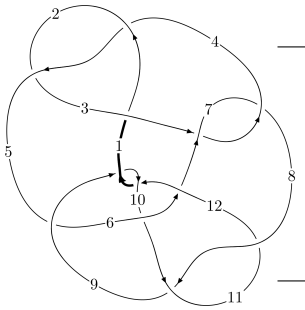
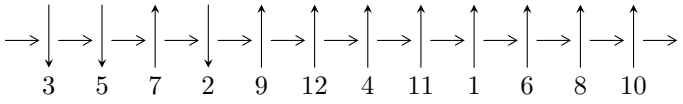
$12a_{0049}$ $(K12a_{0049})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 2.20260 \times 10^{103} u^{47} + 1.71175 \times 10^{103} u^{46} + \cdots + 6.39981 \times 10^{106} b - 1.52221 \times 10^{105},$$
$$3.79806 \times 10^{106} u^{47} + 1.55054 \times 10^{106} u^{46} + \cdots + 1.02397 \times 10^{108} a - 1.21535 \times 10^{109},$$
$$u^{48} - 9u^{46} + \cdots - 688u + 128 \rangle$$
$$I_2^u = \langle -1.12143 \times 10^{21} a u^{39} - 8.51510 \times 10^{20} u^{39} + \cdots + 5.02212 \times 10^{21} a - 6.07964 \times 10^{21},$$
$$1.50092 \times 10^{21} a u^{39} + 7.38054 \times 10^{22} u^{39} + \cdots + 1.98528 \times 10^{22} a + 5.64927 \times 10^{23},\ u^{40} - u^{39} + \cdots + 8u + 4$$
$$I_3^u = \langle b + 1,\ 2u^5 - 4u^3 - 2u^2 + 2a + 4u + 3,\ u^6 + u^5 - u^4 - 2u^3 + u + 1 \rangle$$

$$I_1^v = \langle a,\ -20v^2 + 13b + 69v - 1,\ 4v^3 - 13v^2 - v - 1 \rangle$$
$$I_2^v = \langle a,\ b^2 - bv - b + v + 1,\ v^2 + v + 1 \rangle$$

* 5 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 141 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. $I_1^u = \langle 2.20 \times 10^{103} u^{47} + 1.71 \times 10^{103} u^{46} + \cdots + 6.40 \times 10^{106} b - 1.52 \times 10^{105},\ 3.80 \times 10^{106} u^{47} + 1.55 \times 10^{106} u^{46} + \cdots + 1.02 \times 10^{108} a - 1.22 \times 10^{109},\ u^{48} - 9u^{46} + \cdots - 688u + 128 \rangle$

