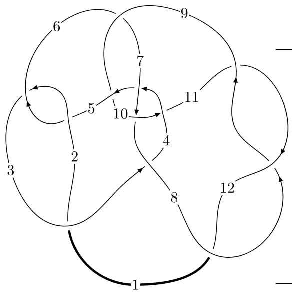
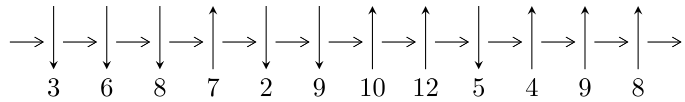
$12n_{0325}$ ($K12n_{0325}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned} I_1^u = \langle & -5.71883 \times 10^{322} u^{80} + 5.13115 \times 10^{321} u^{79} + \cdots + 1.73962 \times 10^{324} b + 1.35587 \times 10^{324}, \\ & 1.38428 \times 10^{323} u^{80} - 6.17270 \times 10^{322} u^{79} + \cdots + 3.47923 \times 10^{324} a + 5.96157 \times 10^{323}, \\ & u^{81} - 5u^{79} + \cdots - 56u + 16 \rangle \\ I_2^u = \langle & -6.30190 \times 10^{15} u^{20} - 5.04731 \times 10^{15} u^{19} + \cdots + 9.71732 \times 10^{16} b - 1.02982 \times 10^{17}, \\ & -1.87469 \times 10^{17} u^{20} - 1.88197 \times 10^{17} u^{19} + \cdots + 2.04064 \times 10^{18} a - 8.68955 \times 10^{18}, \\ & u^{21} + u^{20} + \cdots + 82u + 21 \rangle \end{aligned}$$

$$I_1^v = \langle a,\ 2v^3 - 7v^2 + 5b + 6v + 6,\ v^4 - 4v^3 + 6v^2 - v + 1 \rangle$$

* 3 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 106 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. $\boldsymbol{I_1^u = \langle -5.72 \times 10^{322} u^{80} + 5.13 \times 10^{321} u^{79} + \cdots + 1.74 \times 10^{324} b + 1.36 \times 10^{324},\ 1.38 \times 10^{323} u^{80} - 6.17 \times 10^{322} u^{79} + \cdots + 3.48 \times 10^{324} a + 5.96 \times 10^{323},\ u^{81} - 5u^{79} + \cdots - 56u + 16 \rangle}$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} -0.0397870u^{80} + 0.0177415u^{79} + \cdots - 7.69291u - 0.171347 \\ 0.0328741u^{80} - 0.00294959u^{79} + \cdots + 2.89987u - 0.779406 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} -0.0726610u^{80} + 0.0206911u^{79} + \cdots - 10.5928u + 0.608059 \\ 0.0328741u^{80} - 0.00294959u^{79} + \cdots + 2.89987u - 0.779406 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.0404471u^{80} - 0.0384726u^{79} + \cdots + 16.7195u - 4.06914 \\ -0.0462175u^{80} - 0.0248072u^{79} + \cdots - 4.11812u + 1.57122 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.00600531u^{80} + 0.0734423u^{79} + \cdots - 5.37163u - 0.502405 \\ 0.00663013u^{80} - 0.0144926u^{79} + \cdots + 1.20447u + 0.0646126 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.0146977u^{80} - 0.0555582u^{79} + \cdots + 8.39910u - 1.39945 \\ -0.00892733u^{80} + 0.00772163u^{79} + \cdots - 2.20233u + 1.09846 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.0411094u^{80} + 0.0343150u^{79} + \cdots + 15.7625u - 0.848914 \\ -0.0733906u^{80} - 0.0529926u^{79} + \cdots - 5.05653u + 1.28512 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.157363u^{80} - 0.0629909u^{79} + \cdots - 10.8730u + 2.42951 \\ 0.0162201u^{80} + 0.00434497u^{79} + \cdots + 1.09822u - 0.123036 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.0932583u^{80} - 0.0524637u^{79} + \cdots - 11.7756u + 1.50276 \\ 0.0585649u^{80} + 0.0311349u^{79} + \cdots + 3.73976u - 1.21412 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.0209487u^{80} + 0.00504618u^{79} + \cdots - 11.9699u + 0.112838 \\ 0.0518225u^{80} + 0.0456388u^{79} + \cdots + 3.84524u - 0.655337 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.263378u^{80} - 0.100086u^{79} + \cdots - 25.2033u + 11.4620$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{81} + 24u^{80} + \cdots + 53u + 1$
