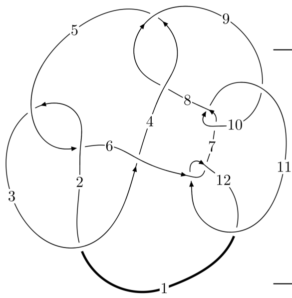
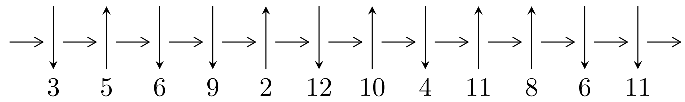
$12n_{0060}$ ($K12n_{0060}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I^u_1 = \langle & -2.71438 \times 10^{84} u^{46} - 3.94862 \times 10^{84} u^{45} + \cdots + 5.11546 \times 10^{87} d + 5.51326 \times 10^{87},\\
& 1.81915 \times 10^{85} u^{46} - 2.40556 \times 10^{85} u^{45} + \cdots + 1.27887 \times 10^{87} c + 1.47462 \times 10^{88},\\
& -7.84763 \times 10^{95} u^{46} + 5.19621 \times 10^{95} u^{45} + \cdots + 6.09681 \times 10^{98} b - 4.85317 \times 10^{98},\\
& -1.61790 \times 10^{97} u^{46} + 2.28917 \times 10^{97} u^{45} + \cdots + 6.09681 \times 10^{98} a - 1.26868 \times 10^{100},\\
& u^{47} - 2u^{46} + \cdots + 1024u - 512\rangle\\
I^u_2 = \langle & u^4c^2 + u^3c^2 - u^4c - 2c^2u^2 - 2u^3c - c^2u + u^2c + c^2 + 3cu + d - c,\\
& -2u^4c^2 - 2u^3c^2 + u^4c + 4c^2u^2 + 2u^3c + c^3 + 2c^2u - u^2c - 2c^2 - 3cu - u,\ b - u,\ a - u,\\
& u^5 + u^4 - 2u^3 - u^2 + u - 1\rangle
\end{aligned}$$

$$\begin{aligned}
I^v_1 &= \langle a,\ d - v + 1,\ c + a,\ b + v - 1,\ v^2 - v + 1\rangle\\
I^v_2 &= \langle a,\ d,\ c - v,\ b - v - 1,\ v^2 + v + 1\rangle\\
I^v_3 &= \langle c,\ d + 1,\ b,\ a - 1,\ v - 1\rangle\\
I^v_4 &= \langle a,\ da - cb + 1,\ dv + 1,\ cv - ba + bv + a - v,\ b^2 - b + 1\rangle
\end{aligned}$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 67 representations.
* 1 irreducible components of $\dim_{\mathbb{C}} = 1$

[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.

