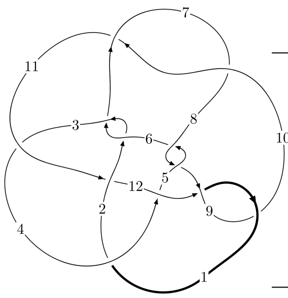
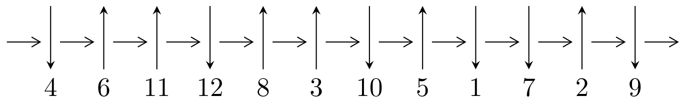
$12a_{0990}$ $(K12a_{0990})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &-7.42364\times 10^{545}u^{129} - 6.71560\times 10^{546}u^{128} + \cdots + 2.82169\times 10^{548}b - 2.11413\times 10^{552},\\
&-1.02551\times 10^{550}u^{129} - 9.21321\times 10^{550}u^{128} + \cdots + 1.46192\times 10^{552}a - 2.73974\times 10^{556},\\
&u^{130} + 10u^{129} + \cdots + 40002776u + 2811556\rangle\\
I_2^u = \langle &-8.19734\times 10^{33}u^{31} - 4.22264\times 10^{34}u^{30} + \cdots + 9.32464\times 10^{31}b - 8.66565\times 10^{34},\\
&-1.09826\times 10^{34}u^{31} - 5.65664\times 10^{34}u^{30} + \cdots + 9.32464\times 10^{31}a - 1.17253\times 10^{35},\\
&u^{32} + 6u^{31} + \cdots + 48u + 9\rangle\\
I_3^u = \langle &-9a^4 - 16a^3 - 76a^2 + 13b - 40a - 8,\ a^5 + 2a^4 + 9a^3 + 6a^2 + 3a + 1,\ u - 1\rangle\\
I_4^u = \langle &b^5 - 2b^4a + b^3a^2 - b^3 + a^2b + b + a - 1,\ u - 1\rangle
\end{aligned}$$

$$\begin{aligned}
I_1^v &= \langle a,\ b^5 + b^3 + b + 1,\ v - 1\rangle\\
I_2^v &= \langle a,\ b^2 - b + 1,\ v - 1\rangle
\end{aligned}$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 174 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. $\boldsymbol{I_1^u = \langle -7.42 \times 10^{545} u^{129} - 6.72 \times 10^{546} u^{128} + \cdots + 2.82 \times 10^{548} b - 2.11 \times 10^{552},\ -1.03 \times 10^{550} u^{129} - 9.21 \times 10^{550} u^{128} + \cdots + 1.46 \times 10^{552} a - 2.74 \times 10^{556},\ u^{130} + 10u^{129} + \cdots + 40002776u + 2811556 \rangle}$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} 0.00701480u^{129} + 0.0630213u^{128} + \cdots + 249589.u + 18740.7 \\ 0.00263092u^{129} + 0.0237999u^{128} + \cdots + 99398.1u + 7492.40 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.00101759u^{129} + 0.00900101u^{128} + \cdots + 33569.9u + 2537.03 \\ 0.000471567u^{129} + 0.00411483u^{128} + \cdots + 11762.5u + 842.151 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.00126397u^{129} + 0.0107887u^{128} + \cdots + 28928.9u + 2098.07 \\ -0.000934236u^{129} - 0.00863981u^{128} + \cdots - 40675.0u - 3104.76 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.000150095u^{129} + 0.00122081u^{128} + \cdots + 1195.24u + 75.9623 \\ -0.000473077u^{129} - 0.00432755u^{128} + \cdots - 21590.6u - 1673.46 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.00233873u^{129} + 0.0208067u^{128} + \cdots + 77208.8u + 5758.85 \\ -0.00204515u^{129} - 0.0184147u^{128} + \cdots - 72982.4u - 5489.48 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.000274293u^{129} + 0.00247203u^{128} + \cdots + 11517.0u + 900.409 \\ 0.000908201u^{129} + 0.00823727u^{128} + \cdots + 35139.9u + 2659.78 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.000756422u^{129} + 0.00676781u^{128} + \cdots + 27485.4u + 2094.49 \\ -0.000620407u^{129} - 0.00564869u^{128} + \cdots - 24415.3u - 1859.15 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.00217529u^{129} - 0.0186835u^{128} + \cdots - 48388.1u - 3437.17 \\ -0.000312213u^{129} - 0.00218499u^{128} + \cdots + 8773.04u + 748.786 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.00272619u^{129} - 0.0236021u^{128} + \cdots - 76099.3u - 5729.03$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$16(16u^{130} - 216u^{129} + \cdots - 134148u + 11877)$
c_2, c_6	$u^{130} + 10u^{129} + \cdots + 40002776u + 2811556$
c_3	$48(48u^{130} - 144u^{129} + \cdots - 1.54523 \times 10^9 u + 4.56957 \times 10^8)$
c_4	$48(48u^{130} + 144u^{129} + \cdots + 1.54523 \times 10^9 u + 4.56957 \times 10^8)$
c_5, c_8	$16(16u^{130} + 72u^{129} + \cdots + 6.78136 \times 10^7 u + 7939137)$
c_7, c_{10}	$16(16u^{130} - 72u^{129} + \cdots - 6.78136 \times 10^7 u + 7939137)$
