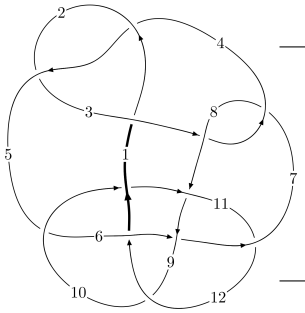
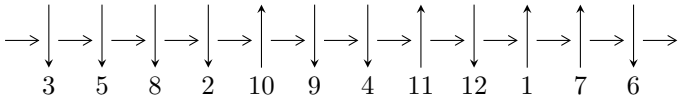
$12a_{0088}$ $(K12a_{0088})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 3.50265 \times 10^{167} u^{75} + 1.62291 \times 10^{168} u^{74} + \cdots + 2.17923 \times 10^{168} b - 2.92816 \times 10^{168},$$
$$1.34711 \times 10^{170} u^{75} + 3.31466 \times 10^{170} u^{74} + \cdots + 5.57883 \times 10^{170} a + 2.14734 \times 10^{172},$$
$$u^{76} + 5u^{75} + \cdots - 1504u - 256 \rangle$$

$$I_2^u = \langle 5.40539 \times 10^{57} a u^{53} + 5.21405 \times 10^{57} u^{53} + \cdots + 2.28078 \times 10^{59} a + 9.87330 \times 10^{58},$$
$$2.49928 \times 10^{59} a u^{53} + 5.44370 \times 10^{58} u^{53} + \cdots - 9.46034 \times 10^{59} a + 3.73776 \times 10^{60},\ u^{54} - 2u^{53} + \cdots - 36u +$$

$$I_3^u = \langle 768246826 u^{22} - 1643416610 u^{21} + \cdots + 219374557 b + 473494586,$$
$$99816722 u^{22} + 500697163 u^{21} + \cdots + 219374557 a + 85184191,\ u^{23} - 2u^{22} + \cdots + u - 1 \rangle$$

$$I_4^u = \langle -u^2 a + b + 1,\ -4u^2 a + a^2 - 2au + 8u^2 - 5a + 3u + 15,\ u^3 + u^2 + 2u + 1 \rangle$$

$$I_1^v = \langle a,\ 16v^3 - 48v^2 + b + 51v - 13,\ 4v^4 - 13v^3 + 16v^2 - 7v + 1 \rangle$$

$$I_2^v = \langle a,\ b^2 - bv + v^2 - b + 2v + 2,\ v^3 + 2v^2 + 3v + 1 \rangle$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 223 representations.

[1]The image of knot diagram is generated by the software "**Draw programme**" developed by Andrew Bartholomew(`http://www.layer8.co.uk/maths/draw/index.htm#Running-draw`), where we modified some parts for our purpose(`https://github.com/CATsTAILs/LinksPainter`).

[2]All coefficients of polynomials are rational numbers. But the coefficients are sometimes approximated in decimal forms when there is not enough margin.

I. $\boldsymbol{I_1^u = \langle 3.50 \times 10^{167} u^{75} + 1.62 \times 10^{168} u^{74} + \cdots + 2.18 \times 10^{168} b - 2.93 \times 10^{168},\ 1.35 \times 10^{170} u^{75} + 3.31 \times 10^{170} u^{74} + \cdots + 5.58 \times 10^{170} a + 2.15 \times 10^{172},\ u^{76} + 5u^{75} + \cdots - 1504u - 256 \rangle}$