$\boldsymbol{I_1^u = \langle -2.71\times 10^{84}u^{46} - 3.95\times 10^{84}u^{45} + \cdots + 5.12\times 10^{87}d + 5.51\times 10^{87},\ 1.82\times 10^{85}u^{46} - 2.41\times 10^{85}u^{45} + \cdots + 1.28\times 10^{87}c + 1.47\times 10^{88},\ -7.85\times 10^{95}u^{46} + 5.20\times 10^{95}u^{45} + \cdots + 6.10\times 10^{98}b - 4.85\times 10^{98},\ -1.62\times 10^{97}u^{46} + 2.29\times 10^{97}u^{45} + \cdots + 6.10\times 10^{98}a - 1.27\times 10^{100},\ u^{47} - 2u^{46} + \cdots + 1024u - 512\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix}1\\0\end{pmatrix}$$
$$a_9 = \begin{pmatrix}0\\u\end{pmatrix}$$
$$a_5 = \begin{pmatrix}1\\u^2\end{pmatrix}$$
$$a_{11} = \begin{pmatrix}-0.0142247u^{46} + 0.0188101u^{45} + \cdots + 6.02241u - 11.5307\\0.000530623u^{46} + 0.000771899u^{45} + \cdots - 0.720071u - 1.07776\end{pmatrix}$$
$$a_6 = \begin{pmatrix}0.0265369u^{46} - 0.0375470u^{45} + \cdots - 11.6287u + 20.8089\\0.00128717u^{46} - 0.000852284u^{45} + \cdots - 0.317834u + 0.796018\end{pmatrix}$$
$$a_{10} = \begin{pmatrix}-0.0226340u^{46} + 0.0298604u^{45} + \cdots + 10.2154u - 17.4046\\-0.00787872u^{46} + 0.0118222u^{45} + \cdots + 3.47297u - 6.95164\end{pmatrix}$$
$$a_{12} = \begin{pmatrix}-0.0239734u^{46} + 0.0351954u^{45} + \cdots + 10.0932u - 19.6370\\-0.000874062u^{46} + 0.00264928u^{45} + \cdots - 0.431382u - 2.36213\end{pmatrix}$$
$$a_3 = \begin{pmatrix}0.00513208u^{46} - 0.00817440u^{45} + \cdots + 0.763266u + 5.03316\\0.00862965u^{46} - 0.0123123u^{45} + \cdots - 4.96716u + 7.59297\end{pmatrix}$$
$$a_2 = \begin{pmatrix}-0.00521744u^{46} + 0.00448641u^{45} + \cdots + 6.21813u - 1.48986\\0.00291266u^{46} - 0.00502319u^{45} + \cdots - 2.03496u + 3.47740\end{pmatrix}$$
$$a_1 = \begin{pmatrix}0.0252497u^{46} - 0.0366947u^{45} + \cdots - 11.3108u + 20.0129\\0.00558802u^{46} - 0.00914935u^{45} + \cdots - 0.890394u + 6.27203\end{pmatrix}$$
$$a_8 = \begin{pmatrix}u\\u\end{pmatrix}$$
$$a_7 = \begin{pmatrix}0.0207800u^{46} - 0.0264941u^{45} + \cdots - 9.33005u + 15.3882\\0.00655528u^{46} - 0.00768405u^{45} + \cdots - 3.30765u + 3.85754\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.0132573u^{46} - 0.0100723u^{45} + \cdots - 23.2337u - 1.69873$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{47} + 24u^{46} + \cdots + 216u - 16$
c_2, c_5	$u^{47} + 2u^{46} + \cdots + 16u + 4$
c_3	$u^{47} - 2u^{46} + \cdots - 21456u + 2592$
c_4, c_8	$u^{47} + 2u^{46} + \cdots + 1024u + 512$
c_6, c_{11}	$u^{47} - 8u^{46} + \cdots + 56u + 16$
c_7, c_{10}	$u^{47} + 8u^{46} + \cdots + 56u + 16$
c_9	$u^{47} - 14u^{46} + \cdots + 6688u - 256$
c_{12}	$u^{47} + 54u^{46} + \cdots + 544u + 256$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{47} + 48y^{45} + \cdots + 67872y - 256$
c_2, c_5	$y^{47} + 24y^{46} + \cdots + 216y - 16$
c_3	$y^{47} - 24y^{46} + \cdots + 353776896y - 6718464$
