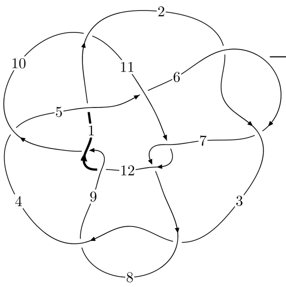
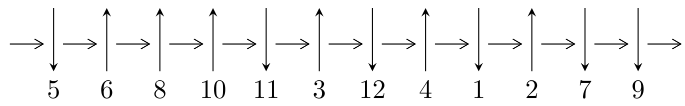
$12a_{1225}$ $(K12a_{1225})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$
\begin{aligned}
I_1^u = \langle & 7.20918 \times 10^{393} u^{111} + 5.54525 \times 10^{394} u^{110} + \cdots + 1.43090 \times 10^{397} b - 3.89590 \times 10^{397}, \\
& -1.74511 \times 10^{396} u^{111} - 9.01477 \times 10^{395} u^{110} + \cdots + 1.21484 \times 10^{400} a - 9.13035 \times 10^{401}, \\
& u^{112} + 9u^{111} + \cdots - 90142u - 1132 \rangle \\
I_2^u = \langle & -1343140997u^{15} - 3388091310u^{14} + \cdots + 6660374991b + 2076426241, \\
& 265614140u^{15} + 2980660587u^{14} + \cdots + 6660374991a + 17049769085,\ u^{16} + 5u^{15} + \cdots - 2u - 1 \rangle \\
I_3^u = \langle & -a^3 + b - 4a - 1,\ a^4 + a^3 + 4a^2 + 4a + 1,\ u - 1 \rangle \\
I_4^u = \langle & b + 1,\ a + 1,\ u - 1 \rangle \\
I_5^u = \langle & b^5 - 2b^4 a + b^3 a^2 - 3b^3 + 4b^2 a - a^2 b + b - a + 1,\ u - 1 \rangle
\end{aligned}
$$