c_2, c_5	$u^{81} + 2u^{80} + \cdots + 11u - 1$
c_3	$u^{81} - u^{80} + \cdots + 2043071u - 89033$
c_4	$u^{81} + 5u^{80} + \cdots - 6u + 1$
c_6	$u^{81} + u^{80} + \cdots - 13206u - 919$
c_7	$u^{81} - 5u^{79} + \cdots - 56u - 16$
c_8, c_{11}, c_{12}	$u^{81} - 5u^{80} + \cdots - 12u - 1$
c_9	$u^{81} + 2u^{80} + \cdots - 7u - 11$
c_{10}	$u^{81} + 6u^{80} + \cdots + 26845u - 6217$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{81} + 76y^{80} + \cdots + 2869y - 1$
c_2, c_5	$y^{81} - 24y^{80} + \cdots + 53y - 1$
c_3	$y^{81} + 77y^{80} + \cdots + 1032689479609y - 7926875089$
c_4	$y^{81} - 9y^{80} + \cdots - 158y - 1$
c_6	$y^{81} + 43y^{80} + \cdots + 71336262y - 844561$
c_7	$y^{81} - 10y^{80} + \cdots - 448y - 256$
c_8, c_{11}, c_{12}	$y^{81} + 17y^{80} + \cdots - 62y - 1$
c_9	$y^{81} + 14y^{80} + \cdots - 4549y - 121$
c_{10}	$y^{81} - 34y^{80} + \cdots + 684980879y - 38651089$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.864704 + 0.515104I$ $a = 0.067355 - 0.956329I$ $b = -0.77225 - 1.40002I$	$6.65165 - 2.03331I$	0
$u = -0.864704 - 0.515104I$ $a = 0.067355 + 0.956329I$ $b = -0.77225 + 1.40002I$	$6.65165 + 2.03331I$	0
$u = 0.966443 + 0.409894I$ $a = -0.339969 + 0.966882I$ $b = 1.22854 + 0.97887I$	$2.72616 + 4.53398I$	0
$u = 0.966443 - 0.409894I$ $a = -0.339969 - 0.966882I$ $b = 1.22854 - 0.97887I$	$2.72616 - 4.53398I$	0
$u = -0.994830 + 0.338608I$ $a = 0.006971 + 0.922467I$ $b = 0.84421 + 1.40177I$	$6.82770 + 4.65491I$	0
$u = -0.994830 - 0.338608I$ $a = 0.006971 - 0.922467I$ $b = 0.84421 - 1.40177I$	$6.82770 - 4.65491I$	0
$u = 0.995164 + 0.394044I$ $a = -0.430835 - 0.371591I$ $b = -0.703603 + 0.320798I$	$-1.65632 - 4.60349I$	0
$u = 0.995164 - 0.394044I$ $a = -0.430835 + 0.371591I$ $b = -0.703603 - 0.320798I$	$-1.65632 + 4.60349I$	0
$u = -0.767333 + 0.520690I$ $a = 2.03065 + 0.14534I$ $b = -0.606396 + 0.400040I$	$6.34137 - 2.12224I$	0
$u = -0.767333 - 0.520690I$ $a = 2.03065 - 0.14534I$ $b = -0.606396 - 0.400040I$	$6.34137 + 2.12224I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.631355+0.614749I$ $a=-2.17032-0.52418I$ $b=\ \ 0.583634-0.494454I$	$5.37211-8.58308I$	$0.+10.97236I$
$u=-0.631355-0.614749I$ $a=-2.17032+0.52418I$ $b=\ \ 0.583634+0.494454I$	$5.37211+8.58308I$	$0.-10.97236I$
$u=\ \ 0.812049+0.295790I$ $a=-0.080919-0.949851I$ $b=\ \ 1.33248-1.24004I$	$7.79780+1.80326I$	$6.94176-3.29971I$
$u=\ \ 0.812049-0.295790I$ $a=-0.080919+0.949851I$ $b=\ \ 1.33248+1.24004I$	$7.79780-1.80326I$	$6.94176+3.29971I$
$u=-0.693024+0.899959I$ $a=\ \ 0.453119-0.585375I$ $b=\ \ 0.696516-0.250989I$	$0.88281-2.11179I$	0