(i) Arc colorings

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

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

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

$$a_{11} = \begin{pmatrix} -0.241468u^{75} - 0.594150u^{74} + \cdots - 211.857u - 38.4908 \\ -0.160728u^{75} - 0.744715u^{74} + \cdots + 69.1978u + 1.34366 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.429938u^{75} + 2.37634u^{74} + \cdots - 882.782u - 147.812 \\ -0.499536u^{75} - 2.13504u^{74} + \cdots + 443.772u + 61.6431 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.402196u^{75} - 1.33887u^{74} + \cdots - 142.659u - 37.1472 \\ -0.160728u^{75} - 0.744715u^{74} + \cdots + 69.1978u + 1.34366 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.249605u^{75} - 1.21879u^{74} + \cdots + 592.443u + 125.818 \\ -0.221325u^{75} - 1.11335u^{74} + \cdots + 502.440u + 98.4113 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -0.0578480u^{75} - 0.146509u^{74} + \cdots - 107.825u - 25.7212 \\ 0.212028u^{75} + 0.991418u^{74} + \cdots - 455.593u - 89.2052 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.449045u^{75} - 1.77037u^{74} + \cdots + 239.294u + 44.5157 \\ 0.126005u^{75} + 0.424987u^{74} + \cdots - 38.9179u + 13.2441 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.0856491u^{75} - 0.525662u^{74} + \cdots + 361.435u + 92.6534 \\ 0.762094u^{75} + 3.29215u^{74} + \cdots - 684.443u - 85.1196 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.627609u^{75} - 2.95001u^{74} + \cdots + 877.437u + 152.834 \\ -0.178564u^{75} - 1.17964u^{74} + \cdots + 638.143u + 108.319 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.630979u^{75} + 1.28928u^{74} + \cdots + 1959.31u + 521.805$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{76} + 41u^{75} + \cdots + 2881u + 256$
c_2, c_4	$u^{76} - 7u^{75} + \cdots + 47u - 16$
c_3, c_7	$u^{76} + 5u^{75} + \cdots - 1504u - 256$
c_5, c_{11}	$u^{76} + 8u^{74} + \cdots + 9u + 1$
c_6, c_{12}	$u^{76} - u^{75} + \cdots + 39u^2 + 1$
c_8, c_{10}	$u^{76} - 12u^{75} + \cdots + 133u + 1$
c_9	$u^{76} - 41u^{75} + \cdots - 60u + 4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{76} - 5y^{75} + \cdots + 3372927y + 65536$
c_2, c_4	$y^{76} - 41y^{75} + \cdots - 2881y + 256$
c_3, c_7	$y^{76} + 27y^{75} + \cdots + 429056y + 65536$
c_5, c_{11}	$y^{76} + 16y^{75} + \cdots + 3y + 1$
c_6, c_{12}	$y^{76} + 33y^{75} + \cdots + 78y + 1$
c_8, c_{10}	$y^{76} - 32y^{75} + \cdots - 14137y + 1$
c_9	$y^{76} - y^{75} + \cdots - 2152y + 16$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.549536+0.837058I$ $a=\ \ 0.845110-0.407169I$ $b=-0.178093-0.944673I$	$-0.70430+2.22063I$	$-4.00000-2.40787I$
$u=-0.549536-0.837058I$ $a=\ \ 0.845110+0.407169I$ $b=-0.178093+0.944673I$	$-0.70430-2.22063I$	$-4.00000+2.40787I$
$u=-0.534703+0.821833I$ $a=-2.35677+1.04410I$ $b=\ \ 0.843511+0.558212I$	$-1.29584+3.21450I$	$0.-6.87712I$
$u=-0.534703-0.821833I$ $a=-2.35677-1.04410I$ $b=\ \ 0.843511-0.558212I$	$-1.29584-3.21450I$	$0.+6.87712I$
$u=\ \ 0.759718+0.688270I$ $a=\ \ 0.935380+0.629384I$ $b=\ \ 0.043562+0.961316I$	$-4.35465+1.27364I$	$-11.13502+0.I$
$u=\ \ 0.759718-0.688270I$ $a=\ \ 0.935380-0.629384I$ $b=\ \ 0.043562-0.961316I$	$-4.35465-1.27364I$	$-11.13502+0.I$
$u=-0.543650+0.875704I$ $a=\ \ 0.605225+0.025956I$ $b=-0.802405+0.766317I$	$-1.11422+1.13570I$	0
$u=-0.543650-0.875704I$ $a=\ \ 0.605225-0.025956I$ $b=-0.802405-0.766317I$	$-1.11422-1.13570I$	0
$u=-0.322297+0.995461I$ $a=-1.81898+0.11870I$ $b=\ \ 0.34869+1.43027I$	$3.50146+1.04648I$	0
$u=-0.322297-0.995461I$ $a=-1.81898-0.11870I$ $b=\ \ 0.34869-1.43027I$	$3.50146-1.04648I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.249573 + 1.025490I$ $a = -1.02779 - 1.02684I$ $b = 0.671426 + 1.086410I$	$3.74651 - 0.84202I$	0
$u = 0.249573 - 1.025490I$ $a = -1.02779 + 1.02684I$ $b = 0.671426 - 1.086410I$	$3.74651 + 0.84202I$	0
$u = -0.942865 + 0.574311I$ $a = 0.549283 - 0.089509I$ $b = -0.906887 + 0.543363I$	$-0.77364 - 5.79215I$	0
$u = -0.942865 - 0.574311I$ $a = 0.549283 + 0.089509I$ $b = -0.906887 - 0.543363I$	$-0.77364 + 5.79215I$	0
$u = 1.048700 + 0.401936I$ $a = 0.024944 + 0.209686I$ $b = 0.92021 + 1.12910I$	$-0.42875 + 9.40339I$	0
$u = 1.048700 - 0.401936I$ $a = 0.024944 - 0.209686I$ $b = 0.92021 - 1.12910I$	$-0.42875 - 9.40339I$	0
$u = -0.870102 + 0.778626I$ $a = -0.051774 + 0.644784I$ $b = -0.087691 + 0.221674I$	$-1.14182 - 1.42017I$	0
$u = -0.870102 - 0.778626I$ $a = -0.051774 - 0.644784I$ $b = -0.087691 - 0.221674I$	$-1.14182 + 1.42017I$	0
$u = -0.545284 + 1.039170I$ $a = 2.19429 - 0.30840I$ $b = -0.92575 - 1.21687I$	$-3.30756 + 11.46430I$	0
$u = -0.545284 - 1.039170I$ $a = 2.19429 + 0.30840I$ $b = -0.92575 + 1.21687I$	$-3.30756 - 11.46430I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.167100 + 0.155073I$ $a = 0.043810 - 0.223231I$ $b = 0.839575 - 0.688649I$	$0.51141 - 6.92640I$	0
$u = 1.167100 - 0.155073I$ $a = 0.043810 + 0.223231I$ $b = 0.839575 + 0.688649I$	$0.51141 + 6.92640I$	0
$u = 0.148668 + 1.178760I$ $a = -1.46069 - 0.70930I$ $b = 0.769528 + 0.092030I$	$6.21669 - 0.96301I$	0
$u = 0.148668 - 1.178760I$ $a = -1.46069 + 0.70930I$ $b = 0.769528 - 0.092030I$	$6.21669 + 0.96301I$	0
$u = 0.674334 + 0.448142I$ $a = -1.35043 - 2.51371I$ $b = -0.110418 - 1.345250I$	$-0.288936 + 0.954845I$	$-3.45501 - 0.61503I$