$$
\begin{aligned}
I_1^v &= \langle a,\ b^4 + b^3 - 1,\ v - 1 \rangle \\
I_2^v &= \langle a,\ b - 1,\ v - 1 \rangle
\end{aligned}
$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 138 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. $I_1^u = \langle 7.21 \times 10^{393} u^{111} + 5.55 \times 10^{394} u^{110} + \cdots + 1.43 \times 10^{397} b - 3.90 \times 10^{397},\ -1.75 \times 10^{396} u^{111} - 9.01 \times 10^{395} u^{110} + \cdots + 1.21 \times 10^{400} a - 9.13 \times 10^{401},\ u^{112} + 9u^{111} + \cdots - 90142u - 1132 \rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.000143650u^{111} + 0.0000742056u^{110} + \cdots + 1183.64u + 75.1571 \\ -0.000503820u^{111} - 0.00387535u^{110} + \cdots + 132.583u + 2.72269 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.00163818u^{111} - 0.0140914u^{110} + \cdots + 1425.91u + 79.2593 \\ -0.00251920u^{111} - 0.0199229u^{110} + \cdots + 299.210u + 4.84051 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.000256671u^{111} + 0.00161270u^{110} + \cdots + 1043.43u + 70.8299 \\ 0.000551878u^{111} + 0.00433234u^{110} + \cdots - 57.9556u + 0.0777320 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.000976338u^{111} + 0.00910943u^{110} + \cdots - 1193.78u - 61.3082 \\ -0.000854627u^{111} - 0.00682138u^{110} + \cdots + 94.3398u + 0.548443 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.000398981u^{111} - 0.00415660u^{110} + \cdots + 1073.25u + 68.4436 \\ 0.000742676u^{111} + 0.00637617u^{110} + \cdots - 273.417u - 2.86495 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.00139747u^{111} - 0.0104758u^{110} + \cdots - 147.808u + 8.40896 \\ -0.00107238u^{111} - 0.00755752u^{110} + \cdots - 265.251u - 3.49103 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.000769701u^{111} - 0.00710499u^{110} + \cdots + 1097.78u + 68.7355 \\ 0.000371956u^{111} + 0.00342777u^{110} + \cdots - 248.882u - 2.57307 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.000217324u^{111} - 0.00370821u^{110} + \cdots + 1742.49u + 88.6486 \\ 0.000823128u^{111} + 0.00586181u^{110} + \cdots + 199.870u + 3.76570 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.0107685u^{111} + 0.0968647u^{110} + \cdots - 5066.55u - 61.6765$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$16(16u^{112} + 8u^{111} + \cdots - 57723u + 15987)$
c_2, c_6	$u^{112} + 9u^{111} + \cdots - 90142u - 1132$
c_3, c_8	$16(16u^{112} - 8u^{111} + \cdots - 75u + 75)$
c_4	$48(48u^{112} - 48u^{111} + \cdots - 1592u - 64)$
c_5	$48(48u^{112} + 48u^{111} + \cdots + 1592u - 64)$
c_7, c_{11}	$16(16u^{112} + 8u^{111} + \cdots + 75u + 75)$
c_9, c_{12}	$u^{112} - 9u^{111} + \cdots + 90142u - 1132$
c_{10}	$16(16u^{112} - 8u^{111} + \cdots + 57723u + 15987)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$256(256y^{112} - 5152y^{111} + \cdots - 1.30933 \times 10^{10}y + 2.55584 \times 10^{8})$
c_2, c_6, c_9 c_{12}	$y^{112} - 75y^{111} + \cdots - 5045677580y + 1281424$
c_3, c_7, c_8 c_{11}	$256(256y^{112} - 16672y^{111} + \cdots - 439725y + 5625)$
c_4, c_5	$2304(2304y^{112} - 11424y^{111} + \cdots - 1092032y + 4096)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.076594 + 0.998674I$ $a = 0.231384 + 0.192595I$ $b = -1.092480 + 0.313140I$	$3.25749 - 3.93133I$	0
$u = -0.076594 - 0.998674I$ $a = 0.231384 - 0.192595I$ $b = -1.092480 - 0.313140I$	$3.25749 + 3.93133I$	0
$u = 0.989446 + 0.111155I$ $a = -0.06785 - 2.70572I$ $b = 0.26976 - 1.69355I$	$-0.179102 + 1.361240I$	0
$u = 0.989446 - 0.111155I$ $a = -0.06785 + 2.70572I$ $b = 0.26976 + 1.69355I$	$-0.179102 - 1.361240I$	0
$u = 1.03475$ $a = -0.678980$ $b = -0.837668$	-1.64218	0
$u = -0.928213 + 0.201967I$ $a = 0.799418 - 0.944826I$ $b = 1.170730 - 0.590714I$	$0.866138 + 0.769169I$	0
