$12a_{0531}\ (K12a_{0531})$

Linearized knot diagam

A knot diagram[1]

Solving Sequence

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

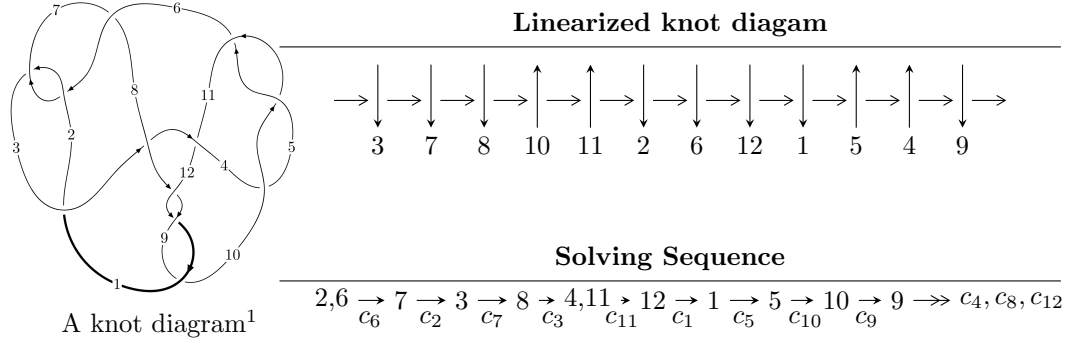### Ideals for irreducible components[2] of $X_{\mathbf{par}}$

$I_1^u = \langle 1.50790 \times 10^{28} u^{83} - 2.04992 \times 10^{28} u^{82} + \cdots + 4.86000 \times 10^{27} b + 2.90878 \times 10^{28},$
$\qquad - 5.01481 \times 10^{27} u^{83} + 7.71256 \times 10^{27} u^{82} + \cdots + 4.86000 \times 10^{27} a + 1.48950 \times 10^{28},\ u^{84} - 2u^{83} + \cdots + 8u -$

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

$I_3^u = \langle b,\ a - u + 1,\ u^3 - u^2 + 1 \rangle$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 93 representations.

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[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.

$$I_1^u = \langle 1.51 \times 10^{28} u^{83} - 2.05 \times 10^{28} u^{82} + \cdots + 4.86 \times 10^{27} b + 2.91 \times 10^{28}, \; -5.01 \times 10^{27} u^{83} + 7.71 \times 10^{27} u^{82} + \cdots + 4.86 \times 10^{27} a + 1.49 \times 10^{28}, \; u^{84} - 2u^{83} + \cdots + 8u - 1 \rangle$$