(i) Arc colorings

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

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

$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -0.0370915u^{47} - 0.0151424u^{46} + \cdots - 33.2399u + 11.8690 \\ -0.000344167u^{47} - 0.000267469u^{46} + \cdots - 1.40675u + 0.0237852 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -0.0117969u^{47} - 0.00536501u^{46} + \cdots - 11.1030u + 4.23953 \\ -0.00240170u^{47} + 0.000899905u^{46} + \cdots - 1.74418u + 0.851220 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0367474u^{47} - 0.0148750u^{46} + \cdots - 31.8331u + 11.8452 \\ -0.000344167u^{47} - 0.000267469u^{46} + \cdots - 1.40675u + 0.0237852 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.0214507u^{47} - 0.00655382u^{46} + \cdots - 18.8650u + 7.82073 \\ -0.00136402u^{47} - 0.00245258u^{46} + \cdots - 1.53193u + 0.301599 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -0.0154147u^{47} - 0.00689804u^{46} + \cdots - 13.6620u + 4.47307 \\ -0.00168960u^{47} + 0.000640698u^{46} + \cdots - 2.79942u + 1.14559 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.0150232u^{47} + 0.00593756u^{46} + \cdots + 13.6887u - 4.73571 \\ 0.00403224u^{47} + 0.00287074u^{46} + \cdots + 2.13541u - 0.497366 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.0322794u^{47} - 0.0132920u^{46} + \cdots - 29.5231u + 11.3082 \\ -0.00393259u^{47} + 0.000672538u^{46} + \cdots - 1.57848u + 0.378010 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.0171043u^{47} - 0.00625734u^{46} + \cdots - 16.4614u + 5.61866 \\ -0.00177483u^{47} - 0.00220211u^{46} + \cdots + 0.683721u - 0.344650 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.0972185u^{47} + 0.0505623u^{46} + \cdots + 105.606u - 17.3444$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{48}+25u^{47}+\cdots+42145u+256$
c_2, c_4	$u^{48}-3u^{47}+\cdots+257u-16$
c_3, c_7	$u^{48}-9u^{46}+\cdots-688u+128$
c_5, c_6	$64(64u^{48}-96u^{47}+\cdots-2u-1)$
c_8, c_9, c_{11} c_{12}	$u^{48}-6u^{47}+\cdots+8u+1$
c_{10}	$u^{48}+6u^{47}+\cdots-61440u-16384$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{48} - y^{47} + \cdots - 1631257409y + 65536$
c_2, c_4	$y^{48} - 25y^{47} + \cdots - 42145y + 256$
c_3, c_7	$y^{48} - 18y^{47} + \cdots - 312576y + 16384$
c_5, c_6	$4096(4096y^{48} + 82944y^{47} + \cdots + 10y + 1)$
c_8, c_9, c_{11} c_{12}	$y^{48} + 26y^{47} + \cdots - 20y + 1$
c_{10}	$y^{48} + 14y^{47} + \cdots + 6325010432y + 268435456$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.957590+0.423594I$ $a=-1.29646-0.87018I$ $b=-1.285560-0.248171I$	$3.25118-1.53806I$	$3.77848+7.20641I$
$u=-0.957590-0.423594I$ $a=-1.29646+0.87018I$ $b=-1.285560+0.248171I$	$3.25118+1.53806I$	$3.77848-7.20641I$
$u=-1.054240+0.079852I$ $a=-1.58480-0.04060I$ $b=-1.030710+0.545069I$	$4.42263-0.15820I$	$11.64093-4.40181I$
$u=-1.054240-0.079852I$ $a=-1.58480+0.04060I$ $b=-1.030710-0.545069I$	$4.42263+0.15820I$	$11.64093+4.40181I$
$u=0.539276+0.712411I$ $a=-0.41290+1.57537I$ $b=-1.240410-0.075216I$	$-0.534230-1.086180I$	$-9.30458+4.94087I$
$u=0.539276-0.712411I$ $a=-0.41290-1.57537I$ $b=-1.240410+0.075216I$	$-0.534230+1.086180I$	$-9.30458-4.94087I$
$u=1.107360+0.212049I$ $a=0.660042-0.139690I$ $b=0.236042-0.336040I$	$2.16805+0.31460I$	$6.33607+1.41060I$
$u=1.107360-0.212049I$ $a=0.660042+0.139690I$ $b=0.236042+0.336040I$	$2.16805-0.31460I$	$6.33607-1.41060I$
$u=1.088870+0.336703I$ $a=-1.347020+0.378216I$ $b=-0.880248-0.712038I$	$3.50226+4.89574I$	$9.61286-4.76181I$
$u=1.088870-0.336703I$ $a=-1.347020-0.378216I$ $b=-0.880248+0.712038I$	$3.50226-4.89574I$	$9.61286+4.76181I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.480846+1.096760I$ $a=\ 0.179702-0.206085I$ $b=\ 0.438927+1.307300I$	$-6.90844+7.54006I$	$2.09002-3.97280I$
$u=-0.480846-1.096760I$ $a=\ 0.179702+0.206085I$ $b=\ 0.438927-1.307300I$	$-6.90844-7.54006I$	$2.09002+3.97280I$