$u = -0.928213 - 0.201967I$ $a = 0.799418 + 0.944826I$ $b = 1.170730 + 0.590714I$	$0.866138 - 0.769169I$	0
$u = 0.012899 + 1.051640I$ $a = -0.263753 - 0.403519I$ $b = 1.333720 - 0.114397I$	$8.41416 - 6.54605I$	0
$u = 0.012899 - 1.051640I$ $a = -0.263753 + 0.403519I$ $b = 1.333720 + 0.114397I$	$8.41416 + 6.54605I$	0
$u = -0.033862 + 0.928112I$ $a = -0.140232 + 0.039291I$ $b = 1.281230 - 0.478890I$	$5.94038 - 4.98070I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.033862 - 0.928112I$ $a = -0.140232 - 0.039291I$ $b = 1.281230 + 0.478890I$	$5.94038 + 4.98070I$	0
$u = -0.842253 + 0.386957I$ $a = 0.47697 - 1.50961I$ $b = 0.239501 + 0.060068I$	$0.62344 + 9.53417I$	0
$u = -0.842253 - 0.386957I$ $a = 0.47697 + 1.50961I$ $b = 0.239501 - 0.060068I$	$0.62344 - 9.53417I$	0
$u = -1.042910 + 0.349738I$ $a = -0.383966 + 1.323600I$ $b = -0.281312 + 0.605442I$	$-2.67525 + 4.55404I$	0
$u = -1.042910 - 0.349738I$ $a = -0.383966 - 1.323600I$ $b = -0.281312 - 0.605442I$	$-2.67525 - 4.55404I$	0
$u = -0.808934 + 0.384457I$ $a = 0.15671 + 1.60302I$ $b = 0.780624 + 0.552924I$	$1.13362 + 2.05532I$	0
$u = -0.808934 - 0.384457I$ $a = 0.15671 - 1.60302I$ $b = 0.780624 - 0.552924I$	$1.13362 - 2.05532I$	0
$u = 1.048220 + 0.374459I$ $a = -0.869926 - 0.251124I$ $b = -0.291121 - 0.253138I$	$-0.866138 + 0.769169I$	0
$u = 1.048220 - 0.374459I$ $a = -0.869926 + 0.251124I$ $b = -0.291121 + 0.253138I$	$-0.866138 - 0.769169I$	0
$u = 1.072650 + 0.309982I$ $a = 0.08998 + 2.27104I$ $b = -0.829938 + 0.206066I$	$0.179102 - 1.361240I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.072650 - 0.309982I$ $a = 0.08998 - 2.27104I$ $b = -0.829938 - 0.206066I$	$0.179102 + 1.361240I$	0
$u = 0.771213 + 0.378608I$ $a = -0.583767 + 0.056030I$ $b = -0.859928 - 0.546705I$	$-2.02176 + 0.22367I$	0
$u = 0.771213 - 0.378608I$ $a = -0.583767 - 0.056030I$ $b = -0.859928 + 0.546705I$	$-2.02176 - 0.22367I$	0
$u = -0.229968 + 0.823116I$ $a = 0.053000 - 0.318049I$ $b = -1.397590 - 0.020177I$	$9.29392 - 0.40910I$	0
$u = -0.229968 - 0.823116I$ $a = 0.053000 + 0.318049I$ $b = -1.397590 + 0.020177I$	$9.29392 + 0.40910I$	0
$u = 0.473129 + 1.051400I$ $a = 0.199711 - 0.300992I$ $b = 1.198560 + 0.396998I$	$5.00780 + 5.56131I$	0
$u = 0.473129 - 1.051400I$ $a = 0.199711 + 0.300992I$ $b = 1.198560 - 0.396998I$	$5.00780 - 5.56131I$	0
$u = -1.145040 + 0.158811I$ $a = 0.12713 - 1.42460I$ $b = -1.228560 - 0.577397I$	$-5.94038 + 4.98070I$	0
$u = -1.145040 - 0.158811I$ $a = 0.12713 + 1.42460I$ $b = -1.228560 + 0.577397I$	$-5.94038 - 4.98070I$	0
$u = -1.155800 + 0.143605I$ $a = -0.04341 + 1.85196I$ $b = 1.184810 + 0.664213I$	$-1.99720 + 9.98062I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.155800 - 0.143605I$ $a = -0.04341 - 1.85196I$ $b = 1.184810 - 0.664213I$	$-1.99720 - 9.98062I$	0
$u = 0.497490 + 0.652853I$ $a = 0.568345 + 0.080588I$ $b = -0.127788 - 0.410063I$	$-1.13362 - 2.05532I$	0
$u = 0.497490 - 0.652853I$ $a = 0.568345 - 0.080588I$ $b = -0.127788 + 0.410063I$	$-1.13362 + 2.05532I$	0
$u = 0.941206 + 0.736070I$ $a = 0.381307 + 1.186970I$ $b = -1.056170 + 0.634618I$	$-1.25247 - 5.17059I$	0
$u = 0.941206 - 0.736070I$ $a = 0.381307 - 1.186970I$ $b = -1.056170 - 0.634618I$	$-1.25247 + 5.17059I$	0
$u = -1.084390 + 0.505444I$ $a = -0.510177 - 1.293310I$ $b = -1.270000 - 0.369732I$	$6.78188 + 5.23022I$	0
$u = -1.084390 - 0.505444I$ $a = -0.510177 + 1.293310I$ $b = -1.270000 + 0.369732I$	$6.78188 - 5.23022I$	0
$u = -1.190100 + 0.153253I$ $a = 0.178297 + 0.610262I$ $b = 1.38897 + 0.33779I$	$-1.46756 + 0.33645I$	0
$u = -1.190100 - 0.153253I$ $a = 0.178297 - 0.610262I$ $b = 1.38897 - 0.33779I$	$-1.46756 - 0.33645I$	0
$u = -0.122047 + 0.779373I$ $a = -0.114156 + 0.418854I$ $b = -0.527172 + 0.483285I$	$2.67525 - 4.55404I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.122047 - 0.779373I$ $a = -0.114156 - 0.418854I$ $b = -0.527172 - 0.483285I$	$2.67525 + 4.55404I$	0
