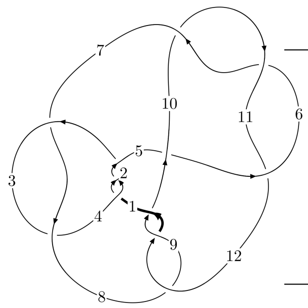
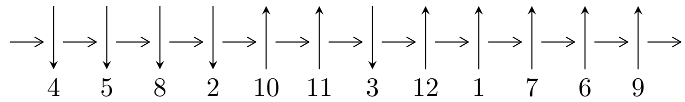
$12a_{0825}$ ($K12a_{0825}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle & 3.79485 \times 10^{78} u^{79} + 3.24042 \times 10^{79} u^{78} + \cdots + 3.97586 \times 10^{76} b + 2.32513 \times 10^{79}, \\
& - 1.11614 \times 10^{78} u^{79} - 9.33264 \times 10^{78} u^{78} + \cdots + 5.96379 \times 10^{76} a - 5.21526 \times 10^{78}, \\
& u^{80} + 10u^{79} + \cdots - 61u + 9 \rangle \\
I_2^u = \langle & -9a^5 + 15a^4 + 29a^3 - 11a^2 + 13b - 9a - 5,\ 3a^6 + 2a^5 - 4a^4 - 3a^3 + 1,\ u - 1 \rangle \\
I_3^u = \langle & b + 1,\ a^2 - 2au - 4a + 9u + 15,\ u^2 + u - 1 \rangle \\
I_4^u = \langle & b - 1,\ a + u + 2,\ u^2 + u - 1 \rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 92 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. $I_1^u = \langle 3.79 \times 10^{78} u^{79} + 3.24 \times 10^{79} u^{78} + \cdots + 3.98 \times 10^{76} b + 2.33 \times 10^{79},\ -1.12 \times 10^{78} u^{79} - 9.33 \times 10^{78} u^{78} + \cdots + 5.96 \times 10^{76} a - 5.22 \times 10^{78},\ u^{80} + 10u^{79} + \cdots - 61u + 9 \rangle$