$u = 0.674334 - 0.448142I$ $a = -1.35043 + 2.51371I$ $b = -0.110418 + 1.345250I$	$-0.288936 - 0.954845I$	$-3.45501 + 0.61503I$
$u = 0.090164 + 1.190440I$ $a = -1.73541 + 0.36304I$ $b = 0.873499 - 0.228563I$	$6.33414 - 4.20661I$	0
$u = 0.090164 - 1.190440I$ $a = -1.73541 - 0.36304I$ $b = 0.873499 + 0.228563I$	$6.33414 + 4.20661I$	0
$u = 0.671344 + 0.990709I$ $a = 0.733082 + 0.470181I$ $b = -0.165628 + 1.094830I$	$-3.41824 - 6.71246I$	0
$u = 0.671344 - 0.990709I$ $a = 0.733082 - 0.470181I$ $b = -0.165628 - 1.094830I$	$-3.41824 + 6.71246I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.513328+1.083880I$ $a=-0.552384+0.890997I$ $b=\ \ 0.875161-0.948192I$	$2.06843+5.63444I$	0
$u=-0.513328-1.083880I$ $a=-0.552384-0.890997I$ $b=\ \ 0.875161+0.948192I$	$2.06843-5.63444I$	0
$u=\ \ 0.574053+1.067600I$ $a=-1.42494-0.53905I$ $b=\ \ 0.26031-1.60832I$	$1.52029-5.80875I$	0
$u=\ \ 0.574053-1.067600I$ $a=-1.42494+0.53905I$ $b=\ \ 0.26031+1.60832I$	$1.52029+5.80875I$	0
$u=-0.287591+1.179520I$ $a=\ \ 0.483184-0.893572I$ $b=-0.732134+0.541466I$	$-1.84706-4.49374I$	0
$u=-0.287591-1.179520I$ $a=\ \ 0.483184+0.893572I$ $b=-0.732134-0.541466I$	$-1.84706+4.49374I$	0
$u=\ \ 0.690543+0.999672I$ $a=-0.589202-0.783524I$ $b=\ \ 0.301551-0.247279I$	$2.88500-2.68678I$	0
$u=\ \ 0.690543-0.999672I$ $a=-0.589202+0.783524I$ $b=\ \ 0.301551+0.247279I$	$2.88500+2.68678I$	0
$u=-0.699409+0.350504I$ $a=\ \ 1.60704-0.79835I$ $b=-0.493017-0.809392I$	$-0.142387-1.055050I$	$-3.33641+2.59143I$
$u=-0.699409-0.350504I$ $a=\ \ 1.60704+0.79835I$ $b=-0.493017+0.809392I$	$-0.142387+1.055050I$	$-3.33641-2.59143I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.515478+0.580446I$ $a=\ 0.032805-0.203339I$ $b=\ 0.66210-1.25035I$	$-4.78300-7.06905I$	$-7.80289-1.26591I$
$u=-0.515478-0.580446I$ $a=\ 0.032805+0.203339I$ $b=\ 0.66210+1.25035I$	$-4.78300+7.06905I$	$-7.80289+1.26591I$
$u=\ 0.570610+1.085870I$ $a=-1.79848-0.58609I$ $b=\ 0.971934-0.503577I$	$3.56430-6.64037I$	0
$u=\ 0.570610-1.085870I$ $a=-1.79848+0.58609I$ $b=\ 0.971934+0.503577I$	$3.56430+6.64037I$	0
$u=\ 0.710587+0.275739I$ $a=\ 0.647280+0.156114I$ $b=-0.724323-0.488591I$	$1.39169+1.83140I$	$2.48492-3.08758I$
$u=\ 0.710587-0.275739I$ $a=\ 0.647280-0.156114I$ $b=-0.724323+0.488591I$	$1.39169-1.83140I$	$2.48492+3.08758I$
$u=-0.005633+0.749278I$ $a=\ 0.759884-0.112506I$ $b=-0.535024-0.788844I$	$0.58588+2.17509I$	$0.99878-4.48209I$
$u=-0.005633-0.749278I$ $a=\ 0.759884+0.112506I$ $b=-0.535024+0.788844I$	$0.58588-2.17509I$	$0.99878+4.48209I$
$u=-1.096060+0.618310I$ $a=\ 0.021905-0.204802I$ $b=\ 0.96307-1.25920I$	$-2.6086-14.3887I$	0
$u=-1.096060-0.618310I$ $a=\ 0.021905+0.204802I$ $b=\ 0.96307+1.25920I$	$-2.6086+14.3887I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.241380+0.326765I$ $a=\ 0.092812+0.222898I$ $b=\ 0.752664+0.357810I$	$-0.52408+1.59823I$	0
$u=-1.241380-0.326765I$ $a=\ 0.092812-0.222898I$ $b=\ 0.752664-0.357810I$	$-0.52408-1.59823I$	0
$u=-0.712245+1.112630I$ $a=-1.57891+0.72399I$ $b=\ 1.020770+0.563999I$	$0.91919+11.86730I$	0
$u=-0.712245-1.112630I$ $a=-1.57891-0.72399I$ $b=\ 1.020770-0.563999I$	$0.91919-11.86730I$	0
$u=\ 0.664498+0.126009I$ $a=\ 0.761790-0.349521I$ $b=-0.534517+0.389943I$	$1.53863-1.56496I$	$2.77557+5.59966I$
$u=\ 0.664498-0.126009I$ $a=\ 0.761790+0.349521I$ $b=-0.534517-0.389943I$	$1.53863+1.56496I$	$2.77557-5.59966I$
$u=-0.448393+0.486769I$ $a=\ 0.037563+0.208706I$ $b=\ 0.427971+1.046490I$	$-4.52487+8.10749I$	$-9.9914-16.1587I$
$u=-0.448393-0.486769I$ $a=\ 0.037563-0.208706I$ $b=\ 0.427971-1.046490I$	$-4.52487-8.10749I$	$-9.9914+16.1587I$
$u=-0.806382+1.072400I$ $a=-0.651665+0.578005I$ $b=\ 0.302382+0.451184I$	$-0.25078+7.82050I$	0
$u=-0.806382-1.072400I$ $a=-0.651665-0.578005I$ $b=\ 0.302382-0.451184I$	$-0.25078-7.82050I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.581027+1.227070I$ $a=\ \ 0.711403-0.432566I$ $b=-1.065000-0.075580I$	$2.89056+4.52244I$	0
$u=-0.581027-1.227070I$ $a=\ \ 0.711403+0.432566I$ $b=-1.065000+0.075580I$	$2.89056-4.52244I$	0
$u=\ \ 0.411624+1.304930I$ $a=\ \ 0.682737+0.476482I$ $b=-1.009490-0.186740I$	$4.80206+1.17927I$	0
$u=\ \ 0.411624-1.304930I$ $a=\ \ 0.682737-0.476482I$ $b=-1.009490+0.186740I$	$4.80206-1.17927I$	0
$u=\ \ 0.669960+1.194300I$ $a=\ \ 1.72554+0.41974I$ $b=-1.02542+1.29041I$	$2.0692-15.5390I$	0
$u=\ \ 0.669960-1.194300I$ $a=\ \ 1.72554-0.41974I$ $b=-1.02542-1.29041I$	$2.0692+15.5390I$	0
$u=-0.361514+0.505095I$ $a=\ \ 0.80173+3.10297I$ $b=\ \ 0.404732-0.566973I$	$-0.585059-0.657581I$	$-1.22456-4.09128I$
$u=-0.361514-0.505095I$ $a=\ \ 0.80173-3.10297I$ $b=\ \ 0.404732+0.566973I$	$-0.585059+0.657581I$	$-1.22456+4.09128I$
$u=-0.016174+1.400090I$ $a=\ \ 1.148900+0.537673I$ $b=-1.129950-0.781701I$	$6.69611+5.81599I$	0
$u=-0.016174-1.400090I$ $a=\ \ 1.148900-0.537673I$ $b=-1.129950+0.781701I$	$6.69611-5.81599I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.217621 + 1.385380I$ $a = 1.38478 - 0.35279I$ $b = -1.13894 + 0.96013I$	$6.25917 - 11.81910I$	0
$u = 0.217621 - 1.385380I$ $a = 1.38478 + 0.35279I$ $b = -1.13894 - 0.96013I$	$6.25917 + 11.81910I$	0
$u = -0.784462 + 1.172880I$ $a = 1.63321 - 0.61623I$ $b = -1.01050 - 1.36256I$	$-0.8005 + 21.1725I$	0
$u = -0.784462 - 1.172880I$ $a = 1.63321 + 0.61623I$ $b = -1.01050 + 1.36256I$	$-0.8005 - 21.1725I$	0
$u = -0.580251$ $a = 0.875154$ $b = 0.303114$	-1.10369	-8.83920
$u = 1.69710$ $a = 0.0860815$ $b = 0.341992$	-10.2758	0