$u=-0.693024-0.899959I$ $a=\ \ 0.453119+0.585375I$ $b=\ \ 0.696516+0.250989I$	$0.88281+2.11179I$	0
$u=\ \ 0.709599+0.423129I$ $a=\ \ 0.081228+1.049090I$ $b=-1.28895+1.30848I$	$6.61316+8.67249I$	$3.85291-8.97147I$
$u=\ \ 0.709599-0.423129I$ $a=\ \ 0.081228-1.049090I$ $b=-1.28895-1.30848I$	$6.61316-8.67249I$	$3.85291+8.97147I$
$u=\ \ 0.938083+0.715903I$ $a=\ \ 0.165581-1.167330I$ $b=-1.14860-1.03079I$	$-1.74227+9.69257I$	0
$u=\ \ 0.938083-0.715903I$ $a=\ \ 0.165581+1.167330I$ $b=-1.14860+1.03079I$	$-1.74227-9.69257I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.799263 + 0.166597I$ $a = 2.07141 + 1.21207I$ $b = -0.806764 - 0.009351I$	$7.11949 - 6.20902I$	$7.94528 + 4.20823I$
$u = 0.799263 - 0.166597I$ $a = 2.07141 - 1.21207I$ $b = -0.806764 + 0.009351I$	$7.11949 + 6.20902I$	$7.94528 - 4.20823I$
$u = 0.607583 + 1.032170I$ $a = 0.396665 + 1.147560I$ $b = 0.370178 + 0.457483I$	$-3.53662 + 1.62898I$	0
$u = 0.607583 - 1.032170I$ $a = 0.396665 - 1.147560I$ $b = 0.370178 - 0.457483I$	$-3.53662 - 1.62898I$	0
$u = -1.196840 + 0.151285I$ $a = 0.484675 + 0.322392I$ $b = -0.566636 - 0.008546I$	$2.37854 + 0.00858I$	0
$u = -1.196840 - 0.151285I$ $a = 0.484675 - 0.322392I$ $b = -0.566636 + 0.008546I$	$2.37854 - 0.00858I$	0
$u = -0.437058 + 0.660943I$ $a = -0.62890 + 1.51723I$ $b = -0.97286 + 1.03700I$	$-2.04253 - 6.44979I$	$-3.14648 + 2.17088I$
$u = -0.437058 - 0.660943I$ $a = -0.62890 - 1.51723I$ $b = -0.97286 - 1.03700I$	$-2.04253 + 6.44979I$	$-3.14648 - 2.17088I$
$u = 0.706225 + 0.292864I$ $a = -2.28510 - 0.86473I$ $b = 0.834574 + 0.090973I$	$7.40515 + 0.63413I$	$7.99415 - 1.89608I$
$u = 0.706225 - 0.292864I$ $a = -2.28510 + 0.86473I$ $b = 0.834574 - 0.090973I$	$7.40515 - 0.63413I$	$7.99415 + 1.89608I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.001240 + 0.736005I$ $a = 0.256315 - 0.742703I$ $b = 1.03551 - 1.10338I$	$-0.38191 - 5.09344I$	0
$u = -1.001240 - 0.736005I$ $a = 0.256315 + 0.742703I$ $b = 1.03551 + 1.10338I$	$-0.38191 + 5.09344I$	0
$u = 1.151460 + 0.487803I$ $a = -0.132708 + 0.482310I$ $b = 0.68966 + 1.39312I$	$0.57158 + 4.71464I$	0
$u = 1.151460 - 0.487803I$ $a = -0.132708 - 0.482310I$ $b = 0.68966 - 1.39312I$	$0.57158 - 4.71464I$	0
$u = -0.425288 + 0.605867I$ $a = -0.402409 + 0.735878I$ $b = -1.41930 + 1.05173I$	$-2.12406 - 2.49621I$	$-6.63409 + 8.73341I$
$u = -0.425288 - 0.605867I$ $a = -0.402409 - 0.735878I$ $b = -1.41930 - 1.05173I$	$-2.12406 + 2.49621I$	$-6.63409 - 8.73341I$
$u = 0.926610 + 0.858585I$ $a = 0.194288 - 1.235310I$ $b = -0.596939 - 0.501927I$	$-2.98305 + 5.70394I$	0
$u = 0.926610 - 0.858585I$ $a = 0.194288 + 1.235310I$ $b = -0.596939 + 0.501927I$	$-2.98305 - 5.70394I$	0
$u = 0.630721 + 0.297315I$ $a = 0.044076 - 0.323841I$ $b = -1.32512 - 0.80646I$	$-1.74333 - 0.96559I$	$2.53517 + 1.89595I$
$u = 0.630721 - 0.297315I$ $a = 0.044076 + 0.323841I$ $b = -1.32512 + 0.80646I$	$-1.74333 + 0.96559I$	$2.53517 - 1.89595I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.30677$ $a = 0.440104$ $b = -0.578903$	2.39168	0
