0.846306 + 0.300514I$ $a = -0.501209 + 0.065356I$ $b = -0.87761 - 1.19110I$	$6.84859 - 5.40917I$	$4.32977 + 4.44506I$
$u = 0.846306 - 0.300514I$ $a = -0.501209 - 0.065356I$ $b = -0.87761 + 1.19110I$	$6.84859 + 5.40917I$	$4.32977 - 4.44506I$
$u = -0.871978 + 0.210846I$ $a = -0.151648 - 0.024372I$ $b = -1.25701 + 1.25917I$	$0.32985 + 5.28991I$	$-2.86725 - 2.43047I$
$u = -0.871978 - 0.210846I$ $a = -0.151648 + 0.024372I$ $b = -1.25701 - 1.25917I$	$0.32985 - 5.28991I$	$-2.86725 + 2.43047I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.687105 + 0.897262I$ $a = -0.355479 + 0.167421I$ $b = -0.048600 - 0.750276I$	$5.48639 - 8.73923I$	0
$u = -0.687105 - 0.897262I$ $a = -0.355479 - 0.167421I$ $b = -0.048600 + 0.750276I$	$5.48639 + 8.73923I$	0
$u = -0.373591 + 1.075490I$ $a = -0.795520 + 0.588147I$ $b = 0.914345 + 0.454271I$	$-1.62900 - 0.89969I$	0
$u = -0.373591 - 1.075490I$ $a = -0.795520 - 0.588147I$ $b = 0.914345 - 0.454271I$	$-1.62900 + 0.89969I$	0
$u = 0.731325 + 0.421281I$ $a = -0.938294 - 0.092021I$ $b = -0.543242 - 0.716970I$	$5.06057 + 0.57857I$	$2.53258 - 2.78290I$
$u = 0.731325 - 0.421281I$ $a = -0.938294 + 0.092021I$ $b = -0.543242 + 0.716970I$	$5.06057 - 0.57857I$	$2.53258 + 2.78290I$
$u = 0.434112 + 1.098840I$ $a = 1.43799 + 1.59048I$ $b = -1.29963 + 0.70752I$	$-3.91899 + 0.31574I$	0
$u = 0.434112 - 1.098840I$ $a = 1.43799 - 1.59048I$ $b = -1.29963 - 0.70752I$	$-3.91899 - 0.31574I$	0
$u = -0.176032 + 0.776472I$ $a = 0.607805 - 0.218610I$ $b = -0.208597 + 0.304278I$	$-0.537446 - 1.039780I$	$-7.39933 + 6.43993I$
$u = -0.176032 - 0.776472I$ $a = 0.607805 + 0.218610I$ $b = -0.208597 - 0.304278I$	$-0.537446 + 1.039780I$	$-7.39933 - 6.43993I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.449003 + 1.119080I$ $a = 1.63202 - 1.42381I$ $b = -1.36040 - 0.78973I$	$-4.40703 - 6.33923I$	0
$u = -0.449003 - 1.119080I$ $a = 1.63202 + 1.42381I$ $b = -1.36040 + 0.78973I$	$-4.40703 + 6.33923I$	0
$u = -0.744106 + 0.270463I$ $a = -0.563605 + 0.288717I$ $b = -0.979045 + 0.832531I$	$2.95946 + 3.06631I$	$-2.59881 - 2.85106I$
$u = -0.744106 - 0.270463I$ $a = -0.563605 - 0.288717I$ $b = -0.979045 - 0.832531I$	$2.95946 - 3.06631I$	$-2.59881 + 2.85106I$
$u = 0.552939 + 1.084820I$ $a = 1.189260 + 0.464726I$ $b = -1.00752 + 1.13246I$	$3.08597 + 4.29718I$	0
$u = 0.552939 - 1.084820I$ $a = 1.189260 - 0.464726I$ $b = -1.00752 - 1.13246I$	$3.08597 - 4.29718I$	0
$u = 0.446332 + 1.136180I$ $a = -1.55976 - 0.67921I$ $b = 1.45534 - 0.61315I$	$-4.21610 + 3.94313I$	0
$u = 0.446332 - 1.136180I$ $a = -1.55976 + 0.67921I$ $b = 1.45534 + 0.61315I$	$-4.21610 - 3.94313I$	0
$u = -0.503355 + 1.117530I$ $a = -1.83906 + 0.22387I$ $b = 1.52918 + 1.02332I$	$-0.69715 - 6.51856I$	0