II. $I_2^u = \langle 5.41\times10^{57}au^{53} + 5.21\times10^{57}u^{53} + \cdots + 2.28\times10^{59}a + 9.87\times10^{58},\ 2.50\times10^{59}au^{53} + 5.44\times10^{58}u^{53} + \cdots - 9.46\times10^{59}a + 3.74\times10^{60},\ u^{54} - 2u^{53} + \cdots - 36u + 8\rangle$

(i) Arc colorings

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

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

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

$$a_{11} = \begin{pmatrix} a \\ -0.458633au^{53} - 0.442398u^{53} + \cdots - 19.3518a - 8.37724 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 2.27949au^{53} - 2.11457u^{53} + \cdots + 7.43511a + 28.2829 \\ 1.87139au^{53} - 0.860803u^{53} + \cdots - 1.82953a + 4.71620 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.458633au^{53} - 0.442398u^{53} + \cdots - 18.3518a - 8.37724 \\ -0.458633au^{53} - 0.442398u^{53} + \cdots - 19.3518a - 8.37724 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1.37832au^{53} - 1.40854u^{53} + \cdots + 34.5330a - 6.74800 \\ 2.23912au^{53} - 0.154776u^{53} + \cdots + 29.8168a - 30.3147 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} 0.730020au^{53} - 2.75574u^{53} + \cdots - 13.5603a + 44.1083 \\ -1.84049au^{53} + 2.57051u^{53} + \cdots - 28.0074a + 14.4472 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1.75778u^{53} + 1.27837u^{52} + \cdots + 33.8023u - 15.5886 \\ -0.860803u^{53} + 1.49544u^{52} + \cdots - 25.3987u + 3.71620 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -1.43663u^{53} + 1.00275u^{52} + \cdots + 24.6995u - 12.0758 \\ -0.583121u^{53} + 1.21655u^{52} + \cdots - 23.8703u + 4.29557 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.838088u^{53} + 1.23708u^{52} + \cdots - 7.27521u - 1.40738 \\ 0.919688u^{53} - 0.0412944u^{52} + \cdots - 41.0775u + 14.1812 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -1.77654u^{53} - 8.12192u^{52} + \cdots + 368.132u - 110.252$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{54}+27u^{53}+\cdots+13u+1)^2$
c_2	$(u^{54}-5u^{53}+\cdots-9u+1)^2$
c_3	$(u^{54}-2u^{53}+\cdots-36u+8)^2$
c_4	$(u^{54}+5u^{53}+\cdots+9u+1)^2$
c_5	$u^{108}-5u^{107}+\cdots+132577u+8777$
c_6	$u^{108}-9u^{107}+\cdots-9u+1$
c_7	$(u^{54}+2u^{53}+\cdots+36u+8)^2$
c_8	$u^{108}+8u^{107}+\cdots+23502u+2087$
c_9	$(u^{54}+26u^{53}+\cdots+4u+8)^2$
c_{10}	$u^{108}-8u^{107}+\cdots-23502u+2087$
c_{11}	$u^{108}+5u^{107}+\cdots-132577u+8777$
c_{12}	$u^{108}+9u^{107}+\cdots+9u+1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{54}+5y^{53}+\cdots-29y+1)^2$
c_2, c_4	$(y^{54}-27y^{53}+\cdots-13y+1)^2$
c_3, c_7	$(y^{54}+24y^{53}+\cdots+560y+64)^2$
c_5, c_{11}	$y^{108}+7y^{107}+\cdots+4652443229y+77035729$
c_6, c_{12}	$y^{108}-25y^{107}+\cdots+13y+1$
c_8, c_{10}	$y^{108}+36y^{107}+\cdots-214112262y+4355569$
c_9	$(y^{54}-8y^{53}+\cdots-1552y+64)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.779920+0.570390I$ $a=-0.546537-0.411913I$ $b=-1.14839+1.23174I$	$-4.00101-5.38237I$	$-10.98553+6.99111I$
$u=-0.779920+0.570390I$ $a=\ \ 2.18669-1.50175I$ $b=\ \ 0.066826-0.680570I$	$-4.00101-5.38237I$	$-10.98553+6.99111I$
$u=-0.779920-0.570390I$ $a=-0.546537+0.411913I$ $b=-1.14839-1.23174I$	$-4.00101+5.38237I$	$-10.98553-6.99111I$
$u=-0.779920-0.570390I$ $a=\ \ 2.18669+1.50175I$ $b=\ \ 0.066826+0.680570I$	$-4.00101+5.38237I$	$-10.98553-6.99111I$
$u=\ \ 0.757774+0.710612I$ $a=\ \ 1.120360+0.276815I$ $b=\ \ 0.019976+1.052380I$	$-4.34597+1.29421I$	$-11.39281-0.62282I$
$u=\ \ 0.757774+0.710612I$ $a=\ \ 0.801891+0.977290I$ $b=-0.001869+0.958331I$	$-4.34597+1.29421I$	$-11.39281-0.62282I$
$u=\ \ 0.757774-0.710612I$ $a=\ \ 1.120360-0.276815I$ $b=\ \ 0.019976-1.052380I$	$-4.34597-1.29421I$	$-11.39281+0.62282I$
$u=\ \ 0.757774-0.710612I$ $a=\ \ 0.801891-0.977290I$ $b=-0.001869-0.958331I$	$-4.34597-1.29421I$	$-11.39281+0.62282I$
$u=-0.096612+0.955980I$ $a=\ \ 0.442956+0.941110I$ $b=-0.374086+1.012740I$	$1.05179-4.60277I$	$0.63962+8.77941I$
$u=-0.096612+0.955980I$ $a=-1.81719+1.39132I$ $b=\ \ 1.52214-0.66718I$	$1.05179-4.60277I$	$0.63962+8.77941I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.096612-0.955980I$ $a=\ \ 0.442956-0.941110I$ $b=-0.374086-1.012740I$	$1.05179+4.60277I$	$0.63962-8.77941I$
$u=-0.096612-0.955980I$ $a=-1.81719-1.39132I$ $b=\ \ 1.52214+0.66718I$	$1.05179+4.60277I$	$0.63962-8.77941I$
$u=\ \ 0.952377+0.432650I$ $a=\ \ 0.164151-1.210680I$ $b=\ \ 1.61972-0.49258I$	$-0.44506+5.91935I$	$-0.51840-8.32205I$
$u=\ \ 0.952377+0.432650I$ $a=\ \ 0.525169-0.136759I$ $b=-0.664923-0.908885I$	$-0.44506+5.91935I$	$-0.51840-8.32205I$
$u=\ \ 0.952377-0.432650I$ $a=\ \ 0.164151+1.210680I$ $b=\ \ 1.61972+0.49258I$	$-0.44506-5.91935I$	$-0.51840+8.32205I$
$u=\ \ 0.952377-0.432650I$ $a=\ \ 0.525169+0.136759I$ $b=-0.664923+0.908885I$	$-0.44506-5.91935I$	$-0.51840+8.32205I$
$u=\ \ 0.455169+0.961144I$ $a=-0.365363+1.102460I$ $b=-0.081873+0.843018I$	$-0.12183-5.97761I$	$-4.00000+8.19191I$
$u=\ \ 0.455169+0.961144I$ $a=-2.42444-0.34562I$ $b=\ \ 1.33653-1.18106I$	$-0.12183-5.97761I$	$-4.00000+8.19191I$
$u=\ \ 0.455169-0.961144I$ $a=-0.365363-1.102460I$ $b=-0.081873-0.843018I$	$-0.12183+5.97761I$	$-4.00000-8.19191I$