(i) Arc colorings

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

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

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

$$a_3 = \begin{pmatrix} -u \\ -u^3 + u \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} u^7 - 2u^5 + 2u^3 - 2u \\ -u^7 + u^5 - 2u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 1.03185 u^{83} - 1.58695 u^{82} + \cdots - 4.40283 u - 3.06481 \\ -3.10267 u^{83} + 4.21794 u^{82} + \cdots + 29.3257 u - 5.98515 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.620344 u^{83} - 0.533770 u^{82} + \cdots + 1.10673 u - 4.48153 \\ -2.17358 u^{83} + 3.18151 u^{82} + \cdots + 22.4583 u - 4.80039 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 2.85766 u^{83} - 6.27375 u^{82} + \cdots - 51.4385 u + 14.7969 \\ 2.17915 u^{83} - 3.63605 u^{82} + \cdots - 23.9333 u + 5.83697 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 6.60984 u^{83} - 9.43458 u^{82} + \cdots - 80.2900 u + 17.7701 \\ 1.88651 u^{83} - 2.65258 u^{82} + \cdots - 18.0252 u + 4.01556 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 5.50731 u^{83} - 8.24850 u^{82} + \cdots - 71.9841 u + 16.5651 \\ 0.919387 u^{83} - 1.31392 u^{82} + \cdots - 7.17730 u + 2.14577 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.957516 u^{83} + 4.31532 u^{82} + \cdots + 23.1863 u - 1.43761$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_7	$u^{84} + 28u^{83} + \cdots + 28u + 1$
c_2, c_6	$u^{84} - 2u^{83} + \cdots + 8u - 1$
c_3	$u^{84} + 2u^{83} + \cdots - 4588u - 793$
c_4, c_5, c_{10}	$u^{84} + u^{83} + \cdots - 40u - 8$
c_8, c_9, c_{12}	$u^{84} + 4u^{83} + \cdots + 163u - 23$
c_{11}	$u^{84} - 3u^{83} + \cdots + 1464u - 872$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_7	$y^{84} + 60y^{83} + \cdots - 316y + 1$
c_2, c_6	$y^{84} - 28y^{83} + \cdots - 28y + 1$
c_3	$y^{84} - 12y^{83} + \cdots - 50872888y + 628849$
c_4, c_5, c_{10}	$y^{84} - 77y^{83} + \cdots - 64y + 64$
c_8, c_9, c_{12}	$y^{84} - 78y^{83} + \cdots - 763y + 529$
c_{11}	$y^{84} + 7y^{83} + \cdots - 34832832y + 760384$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.005860 + 0.053427I$ $a = 1.18941 + 1.31282I$ $b = 1.213460 + 0.177851I$	$-0.638993 + 0.814219I$	0
$u = -1.005860 - 0.053427I$ $a = 1.18941 - 1.31282I$ $b = 1.213460 - 0.177851I$	$-0.638993 - 0.814219I$	0
$u = 1.009640 + 0.062094I$ $a = -0.30606 - 1.46538I$ $b = 0.119169 - 0.661433I$	$-3.80257 - 2.20400I$	0
$u = 1.009640 - 0.062094I$ $a = -0.30606 + 1.46538I$ $b = 0.119169 + 0.661433I$	$-3.80257 + 2.20400I$	0
$u = -0.776499 + 0.653312I$ $a = -0.222981 - 0.644766I$ $b = 0.153963 - 0.553953I$	$0.07926 + 2.02066I$	0
$u = -0.776499 - 0.653312I$ $a = -0.222981 + 0.644766I$ $b = 0.153963 + 0.553953I$	$0.07926 - 2.02066I$	0
$u = 0.695537 + 0.739243I$ $a = 1.61519 - 0.94961I$ $b = -1.345440 - 0.210053I$	$4.80676 + 0.75078I$	0
$u = 0.695537 - 0.739243I$ $a = 1.61519 + 0.94961I$ $b = -1.345440 + 0.210053I$	$4.80676 - 0.75078I$	0
$u = 0.624355 + 0.759958I$ $a = -1.325510 + 0.022658I$ $b = 0.772721 - 0.476917I$	$-2.12749 + 1.40116I$	0
$u = 0.624355 - 0.759958I$ $a = -1.325510 - 0.022658I$ $b = 0.772721 + 0.476917I$	$-2.12749 - 1.40116I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.728167 + 0.715851I$ $a = 3.24024 - 0.97356I$ $b = -1.51855 - 0.09042I$	$5.33778 + 0.28990I$	0