c_9, c_{12}	$u^{130} - 10u^{129} + \cdots - 40002776u + 2811556$
c_{11}	$16(16u^{130} + 216u^{129} + \cdots + 134148u + 11877)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$256(256y^{130} - 4640y^{129} + \cdots + 2.95033 \times 10^9 y + 1.41063 \times 10^8)$
c_2, c_6, c_9 c_{12}	$y^{130} - 80y^{129} + \cdots - 226520781477232y + 7904847141136$
c_3, c_4	$2304(2304y^{130} - 123744y^{129} + \cdots - 5.35364 \times 10^{18} y + 2.08809 \times 10^{17})$
c_5, c_7, c_8 c_{10}	256 $\cdot (256y^{130} + 23008y^{129} + \cdots - 581798760447684y + 63029896304769)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.753714 + 0.678165I$ $a = -0.429062 - 0.743953I$ $b = -0.617531 + 0.243011I$	$2.79527 + 2.32555I$	0
$u = -0.753714 - 0.678165I$ $a = -0.429062 + 0.743953I$ $b = -0.617531 - 0.243011I$	$2.79527 - 2.32555I$	0
$u = 0.364736 + 0.913386I$ $a = 0.024867 - 1.138090I$ $b = 0.568641 - 0.599752I$	$7.79727 - 3.48496I$	0
$u = 0.364736 - 0.913386I$ $a = 0.024867 + 1.138090I$ $b = 0.568641 + 0.599752I$	$7.79727 + 3.48496I$	0
$u = -0.836988 + 0.515749I$ $a = 0.170742 - 0.519532I$ $b = -0.865889 - 0.510137I$	$2.40493 + 2.37289I$	0
$u = -0.836988 - 0.515749I$ $a = 0.170742 + 0.519532I$ $b = -0.865889 + 0.510137I$	$2.40493 - 2.37289I$	0
$u = 0.023345 + 1.032480I$ $a = 0.370646 + 0.393498I$ $b = -0.226301 + 1.308480I$	$-1.03079 - 7.20926I$	0
$u = 0.023345 - 1.032480I$ $a = 0.370646 - 0.393498I$ $b = -0.226301 - 1.308480I$	$-1.03079 + 7.20926I$	0
$u = -0.014661 + 0.956748I$ $a = -0.016413 + 0.251138I$ $b = -0.346796 + 1.202210I$	$-1.34210 - 3.05609I$	0
$u = -0.014661 - 0.956748I$ $a = -0.016413 - 0.251138I$ $b = -0.346796 - 1.202210I$	$-1.34210 + 3.05609I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.035250+0.190731I$ $a=\ 0.19971+3.07796I$ $b=\ 0.320853+1.071130I$	$4.01258+10.32040I$	0
$u=-1.035250-0.190731I$ $a=\ 0.19971-3.07796I$ $b=\ 0.320853-1.071130I$	$4.01258-10.32040I$	0
$u=-1.035300+0.209769I$ $a=-0.09804-2.67630I$ $b=-0.222571-1.175360I$	$-0.16136+5.32813I$	0
$u=-1.035300-0.209769I$ $a=-0.09804+2.67630I$ $b=-0.222571+1.175360I$	$-0.16136-5.32813I$	0
$u=\ 0.934913+0.047377I$ $a=-1.05680+1.64472I$ $b=-1.37976+0.66931I$	$-1.085330-0.334255I$	0
$u=\ 0.934913-0.047377I$ $a=-1.05680-1.64472I$ $b=-1.37976-0.66931I$	$-1.085330+0.334255I$	0
$u=\ 0.049853+0.924522I$ $a=-0.153356-0.036650I$ $b=\ 0.542235-1.129970I$	$0.16136-5.32813I$	0
$u=\ 0.049853-0.924522I$ $a=-0.153356+0.036650I$ $b=\ 0.542235+1.129970I$	$0.16136+5.32813I$	0
$u=-0.872987+0.633017I$ $a=\ 0.805377+0.601460I$ $b=\ 0.607331-0.671357I$	$5.31312+6.77397I$	0
$u=-0.872987-0.633017I$ $a=\ 0.805377-0.601460I$ $b=\ 0.607331+0.671357I$	$5.31312-6.77397I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.072770 + 0.123948I$ $a = -0.949991 + 0.241825I$ $b = -1.55098 + 0.35434I$	$-0.175289 + 0.755522I$	0
$u = -1.072770 - 0.123948I$ $a = -0.949991 - 0.241825I$ $b = -1.55098 - 0.35434I$	$-0.175289 - 0.755522I$	0
$u = -0.494026 + 0.973656I$ $a = -0.039642 + 0.660869I$ $b = 0.549748 + 0.349714I$	$8.28948 - 0.12430I$	0
$u = -0.494026 - 0.973656I$ $a = -0.039642 - 0.660869I$ $b = 0.549748 - 0.349714I$	$8.28948 + 0.12430I$	0
$u = -1.075040 + 0.250971I$ $a = 0.44267 + 2.18430I$ $b = 0.004035 + 1.026040I$	$3.31794 + 0.02095I$	0
$u = -1.075040 - 0.250971I$ $a = 0.44267 - 2.18430I$ $b = 0.004035 - 1.026040I$	$3.31794 - 0.02095I$	0
$u = 0.456734 + 0.758309I$ $a = -0.220146 + 1.329500I$ $b = -0.630414 + 0.185361I$	$3.18794 + 2.74835I$	0
$u = 0.456734 - 0.758309I$ $a = -0.220146 - 1.329500I$ $b = -0.630414 - 0.185361I$	$3.18794 - 2.74835I$	0
$u = 0.057062 + 1.121730I$ $a = -0.328075 - 0.357135I$ $b = 0.081204 - 1.173900I$	$-3.18794 - 2.74835I$	0