$u=\ \ 0.455169-0.961144I$ $a=-2.42444+0.34562I$ $b=\ \ 1.33653+1.18106I$	$-0.12183+5.97761I$	$-4.00000-8.19191I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.569426+0.734780I$ $a=\ \ 0.610216+0.018160I$ $b=-0.151643-1.078860I$	$-0.80723+2.33552I$	$-5.88993-3.53014I$
$u=-0.569426+0.734780I$ $a=\ \ 1.14217-0.86449I$ $b=\ \ 0.103486-0.822957I$	$-0.80723+2.33552I$	$-5.88993-3.53014I$
$u=-0.569426-0.734780I$ $a=\ \ 0.610216-0.018160I$ $b=-0.151643+1.078860I$	$-0.80723-2.33552I$	$-5.88993+3.53014I$
$u=-0.569426-0.734780I$ $a=\ \ 1.14217+0.86449I$ $b=\ \ 0.103486+0.822957I$	$-0.80723-2.33552I$	$-5.88993+3.53014I$
$u=\ \ 0.455009+0.987507I$ $a=\ \ 0.500230-0.558620I$ $b=-0.508840-1.095180I$	$-0.249845+0.317495I$	$-1.32073-1.40260I$
$u=\ \ 0.455009+0.987507I$ $a=-0.89712-1.38052I$ $b=\ \ 1.73704+0.33821I$	$-0.249845+0.317495I$	$-1.32073-1.40260I$
$u=\ \ 0.455009-0.987507I$ $a=\ \ 0.500230+0.558620I$ $b=-0.508840+1.095180I$	$-0.249845-0.317495I$	$-1.32073+1.40260I$
$u=\ \ 0.455009-0.987507I$ $a=-0.89712+1.38052I$ $b=\ \ 1.73704-0.33821I$	$-0.249845-0.317495I$	$-1.32073+1.40260I$
$u=-0.644738+0.638414I$ $a=-1.15005-1.14919I$ $b=-0.063925-0.543421I$	$-4.17995+3.05166I$	$-11.84908-5.39236I$
$u=-0.644738+0.638414I$ $a=-2.69152+1.94111I$ $b=\ \ 1.01017+1.26228I$	$-4.17995+3.05166I$	$-11.84908-5.39236I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.644738-0.638414I$ $a=-1.15005+1.14919I$ $b=-0.063925+0.543421I$	$-4.17995-3.05166I$	$-11.84908+5.39236I$
$u=-0.644738-0.638414I$ $a=-2.69152-1.94111I$ $b=1.01017-1.26228I$	$-4.17995-3.05166I$	$-11.84908+5.39236I$
$u=-0.898521+0.000623I$ $a=0.606239+1.114270I$ $b=1.23475+0.82345I$	$0.66383-1.91540I$	$1.02934+3.88232I$
$u=-0.898521+0.000623I$ $a=0.536412-0.025774I$ $b=-0.535058+0.806364I$	$0.66383-1.91540I$	$1.02934+3.88232I$
$u=-0.898521-0.000623I$ $a=0.606239-1.114270I$ $b=1.23475-0.82345I$	$0.66383+1.91540I$	$1.02934-3.88232I$
$u=-0.898521-0.000623I$ $a=0.536412+0.025774I$ $b=-0.535058-0.806364I$	$0.66383+1.91540I$	$1.02934-3.88232I$
$u=-1.058910+0.331265I$ $a=0.321241-0.092722I$ $b=0.912601-0.910871I$	$-2.20953-1.16569I$	$-10.93449+2.51536I$
$u=-1.058910+0.331265I$ $a=0.264198+0.040376I$ $b=0.005058+0.590723I$	$-2.20953-1.16569I$	$-10.93449+2.51536I$
$u=-1.058910-0.331265I$ $a=0.321241+0.092722I$ $b=0.912601+0.910871I$	$-2.20953+1.16569I$	$-10.93449-2.51536I$
$u=-1.058910-0.331265I$ $a=0.264198-0.040376I$ $b=0.005058-0.590723I$	$-2.20953+1.16569I$	$-10.93449-2.51536I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.593455+0.981746I$ $a=-0.119753-0.293048I$ $b=-0.90054+1.52672I$	$-3.14034+1.80316I$	$-8.88688+0.I$
$u=-0.593455+0.981746I$ $a=\ \ 1.79119-0.43016I$ $b=-0.211247-0.403872I$	$-3.14034+1.80316I$	$-8.88688+0.I$
$u=-0.593455-0.981746I$ $a=-0.119753+0.293048I$ $b=-0.90054-1.52672I$	$-3.14034-1.80316I$	$-8.88688+0.I$
$u=-0.593455-0.981746I$ $a=\ \ 1.79119+0.43016I$ $b=-0.211247+0.403872I$	$-3.14034-1.80316I$	$-8.88688+0.I$
$u=\ \ 0.500064+1.038010I$ $a=-1.210770+0.466175I$ $b=\ \ 0.130321-0.706851I$	$-4.95586-3.24816I$	$-10.98398+5.99558I$
$u=\ \ 0.500064+1.038010I$ $a=\ \ 1.89780+0.13802I$ $b=-0.92533+1.13551I$	$-4.95586-3.24816I$	$-10.98398+5.99558I$
$u=\ \ 0.500064-1.038010I$ $a=-1.210770-0.466175I$ $b=\ \ 0.130321+0.706851I$	$-4.95586+3.24816I$	$-10.98398-5.99558I$
$u=\ \ 0.500064-1.038010I$ $a=\ \ 1.89780-0.13802I$ $b=-0.92533-1.13551I$	$-4.95586+3.24816I$	$-10.98398-5.99558I$
$u=\ \ 0.369166+0.762326I$ $a=\ \ 0.054840+0.518456I$ $b=-0.76552-1.30977I$	$-0.87009+2.42239I$	$-5.58442-1.37916I$
$u=\ \ 0.369166+0.762326I$ $a=\ \ 2.34391-0.03059I$ $b=\ \ 0.052646+0.249590I$	$-0.87009+2.42239I$	$-5.58442-1.37916I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.369166 - 0.762326I$ $a = 0.054840 - 0.518456I$ $b = -0.76552 + 1.30977I$	$-0.87009 - 2.42239I$	$-5.58442 + 1.37916I$
$u = 0.369166 - 0.762326I$ $a = 2.34391 + 0.03059I$ $b = 0.052646 - 0.249590I$	$-0.87009 - 2.42239I$	$-5.58442 + 1.37916I$
$u = 0.294834 + 0.782948I$ $a = 1.68203 + 2.22690I$ $b = -1.37054 - 0.47532I$	$-1.29037 - 3.59873I$	$0.83433 + 8.18799I$
$u = 0.294834 + 0.782948I$ $a = -3.57533 + 0.73898I$ $b = 0.593015 - 0.902081I$	$-1.29037 - 3.59873I$	$0.83433 + 8.18799I$
$u = 0.294834 - 0.782948I$ $a = 1.68203 - 2.22690I$ $b = -1.37054 + 0.47532I$	$-1.29037 + 3.59873I$	$0.83433 - 8.18799I$
$u = 0.294834 - 0.782948I$ $a = -3.57533 - 0.73898I$ $b = 0.593015 + 0.902081I$	$-1.29037 + 3.59873I$	$0.83433 - 8.18799I$
$u = 0.646249 + 0.980172I$ $a = 1.084690 + 0.681880I$ $b = -0.181695 + 0.835391I$	$-3.48158 - 6.62830I$	0
$u = 0.646249 + 0.980172I$ $a = 0.413024 + 0.182955I$ $b = -0.004625 + 1.236960I$	$-3.48158 - 6.62830I$	0
$u = 0.646249 - 0.980172I$ $a = 1.084690 - 0.681880I$ $b = -0.181695 - 0.835391I$	$-3.48158 + 6.62830I$	0
$u = 0.646249 - 0.980172I$ $a = 0.413024 - 0.182955I$ $b = -0.004625 - 1.236960I$	$-3.48158 + 6.62830I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.451052 + 0.617789I$ $a = 0.265713 + 0.095410I$ $b = 0.444907 + 1.288670I$	$-6.36701 - 0.76274I$	$-10.03524 + 6.11129I$