$u = 1.069800 + 0.576020I$ $a = 0.14524 - 1.44287I$ $b = 1.36776 - 0.79349I$	$3.04906 - 11.28170I$	0
$u = 1.069800 - 0.576020I$ $a = 0.14524 + 1.44287I$ $b = 1.36776 + 0.79349I$	$3.04906 + 11.28170I$	0
$u = -0.023540 + 1.254960I$ $a = 0.449621 - 0.002989I$ $b = -1.059750 + 0.329925I$	$1.25247 - 5.17059I$	0
$u = -0.023540 - 1.254960I$ $a = 0.449621 + 0.002989I$ $b = -1.059750 - 0.329925I$	$1.25247 + 5.17059I$	0
$u = -0.150701 + 1.283400I$ $a = 0.141625 - 0.115575I$ $b = -1.253310 - 0.414045I$	$4.91352 + 13.09700I$	0
$u = -0.150701 - 1.283400I$ $a = 0.141625 + 0.115575I$ $b = -1.253310 + 0.414045I$	$4.91352 - 13.09700I$	0
$u = 1.267280 + 0.341348I$ $a = 0.60742 - 1.44572I$ $b = 0.895900 - 0.360926I$	$-1.28303 - 3.24310I$	0
$u = 1.267280 - 0.341348I$ $a = 0.60742 + 1.44572I$ $b = 0.895900 + 0.360926I$	$-1.28303 + 3.24310I$	0
$u = 1.303300 + 0.294422I$ $a = -0.11471 - 1.55010I$ $b = -0.07325 - 1.51517I$	$-4.13502 - 12.09070I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.303300 - 0.294422I$ $a = -0.11471 + 1.55010I$ $b = -0.07325 + 1.51517I$	$-4.13502 + 12.09070I$	0
$u = 1.194340 + 0.660141I$ $a = 0.210808 + 0.809537I$ $b = -0.763792 + 0.253689I$	$-1.72504 - 2.62810I$	0
$u = 1.194340 - 0.660141I$ $a = 0.210808 - 0.809537I$ $b = -0.763792 - 0.253689I$	$-1.72504 + 2.62810I$	0
$u = -1.263900 + 0.516886I$ $a = -0.03228 - 1.44001I$ $b = -0.829618 - 0.750072I$	$-0.62344 + 9.53417I$	0
$u = -1.263900 - 0.516886I$ $a = -0.03228 + 1.44001I$ $b = -0.829618 + 0.750072I$	$-0.62344 - 9.53417I$	0
$u = 1.334180 + 0.314698I$ $a = 0.081026 + 1.235020I$ $b = 0.198328 + 1.226370I$	$-8.41416 - 6.54605I$	0
$u = 1.334180 - 0.314698I$ $a = 0.081026 - 1.235020I$ $b = 0.198328 - 1.226370I$	$-8.41416 + 6.54605I$	0
$u = 0.328035 + 0.535610I$ $a = -1.188290 + 0.333926I$ $b = 1.095590 - 0.102708I$	$2.02176 - 0.22367I$	$4.79873 + 0.86633I$
$u = 0.328035 - 0.535610I$ $a = -1.188290 - 0.333926I$ $b = 1.095590 + 0.102708I$	$2.02176 + 0.22367I$	$4.79873 - 0.86633I$
$u = -1.352620 + 0.255718I$ $a = -0.196044 + 1.169210I$ $b = -0.118555 + 1.122180I$	$-6.78188 + 5.23022I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.352620-0.255718I$ $a=-0.196044-1.169210I$ $b=-0.118555-1.122180I$	$-6.78188-5.23022I$	0
$u=-1.298990+0.466389I$ $a=0.37182+1.60795I$ $b=1.35303+0.86227I$	$1.99720+9.98062I$	0
$u=-1.298990-0.466389I$ $a=0.37182-1.60795I$ $b=1.35303-0.86227I$	$1.99720-9.98062I$	0
$u=-1.385620+0.052575I$ $a=0.73344+1.28348I$ $b=0.485042+1.057350I$	$-4.28714-3.78788I$	0
$u=-1.385620-0.052575I$ $a=0.73344-1.28348I$ $b=0.485042-1.057350I$	$-4.28714+3.78788I$	0
$u=-1.310370+0.516292I$ $a=-0.21364-1.43619I$ $b=-1.092980-0.635421I$	$-0.61110+9.33643I$	0
$u=-1.310370-0.516292I$ $a=-0.21364+1.43619I$ $b=-1.092980+0.635421I$	$-0.61110-9.33643I$	0
$u=1.37817+0.36293I$ $a=-0.84923+1.26582I$ $b=-1.240840+0.469570I$	$4.28714-3.78788I$	0
$u=1.37817-0.36293I$ $a=-0.84923-1.26582I$ $b=-1.240840-0.469570I$	$4.28714+3.78788I$	0
$u=-1.43190+0.15558I$ $a=-0.203034-0.989310I$ $b=-0.080939-0.939558I$	$-9.29392+0.40910I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.43190-0.15558I$ $a=-0.203034+0.989310I$ $b=-0.080939+0.939558I$	$-9.29392-0.40910I$	0
$u=\ \ 1.41028+0.32457I$ $a=\ \ 0.757729-0.381296I$ $b=\ \ 0.925369+0.082252I$	$1.46756+0.33645I$	0
$u=\ \ 1.41028-0.32457I$ $a=\ \ 0.757729+0.381296I$ $b=\ \ 0.925369-0.082252I$	$1.46756-0.33645I$	0
$u=-0.365915+0.412674I$ $a=-0.14055+2.53139I$ $b=\ \ 0.253914-0.136115I$	$1.72504+2.62810I$	$9.23789-9.47130I$
$u=-0.365915-0.412674I$ $a=-0.14055-2.53139I$ $b=\ \ 0.253914+0.136115I$	$1.72504-2.62810I$	$9.23789+9.47130I$