$u=\ 0.516195+0.591350I$ $a=\ 0.170724+0.199358I$ $b=\ 0.33722-1.45953I$	$-11.66740-4.83794I$	$-3.17102-3.25316I$
$u=\ 0.516195-0.591350I$ $a=\ 0.170724-0.199358I$ $b=\ 0.33722+1.45953I$	$-11.66740+4.83794I$	$-3.17102+3.25316I$
$u=\ 1.040010+0.629240I$ $a=-0.950394+0.827169I$ $b=-1.42981+0.19688I$	$0.92737+6.25196I$	$-0.25642-8.29589I$
$u=\ 1.040010-0.629240I$ $a=-0.950394-0.827169I$ $b=-1.42981-0.19688I$	$0.92737-6.25196I$	$-0.25642+8.29589I$
$u=\ 1.075020+0.599638I$ $a=\ 2.02582+0.19826I$ $b=\ 0.47642+1.34836I$	$-9.94682+9.68628I$	$0.23852-6.37320I$
$u=\ 1.075020-0.599638I$ $a=\ 2.02582-0.19826I$ $b=\ 0.47642-1.34836I$	$-9.94682-9.68628I$	$0.23852+6.37320I$
$u=-1.117060+0.522418I$ $a=\ 0.656913+0.175589I$ $b=\ 0.349783+0.203417I$	$0.57085-5.30713I$	$1.46323+3.65514I$
$u=-1.117060-0.522418I$ $a=\ 0.656913-0.175589I$ $b=\ 0.349783-0.203417I$	$0.57085+5.30713I$	$1.46323-3.65514I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.337526+0.625207I$ $a=\ 0.846555+0.378329I$ $b=\ 0.1056360-0.0894509I$	$-1.73027+0.78678I$	$-2.85510-1.12813I$
$u=-0.337526-0.625207I$ $a=\ 0.846555-0.378329I$ $b=\ 0.1056360+0.0894509I$	$-1.73027-0.78678I$	$-2.85510+1.12813I$
$u=\ 0.150119+0.692868I$ $a=\ 0.848244-0.604603I$ $b=-0.790495+0.329232I$	$0.444741-1.185570I$	$12.13150-0.87372I$
$u=\ 0.150119-0.692868I$ $a=\ 0.848244+0.604603I$ $b=-0.790495-0.329232I$	$0.444741+1.185570I$	$12.13150+0.87372I$
$u=\ 0.666823+1.114180I$ $a=\ 0.183212+0.199747I$ $b=\ 0.51177-1.35591I$	$-9.3008-12.7131I$	$0.+7.50345I$
$u=\ 0.666823-1.114180I$ $a=\ 0.183212-0.199747I$ $b=\ 0.51177+1.35591I$	$-9.3008+12.7131I$	$0.-7.50345I$
$u=-1.189830+0.719252I$ $a=\ 1.68887+0.05904I$ $b=\ 0.55588-1.34810I$	$-4.6404-14.0060I$	$0.+7.65759I$
$u=-1.189830-0.719252I$ $a=\ 1.68887-0.05904I$ $b=\ 0.55588+1.34810I$	$-4.6404+14.0060I$	$0.-7.65759I$
$u=-0.394792+0.449338I$ $a=\ 0.167205+0.201068I$ $b=\ 0.16139-1.45643I$	$-11.31320-5.43128I$	$-4.9444+14.3480I$
$u=-0.394792-0.449338I$ $a=\ 0.167205-0.201068I$ $b=\ 0.16139+1.45643I$	$-11.31320+5.43128I$	$-4.9444-14.3480I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.16364 + 0.81469I$ $a = 1.67765 - 0.26000I$ $b = 0.57752 + 1.39189I$	$-7.6620 + 19.6586I$	0
$u = 1.16364 - 0.81469I$ $a = 1.67765 + 0.26000I$ $b = 0.57752 - 1.39189I$	$-7.6620 - 19.6586I$	0
$u = -1.13709 + 0.91603I$ $a = -0.944068 - 0.205418I$ $b = -0.269760 + 1.216300I$	$-5.92456 - 10.57000I$	0
$u = -1.13709 - 0.91603I$ $a = -0.944068 + 0.205418I$ $b = -0.269760 - 1.216300I$	$-5.92456 + 10.57000I$	0
$u = -1.42500 + 0.33439I$ $a = 1.031810 - 0.494343I$ $b = 0.461071 - 1.095760I$	$0.42166 - 10.24840I$	0
$u = -1.42500 - 0.33439I$ $a = 1.031810 + 0.494343I$ $b = 0.461071 + 1.095760I$	$0.42166 + 10.24840I$	0
$u = 0.13578 + 1.48549I$ $a = 0.130130 - 0.207768I$ $b = 0.145425 + 1.101620I$	$-5.16976 + 4.06955I$	0
$u = 0.13578 - 1.48549I$ $a = 0.130130 + 0.207768I$ $b = 0.145425 - 1.101620I$	$-5.16976 - 4.06955I$	0
$u = 1.48360 + 0.19570I$ $a = 0.703584 + 0.513498I$ $b = 0.348493 + 0.991064I$	$1.36851 + 3.98875I$	0
$u = 1.48360 - 0.19570I$ $a = 0.703584 - 0.513498I$ $b = 0.348493 - 0.991064I$	$1.36851 - 3.98875I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 1.16364 + 0.98340I$ $a = -0.703120 + 0.177219I$ $b = -0.210046 - 1.081920I$	$-2.27888 + 4.80151I$	0
$u = \quad 1.16364 - 0.98340I$ $a = -0.703120 - 0.177219I$ $b = -0.210046 + 1.081920I$	$-2.27888 - 4.80151I$	0
$u = \quad 0.429264$ $a = -5.96055$ $b = -0.657110$	-0.607601	32.9320
$u = -1.50494 + 0.56039I$ $a = -0.413804 + 0.508854I$ $b = \quad 0.023784 + 1.127520I$	$-7.87585 + 0.96622I$	0
$u = -1.50494 - 0.56039I$ $a = -0.413804 - 0.508854I$ $b = \quad 0.023784 - 1.127520I$	$-7.87585 - 0.96622I$	0
$u = -0.88669 + 1.37679I$ $a = \quad 0.183944 + 0.141300I$ $b = -0.077780 - 1.115500I$	$-7.01684 + 2.73591I$	0
$u = -0.88669 - 1.37679I$ $a = \quad 0.183944 - 0.141300I$ $b = -0.077780 + 1.115500I$	$-7.01684 - 2.73591I$	0
$u = \quad 0.281260$ $a = \quad 0.863091$ $b = -0.371991$	0.702877	14.4650