(i) Arc colorings

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

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

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

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

$$a_3 = \begin{pmatrix} -u^2 + 1 \\ -u^4 + 2u^2 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 18.7153u^{79} + 156.488u^{78} + \cdots - 649.568u + 87.4487 \\ -95.4474u^{79} - 815.023u^{78} + \cdots + 4365.64u - 584.812 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -76.7321u^{79} - 658.535u^{78} + \cdots + 3716.07u - 497.363 \\ -95.4474u^{79} - 815.023u^{78} + \cdots + 4365.64u - 584.812 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -78.4351u^{79} - 659.518u^{78} + \cdots + 3232.63u - 436.354 \\ -123.641u^{79} - 1086.82u^{78} + \cdots + 6687.09u - 885.806 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -91.7460u^{79} - 788.305u^{78} + \cdots + 4317.85u - 579.520 \\ 87.9807u^{79} + 760.193u^{78} + \cdots - 4426.42u + 588.470 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -60.2340u^{79} - 518.813u^{78} + \cdots + 2900.90u - 389.646 \\ 89.0583u^{79} + 756.154u^{78} + \cdots - 3964.33u + 532.844 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 8.30253u^{79} + 82.9747u^{78} + \cdots - 735.274u + 93.4145 \\ 32.0105u^{79} + 287.801u^{78} + \cdots - 1979.29u + 259.874 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -28.5574u^{79} - 246.679u^{78} + \cdots + 1502.25u - 199.834 \\ 26.6383u^{79} + 236.438u^{78} + \cdots - 1600.04u + 209.994 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -352.037u^{79} - 3003.98u^{78} + \cdots + 16150.8u - 2151.32$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2, c_4	$u^{80} - 10u^{79} + \cdots + 61u + 9$
c_3, c_7	$u^{80} - 2u^{79} + \cdots - 2112u + 576$
c_5	$u^{80} + 2u^{79} + \cdots + 17620u + 3460$
c_6, c_{10}, c_{11}	$u^{80} - 2u^{79} + \cdots - 20u + 4$
c_8, c_9, c_{12}	$u^{80} - 4u^{79} + \cdots - 61u + 19$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$y^{80} - 78y^{79} + \cdots + 1139y + 81$
c_3, c_7	$y^{80} - 48y^{79} + \cdots - 8331264y + 331776$
c_5	$y^{80} + 2y^{79} + \cdots - 459714960y + 11971600$
c_6, c_{10}, c_{11}	$y^{80} + 74y^{79} + \cdots - 528y + 16$
c_8, c_9, c_{12}	$y^{80} - 72y^{79} + \cdots - 12613y + 361$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_1	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.746557 + 0.636954I$ $a = -0.682165 + 0.006700I$ $b = -0.145904 - 0.656703I$	$-6.94608 + 1.67535I$	0
$u = 0.746557 - 0.636954I$ $a = -0.682165 - 0.006700I$ $b = -0.145904 + 0.656703I$	$-6.94608 - 1.67535I$	0
$u = 0.378618 + 0.955753I$ $a = -2.00786 - 0.70595I$ $b = 1.39851 - 0.33871I$	$-0.68593 - 10.88960I$	0
$u = 0.378618 - 0.955753I$ $a = -2.00786 + 0.70595I$ $b = 1.39851 + 0.33871I$	$-0.68593 + 10.88960I$	0
$u = 1.020620 + 0.245504I$ $a = -0.88354 + 1.17817I$ $b = -0.505450 + 0.207652I$	$-5.18915 - 0.90638I$	0
$u = 1.020620 - 0.245504I$ $a = -0.88354 - 1.17817I$ $b = -0.505450 - 0.207652I$	$-5.18915 + 0.90638I$	0
$u = 0.295108 + 0.901425I$ $a = 2.22025 + 0.54370I$ $b = -1.40020 + 0.27744I$	$4.80028 - 7.04030I$	0
$u = 0.295108 - 0.901425I$ $a = 2.22025 - 0.54370I$ $b = -1.40020 - 0.27744I$	$4.80028 + 7.04030I$	0
$u = 0.394187 + 0.827178I$ $a = 0.425833 - 0.162336I$ $b = -0.220058 + 0.822245I$	$-5.82377 - 6.70367I$	0
$u = 0.394187 - 0.827178I$ $a = 0.425833 + 0.162336I$ $b = -0.220058 - 0.822245I$	$-5.82377 + 6.70367I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.889457$ $a = 0.660649$ $b = 0.159297$	-1.24461	0
$u = 0.965727 + 0.632385I$ $a = 1.269500 + 0.586728I$ $b = -1.324860 - 0.170371I$	$2.78356 + 1.72362I$	0