$u=-1.35458+0.51347I$ $a=\ \ 0.44715+1.41303I$ $b=\ \ 1.219040+0.364948I$	$4.13502+12.09070I$	0
$u=-1.35458-0.51347I$ $a=\ \ 0.44715-1.41303I$ $b=\ \ 1.219040-0.364948I$	$4.13502-12.09070I$	0
$u=-1.09380+0.98488I$ $a=-0.223478+0.718541I$ $b=\ \ 0.664565-0.021277I$	$-2.08701+3.74779I$	0
$u=-1.09380-0.98488I$ $a=-0.223478-0.718541I$ $b=\ \ 0.664565+0.021277I$	$-2.08701-3.74779I$	0
$u=-0.42099+1.41567I$ $a=\ \ 0.249353+0.126700I$ $b=-0.968329-0.139295I$	$2.08701-3.74779I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.42099-1.41567I$ $a=\ \ 0.249353-0.126700I$ $b=-0.968329+0.139295I$	$2.08701+3.74779I$	0
$u=-1.37062+0.55200I$ $a=-0.063610-1.279610I$ $b=-1.31742-0.59639I$	$-3.04906+11.28170I$	0
$u=-1.37062-0.55200I$ $a=-0.063610+1.279610I$ $b=-1.31742+0.59639I$	$-3.04906-11.28170I$	0
$u=\ \ 0.349248+0.305350I$ $a=\ \ 0.768121+0.016112I$ $b=\ \ 0.739773+0.980194I$	$1.28303-3.24310I$	$3.29814+8.40281I$
$u=\ \ 0.349248-0.305350I$ $a=\ \ 0.768121-0.016112I$ $b=\ \ 0.739773-0.980194I$	$1.28303+3.24310I$	$3.29814-8.40281I$
$u=\ \ 1.48918+0.38329I$ $a=\ \ 0.061872-0.544415I$ $b=-0.413632-0.594403I$	$-4.00511-0.72764I$	0
$u=\ \ 1.48918-0.38329I$ $a=\ \ 0.061872+0.544415I$ $b=-0.413632+0.594403I$	$-4.00511+0.72764I$	0
$u=-0.046450+0.453850I$ $a=\ \ 0.824444-0.751338I$ $b=\ \ 0.115446-0.445470I$	$-1.27033I$	$0.+4.50236I$
$u=-0.046450-0.453850I$ $a=\ \ 0.824444+0.751338I$ $b=\ \ 0.115446+0.445470I$	$1.27033I$	$0.-4.50236I$
$u=\ \ 1.44276+0.57759I$ $a=-0.298746+1.328770I$ $b=-1.41290+0.70903I$	$-19.5476I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.44276 - 0.57759I$ $a = -0.298746 - 1.328770I$ $b = -1.41290 - 0.70903I$	$19.5476I$	0
$u = 1.45797 + 0.63871I$ $a = 0.181999 - 1.166490I$ $b = 1.31547 - 0.65832I$	$-4.91352 - 13.09700I$	0
$u = 1.45797 - 0.63871I$ $a = 0.181999 + 1.166490I$ $b = 1.31547 + 0.65832I$	$-4.91352 + 13.09700I$	0
$u = -0.309714 + 0.264226I$ $a = 2.48579 - 1.07022I$ $b = 0.452397 + 0.657328I$	$0.61110 + 9.33643I$	$-0.22464 - 7.70849I$
$u = -0.309714 - 0.264226I$ $a = 2.48579 + 1.07022I$ $b = 0.452397 - 0.657328I$	$0.61110 - 9.33643I$	$-0.22464 + 7.70849I$
$u = -1.50628 + 0.58589I$ $a = 0.154270 + 0.911151I$ $b = 1.33432 + 0.49940I$	$-5.00780 + 5.56131I$	0
$u = -1.50628 - 0.58589I$ $a = 0.154270 - 0.911151I$ $b = 1.33432 - 0.49940I$	$-5.00780 - 5.56131I$	0
$u = -0.19099 + 1.61396I$ $a = -0.1113280 + 0.0382015I$ $b = 1.103820 + 0.299690I$	$5.74733I$	0
$u = -0.19099 - 1.61396I$ $a = -0.1113280 - 0.0382015I$ $b = 1.103820 - 0.299690I$	$-5.74733I$	0
$u = 1.35740 + 0.90914I$ $a = 0.128278 + 0.818090I$ $b = -1.105390 + 0.487764I$	$-1.96231 - 5.07117I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.35740 - 0.90914I$ $a = 0.128278 - 0.818090I$ $b = -1.105390 - 0.487764I$	$-1.96231 + 5.07117I$	0
$u = 1.52288 + 0.59787I$ $a = 0.375475 - 0.409323I$ $b = 1.356790 - 0.132401I$	$4.00511 + 0.72764I$	0
$u = 1.52288 - 0.59787I$ $a = 0.375475 + 0.409323I$ $b = 1.356790 + 0.132401I$	$4.00511 - 0.72764I$	0
$u = -1.63935$ $a = -0.478929$ $b = -0.242092$	-10.3706	0
$u = -1.07002 + 1.27061I$ $a = 0.030202 - 0.435703I$ $b = -0.927485 + 0.155970I$	$1.96231 - 5.07117I$	0
$u = -1.07002 - 1.27061I$ $a = 0.030202 + 0.435703I$ $b = -0.927485 - 0.155970I$	$1.96231 + 5.07117I$	0
$u = -0.290654 + 0.105986I$ $a = -3.69871 + 1.83262I$ $b = -0.514232 - 0.449850I$	$-3.25749 + 3.93133I$	$-6.45843 - 5.67906I$
$u = -0.290654 - 0.105986I$ $a = -3.69871 - 1.83262I$ $b = -0.514232 + 0.449850I$	$-3.25749 - 3.93133I$	$-6.45843 + 5.67906I$
$u = -0.187718$ $a = -1.90046$ $b = -1.73335$	10.3706	42.9970
$u = -1.89629$ $a = -0.683881$ $b = -1.58737$	3.86997	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.92194$ $a = 0.611878$ $b = 0.823316$	-3.86997	0
$u = -0.0160460$ $a = 57.9682$ $b = 0.897203$	1.64218	6.13430