c_4, c_8	$y^{47} - 30y^{46} + \cdots + 1572864y - 262144$
c_6, c_{11}	$y^{47} - 54y^{46} + \cdots + 544y - 256$
c_7, c_{10}	$y^{47} - 14y^{46} + \cdots + 6688y - 256$
c_9	$y^{47} + 46y^{46} + \cdots + 11182592y - 65536$
c_{12}	$y^{47} - 114y^{46} + \cdots - 1990144y - 65536$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.168857 + 0.977277I$ $a = 0.115176 - 0.466477I$ $b = 0.993069 - 0.480924I$ $c = 0.880204 - 0.225891I$ $d = 0.230994 + 0.477533I$	$-0.50019 + 4.79223I$	$-2.43501 - 7.48976I$
$u = 0.168857 - 0.977277I$ $a = 0.115176 + 0.466477I$ $b = 0.993069 + 0.480924I$ $c = 0.880204 + 0.225891I$ $d = 0.230994 - 0.477533I$	$-0.50019 - 4.79223I$	$-2.43501 + 7.48976I$
$u = -0.758370 + 0.572620I$ $a = -0.056911 - 1.268310I$ $b = -0.176331 - 0.077095I$ $c = 0.238166 + 0.368256I$ $d = -0.259334 + 0.830862I$	$-3.62778 - 1.19000I$	$-10.45074 + 1.01195I$
$u = -0.758370 - 0.572620I$ $a = -0.056911 + 1.268310I$ $b = -0.176331 + 0.077095I$ $c = 0.238166 - 0.368256I$ $d = -0.259334 - 0.830862I$	$-3.62778 + 1.19000I$	$-10.45074 - 1.01195I$
$u = -0.798854 + 0.256222I$ $a = 0.287839 - 0.327673I$ $b = 0.167965 - 1.279390I$ $c = -0.461116 - 0.948349I$ $d = -1.30820 - 1.68280I$	$1.43042 + 3.68269I$	$-0.57615 - 8.67104I$
$u = -0.798854 - 0.256222I$ $a = 0.287839 + 0.327673I$ $b = 0.167965 + 1.279390I$ $c = -0.461116 + 0.948349I$ $d = -1.30820 + 1.68280I$	$1.43042 - 3.68269I$	$-0.57615 + 8.67104I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.287114 + 0.709757I$ $a = 0.578531 - 0.174810I$ $b = -0.451429 - 0.388165I$ $c = -1.015380 - 0.600162I$ $d = -0.205691 + 0.340554I$	$1.71355 - 0.99880I$	$4.04476 + 2.43406I$
$u = -0.287114 - 0.709757I$ $a = 0.578531 + 0.174810I$ $b = -0.451429 + 0.388165I$ $c = -1.015380 + 0.600162I$ $d = -0.205691 - 0.340554I$	$1.71355 + 0.99880I$	$4.04476 - 2.43406I$
$u = 0.723521 + 0.092490I$ $a = -3.48927 - 1.92959I$ $b = -0.757487 - 0.595429I$ $c = 1.96585 - 0.11713I$ $d = 0.329861 + 0.036001I$	$0.84436 - 2.80891I$	$-4.36866 + 6.45196I$
$u = 0.723521 - 0.092490I$ $a = -3.48927 + 1.92959I$ $b = -0.757487 + 0.595429I$ $c = 1.96585 + 0.11713I$ $d = 0.329861 - 0.036001I$	$0.84436 + 2.80891I$	$-4.36866 - 6.45196I$
$u = -0.549584 + 0.433005I$ $a = 1.88335 - 0.62690I$ $b = 0.086194 - 0.585488I$ $c = -1.67372 - 0.58265I$ $d = -0.277903 + 0.181976I$	$2.18982 - 0.74670I$	$2.91211 - 1.96105I$
$u = -0.549584 - 0.433005I$ $a = 1.88335 + 0.62690I$ $b = 0.086194 + 0.585488I$ $c = -1.67372 + 0.58265I$ $d = -0.277903 - 0.181976I$	$2.18982 + 0.74670I$	$2.91211 + 1.96105I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.659997 + 0.157577I$		
$a = 0.229959 - 0.371748I$		
$b = 0.575360 - 1.171710I$	$1.05099 + 1.22135I$	$-3.11104 + 2.86511I$
$c = 0.729227 - 0.739183I$		
$d = 1.80686 - 1.34660I$		
$u = 0.659997 - 0.157577I$		
$a = 0.229959 + 0.371748I$		
$b = 0.575360 + 1.171710I$	$1.05099 - 1.22135I$	$-3.11104 - 2.86511I$
