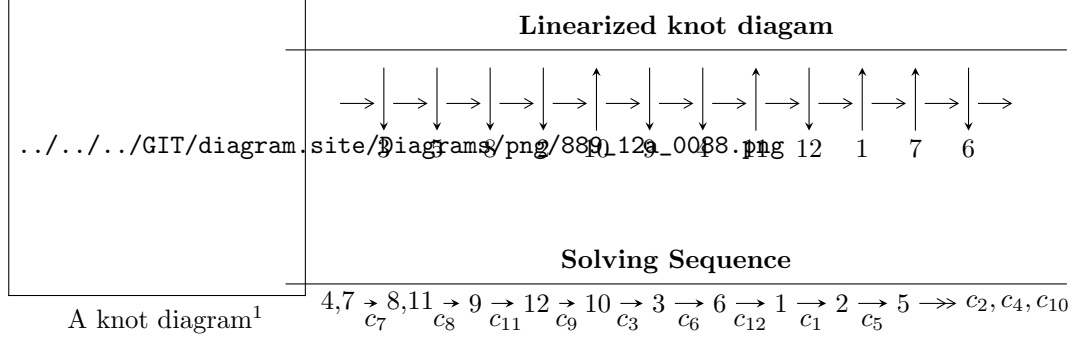


$12a_{0088} (K12a_{0088})$



Ideals for irreducible components² of X_{par}

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

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

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

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

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

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

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

¹The 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>).

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

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

(i) Arc colorings

$$\begin{aligned} a_4 &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_7 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_8 &= \begin{pmatrix} 1 \\ u^2 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} -0.241468u^{75} - 0.594150u^{74} + \dots - 211.857u - 38.4908 \\ -0.160728u^{75} - 0.744715u^{74} + \dots + 69.1978u + 1.34366 \end{pmatrix} \\ a_9 &= \begin{pmatrix} 0.429938u^{75} + 2.37634u^{74} + \dots - 882.782u - 147.812 \\ -0.499536u^{75} - 2.13504u^{74} + \dots + 443.772u + 61.6431 \end{pmatrix} \\ a_{12} &= \begin{pmatrix} -0.402196u^{75} - 1.33887u^{74} + \dots - 142.659u - 37.1472 \\ -0.160728u^{75} - 0.744715u^{74} + \dots + 69.1978u + 1.34366 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} -0.249605u^{75} - 1.21879u^{74} + \dots + 592.443u + 125.818 \\ -0.221325u^{75} - 1.11335u^{74} + \dots + 502.440u + 98.4113 \end{pmatrix} \\ a_3 &= \begin{pmatrix} u \\ u^3 + u \end{pmatrix} \\ a_6 &= \begin{pmatrix} -0.0578480u^{75} - 0.146509u^{74} + \dots - 107.825u - 25.7212 \\ 0.212028u^{75} + 0.991418u^{74} + \dots - 455.593u - 89.2052 \end{pmatrix} \\ a_1 &= \begin{pmatrix} -0.449045u^{75} - 1.77037u^{74} + \dots + 239.294u + 44.5157 \\ 0.126005u^{75} + 0.424987u^{74} + \dots - 38.9179u + 13.2441 \end{pmatrix} \\ a_2 &= \begin{pmatrix} -0.0856491u^{75} - 0.525662u^{74} + \dots + 361.435u + 92.6534 \\ 0.762094u^{75} + 3.29215u^{74} + \dots - 684.443u - 85.1196 \end{pmatrix} \\ a_5 &= \begin{pmatrix} -0.627609u^{75} - 2.95001u^{74} + \dots + 877.437u + 152.834 \\ -0.178564u^{75} - 1.17964u^{74} + \dots + 638.143u + 108.319 \end{pmatrix} \end{aligned}$$

(ii) Obstruction class = -1

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

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

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	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	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	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	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	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

$$\text{II. } I_2^u = \langle 5.41 \times 10^{57} au^{53} + 5.21 \times 10^{57} u^{53} + \dots + 2.28 \times 10^{59} a + 9.87 \times 10^{58}, 2.50 \times 10^{59} au^{53} + 5.44 \times 10^{58} u^{53} + \dots - 9.46 \times 10^{59} a + 3.74 \times 10^{60}, u^{54} - 2u^{53} + \dots - 36u + 8 \rangle$$

(i) Arc colorings

$$\begin{aligned} a_4 &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_7 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_8 &= \begin{pmatrix} 1 \\ u^2 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} a \\ -0.458633au^{53} - 0.442398u^{53} + \dots - 19.3518a - 8.37724 \end{pmatrix} \\ a_9 &= \begin{pmatrix} 2.27949au^{53} - 2.11457u^{53} + \dots + 7.43511a + 28.2829 \\ 1.87139au^{53} - 0.860803u^{53} + \dots - 1.82953a + 4.71620 \end{pmatrix} \\ a_{12} &= \begin{pmatrix} -0.458633au^{53} - 0.442398u^{53} + \dots - 18.3518a - 8.37724 \\ -0.458633au^{53} - 0.442398u^{53} + \dots - 19.3518a - 8.37724 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} 1.37832au^{53} - 1.40854u^{53} + \dots + 34.5330a - 6.74800 \\ 2.23912au^{53} - 0.154776u^{53} + \dots + 29.8168a - 30.3147 \end{pmatrix} \\ a_3 &= \begin{pmatrix} u \\ u^3 + u \end{pmatrix} \\ a_6 &= \begin{pmatrix} 0.730020au^{53} - 2.75574u^{53} + \dots - 13.5603a + 44.1083 \\ -1.84049au^{53} + 2.57051u^{53} + \dots - 28.0074a + 14.4472 \end{pmatrix} \\ a_1 &= \begin{pmatrix} -1.75778u^{53} + 1.27837u^{52} + \dots + 33.8023u - 15.5886 \\ -0.860803u^{53} + 1.49544u^{52} + \dots - 25.3987u + 3.71620 \end{pmatrix} \\ a_2 &= \begin{pmatrix} -1.43663u^{53} + 1.00275u^{52} + \dots + 24.6995u - 12.0758 \\ -0.583121u^{53} + 1.21655u^{52} + \dots - 23.8703u + 4.29557 \end{pmatrix} \\ a_5 &= \begin{pmatrix} -0.838088u^{53} + 1.23708u^{52} + \dots - 7.27521u - 1.40738 \\ 0.919688u^{53} - 0.0412944u^{52} + \dots - 41.0775u + 14.1812 \end{pmatrix} \end{aligned}$$