$u = 0.965727 - 0.632385I$ $a = 1.269500 - 0.586728I$ $b = -1.324860 + 0.170371I$	$2.78356 - 1.72362I$	0
$u = 0.894797 + 0.767292I$ $a = -1.196750 - 0.393590I$ $b = 1.349070 + 0.268437I$	$-2.22008 + 5.05652I$	0
$u = 0.894797 - 0.767292I$ $a = -1.196750 + 0.393590I$ $b = 1.349070 - 0.268437I$	$-2.22008 - 5.05652I$	0
$u = 0.209904 + 0.762735I$ $a = -2.71834 - 0.30206I$ $b = 1.363030 - 0.189174I$	$3.27350 - 2.77001I$	0
$u = 0.209904 - 0.762735I$ $a = -2.71834 + 0.30206I$ $b = 1.363030 + 0.189174I$	$3.27350 + 2.77001I$	0
$u = -1.21097$ $a = 1.37295$ $b = -1.62302$	5.30599	0
$u = 0.349449 + 0.692603I$ $a = -0.468714 + 0.268886I$ $b = 0.262657 - 0.693020I$	$-0.48810 - 3.50449I$	0
$u = 0.349449 - 0.692603I$ $a = -0.468714 - 0.268886I$ $b = 0.262657 + 0.693020I$	$-0.48810 + 3.50449I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.221830 + 0.092628I$ $a = -1.38120 + 0.34319I$ $b = 1.59533 + 0.11935I$	$1.44193 + 5.11024I$	0
$u = -1.221830 - 0.092628I$ $a = -1.38120 - 0.34319I$ $b = 1.59533 - 0.11935I$	$1.44193 - 5.11024I$	0
$u = 1.216580 + 0.220859I$ $a = -0.81510 - 1.66598I$ $b = 1.233510 - 0.136855I$	$0.291229 - 1.088620I$	0
$u = 1.216580 - 0.220859I$ $a = -0.81510 + 1.66598I$ $b = 1.233510 + 0.136855I$	$0.291229 + 1.088620I$	0
$u = 1.254590 + 0.048642I$ $a = -0.47602 - 1.82196I$ $b = -1.064870 - 0.295239I$	$-5.76832 - 0.40080I$	0
$u = 1.254590 - 0.048642I$ $a = -0.47602 + 1.82196I$ $b = -1.064870 + 0.295239I$	$-5.76832 + 0.40080I$	0
$u = 1.170810 + 0.453578I$ $a = -1.07767 - 1.03396I$ $b = 1.338150 - 0.008543I$	$0.41626 - 1.41355I$	0
$u = 1.170810 - 0.453578I$ $a = -1.07767 + 1.03396I$ $b = 1.338150 + 0.008543I$	$0.41626 + 1.41355I$	0
$u = 0.337779 + 0.642636I$ $a = 1.45515 - 0.29598I$ $b = -0.988367 - 0.439985I$	$-3.47331 - 2.16270I$	$0. + 3.40294I$
$u = 0.337779 - 0.642636I$ $a = 1.45515 + 0.29598I$ $b = -0.988367 + 0.439985I$	$-3.47331 + 2.16270I$	$0. - 3.40294I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.543823 + 0.447215I$ $a = 0.780717 - 0.230857I$ $b = -0.061345 + 0.440180I$	$-1.39076 - 0.43253I$	$-3.80282 + 0.I$
$u = 0.543823 - 0.447215I$ $a = 0.780717 + 0.230857I$ $b = -0.061345 - 0.440180I$	$-1.39076 + 0.43253I$	$-3.80282 + 0.I$
$u = -0.121092 + 0.686429I$ $a = -2.34739 + 0.92267I$ $b = 1.43204 - 0.01520I$	$4.30728 - 2.43252I$	$5.74380 + 3.14176I$
$u = -0.121092 - 0.686429I$ $a = -2.34739 - 0.92267I$ $b = 1.43204 + 0.01520I$	$4.30728 + 2.43252I$	$5.74380 - 3.14176I$
$u = 1.302040 + 0.087314I$ $a = 0.048944 - 0.999851I$ $b = 0.124215 - 0.610162I$	$-2.91730 - 1.56339I$	0
$u = 1.302040 - 0.087314I$ $a = 0.048944 + 0.999851I$ $b = 0.124215 + 0.610162I$	$-2.91730 + 1.56339I$	0
$u = -0.475431 + 0.460281I$ $a = -1.20403 + 1.49499I$ $b = 1.44724 + 0.20682I$	$2.82742 + 5.64096I$	$5.82262 - 5.01289I$
$u = -0.475431 - 0.460281I$ $a = -1.20403 - 1.49499I$ $b = 1.44724 - 0.20682I$	$2.82742 - 5.64096I$	$5.82262 + 5.01289I$
$u = -0.318513 + 0.576883I$ $a = 1.76623 - 1.41274I$ $b = -1.44334 - 0.10431I$	$7.27651 + 1.62512I$	$9.82751 - 1.87978I$
$u = -0.318513 - 0.576883I$ $a = 1.76623 + 1.41274I$ $b = -1.44334 + 0.10431I$	$7.27651 - 1.62512I$	$9.82751 + 1.87978I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.373692 + 0.515975I$ $a = 4.02553 + 1.61667I$ $b = -1.198300 + 0.170105I$	$-3.93512 - 1.27756I$	$0.88119 + 5.42303I$
$u = 0.373692 - 0.515975I$ $a = 4.02553 - 1.61667I$ $b = -1.198300 - 0.170105I$	$-3.93512 + 1.27756I$	$0.88119 - 5.42303I$
$u = -1.376180 + 0.013009I$ $a = 0.395368 + 0.296056I$ $b = -0.732152 + 0.701776I$	$-6.68900 - 2.29161I$	0
$u = -1.376180 - 0.013009I$ $a = 0.395368 - 0.296056I$ $b = -0.732152 - 0.701776I$	$-6.68900 + 2.29161I$	0
$u = -1.401050 + 0.149791I$ $a = -0.323166 - 0.222828I$ $b = 0.964398 - 0.630793I$	$-4.19551 + 1.65648I$	0