$u = 0.451052 + 0.617789I$ $a = 0.252945 - 0.068814I$ $b = 0.054706 - 1.116220I$	$-6.36701 - 0.76274I$	$-10.03524 + 6.11129I$
$u = 0.451052 - 0.617789I$ $a = 0.265713 - 0.095410I$ $b = 0.444907 - 1.288670I$	$-6.36701 + 0.76274I$	$-10.03524 - 6.11129I$
$u = 0.451052 - 0.617789I$ $a = 0.252945 + 0.068814I$ $b = 0.054706 + 1.116220I$	$-6.36701 + 0.76274I$	$-10.03524 - 6.11129I$
$u = -0.641738 + 1.056980I$ $a = -0.471302 - 0.849262I$ $b = 0.069476 - 0.851789I$	$-2.50992 + 10.76960I$	0
$u = -0.641738 + 1.056980I$ $a = -1.92569 + 0.64152I$ $b = 1.36326 + 1.36762I$	$-2.50992 + 10.76960I$	0
$u = -0.641738 - 1.056980I$ $a = -0.471302 + 0.849262I$ $b = 0.069476 + 0.851789I$	$-2.50992 - 10.76960I$	0
$u = -0.641738 - 1.056980I$ $a = -1.92569 - 0.64152I$ $b = 1.36326 - 1.36762I$	$-2.50992 - 10.76960I$	0
$u = 1.102160 + 0.586805I$ $a = 0.307854 + 0.128871I$ $b = 1.00243 + 1.23954I$	$-4.19042 + 6.13400I$	0
$u = 1.102160 + 0.586805I$ $a = 0.250979 - 0.042259I$ $b = -0.235865 - 0.712137I$	$-4.19042 + 6.13400I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.102160 - 0.586805I$ $a = 0.307854 - 0.128871I$ $b = 1.00243 - 1.23954I$	$-4.19042 - 6.13400I$	0
$u = 1.102160 - 0.586805I$ $a = 0.250979 + 0.042259I$ $b = -0.235865 + 0.712137I$	$-4.19042 - 6.13400I$	0
$u = -0.472614 + 1.158010I$ $a = 0.99275 - 1.16340I$ $b = -1.81462 + 0.61246I$	$4.11063 + 6.40964I$	0
$u = -0.472614 + 1.158010I$ $a = -1.92873 - 0.00523I$ $b = 0.748662 + 0.886711I$	$4.11063 + 6.40964I$	0
$u = -0.472614 - 1.158010I$ $a = 0.99275 + 1.16340I$ $b = -1.81462 - 0.61246I$	$4.11063 - 6.40964I$	0
$u = -0.472614 - 1.158010I$ $a = -1.92873 + 0.00523I$ $b = 0.748662 - 0.886711I$	$4.11063 - 6.40964I$	0
$u = 0.078227 + 1.284350I$ $a = -1.064300 - 0.850256I$ $b = 0.621006 + 0.613338I$	$5.85323 + 3.01512I$	0
$u = 0.078227 + 1.284350I$ $a = 1.55121 - 0.41035I$ $b = -1.56159 + 1.19226I$	$5.85323 + 3.01512I$	0
$u = 0.078227 - 1.284350I$ $a = -1.064300 + 0.850256I$ $b = 0.621006 - 0.613338I$	$5.85323 - 3.01512I$	0
$u = 0.078227 - 1.284350I$ $a = 1.55121 + 0.41035I$ $b = -1.56159 - 1.19226I$	$5.85323 - 3.01512I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.656223 + 1.160370I$ $a = 0.703467 + 1.147860I$ $b = -1.94805 - 0.47340I$	$1.81679 - 11.78100I$	0
$u = 0.656223 + 1.160370I$ $a = -1.81280 - 0.37772I$ $b = 0.777645 - 0.964665I$	$1.81679 - 11.78100I$	0
$u = 0.656223 - 1.160370I$ $a = 0.703467 - 1.147860I$ $b = -1.94805 + 0.47340I$	$1.81679 + 11.78100I$	0
$u = 0.656223 - 1.160370I$ $a = -1.81280 + 0.37772I$ $b = 0.777645 + 0.964665I$	$1.81679 + 11.78100I$	0
$u = -0.345070 + 1.307630I$ $a = -0.550201 + 0.825654I$ $b = 0.469133 - 0.497629I$	$5.03083 + 2.64174I$	0
$u = -0.345070 + 1.307630I$ $a = 1.53204 + 0.03564I$ $b = -1.43336 - 1.54275I$	$5.03083 + 2.64174I$	0
$u = -0.345070 - 1.307630I$ $a = -0.550201 - 0.825654I$ $b = 0.469133 + 0.497629I$	$5.03083 - 2.64174I$	0
$u = -0.345070 - 1.307630I$ $a = 1.53204 - 0.03564I$ $b = -1.43336 + 1.54275I$	$5.03083 - 2.64174I$	0
$u = -0.649103 + 1.211340I$ $a = -1.053210 - 0.044604I$ $b = 0.356104 + 0.677357I$	$0.54257 + 7.21886I$	0
$u = -0.649103 + 1.211340I$ $a = 1.52378 - 0.35546I$ $b = -1.12243 - 1.33335I$	$0.54257 + 7.21886I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.649103-1.211340I$ $a=-1.053210+0.044604I$ $b=\ \ 0.356104-0.677357I$	$0.54257-7.21886I$	0
$u=-0.649103-1.211340I$ $a=\ \ 1.52378+0.35546I$ $b=-1.12243+1.33335I$	$0.54257-7.21886I$	0
$u=\ \ 0.772624+1.184220I$ $a=-1.129680-0.107049I$ $b=\ \ 0.417617-0.784997I$	$-2.25293-12.88510I$	0
$u=\ \ 0.772624+1.184220I$ $a=\ \ 1.47480+0.53096I$ $b=-1.05832+1.46391I$	$-2.25293-12.88510I$	0
$u=\ \ 0.772624-1.184220I$ $a=-1.129680+0.107049I$ $b=\ \ 0.417617+0.784997I$	$-2.25293+12.88510I$	0
$u=\ \ 0.772624-1.184220I$ $a=\ \ 1.47480-0.53096I$ $b=-1.05832-1.46391I$	$-2.25293+12.88510I$	0
$u=-0.057491+0.582953I$ $a=\ \ 0.512804+0.305125I$ $b=-0.483117-1.147310I$	$-0.59659+2.59685I$	$-2.11326-1.51803I$
$u=-0.057491+0.582953I$ $a=\ \ 1.71484-1.07386I$ $b=\ \ 0.316819-0.233190I$	$-0.59659+2.59685I$	$-2.11326-1.51803I$
$u=-0.057491-0.582953I$ $a=\ \ 0.512804-0.305125I$ $b=-0.483117+1.147310I$	$-0.59659-2.59685I$	$-2.11326+1.51803I$
$u=-0.057491-0.582953I$ $a=\ \ 1.71484+1.07386I$ $b=\ \ 0.316819+0.233190I$	$-0.59659-2.59685I$	$-2.11326+1.51803I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.13785+1.44570I$ $a=\ \ 1.236400+0.016643I$ $b=-1.72191-0.41184I$	$4.37573+3.10323I$	0
$u=-0.13785+1.44570I$ $a=-0.408161-0.060273I$ $b=\ \ 0.149121+0.107651I$	$4.37573+3.10323I$	0
$u=-0.13785-1.44570I$ $a=\ \ 1.236400-0.016643I$ $b=-1.72191+0.41184I$	$4.37573-3.10323I$	0
$u=-0.13785-1.44570I$ $a=-0.408161+0.060273I$ $b=\ \ 0.149121-0.107651I$	$4.37573-3.10323I$	0
$u=\ \ 0.454526+0.087615I$ $a=-4.46751+1.04008I$ $b=-0.932183+0.533345I$	$-2.10388-3.56800I$	$-11.4713+10.3154I$
$u=\ \ 0.454526+0.087615I$ $a=-0.69936-10.38270I$ $b=\ \ 0.566414-0.846383I$	$-2.10388-3.56800I$	$-11.4713+10.3154I$
$u=\ \ 0.454526-0.087615I$ $a=-4.46751-1.04008I$ $b=-0.932183-0.533345I$	$-2.10388+3.56800I$	$-11.4713-10.3154I$
$u=\ \ 0.454526-0.087615I$ $a=-0.69936+10.38270I$ $b=\ \ 0.566414+0.846383I$	$-2.10388+3.56800I$	$-11.4713-10.3154I$