II.

$\boldsymbol{I_2^u = \langle -1.12\times10^{21}au^{39}-8.52\times10^{20}u^{39}+\cdots+5.02\times10^{21}a-6.08\times10^{21},\ 1.50\times10^{21}au^{39}+7.38\times10^{22}u^{39}+\cdots+1.99\times10^{22}a+5.65\times10^{23},\ u^{40}-u^{39}+\cdots+8u+4\rangle}$

(i) Arc colorings

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

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

$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} a \\ 0.708220au^{39}+0.537755u^{39}+\cdots-3.17162a+3.83948 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.120603au^{39}-2.74256u^{39}+\cdots+4.39726a-2.76323 \\ 1.41383au^{39}-1.53443u^{39}+\cdots+2.40579a-6.80305 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.708220au^{39}-0.537755u^{39}+\cdots+4.17162a-3.83948 \\ 0.708220au^{39}+0.537755u^{39}+\cdots-3.17162a+3.83948 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1.41953au^{39}-1.36509u^{39}+\cdots+2.87891a-2.03774 \\ -1.25231au^{39}+1.24660u^{39}+\cdots-0.943647a+0.470529 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.251077u^{39}-0.352373u^{38}+\cdots-5.77817u+0.265295 \\ -0.778868u^{39}+1.36370u^{38}+\cdots+0.172609u-3.83835 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.188503u^{39}-1.22854u^{38}+\cdots+5.41162u+3.97824 \\ -0.433588u^{39}+1.32667u^{38}+\cdots+7.93281u-0.0833981 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0.537755au^{39}-1.09578u^{39}+\cdots+3.83948a-0.770437 \\ 1 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.527790u^{39}+1.01132u^{38}+\cdots-5.60556u-3.57306 \\ 0.370531u^{39}-1.20473u^{38}+\cdots-1.92971u+1.90422 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{2251146475259849438263}{79172716073442175198}u^{39}-\frac{5566663425698706915383}{79172716073442175198}u^{38}+\cdots+\frac{2026914605363200330863 9}{79172716073442175198}u+\frac{11942328350242228350160}{395863580367210875599}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{40}+21u^{39}+\cdots+3u+1)^2$
c_2, c_4	$(u^{40}-3u^{39}+\cdots-3u+1)^2$
c_3, c_7	$(u^{40}-u^{39}+\cdots+8u+4)^2$
c_5, c_6	$u^{80}+2u^{79}+\cdots+418062244u+41568281$
c_8, c_9, c_{11} c_{12}	$u^{80}+14u^{79}+\cdots+4u+1$
c_{10}	$(u^{40}-2u^{39}+\cdots+4u^2+1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{40} - y^{39} + \cdots + 17y + 1)^2$
c_2, c_4	$(y^{40} - 21y^{39} + \cdots - 3y + 1)^2$
c_3, c_7	$(y^{40} - 15y^{39} + \cdots - 120y + 16)^2$
c_5, c_6	$y^{80} + 42y^{79} + \cdots + 5456149534708088y + 1727921985294961$
c_8, c_9, c_{11} c_{12}	$y^{80} + 54y^{79} + \cdots - 32y^2 + 1$
c_{10}	$(y^{40} + 14y^{39} + \cdots + 8y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.826955 + 0.557830I$ $a = 0.745274 - 0.624480I$ $b = 1.094300 - 0.379023I$	$-5.66453 + 0.03317I$	$1.69926 - 1.92960I$
$u = 0.826955 + 0.557830I$ $a = 0.186356 - 0.161443I$ $b = -0.31800 + 1.54704I$	$-5.66453 + 0.03317I$	$1.69926 - 1.92960I$
$u = 0.826955 - 0.557830I$ $a = 0.745274 + 0.624480I$ $b = 1.094300 + 0.379023I$	$-5.66453 - 0.03317I$	$1.69926 + 1.92960I$
$u = 0.826955 - 0.557830I$ $a = 0.186356 + 0.161443I$ $b = -0.31800 - 1.54704I$	$-5.66453 - 0.03317I$	$1.69926 + 1.92960I$
$u = -0.833045 + 0.611078I$ $a = -0.083268 + 0.377413I$ $b = 0.40800 + 1.44338I$	$-5.61480 - 2.41163I$	$1.66429 + 3.34704I$
$u = -0.833045 + 0.611078I$ $a = 1.95871 + 0.08818I$ $b = 0.639652 - 1.245220I$	$-5.61480 - 2.41163I$	$1.66429 + 3.34704I$
$u = -0.833045 - 0.611078I$ $a = -0.083268 - 0.377413I$ $b = 0.40800 - 1.44338I$	$-5.61480 + 2.41163I$	$1.66429 - 3.34704I$
$u = -0.833045 - 0.611078I$ $a = 1.95871 - 0.08818I$ $b = 0.639652 + 1.245220I$	$-5.61480 + 2.41163I$	$1.66429 - 3.34704I$
$u = 0.877394 + 0.558636I$ $a = 1.49199 - 0.93722I$ $b = 1.010680 + 0.081201I$	$-5.50165 + 4.43619I$	$2.27094 - 5.48285I$
$u = 0.877394 + 0.558636I$ $a = -2.48197 - 0.03741I$ $b = -0.45899 - 1.36850I$	$-5.50165 + 4.43619I$	$2.27094 - 5.48285I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.877394 - 0.558636I$ $a = 1.49199 + 0.93722I$ $b = 1.010680 - 0.081201I$	$-5.50165 - 4.43619I$	$2.27094 + 5.48285I$
$u = 0.877394 - 0.558636I$ $a = -2.48197 + 0.03741I$ $b = -0.45899 + 1.36850I$	$-5.50165 - 4.43619I$	$2.27094 + 5.48285I$