$u = -0.809127 + 1.085380I$ $a = 0.348245 - 0.753818I$ $b = 1.033020 - 0.878591I$	$0.01437 - 3.34341I$	0
$u = -0.809127 - 1.085380I$ $a = 0.348245 + 0.753818I$ $b = 1.033020 + 0.878591I$	$0.01437 + 3.34341I$	0
$u = -1.343510 + 0.229960I$ $a = 0.136679 - 0.733260I$ $b = 0.0305346 + 0.0832964I$	$3.06582 - 2.90294I$	0
$u = -1.343510 - 0.229960I$ $a = 0.136679 + 0.733260I$ $b = 0.0305346 - 0.0832964I$	$3.06582 + 2.90294I$	0
$u = -0.742009 + 1.145830I$ $a = -0.219888 + 0.773292I$ $b = -1.113060 + 0.863158I$	$-0.56917 - 7.09177I$	0
$u = -0.742009 - 1.145830I$ $a = -0.219888 - 0.773292I$ $b = -1.113060 - 0.863158I$	$-0.56917 + 7.09177I$	0
$u = 0.329952 + 0.525230I$ $a = 0.736440 - 0.506654I$ $b = -0.702528 - 0.710743I$	$-1.71749 - 0.71942I$	$-4.34292 + 2.51779I$
$u = 0.329952 - 0.525230I$ $a = 0.736440 + 0.506654I$ $b = -0.702528 + 0.710743I$	$-1.71749 + 0.71942I$	$-4.34292 - 2.51779I$
$u = 0.529505 + 0.274692I$ $a = 1.46484 - 0.92641I$ $b = -0.980346 - 0.517594I$	$-2.36369 - 0.32690I$	$-5.66562 - 9.76585I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.529505 - 0.274692I$ $a = 1.46484 + 0.92641I$ $b = -0.980346 + 0.517594I$	$-2.36369 + 0.32690I$	$-5.66562 + 9.76585I$
$u = -0.244534 + 0.536517I$ $a = -0.53817 + 1.53698I$ $b = -0.451773 + 1.306960I$	$-3.40204 + 1.03279I$	$-10.82794 - 0.78219I$
$u = -0.244534 - 0.536517I$ $a = -0.53817 - 1.53698I$ $b = -0.451773 - 1.306960I$	$-3.40204 - 1.03279I$	$-10.82794 + 0.78219I$
$u = 0.96412 + 1.05607I$ $a = 0.231870 - 0.803520I$ $b = -0.645655 - 0.795469I$	$-5.04671 + 3.28136I$	0
$u = 0.96412 - 1.05607I$ $a = 0.231870 + 0.803520I$ $b = -0.645655 + 0.795469I$	$-5.04671 - 3.28136I$	0
$u = -0.386461 + 0.412162I$ $a = 0.76468 - 1.82667I$ $b = 0.797237 - 0.778612I$	$0.25040 - 1.87331I$	$0.34554 + 1.40917I$
$u = -0.386461 - 0.412162I$ $a = 0.76468 + 1.82667I$ $b = 0.797237 + 0.778612I$	$0.25040 + 1.87331I$	$0.34554 - 1.40917I$
$u = -0.524498 + 0.044281I$ $a = -1.62507 - 3.02956I$ $b = 0.330303 + 0.197370I$	$-1.24173 + 1.81398I$	$10.77561 - 2.15505I$
$u = -0.524498 - 0.044281I$ $a = -1.62507 + 3.02956I$ $b = 0.330303 - 0.197370I$	$-1.24173 - 1.81398I$	$10.77561 + 2.15505I$
$u = -1.27771 + 0.86343I$ $a = -0.047743 - 1.024450I$ $b = 1.120830 - 0.833024I$	$8.49340 - 2.81545I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.27771 - 0.86343I$ $a = -0.047743 + 1.024450I$ $b = 1.120830 + 0.833024I$	$8.49340 + 2.81545I$	0
$u = 1.29919 + 0.91454I$ $a = -0.029009 + 0.970536I$ $b = 1.16686 + 1.06335I$	$8.08845 + 10.56960I$	0
$u = 1.29919 - 0.91454I$ $a = -0.029009 - 0.970536I$ $b = 1.16686 - 1.06335I$	$8.08845 - 10.56960I$	0
$u = -0.110881 + 0.394837I$ $a = 1.95199 - 1.20586I$ $b = 0.744067 - 0.566714I$	$0.24040 - 1.80693I$	$2.04275 + 2.63185I$
$u = -0.110881 - 0.394837I$ $a = 1.95199 + 1.20586I$ $b = 0.744067 + 0.566714I$	$0.24040 + 1.80693I$	$2.04275 - 2.63185I$