III.

$\boldsymbol{I_3^u = \langle 7.68\times 10^8 u^{22} - 1.64\times 10^9 u^{21} + \cdots + 2.19\times 10^8 b + 4.73\times 10^8,\ 9.98\times 10^7 u^{22} + 5.01\times 10^8 u^{21} + \cdots + 2.19\times 10^8 a + 8.52\times 10^7,\ u^{23} - 2u^{22} + \cdots + u - 1\rangle}$

(i) Arc colorings

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

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

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

$$a_{11} = \begin{pmatrix} -0.455006u^{22} - 2.28238u^{21} + \cdots + 15.9748u - 0.388305 \\ -3.50199u^{22} + 7.49137u^{21} + \cdots + 4.99452u - 2.15838 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 4.35627u^{22} - 6.70780u^{21} + \cdots - 0.0136713u + 7.77709 \\ -1.25289u^{22} - 0.137979u^{21} + \cdots - 1.63786u + 3.49215 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -3.95699u^{22} + 5.20899u^{21} + \cdots + 20.9693u - 2.54669 \\ -3.50199u^{22} + 7.49137u^{21} + \cdots + 4.99452u - 2.15838 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -2.70410u^{22} + 5.34697u^{21} + \cdots + 22.6072u - 5.03883 \\ -3.50199u^{22} + 7.49137u^{21} + \cdots + 4.99452u - 2.15838 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -0.183963u^{22} + 5.46982u^{21} + \cdots + 20.1132u - 4.93168 \\ 0.287587u^{22} - 1.11829u^{21} + \cdots - 3.64799u + 1.60975 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -4.46729u^{22} + 6.23510u^{21} + \cdots - 0.291338u + 2.94351 \\ -0.317644u^{22} + 0.661174u^{21} + \cdots + 0.830704u - 0.543116 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -2.87416u^{22} + 4.03399u^{21} + \cdots - 1.67830u + 1.79215 \\ 0.926368u^{22} - 1.25360u^{21} + \cdots + 0.0517189u - 0.709319 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 2.53832u^{22} - 3.92528u^{21} + \cdots + 2.88986u - 0.787148 \\ -1.92897u^{22} + 2.30982u^{21} + \cdots + 2.59852u + 2.15636 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{68196543}{219374557}u^{22} - \frac{1083749507}{219374557}u^{21} + \cdots + \frac{791711183}{219374557}u + \frac{3834368197}{219374557}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{23} - 14u^{22} + \cdots + 3u - 1$
c_2	$u^{23} + 4u^{22} + \cdots + 5u + 1$
c_3	$u^{23} + 2u^{22} + \cdots + u + 1$
c_4	$u^{23} - 4u^{22} + \cdots + 5u - 1$
c_5, c_{11}	$u^{23} - 3u^{21} + \cdots + 3u - 1$
c_6, c_{12}	$u^{23} - 3u^{22} + \cdots + 3u^2 - 1$
c_7	$u^{23} - 2u^{22} + \cdots + u - 1$
c_8, c_{10}	$u^{23} + 6u^{22} + \cdots + 13u + 1$
c_9	$u^{23} - 17u^{22} + \cdots + 300u - 23$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{23} - 6y^{22} + \cdots - 41y - 1$
c_2, c_4	$y^{23} - 14y^{22} + \cdots + 3y - 1$
c_3, c_7	$y^{23} + 6y^{22} + \cdots - 13y - 1$
c_5, c_{11}	$y^{23} - 6y^{22} + \cdots + 13y - 1$
c_6, c_{12}	$y^{23} - 13y^{22} + \cdots + 6y - 1$
c_8, c_{10}	$y^{23} + 18y^{22} + \cdots + 57y - 1$
c_9	$y^{23} + 7y^{22} + \cdots - 11982y - 529$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.932863 + 0.470918I$ $a = 0.165631 + 0.569254I$ $b = -0.942354 - 0.581737I$	$-2.12811 + 5.87189I$	$-6.72516 - 8.17983I$
$u = 0.932863 - 0.470918I$ $a = 0.165631 - 0.569254I$ $b = -0.942354 + 0.581737I$	$-2.12811 - 5.87189I$	$-6.72516 + 8.17983I$
$u = -1.073630 + 0.038473I$ $a = -0.312655 + 0.111696I$ $b = -0.704508 - 0.377525I$	$-1.15055 + 1.78087I$	$-6.33794 - 6.21242I$
$u = -1.073630 - 0.038473I$ $a = -0.312655 - 0.111696I$ $b = -0.704508 + 0.377525I$	$-1.15055 - 1.78087I$	$-6.33794 + 6.21242I$
$u = -0.623187 + 0.884614I$ $a = 0.385194 - 0.749681I$ $b = -0.424608 - 0.856790I$	$-2.47835 + 7.69486I$	$-4.03051 - 10.74975I$
$u = -0.623187 - 0.884614I$ $a = 0.385194 + 0.749681I$ $b = -0.424608 + 0.856790I$	$-2.47835 - 7.69486I$	$-4.03051 + 10.74975I$
$u = 0.536099 + 0.942930I$ $a = 0.862482 + 0.264107I$ $b = -0.921933 - 0.844990I$	$-1.91947 - 0.51386I$	$-6.81021 - 1.61545I$
$u = 0.536099 - 0.942930I$ $a = 0.862482 - 0.264107I$ $b = -0.921933 + 0.844990I$	$-1.91947 + 0.51386I$	$-6.81021 + 1.61545I$
$u = -0.201305 + 0.782124I$ $a = 1.52028 - 0.00897I$ $b = -0.782793 + 0.837361I$	$-0.03284 - 3.45587I$	$-1.65858 + 6.73564I$
$u = -0.201305 - 0.782124I$ $a = 1.52028 + 0.00897I$ $b = -0.782793 - 0.837361I$	$-0.03284 + 3.45587I$	$-1.65858 - 6.73564I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.257132 + 0.709937I$ $a = 0.99695 + 1.29898I$ $b = -0.624537 + 0.822387I$	$-0.16869 - 3.94739I$	$-0.48697 + 6.43488I$
$u = 0.257132 - 0.709937I$ $a = 0.99695 - 1.29898I$ $b = -0.624537 - 0.822387I$	$-0.16869 + 3.94739I$	$-0.48697 - 6.43488I$
$u = -0.512945 + 1.136410I$ $a = -1.56269 + 0.20096I$ $b = 1.038430 + 0.524944I$	$2.34569 + 6.47513I$	$-1.59916 - 6.72206I$
$u = -0.512945 - 1.136410I$ $a = -1.56269 - 0.20096I$ $b = 1.038430 - 0.524944I$	$2.34569 - 6.47513I$	$-1.59916 + 6.72206I$
$u = 0.380344 + 0.634981I$ $a = -3.73066 - 0.26533I$ $b = 0.829525 - 0.651884I$	$-2.81772 - 3.60187I$	$-6.08859 + 9.71801I$
$u = 0.380344 - 0.634981I$ $a = -3.73066 + 0.26533I$ $b = 0.829525 + 0.651884I$	$-2.81772 + 3.60187I$	$-6.08859 - 9.71801I$
$u = 0.683735 + 1.137110I$ $a = -1.47522 - 0.45757I$ $b = 1.093930 - 0.601085I$	$-0.10268 - 11.79120I$	$-5.66079 + 10.41521I$
$u = 0.683735 - 1.137110I$ $a = -1.47522 + 0.45757I$ $b = 1.093930 + 0.601085I$	$-0.10268 + 11.79120I$	$-5.66079 - 10.41521I$
$u = -0.068461 + 1.365630I$ $a = -1.000100 - 0.079711I$ $b = 0.952194 + 0.115441I$	$4.77834 + 2.95935I$	$4.00300 - 4.77864I$
$u = -0.068461 - 1.365630I$ $a = -1.000100 + 0.079711I$ $b = 0.952194 - 0.115441I$	$4.77834 - 2.95935I$	$4.00300 + 4.77864I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.162072+0.546076I$ $a=\ \ 0.69002+4.98557I$ $b=\ \ 0.661666-0.636100I$	$-2.70546-3.71170I$	$-1.066993+0.373005I$
$u=-0.162072-0.546076I$ $a=\ \ 0.69002-4.98557I$ $b=\ \ 0.661666+0.636100I$	$-2.70546+3.71170I$	$-1.066993-0.373005I$
$u=\ \ 1.70286$ $a=-0.0784597$ $b=-0.350038$	-10.2694	627.920

IV.

$\boldsymbol{I_4^u = \langle -u^2a+b+1,\ -4u^2a+a^2-2au+8u^2-5a+3u+15,\ u^3+u^2+2u+1\rangle}$

(i) Arc colorings

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

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

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

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

$$a_9 = \begin{pmatrix} a+1 \\ u^2a+u^2-1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} u^2a+a-1 \\ u^2a-1 \end{pmatrix}$$

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

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

$$a_6 = \begin{pmatrix} -u^2a+3u^2-a+2u+7 \\ u^2a-au+2u^2-a-u \end{pmatrix}$$

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

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

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

(ii) Obstruction class $= 1$

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

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.215080+1.307140I$ $a=-0.732199+0.502992I$ $b=\ \ 0.500000-0.424452I$	$4.66906+2.82812I$	$-3.78492-1.30714I$
$u=-0.215080+1.307140I$ $a=-1.347400-0.137827I$ $b=\ \ 1.16236+0.98673I$	$4.66906+2.82812I$	$-3.78492-1.30714I$
$u=-0.215080-1.307140I$ $a=-0.732199-0.502992I$ $b=\ \ 0.500000+0.424452I$	$4.66906-2.82812I$	$-3.78492+1.30714I$
$u=-0.215080-1.307140I$ $a=-1.347400+0.137827I$ $b=\ \ 1.16236-0.98673I$	$4.66906-2.82812I$	$-3.78492+1.30714I$
$u=-0.569840$ $a=\ \ 2.57960+3.03873I$ $b=-0.162359+0.986732I$	0.531480	-3.43020
$u=-0.569840$ $a=\ \ 2.57960-3.03873I$ $b=-0.162359-0.986732I$	0.531480	-3.43020