$u = -0.519708 + 0.927909I$ $a = -0.193562 - 1.010920I$ $b = -0.171268 - 0.115232I$	$-3.92955 + 1.74616I$	$3.95570 - 1.25758I$
$u = -0.519708 + 0.927909I$ $a = 0.282445 - 0.802919I$ $b = 0.070922 + 1.063730I$	$-3.92955 + 1.74616I$	$3.95570 - 1.25758I$
$u = -0.519708 - 0.927909I$ $a = -0.193562 + 1.010920I$ $b = -0.171268 + 0.115232I$	$-3.92955 - 1.74616I$	$3.95570 + 1.25758I$
$u = -0.519708 - 0.927909I$ $a = 0.282445 + 0.802919I$ $b = 0.070922 - 1.063730I$	$-3.92955 - 1.74616I$	$3.95570 + 1.25758I$
$u = 0.724966 + 0.781823I$ $a = -0.388682 - 0.372042I$ $b = 0.57153 - 1.34706I$	$-9.29673 - 1.32070I$	$-3.28134 + 0.72610I$
$u = 0.724966 + 0.781823I$ $a = 2.12006 - 0.70707I$ $b = 0.51317 + 1.39627I$	$-9.29673 - 1.32070I$	$-3.28134 + 0.72610I$
$u = 0.724966 - 0.781823I$ $a = -0.388682 + 0.372042I$ $b = 0.57153 + 1.34706I$	$-9.29673 + 1.32070I$	$-3.28134 - 0.72610I$
$u = 0.724966 - 0.781823I$ $a = 2.12006 + 0.70707I$ $b = 0.51317 - 1.39627I$	$-9.29673 + 1.32070I$	$-3.28134 - 0.72610I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.868850 + 0.239262I$ $a = -1.01430 + 2.67027I$ $b = -0.101637 - 1.117380I$	$-1.81418 + 0.52119I$	$10.28438 - 0.91978I$
$u = \quad 0.868850 + 0.239262I$ $a = -3.13476 + 0.46944I$ $b = -0.187234 + 0.916488I$	$-1.81418 + 0.52119I$	$10.28438 - 0.91978I$
$u = \quad 0.868850 - 0.239262I$ $a = -1.01430 - 2.67027I$ $b = -0.101637 + 1.117380I$	$-1.81418 - 0.52119I$	$10.28438 + 0.91978I$
$u = \quad 0.868850 - 0.239262I$ $a = -3.13476 - 0.46944I$ $b = -0.187234 - 0.916488I$	$-1.81418 - 0.52119I$	$10.28438 + 0.91978I$
$u = -0.779818 + 0.432918I$ $a = -0.42623 + 1.61459I$ $b = \quad 0.043388 + 0.215741I$	$-4.54874 + 0.68759I$	$4.54360 + 0.75970I$
$u = -0.779818 + 0.432918I$ $a = \quad 2.73004 - 0.74211I$ $b = -0.014553 - 1.091010I$	$-4.54874 + 0.68759I$	$4.54360 + 0.75970I$
$u = -0.779818 - 0.432918I$ $a = -0.42623 - 1.61459I$ $b = \quad 0.043388 - 0.215741I$	$-4.54874 - 0.68759I$	$4.54360 - 0.75970I$
$u = -0.779818 - 0.432918I$ $a = \quad 2.73004 + 0.74211I$ $b = -0.014553 + 1.091010I$	$-4.54874 - 0.68759I$	$4.54360 - 0.75970I$
$u = -0.968267 + 0.542322I$ $a = -0.17528 - 1.48716I$ $b = -0.051937 + 1.220780I$	$-3.68787 - 4.72692I$	$5.63267 + 6.05913I$
$u = -0.968267 + 0.542322I$ $a = -1.45149 - 0.86027I$ $b = -0.338370 - 0.740909I$	$-3.68787 - 4.72692I$	$5.63267 + 6.05913I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.968267-0.542322I$ $a=-0.17528+1.48716I$ $b=-0.051937-1.220780I$	$-3.68787+4.72692I$	$5.63267-6.05913I$
$u=-0.968267-0.542322I$ $a=-1.45149+0.86027I$ $b=-0.338370+0.740909I$	$-3.68787+4.72692I$	$5.63267-6.05913I$
$u=-0.360998+0.803267I$ $a=\ \ 0.546303+0.788949I$ $b=\ \ 0.843917+0.082387I$	$-2.68067+2.86826I$	$5.22261-1.95241I$
$u=-0.360998+0.803267I$ $a=\ \ 0.216150+0.304597I$ $b=-0.379813-1.278460I$	$-2.68067+2.86826I$	$5.22261-1.95241I$
$u=-0.360998-0.803267I$ $a=\ \ 0.546303-0.788949I$ $b=\ \ 0.843917-0.082387I$	$-2.68067-2.86826I$	$5.22261+1.95241I$
$u=-0.360998-0.803267I$ $a=\ \ 0.216150-0.304597I$ $b=-0.379813+1.278460I$	$-2.68067-2.86826I$	$5.22261+1.95241I$
$u=\ \ 0.603619+0.975261I$ $a=\ \ 0.539104-0.656174I$ $b=\ \ 1.074420-0.024887I$	$-4.97042-7.12390I$	$2.15087+6.13601I$
$u=\ \ 0.603619+0.975261I$ $a=\ \ 0.142310-0.265040I$ $b=-0.52253+1.37829I$	$-4.97042-7.12390I$	$2.15087+6.13601I$
$u=\ \ 0.603619-0.975261I$ $a=\ \ 0.539104+0.656174I$ $b=\ \ 1.074420+0.024887I$	$-4.97042+7.12390I$	$2.15087-6.13601I$
$u=\ \ 0.603619-0.975261I$ $a=\ \ 0.142310+0.265040I$ $b=-0.52253-1.37829I$	$-4.97042+7.12390I$	$2.15087-6.13601I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.151618 + 0.823207I$ $a = 0.293631 + 1.015830I$ $b = 0.361538 + 0.026553I$	$-2.21633 + 2.17702I$	$6.16670 - 4.43587I$
$u = 0.151618 + 0.823207I$ $a = 0.314260 + 0.523562I$ $b = -0.173897 - 1.060920I$	$-2.21633 + 2.17702I$	$6.16670 - 4.43587I$
$u = 0.151618 - 0.823207I$ $a = 0.293631 - 1.015830I$ $b = 0.361538 - 0.026553I$	$-2.21633 - 2.17702I$	$6.16670 + 4.43587I$
$u = 0.151618 - 0.823207I$ $a = 0.314260 - 0.523562I$ $b = -0.173897 + 1.060920I$	$-2.21633 - 2.17702I$	$6.16670 + 4.43587I$
$u = 0.977999 + 0.696966I$ $a = 1.61826 - 0.26074I$ $b = 0.75429 + 1.35354I$	$-8.50566 + 6.90989I$	$-1.24227 - 6.39245I$