$c = 0.729227 + 0.739183I$		
$d = 1.80686 + 1.34660I$		
$u = 0.226818 + 1.310000I$		
$a = 0.395536 + 0.047557I$		
$b = -1.354130 + 0.342438I$	$-4.12204 + 2.83071I$	$-3.10594 - 2.47522I$
$c = 1.007050 - 0.000849I$		
$d = 0.341442 + 0.559896I$		
$u = 0.226818 - 1.310000I$		
$a = 0.395536 - 0.047557I$		
$b = -1.354130 - 0.342438I$	$-4.12204 - 2.83071I$	$-3.10594 + 2.47522I$
$c = 1.007050 + 0.000849I$		
$d = 0.341442 - 0.559896I$		
$u = -0.024914 + 0.666306I$		
$a = 0.187765 + 0.490307I$		
$b = 0.676859 + 0.593604I$	$-0.68586 - 1.51893I$	$-2.03699 - 0.09471I$
$c = 0.299606 - 0.388234I$		
$d = 0.038036 + 0.428504I$		
$u = -0.024914 - 0.666306I$		
$a = 0.187765 - 0.490307I$		
$b = 0.676859 - 0.593604I$	$-0.68586 + 1.51893I$	$-2.03699 + 0.09471I$
$c = 0.299606 + 0.388234I$		
$d = 0.038036 - 0.428504I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.275400 + 0.425723I$ $a = 1.190730 + 0.205684I$ $b = 1.29665 - 0.64292I$ $c = -0.045370 - 1.113460I$ $d = -0.59246 - 1.84112I$	$-1.49383 + 5.48046I$	$-1.24533 - 5.03878I$
$u = -1.275400 - 0.425723I$ $a = 1.190730 - 0.205684I$ $b = 1.29665 + 0.64292I$ $c = -0.045370 + 1.113460I$ $d = -0.59246 + 1.84112I$	$-1.49383 - 5.48046I$	$-1.24533 + 5.03878I$
$u = -1.351470 + 0.126259I$ $a = 0.200409 + 0.288465I$ $b = 0.63511 + 1.89146I$ $c = 0.044710 - 0.963693I$ $d = -0.50842 - 1.59992I$	$-5.10242 - 0.08441I$	$-6.12902 + 0.I$
$u = -1.351470 - 0.126259I$ $a = 0.200409 - 0.288465I$ $b = 0.63511 - 1.89146I$ $c = 0.044710 + 0.963693I$ $d = -0.50842 + 1.59992I$	$-5.10242 + 0.08441I$	$-6.12902 + 0.I$
$u = 0.062543 + 0.611080I$ $a = 2.98020 - 5.04065I$ $b = -0.392543 + 1.124120I$ $c = 0.382597 - 0.828016I$ $d = 0.060601 + 0.347239I$	$-0.53961 + 2.33649I$	$-0.16377 - 3.97632I$
$u = 0.062543 - 0.611080I$ $a = 2.98020 + 5.04065I$ $b = -0.392543 - 1.124120I$ $c = 0.382597 + 0.828016I$ $d = 0.060601 - 0.347239I$	$-0.53961 - 2.33649I$	$-0.16377 + 3.97632I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.354510 + 0.305217I$ $a = 0.237962 + 0.257635I$ $b = 0.10673 + 1.95842I$ $c = -0.009355 - 1.056680I$ $d = 0.53250 - 1.74040I$	$-4.74548 - 5.93381I$	$-5.07129 + 5.57342I$
$u = 1.354510 - 0.305217I$ $a = 0.237962 - 0.257635I$ $b = 0.10673 - 1.95842I$ $c = -0.009355 + 1.056680I$ $d = 0.53250 + 1.74040I$	$-4.74548 + 5.93381I$	$-5.07129 - 5.57342I$
$u = 1.42975 + 0.19774I$ $a = -1.065100 + 0.614192I$ $b = -1.111480 - 0.181975I$ $c = -0.065967 - 1.017040I$ $d = 0.46521 - 1.66816I$	$-5.91128 - 1.72117I$	$-6.79419 + 0.I$
$u = 1.42975 - 0.19774I$ $a = -1.065100 - 0.614192I$ $b = -1.111480 + 0.181975I$ $c = -0.065967 + 1.017040I$ $d = 0.46521 + 1.66816I$	$-5.91128 + 1.72117I$	$-6.79419 + 0.I$
$u = 0.01170 + 1.48787I$ $a = 0.011715 - 0.454077I$ $b = 1.331480 + 0.029628I$ $c = -0.940701 + 0.145408I$ $d = -0.335520 + 0.668373I$	$-8.14593 + 1.35024I$	0