$u = -0.503355 - 1.117530I$ $a = -1.83906 - 0.22387I$ $b = 1.52918 - 1.02332I$	$-0.69715 + 6.51856I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.351656 + 1.195310I$ $a = -1.06860 + 1.58590I$ $b = 1.336950 - 0.118755I$	$-7.69997 + 3.36567I$	0
$u = -0.351656 - 1.195310I$ $a = -1.06860 - 1.58590I$ $b = 1.336950 + 0.118755I$	$-7.69997 - 3.36567I$	0
$u = 0.433087 + 0.616507I$ $a = 0.476384 + 1.128510I$ $b = -0.703167 - 0.846414I$	$2.94099 + 1.46804I$	$3.65440 - 4.55346I$
$u = 0.433087 - 0.616507I$ $a = 0.476384 - 1.128510I$ $b = -0.703167 + 0.846414I$	$2.94099 - 1.46804I$	$3.65440 + 4.55346I$
$u = 0.373707 + 1.194340I$ $a = -1.25946 - 1.48885I$ $b = 1.44389 + 0.01555I$	$-8.31434 + 2.51326I$	0
$u = 0.373707 - 1.194340I$ $a = -1.25946 + 1.48885I$ $b = 1.44389 - 0.01555I$	$-8.31434 - 2.51326I$	0
$u = -0.539852 + 1.141380I$ $a = 1.74162 - 0.49765I$ $b = -1.28546 - 1.23224I$	$0.41354 - 7.91454I$	0
$u = -0.539852 - 1.141380I$ $a = 1.74162 + 0.49765I$ $b = -1.28546 + 1.23224I$	$0.41354 + 7.91454I$	0
$u = 0.507249 + 1.175680I$ $a = -2.24365 - 0.60143I$ $b = 1.93649 - 0.85036I$	$-7.37474 + 6.05052I$	0
$u = 0.507249 - 1.175680I$ $a = -2.24365 + 0.60143I$ $b = 1.93649 + 0.85036I$	$-7.37474 - 6.05052I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.522861 + 1.172680I$ $a = -2.33810 + 0.47146I$ $b = 1.97499 + 0.97360I$	$-6.49800 - 11.91050I$	0
$u = -0.522861 - 1.172680I$ $a = -2.33810 - 0.47146I$ $b = 1.97499 - 0.97360I$	$-6.49800 + 11.91050I$	0
$u = 0.580331 + 1.159360I$ $a = 1.83849 + 0.06678I$ $b = -1.25582 + 1.48375I$	$4.28334 + 10.67080I$	0
$u = 0.580331 - 1.159360I$ $a = 1.83849 - 0.06678I$ $b = -1.25582 - 1.48375I$	$4.28334 - 10.67080I$	0
$u = -0.558133 + 1.198470I$ $a = 2.28120 - 0.20717I$ $b = -1.53555 - 1.48069I$	$-2.62731 - 10.51430I$	0
$u = -0.558133 - 1.198470I$ $a = 2.28120 + 0.20717I$ $b = -1.53555 + 1.48069I$	$-2.62731 + 10.51430I$	0
$u = 0.570313 + 1.204160I$ $a = 2.31459 + 0.06840I$ $b = -1.53389 + 1.56815I$	$-1.6552 + 16.4308I$	0
$u = 0.570313 - 1.204160I$ $a = 2.31459 - 0.06840I$ $b = -1.53389 - 1.56815I$	$-1.6552 - 16.4308I$	0
$u = 0.480253 + 0.227205I$ $a = 0.67734 + 1.74876I$ $b = -1.329360 - 0.229592I$	$-1.14902 - 3.02718I$	$-2.05661 + 1.63893I$
$u = 0.480253 - 0.227205I$ $a = 0.67734 - 1.74876I$ $b = -1.329360 + 0.229592I$	$-1.14902 + 3.02718I$	$-2.05661 - 1.63893I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.516663 + 0.054132I$ $a = 0.10904 - 1.70032I$ $b = -1.347130 - 0.074477I$	$-1.56361 - 2.57718I$	$-3.22294 + 3.55315I$
$u = -0.516663 - 0.054132I$ $a = 0.10904 + 1.70032I$ $b = -1.347130 + 0.074477I$	$-1.56361 + 2.57718I$	$-3.22294 - 3.55315I$