$u = 0.977999 + 0.696966I$ $a = -0.127765 - 0.211953I$ $b = 0.48300 - 1.56700I$	$-8.50566 + 6.90989I$	$-1.24227 - 6.39245I$
$u = 0.977999 - 0.696966I$ $a = 1.61826 + 0.26074I$ $b = 0.75429 - 1.35354I$	$-8.50566 - 6.90989I$	$-1.24227 + 6.39245I$
$u = 0.977999 - 0.696966I$ $a = -0.127765 + 0.211953I$ $b = 0.48300 + 1.56700I$	$-8.50566 - 6.90989I$	$-1.24227 + 6.39245I$
$u = 1.094140 + 0.530959I$ $a = -0.452032 - 0.389965I$ $b = -0.355050 + 0.041453I$	$0.43018 + 2.44717I$	$8.96365 - 1.04542I$
$u = 1.094140 + 0.530959I$ $a = 1.44357 - 0.11719I$ $b = 0.188082 + 1.024920I$	$0.43018 + 2.44717I$	$8.96365 - 1.04542I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.094140 - 0.530959I$ $a = -0.452032 + 0.389965I$ $b = -0.355050 - 0.041453I$	$0.43018 - 2.44717I$	$8.96365 + 1.04542I$
$u = 1.094140 - 0.530959I$ $a = 1.44357 + 0.11719I$ $b = 0.188082 - 1.024920I$	$0.43018 - 2.44717I$	$8.96365 + 1.04542I$
$u = 1.221120 + 0.063847I$ $a = 1.125980 - 0.196059I$ $b = 0.593163 + 0.475031I$	$2.92122 - 0.22925I$	$9.84725 - 0.24543I$
$u = 1.221120 + 0.063847I$ $a = -0.471814 + 0.677278I$ $b = -0.495029 + 0.827389I$	$2.92122 - 0.22925I$	$9.84725 - 0.24543I$
$u = 1.221120 - 0.063847I$ $a = 1.125980 + 0.196059I$ $b = 0.593163 - 0.475031I$	$2.92122 + 0.22925I$	$9.84725 + 0.24543I$
$u = 1.221120 - 0.063847I$ $a = -0.471814 - 0.677278I$ $b = -0.495029 - 0.827389I$	$2.92122 + 0.22925I$	$9.84725 + 0.24543I$
$u = -1.226770 + 0.155149I$ $a = -0.981671 + 0.701822I$ $b = -0.583486 + 1.021390I$	$2.73470 - 5.56367I$	$9.18066 + 6.01609I$
$u = -1.226770 + 0.155149I$ $a = 1.261620 - 0.006116I$ $b = 0.810598 + 0.350769I$	$2.73470 - 5.56367I$	$9.18066 + 6.01609I$
$u = -1.226770 - 0.155149I$ $a = -0.981671 - 0.701822I$ $b = -0.583486 - 1.021390I$	$2.73470 + 5.56367I$	$9.18066 - 6.01609I$
$u = -1.226770 - 0.155149I$ $a = 1.261620 + 0.006116I$ $b = 0.810598 - 0.350769I$	$2.73470 + 5.56367I$	$9.18066 - 6.01609I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.098500+0.611090I$ $a=\ \ 1.183730+0.618523I$ $b=\ \ 1.122820+0.061689I$	$-0.58338-8.09252I$	$6.94350+6.08172I$
$u=-1.098500+0.611090I$ $a=-1.75069-0.00735I$ $b=-0.59867+1.36346I$	$-0.58338-8.09252I$	$6.94350+6.08172I$
$u=-1.098500-0.611090I$ $a=\ \ 1.183730-0.618523I$ $b=\ \ 1.122820-0.061689I$	$-0.58338+8.09252I$	$6.94350-6.08172I$
$u=-1.098500-0.611090I$ $a=-1.75069+0.00735I$ $b=-0.59867-1.36346I$	$-0.58338+8.09252I$	$6.94350-6.08172I$
$u=-0.719231+0.070906I$ $a=\ \ 1.19660-0.78457I$ $b=\ \ 0.790261-0.723503I$	$-4.03832-2.81821I$	$5.95524+6.55211I$
$u=-0.719231+0.070906I$ $a=\ \ 0.326838+0.027869I$ $b=-0.00782+1.46891I$	$-4.03832-2.81821I$	$5.95524+6.55211I$
$u=-0.719231-0.070906I$ $a=\ \ 1.19660+0.78457I$ $b=\ \ 0.790261+0.723503I$	$-4.03832+2.81821I$	$5.95524-6.55211I$
$u=-0.719231-0.070906I$ $a=\ \ 0.326838-0.027869I$ $b=-0.00782-1.46891I$	$-4.03832+2.81821I$	$5.95524-6.55211I$
$u=-1.114950+0.686791I$ $a=-0.724507+0.285455I$ $b=-0.501222+0.106408I$	$-2.08664-7.65538I$	$6.00000+4.86252I$
$u=-1.114950+0.686791I$ $a=\ \ 1.44363+0.43879I$ $b=\ \ 0.213807-1.140070I$	$-2.08664-7.65538I$	$6.00000+4.86252I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.114950-0.686791I$ $a=-0.724507-0.285455I$ $b=-0.501222-0.106408I$	$-2.08664+7.65538I$	$6.00000-4.86252I$
$u=-1.114950-0.686791I$ $a=1.44363-0.43879I$ $b=0.213807+1.140070I$	$-2.08664+7.65538I$	$6.00000-4.86252I$
$u=1.116090+0.737773I$ $a=1.021870-0.676642I$ $b=1.219170-0.027895I$	$-3.34357+13.38520I$	$3.57925-9.35928I$
$u=1.116090+0.737773I$ $a=-1.65187+0.26409I$ $b=-0.62712-1.44018I$	$-3.34357+13.38520I$	$3.57925-9.35928I$
$u=1.116090-0.737773I$ $a=1.021870+0.676642I$ $b=1.219170+0.027895I$	$-3.34357-13.38520I$	$3.57925+9.35928I$
$u=1.116090-0.737773I$ $a=-1.65187-0.26409I$ $b=-0.62712+1.44018I$	$-3.34357-13.38520I$	$3.57925+9.35928I$
$u=-0.341463+0.518277I$ $a=-4.34533+6.66745I$ $b=0.049617+0.912810I$	$-5.04535+0.68997I$	$-0.176606+0.164918I$
$u=-0.341463+0.518277I$ $a=10.66650+3.71569I$ $b=0.030298-1.072820I$	$-5.04535+0.68997I$	$-0.176606+0.164918I$
$u=-0.341463-0.518277I$ $a=-4.34533-6.66745I$ $b=0.049617-0.912810I$	$-5.04535-0.68997I$	$-0.176606-0.164918I$
$u=-0.341463-0.518277I$ $a=10.66650-3.71569I$ $b=0.030298+1.072820I$	$-5.04535-0.68997I$	$-0.176606-0.164918I$