$u = 0.057062 - 1.121730I$ $a = -0.328075 + 0.357135I$ $b = 0.081204 + 1.173900I$	$-3.18794 + 2.74835I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.633723 + 0.930558I$ $a = -0.264958 + 0.097504I$ $b = 0.360372 + 1.004290I$	$4.67166 + 6.43689I$	0
$u = -0.633723 - 0.930558I$ $a = -0.264958 - 0.097504I$ $b = 0.360372 - 1.004290I$	$4.67166 - 6.43689I$	0
$u = 1.118160 + 0.200599I$ $a = -0.260842 + 0.467046I$ $b = -0.241971 - 0.343939I$	$0.175289 + 0.755522I$	0
$u = 1.118160 - 0.200599I$ $a = -0.260842 - 0.467046I$ $b = -0.241971 + 0.343939I$	$0.175289 - 0.755522I$	0
$u = 1.150880 + 0.096037I$ $a = 0.68555 - 1.68180I$ $b = 1.31788 - 1.07852I$	$1.35285 + 1.35711I$	0
$u = 1.150880 - 0.096037I$ $a = 0.68555 + 1.68180I$ $b = 1.31788 + 1.07852I$	$1.35285 - 1.35711I$	0
$u = -0.675377 + 0.458882I$ $a = -0.774522 + 0.511006I$ $b = 0.883199 + 0.778031I$	$5.77095 - 2.23844I$	0
$u = -0.675377 - 0.458882I$ $a = -0.774522 - 0.511006I$ $b = 0.883199 - 0.778031I$	$5.77095 + 2.23844I$	0
$u = 1.122600 + 0.414773I$ $a = 0.586166 - 0.434387I$ $b = 1.51242 - 0.18112I$	$5.23752 - 12.70220I$	0
$u = 1.122600 - 0.414773I$ $a = 0.586166 + 0.434387I$ $b = 1.51242 + 0.18112I$	$5.23752 + 12.70220I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.117290 + 0.436159I$ $a = -0.245386 + 0.250409I$ $b = -1.214300 + 0.189708I$	$1.03079 - 7.20926I$	0
$u = 1.117290 - 0.436159I$ $a = -0.245386 - 0.250409I$ $b = -1.214300 - 0.189708I$	$1.03079 + 7.20926I$	0
$u = 0.358828 + 0.705709I$ $a = 0.12414 - 1.52453I$ $b = 0.919060 - 0.181247I$	$7.61957 + 8.46626I$	0
$u = 0.358828 - 0.705709I$ $a = 0.12414 + 1.52453I$ $b = 0.919060 + 0.181247I$	$7.61957 - 8.46626I$	0
$u = -1.194170 + 0.216526I$ $a = -0.1010310 + 0.0972354I$ $b = 0.805770 - 0.072117I$	$-3.83451 + 4.09650I$	0
$u = -1.194170 - 0.216526I$ $a = -0.1010310 - 0.0972354I$ $b = 0.805770 + 0.072117I$	$-3.83451 - 4.09650I$	0
$u = -1.044780 + 0.622507I$ $a = 0.273966 + 0.169597I$ $b = 0.782603 + 0.048483I$	$6.48180 + 5.76489I$	0
$u = -1.044780 - 0.622507I$ $a = 0.273966 - 0.169597I$ $b = 0.782603 - 0.048483I$	$6.48180 - 5.76489I$	0
$u = 0.329683 + 0.686949I$ $a = -0.190985 + 0.512753I$ $b = -0.197167 - 1.139410I$	$-2.79527 + 2.32555I$	0
$u = 0.329683 - 0.686949I$ $a = -0.190985 - 0.512753I$ $b = -0.197167 + 1.139410I$	$-2.79527 - 2.32555I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.109786 + 0.751675I$ $a = -0.176464 - 0.176646I$ $b = -0.078798 + 1.232700I$	$-2.40493 - 2.37289I$	$0. + 3.45498I$
$u = 0.109786 - 0.751675I$ $a = -0.176464 + 0.176646I$ $b = -0.078798 - 1.232700I$	$-2.40493 + 2.37289I$	$0. - 3.45498I$
$u = 0.666778 + 0.352330I$ $a = -0.221707 - 0.045968I$ $b = 0.009186 + 0.579580I$	$-1.40153 - 1.05154I$	$-7.86277 + 4.17147I$
$u = 0.666778 - 0.352330I$ $a = -0.221707 + 0.045968I$ $b = 0.009186 - 0.579580I$	$-1.40153 + 1.05154I$	$-7.86277 - 4.17147I$
$u = 1.156020 + 0.469066I$ $a = 0.96710 + 1.33519I$ $b = -0.57209 + 1.34004I$	$-5.31312 - 6.77397I$	0
$u = 1.156020 - 0.469066I$ $a = 0.96710 - 1.33519I$ $b = -0.57209 - 1.34004I$	$-5.31312 + 6.77397I$	0
$u = -0.017517 + 0.748826I$ $a = 0.531992 - 0.438086I$ $b = -0.676766 + 0.244339I$	$3.83451 - 4.09650I$	$7.00500 + 5.47978I$
$u = -0.017517 - 0.748826I$ $a = 0.531992 + 0.438086I$ $b = -0.676766 - 0.244339I$	$3.83451 + 4.09650I$	$7.00500 - 5.47978I$
$u = 1.180970 + 0.449771I$ $a = 0.390815 + 0.387101I$ $b = 1.036510 + 0.294546I$	$5.16636 - 1.35319I$	0
$u = 1.180970 - 0.449771I$ $a = 0.390815 - 0.387101I$ $b = 1.036510 - 0.294546I$	$5.16636 + 1.35319I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.239640+0.260824I$ $a=\ 0.48842-1.83678I$ $b=-0.42902-1.54205I$	$-6.48180+5.76489I$	0
$u=-1.239640-0.260824I$ $a=\ 0.48842+1.83678I$ $b=-0.42902+1.54205I$	$-6.48180-5.76489I$	0
$u=\ 1.241470+0.269723I$ $a=\ 1.30830+1.83546I$ $b=-0.197651+1.025220I$	$-1.35285-1.35711I$	0