II.
$\boldsymbol{I_2^u = \langle -1.34 \times 10^9 u^{15} - 3.39 \times 10^9 u^{14} + \cdots + 6.66 \times 10^9 b + 2.08 \times 10^9,\ 2.66 \times 10^8 u^{15} + 2.98 \times 10^9 u^{14} + \cdots + 6.66 \times 10^9 a + 1.70 \times 10^{10},\ u^{16} + 5u^{15} + \cdots - 2u - 1\rangle}$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -0.0398798u^{15} - 0.447521u^{14} + \cdots + 3.28976u - 2.55988 \\ 0.201661u^{15} + 0.508694u^{14} + \cdots - 2.48637u - 0.311758 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.101874u^{15} - 0.843672u^{14} + \cdots + 1.33952u - 2.62352 \\ 0.238671u^{15} + 0.717261u^{14} + \cdots - 2.72072u - 0.397940 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -1.09064u^{15} - 4.10646u^{14} + \cdots - 4.87264u - 0.0808389 \\ -1.78150u^{15} - 7.66429u^{14} + \cdots + 1.33234u + 0.954948 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1.60822u^{15} + 6.56169u^{14} + \cdots - 5.97915u - 3.48691 \\ 1.35300u^{15} + 5.70439u^{14} + \cdots + 0.670822u - 1.19245 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.734918u^{15} - 2.29797u^{14} + \cdots + 3.65342u + 0.892857 \\ -1.12368u^{15} - 4.52412u^{14} + \cdots + 7.25559u + 2.58191 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -3.67851u^{15} - 15.2266u^{14} + \cdots + 17.3498u + 3.61819 \\ -2.38855u^{15} - 9.62679u^{14} + \cdots + 7.40411u + 5.18039 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.522788u^{15} - 1.42424u^{14} + \cdots + 2.70001u + 0.610534 \\ -0.911553u^{15} - 3.65039u^{14} + \cdots + 6.30217u + 2.29959 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -4.10790u^{15} - 17.4344u^{14} + \cdots + 10.0290u + 1.74411 \\ -3.10934u^{15} - 13.4400u^{14} + \cdots - 3.71620u + 3.21349 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= -\frac{10698032698}{2220124997}u^{15} - \frac{54625834408}{2220124997}u^{14} + \cdots - \frac{124965329986}{2220124997}u - \frac{22261582578}{2220124997}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{16} + 4u^{15} + \cdots + 3u + 1$
c_2, c_{12}	$u^{16} - 5u^{15} + \cdots + 2u - 1$
c_3, c_{11}	$u^{16} - 3u^{15} + \cdots - 3u + 1$
c_4	$u^{16} - 4u^{15} + \cdots + 4u + 1$
c_5	$u^{16} + 4u^{15} + \cdots - 4u + 1$
c_6, c_9	$u^{16} + 5u^{15} + \cdots - 2u - 1$
c_7, c_8	$u^{16} + 3u^{15} + \cdots + 3u + 1$
c_{10}	$u^{16} - 4u^{15} + \cdots - 3u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$y^{16} - 10y^{15} + \cdots - 13y + 1$
c_2, c_6, c_9 c_{12}	$y^{16} - 11y^{15} + \cdots - 8y + 1$
c_3, c_7, c_8 c_{11}	$y^{16} - 19y^{15} + \cdots - 23y + 1$
c_4, c_5	$y^{16} - 8y^{15} + \cdots - 6y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.855691$ $a=-2.79932$ $b=-2.68688$	-0.711120	9.81610
$u=-1.146170+0.462459I$ $a=-0.12388+1.84991I$ $b=\ \ 1.020380+0.753532I$	$11.5750I$	$0.-11.00303I$
$u=-1.146170-0.462459I$ $a=-0.12388-1.84991I$ $b=\ \ 1.020380-0.753532I$	$-\ 11.5750I$	$0.+11.00303I$
$u=\ \ 1.148830+0.492284I$ $a=\ \ 0.034064-1.246620I$ $b=\ \ 0.798811-0.208995I$	$-1.07726-2.17718I$	$0.53151+1.42089I$
$u=\ \ 1.148830-0.492284I$ $a=\ \ 0.034064+1.246620I$ $b=\ \ 0.798811+0.208995I$	$-1.07726+2.17718I$	$0.53151-1.42089I$
$u=-1.05468+0.98904I$ $a=\ \ 0.448465-0.820018I$ $b=-1.008820-0.471438I$	$-1.83679+5.66055I$	$-4.0106-15.0207I$
$u=-1.05468-0.98904I$ $a=\ \ 0.448465+0.820018I$ $b=-1.008820+0.471438I$	$-1.83679-5.66055I$	$-4.0106+15.0207I$
$u=\ \ 0.541515$ $a=\ \ 4.23654$ $b=-1.11420$	0.711120	-9.81610
$u=-0.51345+1.54946I$ $a=-0.175161+0.081391I$ $b=\ \ 1.000850-0.273809I$	$1.83679-5.66055I$	$4.0106+15.0207I$
$u=-0.51345-1.54946I$ $a=-0.175161-0.081391I$ $b=\ \ 1.000850+0.273809I$	$1.83679+5.66055I$	$4.0106-15.0207I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.65977$ $a = -0.515660$ $b = -0.366311$	-10.2737	39.7580
$u = 0.322309$ $a = -0.530108$ $b = -1.75057$	10.2737	-39.7580
$u = -0.165504 + 0.248141I$ $a = -3.21855 + 0.57876I$ $b = 0.527246 + 0.683816I$	$1.07726 - 2.17718I$	$-0.53151 + 1.42089I$
$u = -0.165504 - 0.248141I$ $a = -3.21855 - 0.57876I$ $b = 0.527246 - 0.683816I$	$1.07726 + 2.17718I$	$-0.53151 - 1.42089I$
$u = -1.79107$ $a = 0.276801$ $b = -0.335027$	-4.73200	-13.1350
$u = 1.90466$ $a = -0.598131$ $b = -1.42394$	4.73200	13.1350