$u = 1.08582 + 1.16909I$ $a = 0.014716 + 0.711655I$ $b = 0.351527 + 0.836307I$	$-4.65186 + 4.67041I$	0
$u = 1.08582 - 1.16909I$ $a = 0.014716 - 0.711655I$ $b = 0.351527 - 0.836307I$	$-4.65186 - 4.67041I$	0
$u = -1.29087 + 0.98632I$ $a = 0.033830 + 0.966217I$ $b = -1.121530 + 0.843319I$	$8.31128 - 9.42962I$	0
$u = -1.29087 - 0.98632I$ $a = 0.033830 - 0.966217I$ $b = -1.121530 - 0.843319I$	$8.31128 + 9.42962I$	0
$u = 1.28305 + 1.03050I$ $a = -0.017196 - 0.966057I$ $b = -1.16141 - 1.06158I$	$6.9973 + 17.3859I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.28305 - 1.03050I$ $a = -0.017196 + 0.966057I$ $b = -1.16141 + 1.06158I$	$6.9973 - 17.3859I$	0
$u = 0.137169 + 0.220166I$ $a = -3.82003 - 1.10596I$ $b = 0.891385 + 0.431882I$	$0.27565 + 2.32917I$	$3.22220 - 5.32820I$
$u = 0.137169 - 0.220166I$ $a = -3.82003 + 1.10596I$ $b = 0.891385 - 0.431882I$	$0.27565 - 2.32917I$	$3.22220 + 5.32820I$
$u = -1.17162 + 1.66414I$ $a = 0.358589 - 0.091080I$ $b = 0.791006 + 0.130196I$	$6.40830 - 5.94458I$	0
$u = -1.17162 - 1.66414I$ $a = 0.358589 + 0.091080I$ $b = 0.791006 - 0.130196I$	$6.40830 + 5.94458I$	0
$u = 0.90423 + 1.87894I$ $a = 0.385525 - 0.088992I$ $b = 0.503904 - 0.470029I$	$5.85315 - 1.73778I$	0
$u = 0.90423 - 1.87894I$ $a = 0.385525 + 0.088992I$ $b = 0.503904 + 0.470029I$	$5.85315 + 1.73778I$	0
$u = -1.44010 + 1.58883I$ $a = -0.276887 + 0.100013I$ $b = -0.715602 - 0.117841I$	$6.92752 + 0.05311I$	0
$u = -1.44010 - 1.58883I$ $a = -0.276887 - 0.100013I$ $b = -0.715602 + 0.117841I$	$6.92752 - 0.05311I$	0
$u = 1.23014 + 1.82253I$ $a = -0.354642 + 0.037461I$ $b = -0.487203 + 0.423434I$	$5.57490 - 8.01859I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.23014 - 1.82253I$ $a = -0.354642 - 0.037461I$ $b = -0.487203 - 0.423434I$	$5.57490 + 8.01859I$	0

II. $\boldsymbol{I_2^u = \langle -6.30 \times 10^{15}u^{20} - 5.05 \times 10^{15}u^{19} + \cdots + 9.72 \times 10^{16}b - 1.03 \times 10^{17},\ -1.87 \times 10^{17}u^{20} - 1.88 \times 10^{17}u^{19} + \cdots + 2.04 \times 10^{18}a - 8.69 \times 10^{18},\ u^{21} + u^{20} + \cdots + 82u + 21\rangle}$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} 0.0918677u^{20} + 0.0922247u^{19} + \cdots + 10.1330u + 4.25825 \\ 0.0648523u^{20} + 0.0519414u^{19} + \cdots + 5.88126u + 1.05978 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 0.0270155u^{20} + 0.0402833u^{19} + \cdots + 4.25169u + 3.19848 \\ 0.0648523u^{20} + 0.0519414u^{19} + \cdots + 5.88126u + 1.05978 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.0296731u^{20} - 0.00117994u^{19} + \cdots + 0.685337u - 1.65814 \\ -0.0772922u^{20} - 0.0464391u^{19} + \cdots - 6.97105u - 2.24662 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.0848197u^{20} + 0.0837459u^{19} + \cdots + 8.47766u + 3.97963 \\ 0.0928914u^{20} + 0.0432223u^{19} + \cdots + 5.91914u + 0.758605 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.105108u^{20} - 0.0586467u^{19} + \cdots - 