$u = 0.086910 + 0.474832I$ $a = -3.26761 - 0.08964I$ $b = -0.892529 - 0.014603I$	$-1.51735 + 2.93358I$	$-0.76792 - 3.27761I$
$u = 0.086910 - 0.474832I$ $a = -3.26761 + 0.08964I$ $b = -0.892529 + 0.014603I$	$-1.51735 - 2.93358I$	$-0.76792 + 3.27761I$

II. $\boldsymbol{I^u_2 = \langle -u^4 - 2u^2 + b,\ u^4 + u^2 + a - 1,\ u^{27} + 9u^{25} + \cdots - u - 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -u^3 \\ u^3 + u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^3 \\ u^5 + u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^4 - u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^{12} + 3u^{10} + 3u^8 - 2u^4 - u^2 + 1 \\ u^{14} + 4u^{12} + 7u^{10} + 6u^8 + 2u^6 + u^2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^{10} + 3u^8 + 2u^6 - u^4 - u^2 + 1 \\ -u^{10} - 4u^8 - 5u^6 - 2u^4 + u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -u^2 + 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u^{21} + 6u^{19} + 15u^{17} + 18u^{15} + 6u^{13} - 10u^{11} - 11u^9 + 5u^5 + 2u^3 - u \\ u^{23} + 7u^{21} + 22u^{19} + 39u^{17} + 40u^{15} + 20u^{13} - 3u^9 + u^7 + u^5 + u \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^{21} - 28u^{19} - 84u^{17} - 132u^{15} - 100u^{13} + 4u^{12} - 4u^{11} + 16u^{10} + 44u^9 + 24u^8 + 12u^7 + 12u^6 - 16u^5 - 4u^4 - 12u^3 - 4u^2 - 4u - 2$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{27}+18u^{26}+\cdots+u-1$
c_2, c_4, c_7 c_8, c_9	$u^{27}+9u^{25}+\cdots-u+1$
c_3	$(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)^3$
c_5, c_{11}	$(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)^3$
c_6	$(u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1)^3$
c_{10}, c_{12}	$(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)^3$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{27} - 18y^{26} + \cdots + 9y - 1$
c_2, c_4, c_7 c_8, c_9	$y^{27} + 18y^{26} + \cdots + y - 1$
c_3	$(y^9 - 5y^8 + 12y^7 - 15y^6 + 9y^5 + y^4 - 4y^3 + 2y^2 + y - 1)^3$
c_5, c_{11}	$(y^9 + 3y^8 + 8y^7 + 13y^6 + 17y^5 + 17y^4 + 12y^3 + 6y^2 + y - 1)^3$
c_6	$(y^9 - y^8 + 12y^7 - 7y^6 + 37y^5 + y^4 - 10y^2 + 5y - 1)^3$
c_{10}, c_{12}	$(y^9 + 7y^8 + 20y^7 + 25y^6 + 5y^5 - 15y^4 + 22y^2 + 13y - 1)^3$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.415679 + 1.005350I$ $a = 1.83437 + 0.56491I$ $b = -1.67231 + 0.27089I$	$1.78344 + 2.09337I$	$0.51499 - 4.16283I$
$u = 0.415679 - 1.005350I$ $a = 1.83437 - 0.56491I$ $b = -1.67231 - 0.27089I$	$1.78344 - 2.09337I$	$0.51499 + 4.16283I$
$u = -0.302378 + 1.128850I$ $a = 1.24974 - 0.93235I$ $b = -1.43261 + 0.24968I$	-1.19845	$-8.65235 + 0.I$
$u = -0.302378 - 1.128850I$ $a = 1.24974 + 0.93235I$ $b = -1.43261 - 0.24968I$	-1.19845	$-8.65235 + 0.I$