$u=\ 1.241470-0.269723I$ $a=\ 1.30830-1.83546I$ $b=-0.197651-1.025220I$	$-1.35285+1.35711I$	0
$u=\ 0.093917+1.269940I$ $a=\ 0.072961+0.421937I$ $b=\ 0.446580+1.263970I$	$4.13372+13.33210I$	0
$u=\ 0.093917-1.269940I$ $a=\ 0.072961-0.421937I$ $b=\ 0.446580-1.263970I$	$4.13372-13.33210I$	0
$u=-1.243180+0.320864I$ $a=\ 0.081592-0.683870I$ $b=-0.845275-0.346847I$	$8.02284I$	0
$u=-1.243180-0.320864I$ $a=\ 0.081592+0.683870I$ $b=-0.845275+0.346847I$	$-8.02284I$	0
$u=\ 0.666795+0.141044I$ $a=-0.66167+2.42044I$ $b=\ 0.008754-0.627883I$	$1.085330-0.334255I$	$9.57088+1.14801I$
$u=\ 0.666795-0.141044I$ $a=-0.66167-2.42044I$ $b=\ 0.008754+0.627883I$	$1.085330+0.334255I$	$9.57088-1.14801I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.008160+0.854564I$ $a=-0.760383+1.106950I$ $b=-0.05437+1.53688I$	$-3.73555-0.16975I$	0
$u=-1.008160-0.854564I$ $a=-0.760383-1.106950I$ $b=-0.05437-1.53688I$	$-3.73555+0.16975I$	0
$u=\ \ 1.237590+0.474696I$ $a=-1.02448-1.34428I$ $b=\ \ 0.288525-1.360860I$	$-5.77095-2.23844I$	0
$u=\ \ 1.237590-0.474696I$ $a=-1.02448+1.34428I$ $b=\ \ 0.288525+1.360860I$	$-5.77095+2.23844I$	0
$u=-0.991826+0.911103I$ $a=\ \ 0.573584-0.231438I$ $b=-0.052938-0.952608I$	$3.73555+0.16975I$	0
$u=-0.991826-0.911103I$ $a=\ \ 0.573584+0.231438I$ $b=-0.052938+0.952608I$	$3.73555-0.16975I$	0
$u=-0.597839+0.258300I$ $a=-0.753657-0.097659I$ $b=\ \ 0.768150-0.930723I$	$5.27647-8.28380I$	$2.01427+2.11219I$
$u=-0.597839-0.258300I$ $a=-0.753657+0.097659I$ $b=\ \ 0.768150+0.930723I$	$5.27647+8.28380I$	$2.01427-2.11219I$
$u=-1.357020+0.163107I$ $a=-0.38687+1.55697I$ $b=\ \ 0.369656+1.349220I$	$-8.28948+0.12430I$	0
$u=-1.357020-0.163107I$ $a=-0.38687-1.55697I$ $b=\ \ 0.369656-1.349220I$	$-8.28948-0.12430I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.198050 + 0.689303I$ $a = 0.72837 - 1.49367I$ $b = -0.23180 - 1.56792I$	$-4.67166 + 6.43689I$	0
$u = -1.198050 - 0.689303I$ $a = 0.72837 + 1.49367I$ $b = -0.23180 + 1.56792I$	$-4.67166 - 6.43689I$	0
$u = -1.312300 + 0.470220I$ $a = -0.41812 + 1.71308I$ $b = 0.79291 + 1.43838I$	$-4.01258 + 10.32040I$	0
$u = -1.312300 - 0.470220I$ $a = -0.41812 - 1.71308I$ $b = 0.79291 - 1.43838I$	$-4.01258 - 10.32040I$	0
$u = -1.300530 + 0.504252I$ $a = 0.60895 - 1.72558I$ $b = -0.56564 - 1.50999I$	$-5.27647 + 8.28380I$	0
$u = -1.300530 - 0.504252I$ $a = 0.60895 + 1.72558I$ $b = -0.56564 + 1.50999I$	$-5.27647 - 8.28380I$	0
$u = 1.312370 + 0.479515I$ $a = -0.87618 - 1.30973I$ $b = 0.134923 - 1.265220I$	$-5.43217 - 2.10541I$	0
$u = 1.312370 - 0.479515I$ $a = -0.87618 + 1.30973I$ $b = 0.134923 + 1.265220I$	$-5.43217 + 2.10541I$	0
$u = 0.148506 + 1.392590I$ $a = -0.137908 - 0.474435I$ $b = -0.325776 - 1.211070I$	$6.33343I$	0
$u = 0.148506 - 1.392590I$ $a = -0.137908 + 0.474435I$ $b = -0.325776 + 1.211070I$	$-6.33343I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.273860 + 0.592135I$ $a = 0.734001 + 0.890426I$ $b = 0.051740 + 1.166460I$	$-3.31794 + 0.02095I$	0
$u = 1.273860 - 0.592135I$ $a = 0.734001 - 0.890426I$ $b = 0.051740 - 1.166460I$	$-3.31794 - 0.02095I$	0
$u = -0.495397 + 0.310716I$ $a = 0.417119 + 0.722502I$ $b = -0.677998 + 0.911865I$	$1.34210 - 3.05609I$	$-0.937396 - 0.255279I$
$u = -0.495397 - 0.310716I$ $a = 0.417119 - 0.722502I$ $b = -0.677998 - 0.911865I$	$1.34210 + 3.05609I$	$-0.937396 + 0.255279I$
$u = -1.33899 + 0.51718I$ $a = 0.90186 - 1.60507I$ $b = -0.42333 - 1.40097I$	$-5.23752 + 12.70220I$	0
$u = -1.33899 - 0.51718I$ $a = 0.90186 + 1.60507I$ $b = -0.42333 + 1.40097I$	$-5.23752 - 12.70220I$	0
$u = 1.41968 + 0.26250I$ $a = -0.00302 - 1.69865I$ $b = 0.70256 - 1.50646I$	$-1.94463 - 10.04110I$	0
$u = 1.41968 - 0.26250I$ $a = -0.00302 + 1.69865I$ $b = 0.70256 + 1.50646I$	$-1.94463 + 10.04110I$	0