9.56290u - 3.55257 \\ -0.0574885u^{20} - 0.0110277u^{19} + \cdots - 1.27718u + 0.352191 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.0605212u^{20} - 0.0278204u^{19} + \cdots + 2.53288u - 1.40578 \\ -0.103104u^{20} - 0.0661692u^{19} + \cdots - 9.85278u - 3.47866 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.114510u^{20} + 0.0669967u^{19} + \cdots + 8.10574u + 3.53448 \\ 0.0512777u^{20} - 0.0647731u^{19} + \cdots - 2.39869u - 1.32518 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.0680487u^{20} + 0.00948640u^{19} + \cdots + 3.03949u + 0.327223 \\ 0.0863649u^{20} - 0.0650135u^{19} + \cdots - 0.705523u - 1.34773 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.0140821u^{20} - 0.0536105u^{19} + \cdots - 1.34684u - 3.02927 \\ -0.120235u^{20} - 0.0659225u^{19} + \cdots - 9.13478u - 3.04503 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $=$
$-\frac{496696598609133382}{97173200599743577}u^{20} - \frac{4115535744999369}{97173200599743577}u^{19} + \cdots - \frac{2760913852914928753}{97173200599743577}u - \frac{1471524814101360942}{97173200599743577}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{21} - 9u^{20} + \cdots + 13u - 1$
c_2	$u^{21} + 3u^{20} + \cdots - u - 1$
c_3	$u^{21} - 2u^{20} + \cdots + 8u - 1$
c_4	$u^{21} + u^{19} + \cdots + 3u + 1$
c_5	$u^{21} - 3u^{20} + \cdots - u + 1$
c_6	$u^{21} - 2u^{20} + \cdots - 6u^2 + 1$
c_7	$u^{21} + u^{20} + \cdots + 82u + 21$
c_8	$u^{21} + 6u^{20} + \cdots + 2u + 1$
c_9	$u^{21} - 2u^{19} + \cdots - 4u^2 + 1$
c_{10}	$u^{21} - 4u^{19} + \cdots - 2u^2 + 1$
c_{11}, c_{12}	$u^{21} - 6u^{20} + \cdots + 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{21} + 11y^{20} + \cdots + 21y - 1$
c_2, c_5	$y^{21} - 9y^{20} + \cdots + 13y - 1$
c_3	$y^{21} - 4y^{20} + \cdots - 4y - 1$
c_4	$y^{21} + 2y^{20} + \cdots - 3y - 1$
c_6	$y^{21} + 16y^{20} + \cdots + 12y - 1$
c_7	$y^{21} + 5y^{20} + \cdots + 298y - 441$
c_8, c_{11}, c_{12}	$y^{21} + 14y^{20} + \cdots - 20y - 1$
c_9	$y^{21} - 4y^{20} + \cdots + 8y - 1$
c_{10}	$y^{21} - 8y^{20} + \cdots + 4y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.584118 + 0.821988I$ $a = -0.382237 + 1.100510I$ $b = -1.22637 + 1.09977I$	$-2.16179 - 7.28514I$	$-6.01063 + 11.10127I$
$u = -0.584118 - 0.821988I$ $a = -0.382237 - 1.100510I$ $b = -1.22637 - 1.09977I$	$-2.16179 + 7.28514I$	$-6.01063 - 11.10127I$
$u = 0.727439 + 0.797873I$ $a = 0.283614 - 1.203610I$ $b = -0.374054 - 0.982956I$	$-5.18388 + 1.17171I$	$-6.94253 - 1.04333I$
$u = 0.727439 - 0.797873I$ $a = 0.283614 + 1.203610I$ $b = -0.374054 + 0.982956I$	$-5.18388 - 1.17171I$	$-6.94253 + 1.04333I$
$u = 0.122260 + 1.092720I$ $a = -0.210355 + 0.690329I$ $b = -0.293874 - 0.452780I$	$5.65023 - 7.00946I$	$1.49178 + 4.70625I$
$u = 0.122260 - 1.092720I$ $a = -0.210355 - 0.690329I$ $b = -0.293874 + 0.452780I$	$5.65023 + 7.00946I$	$1.49178 - 4.70625I$
$u = -0.344958 + 1.110080I$ $a = -0.109099 - 0.644647I$ $b = 0.367821 + 0.381862I$	$6.21689 - 0.62415I$	$2.36082 + 0.43899I$