III. $I_3^u = \langle -a^3 + b - 4a - 1,\ a^4 + a^3 + 4a^2 + 4a + 1,\ u - 1\rangle$

(i) Arc colorings

$$a_1 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} a \\ a^3 + 4a + 1 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} a^3 + 4a + 1 \\ 2a^3 + 7a + 2 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 3a^3 + a^2 + 11a + 4 \\ 5a^3 + 2a^2 + 19a + 8 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 5a^3 + 2a^2 + 19a + 9 \\ 6a^3 + 2a^2 + 23a + 10 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -a^3 - 3a \\ -3a^3 - a^2 - 11a - 4 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -3a^3 - a^2 - 11a - 4 \\ -5a^3 - 2a^2 - 19a - 8 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -3a^3 - a^2 - 11a - 4 \\ -5a^3 - 2a^2 - 19a - 8 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -3a^3 - a^2 - 11a - 4 \\ -5a^3 - 2a^2 - 19a - 8 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_8	$y^4 - 5y^3 + 6y^2 - 4y + 1$
c_2, c_6	y^4
c_4	$y^4 + 2y^3 + 3y^2 - 14y + 1$
c_5, c_7, c_{10} c_{11}	$y^4 - y^3 - 2y^2 + 1$
c_9, c_{12}	$(y-1)^4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I^u_3	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -0.655786$ $b = -1.90517$	-1.64493	-6.00000
$u = 1.00000$ $a = -0.401572$ $b = -0.671044$	-1.64493	-6.00000
$u = 1.00000$ $a = 0.02868 + 1.94846I$ $b = 0.788105 + 0.401358I$	-1.64493	-6.00000
$u = 1.00000$ $a = 0.02868 - 1.94846I$ $b = 0.788105 - 0.401358I$	-1.64493	-6.00000

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

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 1.00000$ $a = -1.00000$ $b = -1.00000$	-1.64493	-6.00000

V. $\boldsymbol{I_5^u = \langle b^5 - 2b^4a + b^3a^2 - 3b^3 + 4b^2a - a^2b + b - a + 1,\ u - 1\rangle}$

(i) Arc colorings

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

(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_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \cdots$ $a = \cdots$ $b = \cdots$	0	0

VI. $I_1^v = \langle a,\ b^4 + b^3 - 1,\ v - 1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_4 c_8	$y^4 - y^3 - 2y^2 + 1$
c_2, c_6	$(y-1)^4$
c_5	$y^4 + 2y^3 + 3y^2 - 14y + 1$
c_7, c_{10}, c_{11}	$y^4 - 5y^3 + 6y^2 - 4y + 1$
c_9, c_{12}	y^4