$u = -1.401050 - 0.149791I$ $a = -0.323166 + 0.222828I$ $b = 0.964398 + 0.630793I$	$-4.19551 - 1.65648I$	0
$u = 1.41049 + 0.12797I$ $a = -0.011462 + 1.039060I$ $b = -0.164145 + 0.760348I$	$-8.46336 - 4.32726I$	0
$u = 1.41049 - 0.12797I$ $a = -0.011462 - 1.039060I$ $b = -0.164145 - 0.760348I$	$-8.46336 + 4.32726I$	0
$u = 1.41617 + 0.24127I$ $a = 0.440388 + 1.239090I$ $b = -1.343240 + 0.243725I$	$1.72668 - 4.68633I$	0
$u = 1.41617 - 0.24127I$ $a = 0.440388 - 1.239090I$ $b = -1.343240 - 0.243725I$	$1.72668 + 4.68633I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.40554 + 0.30181I$ $a = -1.30853 + 1.14511I$ $b = 1.44388 + 0.31534I$	$-1.90678 + 6.61995I$	0
$u = -1.40554 - 0.30181I$ $a = -1.30853 - 1.14511I$ $b = 1.44388 - 0.31534I$	$-1.90678 - 6.61995I$	0
$u = -1.43862 + 0.20633I$ $a = 1.65824 - 1.25728I$ $b = -1.381350 - 0.249172I$	$-9.75541 + 4.00421I$	0
$u = -1.43862 - 0.20633I$ $a = 1.65824 + 1.25728I$ $b = -1.381350 + 0.249172I$	$-9.75541 - 4.00421I$	0
$u = -1.44562 + 0.16491I$ $a = 0.516143 - 0.423681I$ $b = -0.361996 - 0.777644I$	$-7.64528 + 2.63547I$	0
$u = -1.44562 - 0.16491I$ $a = 0.516143 + 0.423681I$ $b = -0.361996 + 0.777644I$	$-7.64528 - 2.63547I$	0
$u = -1.44086 + 0.24255I$ $a = 0.283292 + 0.184820I$ $b = -1.094060 + 0.603150I$	$-9.21105 + 5.40604I$	0
$u = -1.44086 - 0.24255I$ $a = 0.283292 - 0.184820I$ $b = -1.094060 - 0.603150I$	$-9.21105 - 5.40604I$	0
$u = -1.44395 + 0.26166I$ $a = -0.502067 + 0.493869I$ $b = 0.283566 + 0.907546I$	$-6.25190 + 6.98041I$	0
$u = -1.44395 - 0.26166I$ $a = -0.502067 - 0.493869I$ $b = 0.283566 - 0.907546I$	$-6.25190 - 6.98041I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.44875+0.35939I$ $a=1.15299-1.21391I$ $b=-1.44040-0.37041I$	$-0.76681+11.57640I$	0
$u=-1.44875-0.35939I$ $a=1.15299+1.21391I$ $b=-1.44040+0.37041I$	$-0.76681-11.57640I$	0
$u=1.49789+0.19735I$ $a=-0.298770-1.148940I$ $b=1.362850-0.314078I$	$-3.63647-8.21163I$	0
$u=1.49789-0.19735I$ $a=-0.298770+1.148940I$ $b=1.362850+0.314078I$	$-3.63647+8.21163I$	0
$u=-1.48258+0.31230I$ $a=0.508668-0.528000I$ $b=-0.213612-0.951544I$	$-11.8708+10.8394I$	0
$u=-1.48258-0.31230I$ $a=0.508668+0.528000I$ $b=-0.213612+0.951544I$	$-11.8708-10.8394I$	0
$u=-1.49832+0.37550I$ $a=-1.06626+1.28662I$ $b=1.42044+0.40581I$	$-6.6953+15.7029I$	0
$u=-1.49832-0.37550I$ $a=-1.06626-1.28662I$ $b=1.42044-0.40581I$	$-6.6953-15.7029I$	0
$u=-1.56399+0.13173I$ $a=-0.671086+0.423767I$ $b=0.158661+0.592290I$	$-14.7127+0.8961I$	0
$u=-1.56399-0.13173I$ $a=-0.671086-0.423767I$ $b=0.158661-0.592290I$	$-14.7127-0.8961I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.020300 + 0.417964I$ $a = 0.043518 - 0.905516I$ $b = -0.637712 + 0.460503I$	$-2.34211 - 1.37568I$	$2.73341 + 4.48844I$
$u = 0.020300 - 0.417964I$ $a = 0.043518 + 0.905516I$ $b = -0.637712 - 0.460503I$	$-2.34211 + 1.37568I$	$2.73341 - 4.48844I$
$u = -0.238555 + 0.323098I$ $a = 0.85980 - 1.27105I$ $b = -0.391274 - 0.643481I$	$-3.11465 + 2.59899I$	$2.11541 - 3.74111I$
$u = -0.238555 - 0.323098I$ $a = 0.85980 + 1.27105I$ $b = -0.391274 + 0.643481I$	$-3.11465 - 2.59899I$	$2.11541 + 3.74111I$
$u = -1.66199$ $a = 0.346470$ $b = -1.11053$	-6.96046	0
$u = 0.083424 + 0.288430I$ $a = -1.74789 + 1.17095I$ $b = 0.582839 + 0.289556I$	$0.971492 + 0.107577I$	$9.76074 + 0.21750I$
$u = 0.083424 - 0.288430I$ $a = -1.74789 - 1.17095I$ $b = 0.582839 - 0.289556I$	$0.971492 - 0.107577I$	$9.76074 - 0.21750I$
$u = -1.70283 + 0.10707I$ $a = -0.308303 - 0.048165I$ $b = 1.225460 - 0.185717I$	$-11.48760 - 1.83021I$	0
$u = -1.70283 - 0.10707I$ $a = -0.308303 + 0.048165I$ $b = 1.225460 + 0.185717I$	$-11.48760 + 1.83021I$	0
$u = 0.265818$ $a = -3.31078$ $b = 0.827813$	0.961682	15.0430