$u = 0.01170 - 1.48787I$ $a = 0.011715 + 0.454077I$ $b = 1.331480 - 0.029628I$ $c = -0.940701 - 0.145408I$ $d = -0.335520 - 0.668373I$	$-8.14593 - 1.35024I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.509235$ $a = 1.22614$ $b = 0.258456$ $c = 0.155794$ $d = 0.708911$	-1.19981	-8.75910
$u = 1.38697 + 0.55724I$ $a = -1.46233 + 0.24224I$ $b = -1.61416 - 0.56868I$ $c = -0.006312 - 1.182540I$ $d = 0.48982 - 1.92078I$	$-4.40802 - 10.56830I$	0
$u = 1.38697 - 0.55724I$ $a = -1.46233 - 0.24224I$ $b = -1.61416 + 0.56868I$ $c = -0.006312 + 1.182540I$ $d = 0.48982 + 1.92078I$	$-4.40802 + 10.56830I$	0
$u = -0.40359 + 1.45989I$ $a = 0.049725 + 0.404703I$ $b = 1.58609 + 0.36933I$ $c = -1.117100 + 0.048331I$ $d = -0.422301 + 0.553774I$	$-7.37650 - 7.69255I$	0
$u = -0.40359 - 1.45989I$ $a = 0.049725 - 0.404703I$ $b = 1.58609 - 0.36933I$ $c = -1.117100 - 0.048331I$ $d = -0.422301 - 0.553774I$	$-7.37650 + 7.69255I$	0
$u = 1.43182 + 0.71566I$ $a = 1.063460 - 0.335902I$ $b = 1.52462 + 1.08887I$ $c = -0.026296 - 1.248550I$ $d = 0.43018 - 2.00472I$	$-7.91018 - 10.04820I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.43182 - 0.71566I$ $a = 1.063460 + 0.335902I$ $b = 1.52462 - 1.08887I$ $c = -0.026296 + 1.248550I$ $d = 0.43018 + 2.00472I$	$-7.91018 + 10.04820I$	0
$u = -1.55076 + 0.46120I$ $a = 1.050920 + 0.198058I$ $b = 1.71496 - 0.70487I$ $c = 0.323059 + 0.821313I$ $d = -0.176351 + 1.365460I$	$-10.01530 + 3.44751I$	0
$u = -1.55076 - 0.46120I$ $a = 1.050920 - 0.198058I$ $b = 1.71496 + 0.70487I$ $c = 0.323059 - 0.821313I$ $d = -0.176351 - 1.365460I$	$-10.01530 - 3.44751I$	0
$u = -1.43192 + 0.83141I$ $a = -1.253390 - 0.502519I$ $b = -1.82714 + 0.82143I$ $c = 0.030872 - 1.291190I$ $d = -0.40061 - 2.06181I$	$-10.6565 + 15.7212I$	0
$u = -1.43192 - 0.83141I$ $a = -1.253390 + 0.502519I$ $b = -1.82714 - 0.82143I$ $c = 0.030872 + 1.291190I$ $d = -0.40061 + 2.06181I$	$-10.6565 - 15.7212I$	0
$u = 1.59024 + 0.63743I$ $a = -1.215800 + 0.253500I$ $b = -1.87247 - 0.52042I$ $c = -0.397507 + 0.800239I$ $d = 0.092374 + 1.330860I$	$-13.2358 - 8.9369I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.59024 - 0.63743I$ $a = -1.215800 - 0.253500I$ $b = -1.87247 + 0.52042I$ $c = -0.397507 - 0.800239I$ $d = 0.092374 - 1.330860I$	$-13.2358 + 8.9369I$	0
$u = -1.61640 + 0.61957I$ $a = -0.679853 - 0.543396I$ $b = -0.932855 + 0.745500I$ $c = 0.096470 - 1.214810I$ $d = -0.35117 - 1.92445I$	$-13.4084 + 6.2441I$	0
$u = -1.61640 - 0.61957I$ $a = -0.679853 + 0.543396I$ $b = -0.932855 - 0.745500I$ $c = 0.096470 + 1.214810I$ $d = -0.35117 + 1.92445I$	$-13.4084 - 6.2441I$	0
$u = 1.74703 + 0.30124I$ $a = -0.853693 + 0.410109I$ $b = -1.33429 - 0.54288I$ $c = -0.316872 + 0.927449I$ $d = 0.16562 + 1.49317I$	$-14.9547 + 0.9173I$	0
$u = 1.74703 - 0.30124I$ $a = -0.853693 - 0.410109I$ $b = -1.33429 + 0.54288I$ $c = -0.316872 - 0.927449I$ $d = 0.16562 - 1.49317I$	$-14.9547 - 0.9173I$	0