$u = -0.728167 - 0.715851I$ $a = 3.24024 + 0.97356I$ $b = -1.51855 + 0.09042I$	$5.33778 - 0.28990I$	0
$u = -0.688413 + 0.754788I$ $a = 0.551967 + 0.024503I$ $b = -0.262258 + 0.664682I$	$1.80955 - 2.15614I$	0
$u = -0.688413 - 0.754788I$ $a = 0.551967 - 0.024503I$ $b = -0.262258 - 0.664682I$	$1.80955 + 2.15614I$	0
$u = 0.976324$ $a = -0.614902$ $b = 1.53549$	0.457615	-10.5000
$u = 0.891298 + 0.536778I$ $a = 0.139782 + 0.390452I$ $b = -1.225720 - 0.173090I$	$2.94410 - 0.08006I$	0
$u = 0.891298 - 0.536778I$ $a = 0.139782 - 0.390452I$ $b = -1.225720 + 0.173090I$	$2.94410 + 0.08006I$	0
$u = -0.643339 + 0.823548I$ $a = -0.530313 + 0.337551I$ $b = 0.293170 - 0.790812I$	$-3.73484 - 5.86407I$	0
$u = -0.643339 - 0.823548I$ $a = -0.530313 - 0.337551I$ $b = 0.293170 + 0.790812I$	$-3.73484 + 5.86407I$	0
$u = -1.042210 + 0.126083I$ $a = -0.23452 - 1.89207I$ $b = -1.335370 - 0.268074I$	$0.78059 + 5.59119I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.042210 - 0.126083I$ $a = -0.23452 + 1.89207I$ $b = -1.335370 + 0.268074I$	$0.78059 - 5.59119I$	0
$u = 0.771829 + 0.720791I$ $a = 0.846377 + 0.082883I$ $b = -0.526872 + 0.345121I$	$3.03488 - 1.28276I$	0
$u = 0.771829 - 0.720791I$ $a = 0.846377 - 0.082883I$ $b = -0.526872 - 0.345121I$	$3.03488 + 1.28276I$	0
$u = 0.684662 + 0.805563I$ $a = -2.20441 + 0.70141I$ $b = 1.39828 + 0.26713I$	$7.09037 + 5.56514I$	0
$u = 0.684662 - 0.805563I$ $a = -2.20441 - 0.70141I$ $b = 1.39828 - 0.26713I$	$7.09037 - 5.56514I$	0
$u = 0.669349 + 0.848194I$ $a = 2.39133 - 0.39984I$ $b = -1.42903 - 0.31945I$	$1.75823 + 9.89270I$	0
$u = 0.669349 - 0.848194I$ $a = 2.39133 + 0.39984I$ $b = -1.42903 + 0.31945I$	$1.75823 - 9.89270I$	0
$u = -1.085550 + 0.056336I$ $a = -0.275785 + 0.475047I$ $b = -0.940188 + 0.467824I$	$-7.95233 + 0.71366I$	0
$u = -1.085550 - 0.056336I$ $a = -0.275785 - 0.475047I$ $b = -0.940188 - 0.467824I$	$-7.95233 - 0.71366I$	0
$u = 1.099610 + 0.112323I$ $a = 0.415514 + 1.063700I$ $b = -0.222123 + 0.831690I$	$-10.19880 - 5.33031I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.099610 - 0.112323I$		
$a = 0.415514 - 1.063700I$	$-10.19880 + 5.33031I$	0
$b = -0.222123 - 0.831690I$		
$u = -1.099630 + 0.155067I$		
$a = -0.29211 + 1.63269I$	$-5.08068 + 9.58817I$	0
$b = 1.39491 + 0.34897I$		
$u = -1.099630 - 0.155067I$		
$a = -0.29211 - 1.63269I$	$-5.08068 - 9.58817I$	0
$b = 1.39491 - 0.34897I$		
$u = 0.928621 + 0.619657I$		
$a = -0.100165 - 1.173450I$	$2.58787 - 4.44451I$	0
$b = 1.083530 - 0.032967I$		
$u = 0.928621 - 0.619657I$		
$a = -0.100165 + 1.173450I$	$2.58787 + 4.44451I$	0
$b = 1.083530 + 0.032967I$		
$u = 1.019450 + 0.457537I$		
$a = -0.462210 - 0.527152I$	$-3.24713 + 2.82631I$	0
$b = 1.317910 + 0.341260I$		
$u = 1.019450 - 0.457537I$		
$a = -0.462210 + 0.527152I$	$-3.24713 - 2.82631I$	0
$b = 1.317910 - 0.341260I$		
$u = -0.806273 + 0.783156I$		
$a = -2.88994 + 0.82117I$	$9.14541 + 2.98358I$	0
$b = 1.43003 + 0.12335I$		
$u = -0.806273 - 0.783156I$		
$a = -2.88994 - 0.82117I$	$9.14541 - 2.98358I$	0
$b = 1.43003 - 0.12335I$		
$u = -0.862705$		
$a = 0.275443$	-1.54513	-4.21480
$b = 0.403590$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.018780 + 0.525725I$ $a = -0.625001 + 0.295281I$ $b = -0.109685 + 0.817642I$	$-7.70761 + 1.33555I$	0