$u = -1.36539 + 0.52222I$ $a = -0.78985 + 1.39214I$ $b = 0.400176 + 1.283150I$	$-7.61957 + 8.46626I$	0
$u = -1.36539 - 0.52222I$ $a = -0.78985 - 1.39214I$ $b = 0.400176 - 1.283150I$	$-7.61957 - 8.46626I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.423313+0.296983I$ $a=\ \ 0.00550-1.68778I$ $b=-0.724744-0.429452I$	$1.40153+1.05154I$	$7.86277-4.17147I$
$u=-0.423313-0.296983I$ $a=\ \ 0.00550+1.68778I$ $b=-0.724744+0.429452I$	$1.40153-1.05154I$	$7.86277+4.17147I$
$u=\ \ 0.097755+0.491486I$ $a=-1.236770+0.483276I$ $b=\ \ 0.216346+0.038687I$	$-1.53223I$	$0.+5.21422I$
$u=\ \ 0.097755-0.491486I$ $a=-1.236770-0.483276I$ $b=\ \ 0.216346-0.038687I$	$1.53223I$	$0.-5.21422I$
$u=\ \ 1.38858+0.60929I$ $a=-0.54525-1.64395I$ $b=\ \ 0.61138-1.50633I$	$-19.8680I$	0
$u=\ \ 1.38858-0.60929I$ $a=-0.54525+1.64395I$ $b=\ \ 0.61138+1.50633I$	$19.8680I$	0
$u=-1.40905+0.60703I$ $a=-0.47380+1.69536I$ $b=\ \ 0.376799+1.360960I$	$1.94463+10.04110I$	0
$u=-1.40905-0.60703I$ $a=-0.47380-1.69536I$ $b=\ \ 0.376799-1.360960I$	$1.94463-10.04110I$	0
$u=\ \ 1.43146+0.56014I$ $a=-0.54374-1.44918I$ $b=-0.003348-1.376640I$	$-5.16636+1.35319I$	0
$u=\ \ 1.43146-0.56014I$ $a=-0.54374+1.44918I$ $b=-0.003348+1.376640I$	$-5.16636-1.35319I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.41270 + 0.64298I$ $a = 0.52202 + 1.52720I$ $b = -0.53044 + 1.45997I$	$-4.13372 - 13.33210I$	0
$u = 1.41270 - 0.64298I$ $a = 0.52202 - 1.52720I$ $b = -0.53044 - 1.45997I$	$-4.13372 + 13.33210I$	0
$u = 1.47977 + 0.48939I$ $a = 0.38259 + 1.46555I$ $b = -0.244975 + 1.367290I$	$-7.79727 - 3.48496I$	0
$u = 1.47977 - 0.48939I$ $a = 0.38259 - 1.46555I$ $b = -0.244975 - 1.367290I$	$-7.79727 + 3.48496I$	0
$u = -1.52475 + 0.33245I$ $a = 0.592449 - 1.130420I$ $b = -0.217610 - 0.848286I$	$7.34776I$	0
$u = -1.52475 - 0.33245I$ $a = 0.592449 + 1.130420I$ $b = -0.217610 + 0.848286I$	$-7.34776I$	0
$u = 1.59554 + 0.07582I$ $a = -0.090742 + 1.368010I$ $b = -0.652744 + 1.157550I$	$-6.13156 - 2.73739I$	0
$u = 1.59554 - 0.07582I$ $a = -0.090742 - 1.368010I$ $b = -0.652744 - 1.157550I$	$-6.13156 + 2.73739I$	0
$u = -0.35426 + 1.57209I$ $a = 0.194375 - 0.813301I$ $b = 0.176423 - 1.150600I$	$6.13156 - 2.73739I$	0
$u = -0.35426 - 1.57209I$ $a = 0.194375 + 0.813301I$ $b = 0.176423 + 1.150600I$	$6.13156 + 2.73739I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.49661 + 0.60373I$ $a = -0.34049 - 1.45850I$ $b = 0.502340 - 1.293510I$	$1.74076 - 6.86356I$	0
$u = 1.49661 - 0.60373I$ $a = -0.34049 + 1.45850I$ $b = 0.502340 + 1.293510I$	$1.74076 + 6.86356I$	0
$u = 0.10566 + 1.61110I$ $a = 0.162626 + 0.594949I$ $b = 0.209513 + 1.047390I$	$6.69560 - 0.54555I$	0
$u = 0.10566 - 1.61110I$ $a = 0.162626 - 0.594949I$ $b = 0.209513 - 1.047390I$	$6.69560 + 0.54555I$	0
$u = -0.339019 + 0.139188I$ $a = -1.60556 - 1.70786I$ $b = 0.747329 - 0.756285I$	$5.43217 + 2.10541I$	$2.12435 - 2.26526I$
$u = -0.339019 - 0.139188I$ $a = -1.60556 + 1.70786I$ $b = 0.747329 + 0.756285I$	$5.43217 - 2.10541I$	$2.12435 + 2.26526I$
$u = -1.62410 + 0.36256I$ $a = 0.595319 - 1.218370I$ $b = 0.034506 - 1.159720I$	$-1.74076 - 6.86356I$	0
$u = -1.62410 - 0.36256I$ $a = 0.595319 + 1.218370I$ $b = 0.034506 + 1.159720I$	$-1.74076 + 6.86356I$	0
$u = -1.72076 + 0.31634I$ $a = -0.501264 + 1.182190I$ $b = 0.109340 + 1.061360I$	$-6.69560 + 0.54555I$	0
$u = -1.72076 - 0.31634I$ $a = -0.501264 - 1.182190I$ $b = 0.109340 - 1.061360I$	$-6.69560 - 0.54555I$	0