V. $\boldsymbol{I_1^v = \langle a,\ 16v^3 - 48v^2 + b + 51v - 13,\ 4v^4 - 13v^3 + 16v^2 - 7v + 1\rangle}$

(i) Arc colorings

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

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

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

$$a_{11} = \begin{pmatrix} 0 \\ -16v^3 + 48v^2 - 51v + 13 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ 20v^3 - 57v^2 + 58v - 13 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -16v^3 + 48v^2 - 51v + 13 \\ -16v^3 + 48v^2 - 51v + 13 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 16v^3 - 48v^2 + 51v - 13 \\ 36v^3 - 105v^2 + 109v - 27 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} -20v^3 + 57v^2 - 58v + 14 \\ -36v^3 + 105v^2 - 109v + 27 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1 \\ 4v^3 - 13v^2 + 16v - 7 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} v - 1 \\ 4v^3 - 13v^2 + 16v - 7 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 1 \\ -4v^3 + 13v^2 - 16v + 7 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 68v^3 - 192v^2 + 197v - 49$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 1.28654 + 0.69736I$		
$a = 0$	$-0.66484 - 1.39709I$	$-2.80605 + 5.27044I$
$b = -0.547424 + 0.585652I$		
$v = 1.28654 - 0.69736I$		
$a = 0$	$-0.66484 + 1.39709I$	$-2.80605 - 5.27044I$
$b = -0.547424 - 0.585652I$		
$v = 0.338459 + 0.046758I$		
$a = 0$	$-4.26996 - 7.64338I$	$-1.41270 + 4.22005I$
$b = 0.547424 - 1.120870I$		
$v = 0.338459 - 0.046758I$		
$a = 0$	$-4.26996 + 7.64338I$	$-1.41270 - 4.22005I$
$b = 0.547424 + 1.120870I$		

VI. $\boldsymbol{I_2^v = \langle a,\ b^2 - bv + v^2 - b + 2v + 2,\ v^3 + 2v^2 + 3v + 1\rangle}$

(i) Arc colorings

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

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

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

$$a_{11} = \begin{pmatrix} 0 \\ b \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ -bv + v^2 - b + 2v + 2 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} -v^2b - bv - b + 1 \\ -v^2b - 2bv + v^2 - 2b + 2v + 2 \end{pmatrix}$$

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

$$a_6 = \begin{pmatrix} bv - v^2 + b - 2v - 1 \\ v^2b + 2bv - v^2 + 2b - 2v - 2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -bv + v^2 + v + 1 \\ v^2 + 2v + 3 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -bv + v^2 + 2v + 1 \\ v^2 + 2v + 3 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} bv - v^2 - v - 1 \\ -v^2 - 2v - 3 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= v - 7$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^6$
c_3, c_7	y^6
c_5, c_8, c_{10} c_{11}	$y^6 + 3y^5 + 4y^4 + 2y^3 + 1$
c_6, c_{12}	$y^6 - y^5 + 4y^4 - 2y^3 + 8y^2 + 1$
c_9	$(y^3 - y^2 + 2y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v=-0.78492+1.30714I$ $a=\quad 0$ $b=-0.498832+1.001300I$	$-1.91067-2.82812I$	$-7.78492+1.30714I$
$v=-0.78492+1.30714I$ $a=\quad 0$ $b=\quad 0.713912+0.305839I$	$-1.91067-2.82812I$	$-7.78492+1.30714I$
$v=-0.78492-1.30714I$ $a=\quad 0$ $b=-0.498832-1.001300I$	$-1.91067+2.82812I$	$-7.78492-1.30714I$
$v=-0.78492-1.30714I$ $a=\quad 0$ $b=\quad 0.713912-0.305839I$	$-1.91067+2.82812I$	$-7.78492-1.30714I$
$v=-0.430160$ $a=\quad 0$ $b=\quad 0.284920+1.115140I$	-6.04826	-7.43020
$v=-0.430160$ $a=\quad 0$ $b=\quad 0.284920-1.115140I$	-6.04826	-7.43020

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^{10})(u^3-u^2+2u-1)^2(u^{23}-14u^{22}+\cdots+3u-1)$ $\cdot(u^{76}+41u^{75}+\cdots+2881u+256)$
c_2	$((u-1)^{10})(u^3+u^2-1)^2(u^{23}+4u^{22}+\cdots+5u+1)$ $\cdot(u^{76}-7u^{75}+\cdots+47u-16)$
c_3	$u^{10}(u^3-u^2+2u-1)^2(u^{23}+2u^{22}+\cdots+u+1)$ $\cdot(u^{76}+5u^{75}+\cdots-1504u-256)$
c_4	$((u+1)^{10})(u^3-u^2+1)^2(u^{23}-4u^{22}+\cdots+5u-1)$ $\cdot(u^{76}-7u^{75}+\cdots+47u-16)$
c_5	$(u^4+u^2+u+1)(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^6+3u^5+\cdots+3u+1)(u^{23}-3u^{21}+\cdots+3u-1)$ $\cdot(u^{76}+8u^{74}+\cdots+9u+1)$
c_6	$(u^4-2u^3+3u^2-u+1)(u^6-3u^5+4u^4-2u^3+1)$ $\cdot(u^6+3u^5+\cdots+3u+1)(u^{23}-3u^{22}+\cdots+3u^2-1)$ $\cdot(u^{76}-u^{75}+\cdots+39u^2+1)$
c_7	$u^{10}(u^3+u^2+2u+1)^2(u^{23}-2u^{22}+\cdots+u-1)$ $\cdot(u^{76}+5u^{75}+\cdots-1504u-256)$
c_8, c_{10}	$(u+1)^6(u^4+u^2+u+1)(u^6-u^5+2u^4-2u^3+2u^2-2u+1)$ $\cdot(u^{23}+6u^{22}+\cdots+13u+1)(u^{76}-12u^{75}+\cdots+133u+1)$
c_9	$u^6(u^3-u^2+1)^2(u^4+3u^3+4u^2+3u+2)$ $\cdot(u^{23}-17u^{22}+\cdots+300u-23)(u^{76}-41u^{75}+\cdots-60u+4)$
c_{11}	$(u^4+u^2-u+1)(u^6+u^5+2u^4+2u^3+2u^2+2u+1)$ $\cdot(u^6+3u^5+\cdots+3u+1)(u^{23}-3u^{21}+\cdots+3u-1)$ $\cdot(u^{76}+8u^{74}+\cdots+9u+1)$
c_{12}	$(u^4+2u^3+3u^2+u+1)(u^6+3u^5+4u^4+2u^3+1)$ $\cdot(u^6+3u^5+\cdots+3u+1)(u^{23}-3u^{22}+\cdots+3u^2-1)$ $\cdot(u^{76}-u^{75}+\cdots+39u^2+1)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^{10})(y^3+3y^2+2y-1)^2(y^{23}-6y^{22}+\cdots-41y-1)$ $\cdot(y^{76}-5y^{75}+\cdots+3372927y+65536)$
c_2, c_4	$((y-1)^{10})(y^3-y^2+2y-1)^2(y^{23}-14y^{22}+\cdots+3y-1)$ $\cdot(y^{76}-41y^{75}+\cdots-2881y+256)$
c_3, c_7	$y^{10}(y^3+3y^2+2y-1)^2(y^{23}+6y^{22}+\cdots-13y-1)$ $\cdot(y^{76}+27y^{75}+\cdots+429056y+65536)$
c_5, c_{11}	$(y^4+2y^3+3y^2+y+1)(y^6+y^5+5y^4+9y^3+5y^2+y+1)$ $\cdot(y^6+3y^5+4y^4+2y^3+1)(y^{23}-6y^{22}+\cdots+13y-1)$ $\cdot(y^{76}+16y^{75}+\cdots+3y+1)$
c_6, c_{12}	$(y^4+2y^3+7y^2+5y+1)(y^6-y^5+4y^4-2y^3+8y^2+1)$ $\cdot(y^6+y^5+5y^4+9y^3+5y^2+y+1)(y^{23}-13y^{22}+\cdots+6y-1)$ $\cdot(y^{76}+33y^{75}+\cdots+78y+1)$
c_8, c_{10}	$(y-1)^6(y^4+2y^3+3y^2+y+1)(y^6+3y^5+4y^4+2y^3+1)$ $\cdot(y^{23}+18y^{22}+\cdots+57y-1)(y^{76}-32y^{75}+\cdots-14137y+1)$
c_9	$y^6(y^3-y^2+2y-1)^2(y^4-y^3+2y^2+7y+4)$ $\cdot(y^{23}+7y^{22}+\cdots-11982y-529)(y^{76}-y^{75}+\cdots-2152y+16)$