$u = -1.018780 - 0.525725I$ $a = -0.625001 - 0.295281I$ $b = -0.109685 - 0.817642I$	$-7.70761 - 1.33555I$	0
$u = -0.946108 + 0.648190I$ $a = 0.855038 - 0.839227I$ $b = -0.074916 - 0.634094I$	$-0.46603 + 3.04786I$	0
$u = -0.946108 - 0.648190I$ $a = 0.855038 + 0.839227I$ $b = -0.074916 + 0.634094I$	$-0.46603 - 3.04786I$	0
$u = 0.937402 + 0.690689I$ $a = -0.234099 - 0.621016I$ $b = 0.601970 + 0.256880I$	$2.52543 - 4.12355I$	0
$u = 0.937402 - 0.690689I$ $a = -0.234099 + 0.621016I$ $b = 0.601970 - 0.256880I$	$2.52543 + 4.12355I$	0
$u = 1.022020 + 0.590072I$ $a = 1.13586 + 1.40697I$ $b = -1.091450 + 0.410000I$	$-4.68766 - 5.74442I$	0
$u = 1.022020 - 0.590072I$ $a = 1.13586 - 1.40697I$ $b = -1.091450 - 0.410000I$	$-4.68766 + 5.74442I$	0
$u = -0.840965 + 0.836084I$ $a = 2.72881 - 0.61998I$ $b = -1.328120 - 0.208438I$	$4.91735 + 5.68260I$	0
$u = -0.840965 - 0.836084I$ $a = 2.72881 + 0.61998I$ $b = -1.328120 + 0.208438I$	$4.91735 - 5.68260I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.969325 + 0.683438I$ $a = -2.45171 + 1.35359I$ $b = 1.54495 - 0.07716I$	$4.60204 + 5.08829I$	0
$u = -0.969325 - 0.683438I$ $a = -2.45171 - 1.35359I$ $b = 1.54495 + 0.07716I$	$4.60204 - 5.08829I$	0
$u = 0.433786 + 0.682887I$ $a = -1.51254 - 0.21200I$ $b = 1.025860 + 0.318582I$	$-3.05008 + 0.92169I$	$-4.35708 - 0.77356I$
$u = 0.433786 - 0.682887I$ $a = -1.51254 + 0.21200I$ $b = 1.025860 - 0.318582I$	$-3.05008 - 0.92169I$	$-4.35708 + 0.77356I$
$u = 0.881987 + 0.801324I$ $a = -0.380306 + 0.465520I$ $b = 0.031624 - 0.527614I$	$0.55770 - 2.99594I$	0
$u = 0.881987 - 0.801324I$ $a = -0.380306 - 0.465520I$ $b = 0.031624 + 0.527614I$	$0.55770 + 2.99594I$	0
$u = -0.933284 + 0.748392I$ $a = 2.46322 - 1.14066I$ $b = -1.43177 + 0.10143I$	$8.75543 + 2.78886I$	0
$u = -0.933284 - 0.748392I$ $a = 2.46322 + 1.14066I$ $b = -1.43177 - 0.10143I$	$8.75543 - 2.78886I$	0
$u = 0.988622 + 0.690582I$ $a = -1.26017 - 2.60390I$ $b = 1.321940 - 0.243185I$	$3.92465 - 6.21786I$	0
$u = 0.988622 - 0.690582I$ $a = -1.26017 + 2.60390I$ $b = 1.321940 + 0.243185I$	$3.92465 + 6.21786I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.995284 + 0.694853I$		
$a = -1.28752 + 0.63214I$	$0.88560 + 7.67713I$	0
$b = 0.242296 + 0.706638I$		
$u = -0.995284 - 0.694853I$		
$a = -1.28752 - 0.63214I$	$0.88560 - 7.67713I$	0
$b = 0.242296 - 0.706638I$		
$u = 1.021630 + 0.682556I$		
$a = 0.225119 + 0.797631I$	$-3.30063 - 6.88949I$	0
$b = -0.807645 - 0.537339I$		
$u = 1.021630 - 0.682556I$		
$a = 0.225119 - 0.797631I$	$-3.30063 + 6.88949I$	0
$b = -0.807645 + 0.537339I$		
$u = -0.934862 + 0.804107I$		
$a = -2.30600 + 1.00101I$	$4.62756 + 0.42572I$	0
$b = 1.307880 - 0.193046I$		
$u = -0.934862 - 0.804107I$		
$a = -2.30600 - 1.00101I$	$4.62756 - 0.42572I$	0
$b = 1.307880 + 0.193046I$		
$u = 1.012340 + 0.716613I$		
$a = 1.90120 + 2.49253I$	$6.09591 - 11.29490I$	0
$b = -1.39597 + 0.28620I$		
$u = 1.012340 - 0.716613I$		
$a = 1.90120 - 2.49253I$	$6.09591 + 11.29490I$	0
$b = -1.39597 - 0.28620I$		
$u = -0.283981 + 0.692331I$		
$a = -0.503996 - 0.319424I$	$-5.64015 + 3.06330I$	$-7.15320 - 3.71038I$
$b = 0.173149 + 0.760116I$		
$u = -0.283981 - 0.692331I$		
$a = -0.503996 + 0.319424I$	$-5.64015 - 3.06330I$	$-7.15320 + 3.71038I$
$b = 0.173149 - 0.760116I$		