II. $I_2^u = \langle -8.20 \times 10^{33}u^{31} - 4.22 \times 10^{34}u^{30} + \cdots + 9.32 \times 10^{31}b - 8.67 \times 10^{34},\ -1.10 \times 10^{34}u^{31} - 5.66 \times 10^{34}u^{30} + \cdots + 9.32 \times 10^{31}a - 1.17 \times 10^{35},\ u^{32} + 6u^{31} + \cdots + 48u + 9 \rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 117.780u^{31} + 606.634u^{30} + \cdots + 5227.65u + 1257.45 \\ 87.9105u^{31} + 452.847u^{30} + \cdots + 3864.42u + 929.327 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 384.711u^{31} + 1981.16u^{30} + \cdots + 16939.4u + 4078.44 \\ 321.464u^{31} + 1655.85u^{30} + \cdots + 14166.0u + 3409.21 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 801.716u^{31} + 4128.38u^{30} + \cdots + 35279.6u + 8483.49 \\ 652.744u^{31} + 3361.19u^{30} + \cdots + 28713.1u + 6905.43 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 428.301u^{31} + 2206.06u^{30} + \cdots + 18866.4u + 4543.65 \\ 352.578u^{31} + 1816.29u^{30} + \cdots + 15532.2u + 3738.93 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 96.7554u^{31} + 498.440u^{30} + \cdots + 4275.68u + 1028.55 \\ 66.8855u^{31} + 344.654u^{30} + \cdots + 2912.45u + 700.428 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 302.990u^{31} + 1560.23u^{30} + \cdots + 13316.1u + 3201.65 \\ 246.862u^{31} + 1271.57u^{30} + \cdots + 10861.5u + 2614.73 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -55.2391u^{31} - 284.324u^{30} + \cdots - 2423.72u - 584.247 \\ -48.4524u^{31} - 250.439u^{30} + \cdots - 2119.52u - 515.406 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 729.244u^{31} + 3754.96u^{30} + \cdots + 32086.0u + 7720.11 \\ 594.059u^{31} + 3059.45u^{30} + \cdots + 26142.9u + 6290.22 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -166.444u^{31} - 858.041u^{30} + \cdots - 7362.62u - 1779.90$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{32} - 9u^{31} + \cdots + u + 1$
c_2, c_{12}	$u^{32} - 6u^{31} + \cdots - 48u + 9$
c_3	$u^{32} - u^{31} + \cdots - 5u + 1$
c_4	$u^{32} + u^{31} + \cdots + 5u + 1$
c_5, c_{10}	$u^{32} + 5u^{31} + \cdots - 3u + 1$
c_6, c_9	$u^{32} + 6u^{31} + \cdots + 48u + 9$
c_7, c_8	$u^{32} - 5u^{31} + \cdots + 3u + 1$
c_{11}	$u^{32} + 9u^{31} + \cdots - u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$y^{32} - 9y^{31} + \cdots - 9y + 1$
c_2, c_6, c_9 c_{12}	$y^{32} - 16y^{31} + \cdots - 828y + 81$
c_3, c_4	$y^{32} - 7y^{31} + \cdots - 41y + 1$
c_5, c_7, c_8 c_{10}	$y^{32} + 27y^{31} + \cdots + 5y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.067705 + 1.010090I$ $a = -0.048060 - 0.172045I$ $b = 0.353850 - 1.166680I$	$-1.61372 - 4.11514I$	$-0.85266 + 6.11990I$
$u = -0.067705 - 1.010090I$ $a = -0.048060 + 0.172045I$ $b = 0.353850 + 1.166680I$	$-1.61372 + 4.11514I$	$-0.85266 - 6.11990I$
$u = -0.943719 + 0.595766I$ $a = 0.088776 + 0.635826I$ $b = -0.448591 - 0.100099I$	$5.35541 + 0.09313I$	$6.64556 + 0.50727I$
$u = -0.943719 - 0.595766I$ $a = 0.088776 - 0.635826I$ $b = -0.448591 + 0.100099I$	$5.35541 - 0.09313I$	$6.64556 - 0.50727I$
$u = -0.909086 + 0.676337I$ $a = -0.737129 - 0.415629I$ $b = -0.177399 + 0.264576I$	$5.33495 + 4.85201I$	$2.71864 - 2.25825I$
$u = -0.909086 - 0.676337I$ $a = -0.737129 + 0.415629I$ $b = -0.177399 - 0.264576I$	$5.33495 - 4.85201I$	$2.71864 + 2.25825I$
$u = -0.849383 + 0.001189I$ $a = 1.96233 + 2.54289I$ $b = 1.83959 + 1.90523I$	$-0.523059 + 0.539324I$	$9.43070 - 3.62826I$
$u = -0.849383 - 0.001189I$ $a = 1.96233 - 2.54289I$ $b = 1.83959 - 1.90523I$	$-0.523059 - 0.539324I$	$9.43070 + 3.62826I$
$u = 1.081470 + 0.446382I$ $a = -0.87185 - 1.52233I$ $b = 0.34721 - 1.47661I$	$-5.33495 - 4.85201I$	$-2.71864 + 2.25825I$
$u = 1.081470 - 0.446382I$ $a = -0.87185 + 1.52233I$ $b = 0.34721 + 1.47661I$	$-5.33495 + 4.85201I$	$-2.71864 - 2.25825I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=\ \ 0.715685+0.218279I$ $a=-1.46034+2.45351I$ $b=\ \ 0.093344-0.937071I$	$0.523059-0.539324I$	$-9.43070+3.62826I$
$u=\ \ 0.715685-0.218279I$ $a=-1.46034-2.45351I$ $b=\ \ 0.093344+0.937071I$	$0.523059+0.539324I$	$-9.43070-3.62826I$