II.

$$\boldsymbol{I^u_2 = \langle -9a^5+15a^4+29a^3-11a^2+13b-9a-5,\ 3a^6+2a^5-4a^4-3a^3+1,\ u-1\rangle}$$

(i) Arc colorings

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

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

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

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

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

$$a_9 = \begin{pmatrix} a \\ 0.692308a^5 - 1.15385a^4 + \cdots + 0.692308a + 0.384615 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.692308a^5 - 1.15385a^4 + \cdots + 1.69231a + 0.384615 \\ 0.692308a^5 - 1.15385a^4 + \cdots + 0.692308a + 0.384615 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.461538a^5 - 1.23077a^4 + \cdots - 0.461538a - 0.923077 \\ 1.15385a^5 + 0.0769231a^4 + \cdots - 0.846154a + 0.307692 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -1.61538a^5 - 1.30769a^4 + \cdots + 0.384615a + 0.769231 \\ 1.15385a^5 + 0.0769231a^4 + \cdots - 0.846154a + 0.307692 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0 \\ -0.923077a^5 + 0.538462a^4 + \cdots + 1.07692a - 0.846154 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0 \\ -0.923077a^5 + 0.538462a^4 + \cdots + 1.07692a - 0.846154 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.692308a^5 - 1.15385a^4 + \cdots + 1.69231a + 0.384615 \\ -1.15385a^5 - 0.0769231a^4 + \cdots - 0.153846a - 0.307692 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{24}{13}a^5 - \frac{103}{13}a^4 - \frac{44}{13}a^3 + \frac{144}{13}a^2 + \frac{132}{13}a + \frac{56}{13}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^6$
c_3, c_7	y^6
c_5, c_8, c_9 c_{12}	$y^6 - 7y^5 + 17y^4 - 16y^3 + 6y^2 - 5y + 1$
c_6, c_{10}, c_{11}	$y^6 + 5y^5 + 9y^4 + 4y^3 - 6y^2 - 5y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -1.071740 + 0.286519I$ $b = 1.52087 + 0.16310I$	$2.05064 + 4.59213I$	$3.29989 + 0.22957I$
$u = 1.00000$ $a = -1.071740 - 0.286519I$ $b = 1.52087 - 0.16310I$	$2.05064 - 4.59213I$	$3.29989 - 0.22957I$
$u = 1.00000$ $a = 1.12449$ $b = -1.53904$	6.01515	8.93190
$u = 1.00000$ $a = 0.631376$ $b = 0.483672$	-0.906083	12.8380
$u = 1.00000$ $a = -0.139525 + 0.601675I$ $b = -0.493180 + 0.575288I$	$-4.60518 - 1.97241I$	$-1.96265 + 3.88708I$
$u = 1.00000$ $a = -0.139525 - 0.601675I$ $b = -0.493180 - 0.575288I$	$-4.60518 + 1.97241I$	$-1.96265 - 3.88708I$