II. $I_2^u = \langle u^4c^2 - u^4c + \cdots + c^2 - c,\ -2u^4c^2 + u^4c + \cdots + c^3 - 2c^2,\ b - u,\ a - u,\ u^5 + u^4 - 2u^3 - u^2 + u - 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

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

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^5+3u^4+4u^3+u^2-u-1)^3$
c_2, c_5	$(u^5+u^4+2u^3+u^2+u+1)^3$
c_3, c_4, c_8	$(u^5-u^4-2u^3+u^2+u+1)^3$
c_6, c_7, c_{10} c_{11}	$u^{15}-5u^{13}+\cdots+u-1$
c_9	$u^{15}-10u^{14}+\cdots-5u-1$
c_{12}	$u^{15}+10u^{14}+\cdots-5u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^5 - y^4 + 8y^3 - 3y^2 + 3y - 1)^3$
c_2, c_5	$(y^5 + 3y^4 + 4y^3 + y^2 - y - 1)^3$
c_3, c_4, c_8	$(y^5 - 5y^4 + 8y^3 - 3y^2 - y - 1)^3$
c_6, c_7, c_{10} c_{11}	$y^{15} - 10y^{14} + \cdots - 5y - 1$
c_9, c_{12}	$y^{15} - 10y^{14} + \cdots - 25y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.21774$ $a = 1.21774$ $b = 1.21774$ $c = -0.015843 + 0.852735I$ $d = 0.57040 + 1.44998I$	-2.40108	-3.48110
$u = 1.21774$ $a = 1.21774$ $b = 1.21774$ $c = -0.015843 - 0.852735I$ $d = 0.57040 - 1.44998I$	-2.40108	-3.48110
$u = 1.21774$ $a = 1.21774$ $b = 1.21774$ $c = 1.67408$ $d = 0.501582$	-2.40108	-3.48110
$u = 0.309916 + 0.549911I$ $a = 0.309916 + 0.549911I$ $b = 0.309916 + 0.549911I$ $c = 1.20682 - 0.89411I$ $d = 0.186015 + 0.262335I$	$-0.32910 - 1.53058I$	$-2.51511 + 4.43065I$
$u = 0.309916 + 0.549911I$ $a = 0.309916 + 0.549911I$ $b = 0.309916 + 0.549911I$ $c = -0.209448 + 0.034081I$ $d = 0.122441 + 0.509500I$	$-0.32910 - 1.53058I$	$-2.51511 + 4.43065I$
$u = 0.309916 + 0.549911I$ $a = 0.309916 + 0.549911I$ $b = 0.309916 + 0.549911I$ $c = 0.55823 - 1.90023I$ $d = 1.24715 - 3.53209I$	$-0.32910 - 1.53058I$	$-2.51511 + 4.43065I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.309916 - 0.549911I$ $a = 0.309916 - 0.549911I$ $b = 0.309916 - 0.549911I$ $c = 1.20682 + 0.89411I$ $d = 0.186015 - 0.262335I$	$-0.32910 + 1.53058I$	$-2.51511 - 4.43065I$
$u = 0.309916 - 0.549911I$ $a = 0.309916 - 0.549911I$ $b = 0.309916 - 0.549911I$ $c = -0.209448 - 0.034081I$ $d = 0.122441 - 0.509500I$	$-0.32910 + 1.53058I$	$-2.51511 - 4.43065I$
$u = 0.309916 - 0.549911I$ $a = 0.309916 - 0.549911I$ $b = 0.309916 - 0.549911I$ $c = 0.55823 + 1.90023I$ $d = 1.24715 + 3.53209I$	$-0.32910 + 1.53058I$	$-2.51511 - 4.43065I$
$u = -1.41878 + 0.21917I$ $a = -1.41878 + 0.21917I$ $b = -1.41878 + 0.21917I$ $c = 0.056392 - 1.024950I$ $d = -0.47615 - 1.68177I$	$-5.87256 + 4.40083I$	$-6.74431 - 3.49859I$
$u = -1.41878 + 0.21917I$ $a = -1.41878 + 0.21917I$ $b = -1.41878 + 0.21917I$ $c = 0.191710 + 0.838957I$ $d = -0.33588 + 1.40562I$	$-5.87256 + 4.40083I$	$-6.74431 - 3.49859I$
$u = -1.41878 + 0.21917I$ $a = -1.41878 + 0.21917I$ $b = -1.41878 + 0.21917I$ $c = -1.62491 - 0.02669I$ $d = -0.564775 + 0.063470I$	$-5.87256 + 4.40083I$	$-6.74431 - 3.49859I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.41878 - 0.21917I$ $a = -1.41878 - 0.21917I$ $b = -1.41878 - 0.21917I$ $c = \quad 0.056392 + 1.024950I$ $d = -0.47615 + 1.68177I$	$-5.87256 - 4.40083I$	$-6.74431 + 3.49859I$
$u = -1.41878 - 0.21917I$ $a = -1.41878 - 0.21917I$ $b = -1.41878 - 0.21917I$ $c = \quad 0.191710 - 0.838957I$ $d = -0.33588 - 1.40562I$	$-5.87256 - 4.40083I$	$-6.74431 + 3.49859I$
$u = -1.41878 - 0.21917I$ $a = -1.41878 - 0.21917I$ $b = -1.41878 - 0.21917I$ $c = -1.62491 + 0.02669I$ $d = -0.564775 - 0.063470I$	$-5.87256 - 4.40083I$	$-6.74431 + 3.49859I$