$u=\ \ 0.703772+0.206426I$ $a=-0.14434-1.44890I$ $b=\ \ 0.470436+0.090968I$	$-1.04605I$	$0.+6.29952I$
$u=\ \ 0.703772-0.206426I$ $a=-0.14434+1.44890I$ $b=\ \ 0.470436-0.090968I$	$1.04605I$	$0.-6.29952I$
$u=-0.093791+1.268970I$ $a=-0.238721-0.635122I$ $b=-0.250820-0.812318I$	$7.26512-0.92116I$	$7.37317+3.02039I$
$u=-0.093791-1.268970I$ $a=-0.238721+0.635122I$ $b=-0.250820+0.812318I$	$7.26512+0.92116I$	$7.37317-3.02039I$
$u=\ \ 1.171050+0.664348I$ $a=\ \ 0.82723+1.15816I$ $b=\ \ 0.026494+1.398610I$	$-5.35541+0.09313I$	0
$u=\ \ 1.171050-0.664348I$ $a=\ \ 0.82723-1.15816I$ $b=\ \ 0.026494-1.398610I$	$-5.35541-0.09313I$	0
$u=-1.291840+0.504469I$ $a=-0.60889+1.63176I$ $b=\ \ 0.64554+1.43209I$	$-5.43955+9.43203I$	0
$u=-1.291840-0.504469I$ $a=-0.60889-1.63176I$ $b=\ \ 0.64554-1.43209I$	$-5.43955-9.43203I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.509836 + 0.230939I$ $a = -1.20134 + 1.58135I$ $b = -0.576126 - 0.662311I$	$5.43955 + 9.43203I$	$3.26415 - 8.13278I$
$u = -0.509836 - 0.230939I$ $a = -1.20134 - 1.58135I$ $b = -0.576126 + 0.662311I$	$5.43955 - 9.43203I$	$3.26415 + 8.13278I$
$u = -0.229199 + 0.437345I$ $a = 1.77415 + 0.07651I$ $b = 0.440725 + 0.723545I$	$1.61372 + 4.11514I$	$0.85266 - 6.11990I$
$u = -0.229199 - 0.437345I$ $a = 1.77415 - 0.07651I$ $b = 0.440725 - 0.723545I$	$1.61372 - 4.11514I$	$0.85266 + 6.11990I$
$u = -1.52202 + 0.34957I$ $a = 0.17516 - 1.62801I$ $b = -0.485248 - 1.220680I$	$9.42763I$	0
$u = -1.52202 - 0.34957I$ $a = 0.17516 + 1.62801I$ $b = -0.485248 + 1.220680I$	$-9.42763I$	0
$u = 1.56447 + 0.27140I$ $a = 0.522596 + 1.253690I$ $b = -0.190106 + 1.102650I$	$-7.26512 - 0.92116I$	0
$u = 1.56447 - 0.27140I$ $a = 0.522596 - 1.253690I$ $b = -0.190106 - 1.102650I$	$-7.26512 + 0.92116I$	0
$u = -0.18698 + 1.59880I$ $a = -0.248128 + 0.750877I$ $b = -0.145927 + 1.131960I$	$6.00215 - 2.42101I$	0
$u = -0.18698 - 1.59880I$ $a = -0.248128 - 0.750877I$ $b = -0.145927 - 1.131960I$	$6.00215 + 2.42101I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.63288 + 0.14865I$ $a = 0.041897 + 1.378680I$ $b = 0.557035 + 1.203400I$	$-6.00215 + 2.42101I$	0
$u = -1.63288 - 0.14865I$ $a = 0.041897 - 1.378680I$ $b = 0.557035 - 1.203400I$	$-6.00215 - 2.42101I$	0

III.

$\boldsymbol{I_3^u = \langle -9a^4-16a^3-76a^2+13b-40a-8,\ a^5+2a^4+9a^3+6a^2+3a+1,\ u-1\rangle}$

(i) Arc colorings

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

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

$$a_5 = \begin{pmatrix} a \\ 0.692308a^4 + 1.23077a^3 + \cdots + 3.07692a + 0.615385 \end{pmatrix}$$

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

$$a_8 = \begin{pmatrix} -0.153846a^4 - 0.384615a^3 + \cdots - 1.46154a + 0.307692 \\ -0.461538a^4 - 1.15385a^3 + \cdots - 4.38462a - 1.07692 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.461538a^4 + 1.15385a^3 + \cdots + 4.38462a + 1.07692 \\ 0.769231a^4 + 1.92308a^3 + \cdots + 7.30769a + 2.46154 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.461538a^4 - 1.15385a^3 + \cdots - 4.38462a - 1.07692 \\ -0.769231a^4 - 1.92308a^3 + \cdots - 7.30769a - 2.46154 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 0.692308a^4 + 1.23077a^3 + \cdots + 3.07692a + 0.615385 \\ 1.38462a^4 + 2.46154a^3 + \cdots + 5.15385a + 1.23077 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.461538a^4 + 1.15385a^3 + \cdots + 4.38462a + 1.07692 \\ 0.769231a^4 + 1.92308a^3 + \cdots + 7.30769a + 2.46154 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.692308a^4 + 1.23077a^3 + \cdots + 2.07692a + 0.615385 \\ 1.38462a^4 + 2.46154a^3 + \cdots + 5.15385a + 1.23077 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.461538a^4 + 1.15385a^3 + \cdots + 4.38462a + 1.07692 \\ 0.769231a^4 + 1.92308a^3 + \cdots + 7.30769a + 2.46154 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ \ 1.00000$ $a = -0.104309 + 0.503525I$ $b = -0.994802 + 0.833601I$	-1.64493	-6.00000