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.035440 + 0.709315I$ $a = 1.36459 - 0.38464I$ $b = -0.304641 - 0.819504I$	$-4.92175 + 11.61130I$	0
$u = -1.035440 - 0.709315I$ $a = 1.36459 + 0.38464I$ $b = -0.304641 + 0.819504I$	$-4.92175 - 11.61130I$	0
$u = 0.196384 + 0.718380I$ $a = 2.39252 + 0.55518I$ $b = -1.366140 + 0.311678I$	$-0.77281 - 6.93544I$	$-2.29673 + 5.13999I$
$u = 0.196384 - 0.718380I$ $a = 2.39252 - 0.55518I$ $b = -1.366140 - 0.311678I$	$-0.77281 + 6.93544I$	$-2.29673 - 5.13999I$
$u = 1.035180 + 0.729097I$ $a = -2.15510 - 2.20542I$ $b = 1.43822 - 0.33088I$	$0.6389 - 15.7800I$	0
$u = 1.035180 - 0.729097I$ $a = -2.15510 + 2.20542I$ $b = 1.43822 + 0.33088I$	$0.6389 + 15.7800I$	0
$u = 0.185341 + 0.584468I$ $a = -2.26406 - 1.07778I$ $b = 1.352270 - 0.198800I$	$4.67557 - 3.47099I$	$2.75649 + 4.83228I$
$u = 0.185341 - 0.584468I$ $a = -2.26406 + 1.07778I$ $b = 1.352270 + 0.198800I$	$4.67557 + 3.47099I$	$2.75649 - 4.83228I$
$u = 0.492916 + 0.333326I$ $a = 0.555211 + 0.726800I$ $b = -1.300790 - 0.012081I$	$3.26707 + 0.11469I$	$0.147841 + 0.385810I$
$u = 0.492916 - 0.333326I$ $a = 0.555211 - 0.726800I$ $b = -1.300790 + 0.012081I$	$3.26707 - 0.11469I$	$0.147841 - 0.385810I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.537371$ $a = -2.45205$ $b = 0.372992$	-2.35654	3.13870
$u = -0.208703 + 0.374292I$ $a = 0.716811 - 0.283596I$ $b = -0.169135 - 0.458913I$	$-0.132657 + 0.963114I$	$-2.58462 - 6.99680I$
$u = -0.208703 - 0.374292I$ $a = 0.716811 + 0.283596I$ $b = -0.169135 + 0.458913I$	$-0.132657 - 0.963114I$	$-2.58462 + 6.99680I$
$u = 0.230433$ $a = -3.01588$ $b = -1.37504$	3.21591	2.14730