III. $I_3^u = \langle b+1,\ 2u^5-4u^3-2u^2+2a+4u+3,\ u^6+u^5-u^4-2u^3+u+1\rangle$

(i) Arc colorings

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

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

$$a_7 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_{12} = \begin{pmatrix} -u^5+2u^3+u^2-2u-\frac{3}{2} \\ -1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -\frac{1}{4}u^2+\frac{1}{2} \\ \frac{1}{2}u^2 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -u^5+2u^3+u^2-2u-\frac{1}{2} \\ -1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -u^5+2u^3+u^2-2u+\frac{1}{2} \\ -1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^2+1 \\ u^2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^4+u^2-1 \\ u^5+u^4-2u^3-u^2+u+1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^5+2u^3+u^2-2u-\frac{1}{2} \\ -1 \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u^5+\frac{15}{4}u^4-4u^3-8u^2+4u+14$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^6 - 3u^5 + 5u^4 - 4u^3 + 2u^2 - u + 1$
c_2, c_7	$u^6 + u^5 - u^4 - 2u^3 + u + 1$
c_3, c_4	$u^6 - u^5 - u^4 + 2u^3 - u + 1$
c_5	$64(64u^6 + 96u^5 + 80u^4 + 32u^3 + 8u^2 + 2u + 1)$
c_6	$64(64u^6 - 96u^5 + 80u^4 - 32u^3 + 8u^2 - 2u + 1)$
c_8, c_9	$(u + 1)^6$
c_{10}	u^6
c_{11}, c_{12}	$(u - 1)^6$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^6+y^5+5y^4+6y^2+3y+1$
c_2, c_3, c_4 c_7	$y^6-3y^5+5y^4-4y^3+2y^2-y+1$
c_5, c_6	$4096(4096y^6+1024y^5+1280y^4+96y^2+12y+1)$
c_8, c_9, c_{11} c_{12}	$(y-1)^6$
c_{10}	y^6

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 1.002190 + 0.295542I$ $a = -1.269410 + 0.497010I$ $b = -1.00000$	$3.53554 + 0.92430I$	$10.21433 + 1.99338I$
$u = \quad 1.002190 - 0.295542I$ $a = -1.269410 - 0.497010I$ $b = -1.00000$	$3.53554 - 0.92430I$	$10.21433 - 1.99338I$
$u = -0.428243 + 0.664531I$ $a = \quad 0.16103 - 1.45708I$ $b = -1.00000$	$-0.245672 + 0.924305I$	$11.09213 + 6.83768I$
$u = -0.428243 - 0.664531I$ $a = \quad 0.16103 + 1.45708I$ $b = -1.00000$	$-0.245672 - 0.924305I$	$11.09213 - 6.83768I$
$u = -1.073950 + 0.558752I$ $a = -0.891622 - 0.558752I$ $b = -1.00000$	$1.64493 - 5.69302I$	$8.81854 + 4.26477I$
$u = -1.073950 - 0.558752I$ $a = -0.891622 + 0.558752I$ $b = -1.00000$	$1.64493 + 5.69302I$	$8.81854 - 4.26477I$