$u = \ \ 1.00000$ $a = -0.104309 - 0.503525I$ $b = -0.994802 - 0.833601I$	-1.64493	-6.00000
$u = \ \ 1.00000$ $a = -0.489595$ $b = \ \ 0.405620$	-1.64493	-6.00000
$u = \ \ 1.00000$ $a = -0.65089 + 2.70201I$ $b = -0.208008 + 1.191750I$	-1.64493	-6.00000
$u = \ \ 1.00000$ $a = -0.65089 - 2.70201I$ $b = -0.208008 - 1.191750I$	-1.64493	-6.00000

IV. $I_4^u = \langle b^5 - 2b^4a + b^3a^2 - b^3 + a^2b + b + a - 1,\ u - 1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(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^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \cdots$ $a = \cdots$ $b = \cdots$	0	0

V. $I_1^v = \langle a,\ b^5+b^3+b+1,\ v-1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 1.00000$ $a = 0$ $b = 0.707729 + 0.841955I$	1.64493	6.00000
$v = 1.00000$ $a = 0$ $b = 0.707729 - 0.841955I$	1.64493	6.00000
$v = 1.00000$ $a = 0$ $b = -0.389287 + 1.070680I$	1.64493	6.00000
$v = 1.00000$ $a = 0$ $b = -0.389287 - 1.070680I$	1.64493	6.00000
$v = 1.00000$ $a = 0$ $b = -0.636883$	1.64493	6.00000

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_2^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v =$	1.00000		
$a =$	0	0	0
$b =$	$0.500000 + 0.866025I$		
$v =$	1.00000		
$a =$	0	0	0
$b =$	$0.500000 - 0.866025I$		

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$16(u^2-u+1)(u^5+u^3+u-1)(u^5+2u^4+3u^3+2u^2+u-1)$ $\cdot(u^{32}-9u^{31}+\cdots+u+1)(16u^{130}-216u^{129}+\cdots-134148u+11877)$
c_2	$u^7(u-1)^5(u^{32}-6u^{31}+\cdots-48u+9)$ $\cdot(u^{130}+10u^{129}+\cdots+40002776u+2811556)$
c_3	$48(u^2-u+1)(u^5+u^3+u+1)(u^5+u^3+2u^2-u-2)$ $\cdot(u^{32}-u^{31}+\cdots-5u+1)$ $\cdot(48u^{130}-144u^{129}+\cdots-1545225608u+456956512)$
c_4	$48(u^2+u+1)(u^5+u^3+u-1)(u^5+u^3-2u^2-u+2)$ $\cdot(u^{32}+u^{31}+\cdots+5u+1)$ $\cdot(48u^{130}+144u^{129}+\cdots+1545225608u+456956512)$
c_5	$16(u^2+u+1)(u^5+u^3+u-1)(u^5-2u^4+3u^3-2u^2+u+1)$ $\cdot(u^{32}+5u^{31}+\cdots-3u+1)$ $\cdot(16u^{130}+72u^{129}+\cdots+67813572u+7939137)$
c_6	$u^7(u-1)^5(u^{32}+6u^{31}+\cdots+48u+9)$ $\cdot(u^{130}+10u^{129}+\cdots+40002776u+2811556)$
c_7	$16(u^2-u+1)(u^5+u^3+u+1)(u^5+2u^4+3u^3+2u^2+u-1)$ $\cdot(u^{32}-5u^{31}+\cdots+3u+1)$ $\cdot(16u^{130}-72u^{129}+\cdots-67813572u+7939137)$
c_8	$16(u^2-u+1)(u^5+u^3+u-1)(u^5-2u^4+3u^3-2u^2+u+1)$ $\cdot(u^{32}-5u^{31}+\cdots+3u+1)$ $\cdot(16u^{130}+72u^{129}+\cdots+67813572u+7939137)$
c_9	$u^7(u+1)^5(u^{32}+6u^{31}+\cdots+48u+9)$ $\cdot(u^{130}-10u^{129}+\cdots-40002776u+2811556)$
c_{10}	$16(u^2+u+1)(u^5+u^3+u+1)(u^5+2u^4+3u^3+2u^2+u-1)$ $\cdot(u^{32}+5u^{31}+\cdots-3u+1)$ $\cdot(16u^{130}-72u^{129}+\cdots-67813572u+7939137)$
c_{11}	$16(u^2+u+1)(u^5+u^3+u+1)(u^5-2u^4+3u^3-2u^2+u+1)$ $\cdot(u^{32}+9u^{31}+\cdots-u+1)(16u^{130}+216u^{129}+\cdots+134148u+11877)$
c_{12}	$u^7(u+1)^5(u^{32}-6u^{31}+\cdots-48u+9)$ $\cdot(u^{130}-10u^{129}+\cdots-40002776u+2811556)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{11}	$256(y^2+y+1)(y^5+2y^4+3y^3+2y^2+y-1)$ $\cdot\,(y^5+2y^4+3y^3+6y^2+5y-1)(y^{32}-9y^{31}+\cdots-9y+1)$ $\cdot\,(256y^{130}-4640y^{129}+\cdots+2950330002y+141063129)$
c_2, c_6, c_9 c_{12}	$y^7(y-1)^5(y^{32}-16y^{31}+\cdots-828y+81)$ $\cdot\,(y^{130}-80y^{129}+\cdots-226520781477232y+7904847141136)$
c_3, c_4	$2304(y^2+y+1)(y^5+2y^4-y^3-6y^2+9y-4)$ $\cdot\,(y^5+2y^4+3y^3+2y^2+y-1)(y^{32}-7y^{31}+\cdots-41y+1)$ $\cdot\,(2304y^{130}-1.24\times 10^5y^{129}+\cdots-5.35\times 10^{18}y+2.09\times 10^{17})$
c_5, c_7, c_8 c_{10}	$256(y^2+y+1)(y^5+2y^4+3y^3+2y^2+y-1)$ $\cdot\,(y^5+2y^4+3y^3+6y^2+5y-1)(y^{32}+27y^{31}+\cdots+5y+1)$ $\cdot\,(256y^{130}+23008y^{129}+\cdots-581798760447684y+63029896304769)$