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 1.00000$ $a = 0$ $b = -0.219447 + 0.914474I$	1.64493	6.00000
$v = 1.00000$ $a = 0$ $b = -0.219447 - 0.914474I$	1.64493	6.00000
$v = 1.00000$ $a = 0$ $b = 0.819173$	1.64493	6.00000
$v = 1.00000$ $a = 0$ $b = -1.38028$	1.64493	6.00000

VII. $I_2^v = \langle a,\ b-1,\ v-1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 6$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(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	1.64493	6.00000
$b =$	1.00000		

VIII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$16(u-1)^2(u^4-u^3-2u^2+1)(u^4+u^3-1)(u^{16}+4u^{15}+\cdots+3u+1)$ $\cdot\,(16u^{112}+8u^{111}+\cdots-57723u+15987)$
c_2	$u^5(u-1)^5(u^{16}-5u^{15}+\cdots+2u-1)$ $\cdot\,(u^{112}+9u^{111}+\cdots-90142u-1132)$
c_3	$16(u-1)(u+1)(u^4+u^3-1)(u^4+u^3-2u^2+1)(u^{16}-3u^{15}+\cdots-3u+1)$ $\cdot\,(16u^{112}-8u^{111}+\cdots-75u+75)$
c_4	$48(u)(u-1)(u^4+u^2+4u+1)(u^4+u^3-1)(u^{16}-4u^{15}+\cdots+4u+1)$ $\cdot\,(48u^{112}-48u^{111}+\cdots-1592u-64)$
c_5	$48(u)(u+1)(u^4+u^2-4u+1)(u^4-u^3-1)(u^{16}+4u^{15}+\cdots-4u+1)$ $\cdot\,(48u^{112}+48u^{111}+\cdots+1592u-64)$
c_6	$u^5(u-1)^5(u^{16}+5u^{15}+\cdots-2u-1)$ $\cdot\,(u^{112}+9u^{111}+\cdots-90142u-1132)$
c_7	$16(u-1)(u+1)(u^4-u^3-1)(u^4-u^3-2u^2+1)(u^{16}+3u^{15}+\cdots+3u+1)$ $\cdot\,(16u^{112}+8u^{111}+\cdots+75u+75)$
c_8	$16(u-1)(u+1)(u^4+u^3-1)(u^4+u^3-2u^2+1)(u^{16}+3u^{15}+\cdots+3u+1)$ $\cdot\,(16u^{112}-8u^{111}+\cdots-75u+75)$
c_9	$u^5(u+1)^5(u^{16}+5u^{15}+\cdots-2u-1)$ $\cdot\,(u^{112}-9u^{111}+\cdots+90142u-1132)$
c_{10}	$16(u+1)^2(u^4-u^3-1)(u^4+u^3-2u^2+1)(u^{16}-4u^{15}+\cdots-3u+1)$ $\cdot\,(16u^{112}-8u^{111}+\cdots+57723u+15987)$
c_{11}	$16(u-1)(u+1)(u^4-u^3-1)(u^4-u^3-2u^2+1)(u^{16}-3u^{15}+\cdots-3u+1)$ $\cdot\,(16u^{112}+8u^{111}+\cdots+75u+75)$
c_{12}	$u^5(u+1)^5(u^{16}-5u^{15}+\cdots+2u-1)$ $\cdot\,(u^{112}-9u^{111}+\cdots+90142u-1132)$

IX. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_{10}	$256(y-1)^2(y^4-5y^3+6y^2-4y+1)(y^4-y^3-2y^2+1)$ $\cdot\,(y^{16}-10y^{15}+\cdots-13y+1)$ $\cdot\,(256y^{112}-5152y^{111}+\cdots-13093319163y+255584169)$
c_2, c_6, c_9 c_{12}	$y^5(y-1)^5(y^{16}-11y^{15}+\cdots-8y+1)$ $\cdot\,(y^{112}-75y^{111}+\cdots-5045677580y+1281424)$
c_3, c_7, c_8 c_{11}	$256(y-1)^2(y^4-5y^3+6y^2-4y+1)(y^4-y^3-2y^2+1)$ $\cdot\,(y^{16}-19y^{15}+\cdots-23y+1)$ $\cdot\,(256y^{112}-16672y^{111}+\cdots-439725y+5625)$
c_4, c_5	$2304y(y-1)(y^4-y^3-2y^2+1)(y^4+2y^3+3y^2-14y+1)$ $\cdot\,(y^{16}-8y^{15}+\cdots-6y+1)$ $\cdot\,(2304y^{112}-11424y^{111}+\cdots-1092032y+4096)$