(ii) Obstruction class = -1

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

(iv) **u-Polynomials at the component**

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

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

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

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

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

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	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	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	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.

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

(i) Arc colorings

$$\begin{aligned} a_4 &= \begin{pmatrix} 0 \\ u \end{pmatrix} \\ a_7 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_8 &= \begin{pmatrix} 1 \\ u^2 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} -0.455006u^{22} - 2.28238u^{21} + \dots + 15.9748u - 0.388305 \\ -3.50199u^{22} + 7.49137u^{21} + \dots + 4.99452u - 2.15838 \end{pmatrix} \\ a_9 &= \begin{pmatrix} 4.35627u^{22} - 6.70780u^{21} + \dots - 0.0136713u + 7.77709 \\ -1.25289u^{22} - 0.137979u^{21} + \dots - 1.63786u + 3.49215 \end{pmatrix} \\ a_{12} &= \begin{pmatrix} -3.95699u^{22} + 5.20899u^{21} + \dots + 20.9693u - 2.54669 \\ -3.50199u^{22} + 7.49137u^{21} + \dots + 4.99452u - 2.15838 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} -2.70410u^{22} + 5.34697u^{21} + \dots + 22.6072u - 5.03883 \\ -3.50199u^{22} + 7.49137u^{21} + \dots + 4.99452u - 2.15838 \end{pmatrix} \\ a_3 &= \begin{pmatrix} u \\ u^3 + u \end{pmatrix} \\ a_6 &= \begin{pmatrix} -0.183963u^{22} + 5.46982u^{21} + \dots + 20.1132u - 4.93168 \\ 0.287587u^{22} - 1.11829u^{21} + \dots - 3.64799u + 1.60975 \end{pmatrix} \\ a_1 &= \begin{pmatrix} -4.46729u^{22} + 6.23510u^{21} + \dots - 0.291338u + 2.94351 \\ -0.317644u^{22} + 0.661174u^{21} + \dots + 0.830704u - 0.543116 \end{pmatrix} \\ a_2 &= \begin{pmatrix} -2.87416u^{22} + 4.03399u^{21} + \dots - 1.67830u + 1.79215 \\ 0.926368u^{22} - 1.25360u^{21} + \dots + 0.0517189u - 0.709319 \end{pmatrix} \\ a_5 &= \begin{pmatrix} 2.53832u^{22} - 3.92528u^{21} + \dots + 2.88986u - 0.787148 \\ -1.92897u^{22} + 2.30982u^{21} + \dots + 2.59852u + 2.15636 \end{pmatrix} \end{aligned}$$

(ii) Obstruction class = 1

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

(iv) u-Polynomials at the component

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

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

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

IV.

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

(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	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	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

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

(i) Arc colorings

$$\begin{aligned} a_4 &= \begin{pmatrix} v \\ 0 \end{pmatrix} \\ a_7 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_8 &= \begin{pmatrix} 1 \\ 0 \end{pmatrix} \\ a_{11} &= \begin{pmatrix} 0 \\ -16v^3 + 48v^2 - 51v + 13 \end{pmatrix} \\ a_9 &= \begin{pmatrix} 1 \\ 20v^3 - 57v^2 + 58v - 13 \end{pmatrix} \\ a_{12} &= \begin{pmatrix} -16v^3 + 48v^2 - 51v + 13 \\ -16v^3 + 48v^2 - 51v + 13 \end{pmatrix} \\ a_{10} &= \begin{pmatrix} 16v^3 - 48v^2 + 51v - 13 \\ 36v^3 - 105v^2 + 109v - 27 \end{pmatrix} \\ a_3 &= \begin{pmatrix} v \\ 0 \end{pmatrix} \\ a_6 &= \begin{pmatrix} -20v^3 + 57v^2 - 58v + 14 \\ -36v^3 + 105v^2 - 109v + 27 \end{pmatrix} \\ a_1 &= \begin{pmatrix} -1 \\ 4v^3 - 13v^2 + 16v - 7 \end{pmatrix} \\ a_2 &= \begin{pmatrix} v - 1 \\ 4v^3 - 13v^2 + 16v - 7 \end{pmatrix} \\ a_5 &= \begin{pmatrix} 1 \\ -4v^3 + 13v^2 - 16v + 7 \end{pmatrix} \end{aligned}$$

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

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

(i) Arc colorings

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

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

VII. u-Polynomials

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

VIII. Riley Polynomials

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