III. $\boldsymbol{I^u_3 = \langle b+1,\ a^2 - 2au - 4a + 9u + 15,\ u^2 + u - 1\rangle}$

(i) Arc colorings

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

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

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

$$a_5 = \begin{pmatrix} -u \\ -u+1 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} u \\ u \end{pmatrix}$$

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

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

$$a_6 = \begin{pmatrix} au - 4u - 5 \\ au - a - u + 2 \end{pmatrix}$$

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

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

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

$$a_{11} = \begin{pmatrix} 2au - u - 1 \\ 3au - 2a - u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = 2.61803 + 3.70246I$ $b = -1.00000$	-4.27683	-4.00000
$u = 0.618034$ $a = 2.61803 - 3.70246I$ $b = -1.00000$	-4.27683	-4.00000
$u = -1.61803$ $a = 0.381966 + 0.540182I$ $b = -1.00000$	-12.1725	-4.00000
$u = -1.61803$ $a = 0.381966 - 0.540182I$ $b = -1.00000$	-12.1725	-4.00000

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -14$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.618034$ $a = -2.61803$ $b = 1.00000$	0.657974	−14.0000
$u = -1.61803$ $a = -0.381966$ $b = 1.00000$	−7.23771	−14.0000

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_2	$((u-1)^6)(u^2+u-1)^3(u^{80}-10u^{79}+\cdots+61u+9)$
c_3	$u^6(u^2-u-1)^2(u^2+u-1)(u^{80}-2u^{79}+\cdots-2112u+576)$
c_4	$((u+1)^6)(u^2-u-1)^3(u^{80}-10u^{79}+\cdots+61u+9)$
c_5	$u^2(u^2+2)^2(u^6+u^5-3u^4-2u^3+2u^2-u-1)$ $\cdot(u^{80}+2u^{79}+\cdots+17620u+3460)$
c_6	$u^2(u^2+2)^2(u^6-u^5+3u^4-2u^3+2u^2-u-1)$ $\cdot(u^{80}-2u^{79}+\cdots-20u+4)$
c_7	$u^6(u^2-u-1)(u^2+u-1)^2(u^{80}-2u^{79}+\cdots-2112u+576)$
c_8, c_9	$(u-1)^4(u+1)^2(u^6+u^5-3u^4-2u^3+2u^2-u-1)$ $\cdot(u^{80}-4u^{79}+\cdots-61u+19)$
c_{10}, c_{11}	$u^2(u^2+2)^2(u^6+u^5+3u^4+2u^3+2u^2+u-1)$ $\cdot(u^{80}-2u^{79}+\cdots-20u+4)$
c_{12}	$(u-1)^2(u+1)^4(u^6-u^5-3u^4+2u^3+2u^2+u-1)$ $\cdot(u^{80}-4u^{79}+\cdots-61u+19)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$((y-1)^6)(y^2-3y+1)^3(y^{80}-78y^{79}+\cdots+1139y+81)$
c_3, c_7	$y^6(y^2-3y+1)^3(y^{80}-48y^{79}+\cdots-8331264y+331776)$
c_5	$y^2(y+2)^4(y^6-7y^5+17y^4-16y^3+6y^2-5y+1)$ $\cdot\,(y^{80}+2y^{79}+\cdots-459714960y+11971600)$
c_6, c_{10}, c_{11}	$y^2(y+2)^4(y^6+5y^5+9y^4+4y^3-6y^2-5y+1)$ $\cdot\,(y^{80}+74y^{79}+\cdots-528y+16)$
c_8, c_9, c_{12}	$(y-1)^6(y^6-7y^5+17y^4-16y^3+6y^2-5y+1)$ $\cdot\,(y^{80}-72y^{79}+\cdots-12613y+361)$