III. $\boldsymbol{I_1^v = \langle a,\ d - v + 1,\ c + a,\ b + v - 1,\ v^2 - v + 1\rangle}$

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

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

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

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.500000 + 0.866025I$ $a = 0$ $b = 0.500000 - 0.866025I$ $c = 0$ $d = -0.500000 + 0.866025I$	$1.64493 + 2.02988I$	$3.00000 - 3.46410I$
$v = 0.500000 - 0.866025I$ $a = 0$ $b = 0.500000 + 0.866025I$ $c = 0$ $d = -0.500000 - 0.866025I$	$1.64493 - 2.02988I$	$3.00000 + 3.46410I$

IV. $I_2^v = \langle a,\ d,\ c - v,\ b - v - 1,\ v^2 + v + 1 \rangle$

(i) Arc colorings

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

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

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

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

$$a_6 = \begin{pmatrix} 0 \\ v + 1 \end{pmatrix}$$

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

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

$$a_3 = \begin{pmatrix} 1 \\ -v \end{pmatrix}$$

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

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

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

$$a_7 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4v - 7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = -0.500000 + 0.866025I$		
$a = 0$		
$b = 0.500000 + 0.866025I$	$-1.64493 - 2.02988I$	$-9.00000 + 3.46410I$
$c = -0.500000 + 0.866025I$		
$d = 0$		
$v = -0.500000 - 0.866025I$		
$a = 0$		
$b = 0.500000 - 0.866025I$	$-1.64493 + 2.02988I$	$-9.00000 - 3.46410I$
$c = -0.500000 - 0.866025I$		
$d = 0$		

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

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

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

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

(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_5, c_8	u
c_6, c_7, c_9 c_{12}	$u + 1$
c_{10}, c_{11}	$u - 1$