II.

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

(i) Arc colorings

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

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

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

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

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

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

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

$$a_{12} = \begin{pmatrix} -u^2a - 2au + 2u^2 - a + 4u + 3 \\ -u^2a - 2au + 2u^2 - 2a + 4u + 3 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} -2u^2a - 4au + 4u^2 - 3a + 9u + 4 \\ 2 \end{pmatrix}$$

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

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

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.877439 + 0.744862I$ $a = 2.77766 - 0.30853I$ $b = -1.41421$	$6.31400 + 2.82812I$	$-0.49024 - 2.97945I$
$u = -0.877439 + 0.744862I$ $a = -2.53254 + 1.79826I$ $b = 1.41421$	$6.31400 + 2.82812I$	$-0.49024 - 2.97945I$
$u = -0.877439 - 0.744862I$ $a = 2.77766 + 0.30853I$ $b = -1.41421$	$6.31400 - 2.82812I$	$-0.49024 + 2.97945I$
$u = -0.877439 - 0.744862I$ $a = -2.53254 - 1.79826I$ $b = 1.41421$	$6.31400 - 2.82812I$	$-0.49024 + 2.97945I$
$u = 0.754878$ $a = 1.40822$ $b = 1.41421$	2.17641	-7.01950
$u = 0.754878$ $a = 2.10153$ $b = -1.41421$	2.17641	-7.01950

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

(i) Arc colorings

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

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

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

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

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

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

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

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

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

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

$$a_{10} = \begin{pmatrix} u - 1 \\ 0 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^2 + u \\ u^2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^2 + 10u - 8$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \ \ \ 0.877439 + 0.744862I$ $a = -0.122561 + 0.744862I$ $b = \qquad 0$	$1.37919 - 2.82812I$	$-0.08593 + 2.22005I$
$u = \ \ \ 0.877439 - 0.744862I$ $a = -0.122561 - 0.744862I$ $b = \qquad 0$	$1.37919 + 2.82812I$	$-0.08593 - 2.22005I$
$u = -0.754878$ $a = -1.75488$ $b = \qquad 0$	-2.75839	-17.8280

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u^3 - u^2 + 2u - 1)^3)(u^{84} + 28u^{83} + \cdots + 28u + 1)$
c_2	$((u^3 - u^2 + 1)^2)(u^3 + u^2 - 1)(u^{84} - 2u^{83} + \cdots + 8u - 1)$
c_3	$(u^3 - u^2 + 2u - 1)(u^3 + u^2 + 2u + 1)^2(u^{84} + 2u^{83} + \cdots - 4588u - 793)$
c_4, c_5, c_{10}	$u^3(u^2 - 2)^3(u^{84} + u^{83} + \cdots - 40u - 8)$
c_6	$(u^3 - u^2 + 1)(u^3 + u^2 - 1)^2(u^{84} - 2u^{83} + \cdots + 8u - 1)$
c_7	$((u^3 + u^2 + 2u + 1)^3)(u^{84} + 28u^{83} + \cdots + 28u + 1)$
c_8, c_9	$((u - 1)^3)(u + 1)^6(u^{84} + 4u^{83} + \cdots + 163u - 23)$
c_{11}	$u^3(u^2 - 2)^3(u^{84} - 3u^{83} + \cdots + 1464u - 872)$
c_{12}	$((u - 1)^6)(u + 1)^3(u^{84} + 4u^{83} + \cdots + 163u - 23)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_7	$((y^3 + 3y^2 + 2y - 1)^3)(y^{84} + 60y^{83} + \cdots - 316y + 1)$
c_2, c_6	$((y^3 - y^2 + 2y - 1)^3)(y^{84} - 28y^{83} + \cdots - 28y + 1)$
c_3	$((y^3 + 3y^2 + 2y - 1)^3)(y^{84} - 12y^{83} + \cdots - 5.08729 \times 10^7 y + 628849)$
c_4, c_5, c_{10}	$y^3(y - 2)^6(y^{84} - 77y^{83} + \cdots - 64y + 64)$
c_8, c_9, c_{12}	$((y - 1)^9)(y^{84} - 78y^{83} + \cdots - 763y + 529)$
c_{11}	$y^3(y - 2)^6(y^{84} + 7y^{83} + \cdots - 3.48328 \times 10^7 y + 760384)$