$u = -0.344958 - 1.110080I$ $a = -0.109099 + 0.644647I$ $b = 0.367821 - 0.381862I$	$6.21689 + 0.62415I$	$2.36082 - 0.43899I$
$u = -1.070690 + 0.572936I$ $a = 0.014454 - 0.590067I$ $b = 0.95444 - 1.25069I$	$0.99387 - 4.70161I$	$7.91100 + 7.75482I$
$u = -1.070690 - 0.572936I$ $a = 0.014454 + 0.590067I$ $b = 0.95444 + 1.25069I$	$0.99387 + 4.70161I$	$7.91100 - 7.75482I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.759478 + 0.986319I$ $a = 0.424982 - 0.756838I$ $b = 1.14473 - 0.94309I$	$-0.53568 - 3.72174I$	$-6.08462 + 6.31570I$
$u = -0.759478 - 0.986319I$ $a = 0.424982 + 0.756838I$ $b = 1.14473 + 0.94309I$	$-0.53568 + 3.72174I$	$-6.08462 - 6.31570I$
$u = 0.662872 + 1.195780I$ $a = -0.233661 - 1.009940I$ $b = -0.721695 - 0.842178I$	$-4.56507 + 7.07946I$	$-5.78585 - 8.27673I$
$u = 0.662872 - 1.195780I$ $a = -0.233661 + 1.009940I$ $b = -0.721695 + 0.842178I$	$-4.56507 - 7.07946I$	$-5.78585 + 8.27673I$
$u = -1.38885$ $a = -0.500577$ $b = 0.535085$	2.18490	-23.2560
$u = -0.561025 + 0.223517I$ $a = 0.964733 + 0.909802I$ $b = -1.10297 + 0.90533I$	$-2.35040 + 0.78782I$	$-7.11653 - 4.34389I$
$u = -0.561025 - 0.223517I$ $a = 0.964733 - 0.909802I$ $b = -1.10297 - 0.90533I$	$-2.35040 - 0.78782I$	$-7.11653 + 4.34389I$
$u = 1.13171 + 0.85422I$ $a = -0.265450 + 0.761191I$ $b = 0.350518 + 0.725496I$	$-3.86356 + 4.83551I$	$-2.00041 - 6.96581I$
$u = 1.13171 - 0.85422I$ $a = -0.265450 - 0.761191I$ $b = 0.350518 - 0.725496I$	$-3.86356 - 4.83551I$	$-2.00041 + 6.96581I$
$u = 0.87040 + 1.31729I$ $a = 0.144259 + 0.786102I$ $b = 0.633912 + 0.675830I$	$-3.51772 + 2.78459I$	$-2.19526 - 4.30048I$

	Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u=$	$0.87040 - 1.31729I$		
$a=$	$0.144259 - 0.786102I$	$-3.51772 - 2.78459I$	$-2.19526 + 4.30048I$
$b=$	$0.633912 - 0.675830I$		

III. $I_1^v = \langle a,\ 2v^3 - 7v^2 + 5b + 6v + 6,\ v^4 - 4v^3 + 6v^2 - v + 1\rangle$

(i) Arc colorings

$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0 \\ -\frac{2}{5}v^3 + \frac{7}{5}v^2 - \frac{6}{5}v - \frac{6}{5} \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} \frac{2}{5}v^3 - \frac{7}{5}v^2 + \frac{6}{5}v + \frac{6}{5} \\ -\frac{2}{5}v^3 + \frac{7}{5}v^2 - \frac{6}{5}v - \frac{6}{5} \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} \frac{2}{5}v^3 - \frac{7}{5}v^2 + \frac{16}{5}v - \frac{4}{5} \\ -\frac{2}{5}v^3 + \frac{7}{5}v^2 - \frac{11}{5}v + \frac{4}{5} \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 0 \\ -\frac{2}{5}v^3 + \frac{7}{5}v^2 - \frac{6}{5}v - \frac{6}{5} \end{pmatrix}$$
$$a_9 = \begin{pmatrix} v \\ -\frac{2}{5}v^3 + \frac{7}{5}v^2 - \frac{11}{5}v + \frac{4}{5} \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} \frac{1}{5}v^3 - \frac{6}{5}v^2 + \frac{13}{5}v - \frac{2}{5} \\ -\frac{2}{5}v^3 + \frac{7}{5}v^2 - \frac{11}{5}v - \frac{1}{5} \end{pmatrix}$$