$u = 0.426564 + 0.710315I$ $a = 1.58575 - 0.21502I$ $b = -0.908339 + 0.821007I$	$-0.61694 - 2.45442I$	$-2.32792 + 2.91298I$
$u = 0.426564 - 0.710315I$ $a = 1.58575 + 0.21502I$ $b = -0.908339 - 0.821007I$	$-0.61694 + 2.45442I$	$-2.32792 - 2.91298I$
$u = -0.777660 + 0.179870I$ $a = 0.178219 + 0.600021I$ $b = 1.39418 - 0.87978I$	$-3.59813 + 7.08493I$	$-5.57680 - 5.91335I$
$u = -0.777660 - 0.179870I$ $a = 0.178219 - 0.600021I$ $b = 1.39418 + 0.87978I$	$-3.59813 - 7.08493I$	$-5.57680 + 5.91335I$
$u = 0.476346 + 1.108800I$ $a = 2.11333 + 1.06168I$ $b = -2.11585 - 0.00534I$	$-3.59813 + 7.08493I$	$-5.57680 - 5.91335I$
$u = 0.476346 - 1.108800I$ $a = 2.11333 - 1.06168I$ $b = -2.11585 + 0.00534I$	$-3.59813 - 7.08493I$	$-5.57680 + 5.91335I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.452506 + 1.125320I$ $a = 1.97182 - 1.14384I$ $b = -2.03340 + 0.12541I$	$-4.37135 - 1.33617I$	$-7.28409 + 0.70175I$
$u = -0.452506 - 1.125320I$ $a = 1.97182 + 1.14384I$ $b = -2.03340 - 0.12541I$	$-4.37135 + 1.33617I$	$-7.28409 - 0.70175I$
$u = 0.767882 + 0.142454I$ $a = 0.154353 - 0.467897I$ $b = 1.41500 + 0.68667I$	$-4.37135 - 1.33617I$	$-7.28409 + 0.70175I$
$u = 0.767882 - 0.142454I$ $a = 0.154353 + 0.467897I$ $b = 1.41500 - 0.68667I$	$-4.37135 + 1.33617I$	$-7.28409 - 0.70175I$
$u = 0.037522 + 1.261230I$ $a = 0.072421 + 0.206198I$ $b = -0.661704 - 0.111549I$	$-0.61694 + 2.45442I$	$-2.32792 - 2.91298I$
$u = 0.037522 - 1.261230I$ $a = 0.072421 - 0.206198I$ $b = -0.661704 + 0.111549I$	$-0.61694 - 2.45442I$	$-2.32792 + 2.91298I$
$u = 0.214742 + 1.244380I$ $a = 0.530910 + 1.071400I$ $b = -1.033270 - 0.536957I$	$1.78344 - 2.09337I$	$0.51499 + 4.16283I$
$u = 0.214742 - 1.244380I$ $a = 0.530910 - 1.071400I$ $b = -1.033270 + 0.536957I$	$1.78344 + 2.09337I$	$0.51499 - 4.16283I$
$u = -0.464087 + 0.550911I$ $a = 1.341830 + 0.421215I$ $b = -0.429958 - 0.932556I$	$-0.61694 - 2.45442I$	$-2.32792 + 2.91298I$
$u = -0.464087 - 0.550911I$ $a = 1.341830 - 0.421215I$ $b = -0.429958 + 0.932556I$	$-0.61694 + 2.45442I$	$-2.32792 - 2.91298I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.315376 + 1.267770I$ $a = 0.87382 - 1.61174I$ $b = -1.38160 + 0.81209I$	$-4.37135 + 1.33617I$	$-7.28409 - 0.70175I$
$u = -0.315376 - 1.267770I$ $a = 0.87382 + 1.61174I$ $b = -1.38160 - 0.81209I$	$-4.37135 - 1.33617I$	$-7.28409 + 0.70175I$
$u = 0.301314 + 1.288670I$ $a = 0.70845 + 1.66170I$ $b = -1.27833 - 0.88511I$	$-3.59813 - 7.08493I$	$-5.57680 + 5.91335I$
$u = 0.301314 - 1.288670I$ $a = 0.70845 - 1.66170I$ $b = -1.27833 + 0.88511I$	$-3.59813 + 7.08493I$	$-5.57680 - 5.91335I$