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

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

VI. $\boldsymbol{I_4^v = \langle a,\ da - cb + 1,\ dv + 1,\ cv - ba + bv + a - v,\ b^2 - b + 1 \rangle}$

(i) Arc colorings

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

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

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

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

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

$$a_{10} = \begin{pmatrix} -b+v+1 \\ d \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ -b+1 \end{pmatrix}$$

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

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

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

$$a_7 = \begin{pmatrix} b-1 \\ -d \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= d^2 + v^2 + 4b - 4$

(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	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = \cdots$		
$a = \cdots$		
$b = \cdots$	$2.02988I$	$-1.23207 - 3.46710I$
$c = \cdots$		
$d = \cdots$		

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u(u^2-u+1)^2(u^5+3u^4+4u^3+u^2-u-1)^3$ $\cdot(u^{47}+24u^{46}+\cdots+216u-16)$
c_2	$u(u^2+u+1)^2(u^5+u^4+2u^3+u^2+u+1)^3$ $\cdot(u^{47}+2u^{46}+\cdots+16u+4)$
c_3	$u(u^2-u+1)^2(u^5-u^4-2u^3+u^2+u+1)^3$ $\cdot(u^{47}-2u^{46}+\cdots-21456u+2592)$
c_4, c_8	$u^5(u^5-u^4+\cdots+u+1)^3(u^{47}+2u^{46}+\cdots+1024u+512)$
c_5	$u(u^2-u+1)^2(u^5+u^4+2u^3+u^2+u+1)^3$ $\cdot(u^{47}+2u^{46}+\cdots+16u+4)$
c_6	$u^2(u-1)^2(u+1)(u^{15}-5u^{13}+\cdots+u-1)(u^{47}-8u^{46}+\cdots+56u+16)$
c_7	$u^2(u+1)^3(u^{15}-5u^{13}+\cdots+u-1)(u^{47}+8u^{46}+\cdots+56u+16)$
c_9	$u^2(u+1)^3(u^{15}-10u^{14}+\cdots-5u-1)$ $\cdot(u^{47}-14u^{46}+\cdots+6688u-256)$
c_{10}	$u^2(u-1)^3(u^{15}-5u^{13}+\cdots+u-1)(u^{47}+8u^{46}+\cdots+56u+16)$
c_{11}	$u^2(u-1)(u+1)^2(u^{15}-5u^{13}+\cdots+u-1)(u^{47}-8u^{46}+\cdots+56u+16)$
c_{12}	$u^2(u+1)^3(u^{15}+10u^{14}+\cdots-5u+1)$ $\cdot(u^{47}+54u^{46}+\cdots+544u+256)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y(y^2+y+1)^2(y^5-y^4+8y^3-3y^2+3y-1)^3$ $\cdot\,(y^{47}+48y^{45}+\cdots+67872y-256)$
c_2, c_5	$y(y^2+y+1)^2(y^5+3y^4+4y^3+y^2-y-1)^3$ $\cdot\,(y^{47}+24y^{46}+\cdots+216y-16)$
c_3	$y(y^2+y+1)^2(y^5-5y^4+8y^3-3y^2-y-1)^3$ $\cdot\,(y^{47}-24y^{46}+\cdots+353776896y-6718464)$
c_4, c_8	$y^5(y^5-5y^4+8y^3-3y^2-y-1)^3$ $\cdot\,(y^{47}-30y^{46}+\cdots+1572864y-262144)$
c_6, c_{11}	$y^2(y-1)^3(y^{15}-10y^{14}+\cdots-5y-1)$ $\cdot\,(y^{47}-54y^{46}+\cdots+544y-256)$
c_7, c_{10}	$y^2(y-1)^3(y^{15}-10y^{14}+\cdots-5y-1)$ $\cdot\,(y^{47}-14y^{46}+\cdots+6688y-256)$
c_9	$y^2(y-1)^3(y^{15}-10y^{14}+\cdots-25y-1)$ $\cdot\,(y^{47}+46y^{46}+\cdots+11182592y-65536)$
c_{12}	$y^2(y-1)^3(y^{15}-10y^{14}+\cdots-25y-1)$ $\cdot\,(y^{47}-114y^{46}+\cdots-1990144y-65536)$