$$a_6 = \begin{pmatrix} \frac{1}{5}v^3 - \frac{1}{5}v^2 - \frac{2}{5}v + \frac{3}{5} \\ \frac{2}{5}v^3 - \frac{7}{5}v^2 + \frac{11}{5}v + \frac{1}{5} \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -\frac{1}{5}v^3 + \frac{1}{5}v^2 + \frac{2}{5}v - \frac{3}{5} \\ -\frac{4}{5}v^3 + \frac{14}{5}v^2 - \frac{17}{5}v - \frac{7}{5} \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -\frac{1}{5}v^3 + \frac{1}{5}v^2 + \frac{2}{5}v - \frac{3}{5} \\ -\frac{2}{5}v^3 + \frac{7}{5}v^2 - \frac{11}{5}v - \frac{1}{5} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{3}{5}v^3 + \frac{8}{5}v^2 - \frac{34}{5}v + \frac{11}{5}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 0.026439 + 0.421254I$ $a = 0$ $b = -1.47356 - 0.44477I$	$-1.64493 + 2.02988I$	$1.74584 - 2.78456I$
$v = 0.026439 - 0.421254I$ $a = 0$ $b = -1.47356 + 0.44477I$	$-1.64493 - 2.02988I$	$1.74584 + 2.78456I$
$v = 1.97356 + 1.31080I$ $a = 0$ $b = 0.473561 + 0.444772I$	$-1.64493 + 2.02988I$	$-6.24584 - 8.47377I$
$v = 1.97356 - 1.31080I$ $a = 0$ $b = 0.473561 - 0.444772I$	$-1.64493 - 2.02988I$	$-6.24584 + 8.47377I$

IV. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^4)(u^{21}-9u^{20}+\cdots+13u-1)(u^{81}+24u^{80}+\cdots+53u+1)$
c_2	$((u-1)^4)(u^{21}+3u^{20}+\cdots-u-1)(u^{81}+2u^{80}+\cdots+11u-1)$
c_3	$(u^4-2u^3+u+1)(u^{21}-2u^{20}+\cdots+8u-1)$ $\cdot(u^{81}-u^{80}+\cdots+2043071u-89033)$
c_4	$(u^4-2u^3+u+1)(u^{21}+u^{19}+\cdots+3u+1)(u^{81}+5u^{80}+\cdots-6u+1)$
c_5	$((u+1)^4)(u^{21}-3u^{20}+\cdots-u+1)(u^{81}+2u^{80}+\cdots+11u-1)$
c_6	$((u^2-u+1)^2)(u^{21}-2u^{20}+\cdots-6u^2+1)$ $\cdot(u^{81}+u^{80}+\cdots-13206u-919)$
c_7	$u^4(u^{21}+u^{20}+\cdots+82u+21)(u^{81}-5u^{79}+\cdots-56u-16)$
c_8	$((u^2+u+1)^2)(u^{21}+6u^{20}+\cdots+2u+1)(u^{81}-5u^{80}+\cdots-12u-1)$
c_9	$(u^4-u^3+3u^2-u+1)(u^{21}-2u^{19}+\cdots-4u^2+1)$ $\cdot(u^{81}+2u^{80}+\cdots-7u-11)$
c_{10}	$(u^4-u^3+3u^2-u+1)(u^{21}-4u^{19}+\cdots-2u^2+1)$ $\cdot(u^{81}+6u^{80}+\cdots+26845u-6217)$
c_{11}, c_{12}	$((u^2-u+1)^2)(u^{21}-6u^{20}+\cdots+2u-1)(u^{81}-5u^{80}+\cdots-12u-1)$

V. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^4)(y^{21}+11y^{20}+\cdots+21y-1)(y^{81}+76y^{80}+\cdots+2869y-1)$
c_2, c_5	$((y-1)^4)(y^{21}-9y^{20}+\cdots+13y-1)(y^{81}-24y^{80}+\cdots+53y-1)$
c_3	$(y^4-4y^3+6y^2-y+1)(y^{21}-4y^{20}+\cdots-4y-1)$ $\cdot\,(y^{81}+77y^{80}+\cdots+1032689479609y-7926875089)$
c_4	$(y^4-4y^3+6y^2-y+1)(y^{21}+2y^{20}+\cdots-3y-1)$ $\cdot\,(y^{81}-9y^{80}+\cdots-158y-1)$
c_6	$((y^2+y+1)^2)(y^{21}+16y^{20}+\cdots+12y-1)$ $\cdot\,(y^{81}+43y^{80}+\cdots+71336262y-844561)$
c_7	$y^4(y^{21}+5y^{20}+\cdots+298y-441)(y^{81}-10y^{80}+\cdots-448y-256)$
c_8, c_{11}, c_{12}	$((y^2+y+1)^2)(y^{21}+14y^{20}+\cdots-20y-1)$ $\cdot\,(y^{81}+17y^{80}+\cdots-62y-1)$
c_9	$(y^4+5y^3+9y^2+5y+1)(y^{21}-4y^{20}+\cdots+8y-1)$ $\cdot\,(y^{81}+14y^{80}+\cdots-4549y-121)$
c_{10}	$(y^4+5y^3+9y^2+5y+1)(y^{21}-8y^{20}+\cdots+4y-1)$ $\cdot\,(y^{81}-34y^{80}+\cdots+684980879y-38651089)$