$u = -0.630422 + 0.239022I$ $a = 0.634720 + 0.506481I$ $b = 0.705580 - 0.807851I$	$1.78344 + 2.09337I$	$0.51499 - 4.16283I$
$u = -0.630422 - 0.239022I$ $a = 0.634720 - 0.506481I$ $b = 0.705580 + 0.807851I$	$1.78344 - 2.09337I$	$0.51499 + 4.16283I$
$u = 0.604756$ $a = 0.500513$ $b = 0.865217$	-1.19845	-8.65230

III. $\boldsymbol{I_3^u = \langle b+1,\ a^3 - a^2u - 3a^2 + 2au + a + 1,\ u^2+1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4a^2 + 4au + 8a - 4u - 4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.000000I$ $a = 1.000000 + 0.569840I$ $b = -1.00000$	1.11345	$-6 - 0.980489 + 0.10I$
$u = 1.000000I$ $a = -0.307141 + 0.215080I$ $b = -1.00000$	$-3.02413 + 2.82812I$	$-7.50976 - 2.97945I$
$u = 1.000000I$ $a = 2.30714 + 0.21508I$ $b = -1.00000$	$-3.02413 - 2.82812I$	$-7.50976 + 2.97945I$
$u = -1.000000I$ $a = 1.000000 - 0.569840I$ $b = -1.00000$	1.11345	$-6 - 0.980489 + 0.10I$
$u = -1.000000I$ $a = -0.307141 - 0.215080I$ $b = -1.00000$	$-3.02413 - 2.82812I$	$-7.50976 + 2.97945I$
$u = -1.000000I$ $a = 2.30714 - 0.21508I$ $b = -1.00000$	$-3.02413 + 2.82812I$	$-7.50976 - 2.97945I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^6)(u^{27}+18u^{26}+\cdots+u-1)(u^{64}+31u^{63}+\cdots+8u+1)$
c_2, c_7	$((u^2+1)^3)(u^{27}+9u^{25}+\cdots-u+1)(u^{64}+u^{63}+\cdots+2u+1)$
c_3	$u^6(u^9-u^8-2u^7+3u^6+u^5-3u^4+2u^3-u+1)^3$ $\cdot(u^{64}+2u^{63}+\cdots+1984u+128)$
c_4, c_8, c_9	$((u^2+1)^3)(u^{27}+9u^{25}+\cdots-u+1)(u^{64}+u^{63}+\cdots+16u+1)$
c_5, c_{11}	$(u^6+u^4+2u^2+1)(u^9-u^8+2u^7-u^6+3u^5-u^4+2u^3+u+1)^3$ $\cdot(u^{64}+2u^{63}+\cdots+u+2)$
c_6	$(u^6-3u^4+2u^2+1)$ $\cdot(u^9+5u^8+12u^7+15u^6+9u^5-u^4-4u^3-2u^2+u+1)^3$ $\cdot(u^{64}-10u^{63}+\cdots-14873u+1862)$
c_{10}	$(u^3+u^2+2u+1)^2$ $\cdot(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)^3$ $\cdot(u^{64}-20u^{63}+\cdots-19u+4)$
c_{12}	$(u^3-u^2+2u-1)^2$ $\cdot(u^9-3u^8+8u^7-13u^6+17u^5-17u^4+12u^3-6u^2+u+1)^3$ $\cdot(u^{64}-20u^{63}+\cdots-19u+4)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^6)(y^{27}-18y^{26}+\cdots+9y-1)(y^{64}+11y^{63}+\cdots-40y+1)$
c_2, c_7	$((y+1)^6)(y^{27}+18y^{26}+\cdots+y-1)(y^{64}+31y^{63}+\cdots+8y+1)$
c_3	$y^6(y^9-5y^8+12y^7-15y^6+9y^5+y^4-4y^3+2y^2+y-1)^3$ $\cdot(y^{64}-30y^{63}+\cdots+1945600y+16384)$
c_4, c_8, c_9	$((y+1)^6)(y^{27}+18y^{26}+\cdots+y-1)(y^{64}+59y^{63}+\cdots+104y+1)$
c_5, c_{11}	$(y^3+y^2+2y+1)^2$ $\cdot(y^9+3y^8+8y^7+13y^6+17y^5+17y^4+12y^3+6y^2+y-1)^3$ $\cdot(y^{64}+20y^{63}+\cdots+19y+4)$
c_6	$(y^3-3y^2+2y+1)^2$ $\cdot(y^9-y^8+12y^7-7y^6+37y^5+y^4-10y^2+5y-1)^3$ $\cdot(y^{64}-12y^{63}+\cdots-37020813y+3467044)$
c_{10}, c_{12}	$(y^3+3y^2+2y-1)^2$ $\cdot(y^9+7y^8+20y^7+25y^6+5y^5-15y^4+22y^2+13y-1)^3$ $\cdot(y^{64}+48y^{63}+\cdots+879y+16)$