IV. $I_1^v = \langle a,\ -20v^2 + 13b + 69v - 1,\ 4v^3 - 13v^2 - v - 1 \rangle$

(i) Arc colorings

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

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

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

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

$$a_{12} = \begin{pmatrix} 0 \\ \frac{20}{13}v^2 - \frac{69}{13}v + \frac{1}{13} \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ \frac{12}{13}v^2 - \frac{31}{13}v - \frac{28}{13} \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -\frac{20}{13}v^2 + \frac{69}{13}v - \frac{1}{13} \\ \frac{20}{13}v^2 - \frac{69}{13}v + \frac{1}{13} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} \frac{12}{13}v^2 - \frac{31}{13}v - \frac{15}{13} \\ -\frac{12}{13}v^2 + \frac{31}{13}v + \frac{28}{13} \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -\frac{20}{13}v^2 + \frac{69}{13}v - \frac{1}{13} \\ 4v^2 - 13v - 1 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} \frac{20}{13}v^2 - \frac{56}{13}v + \frac{1}{13} \\ -4v^2 + 13v + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1 \\ -\frac{8}{13}v^2 + \frac{38}{13}v - \frac{42}{13} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{20}{13}v^2 - \frac{69}{13}v + \frac{1}{13} \\ -4v^2 + 13v + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{7}{13}v^2 - \frac{69}{13}v + \frac{118}{13}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^3$
c_3, c_7	y^3
c_5, c_6, c_8 c_9, c_{11}, c_{12}	$y^3 + 4y^2 + 4y - 1$
c_{10}	$y^3 + y^2 + 13y - 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v=-0.048505+0.268962I$ $a=\quad 0$ $b=\quad 0.22670-1.46771I$	$-11.08570-5.13794I$	$9.29669-1.44162I$
$v=-0.048505-0.268962I$ $a=\quad 0$ $b=\quad 0.22670+1.46771I$	$-11.08570+5.13794I$	$9.29669+1.44162I$
$v=\quad 3.34701$ $a=\quad 0$ $b=-0.453398$	-0.857735	-2.65590

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4v + 3$

(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_6, c_8 c_9	$u^4 - u^3 + 2u^2 - 2u + 1$
c_{10}	$(u^2 + u + 1)^2$
c_{11}, c_{12}	$u^4 + u^3 + 2u^2 + 2u + 1$

(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_6, c_8 c_9, c_{11}, c_{12}	$y^4 + 3y^3 + 2y^2 + 1$
c_{10}	$(y^2 + y + 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = -0.500000 + 0.866025I$ $a = 0$ $b = 0.621744 - 0.440597I$	$-4.93480 - 2.02988I$	$1.0000 + 3.46410I$
$v = -0.500000 + 0.866025I$ $a = 0$ $b = -0.121744 + 1.306620I$	$-4.93480 - 2.02988I$	$1.0000 + 3.46410I$
$v = -0.500000 - 0.866025I$ $a = 0$ $b = 0.621744 + 0.440597I$	$-4.93480 + 2.02988I$	$1.0000 - 3.46410I$
$v = -0.500000 - 0.866025I$ $a = 0$ $b = -0.121744 - 1.306620I$	$-4.93480 + 2.02988I$	$1.0000 - 3.46410I$

VI. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^7(u^6-3u^5+5u^4-4u^3+2u^2-u+1)$ $\cdot((u^{40}+21u^{39}+\cdots+3u+1)^2)(u^{48}+25u^{47}+\cdots+42145u+256)$
c_2	$((u-1)^7)(u^6+u^5+\cdots+u+1)(u^{40}-3u^{39}+\cdots-3u+1)^2$ $\cdot(u^{48}-3u^{47}+\cdots+257u-16)$
c_3	$u^7(u^6-u^5+\cdots-u+1)(u^{40}-u^{39}+\cdots+8u+4)^2$ $\cdot(u^{48}-9u^{46}+\cdots-688u+128)$
c_4	$((u+1)^7)(u^6-u^5+\cdots-u+1)(u^{40}-3u^{39}+\cdots-3u+1)^2$ $\cdot(u^{48}-3u^{47}+\cdots+257u-16)$
c_5	$4096(u^3+2u+1)(u^4-u^3+2u^2-2u+1)$ $\cdot(64u^6+96u^5+80u^4+32u^3+8u^2+2u+1)$ $\cdot(64u^{48}-96u^{47}+\cdots-2u-1)$ $\cdot(u^{80}+2u^{79}+\cdots+418062244u+41568281)$
c_6	$4096(u^3+2u+1)(u^4-u^3+2u^2-2u+1)$ $\cdot(64u^6-96u^5+80u^4-32u^3+8u^2-2u+1)$ $\cdot(64u^{48}-96u^{47}+\cdots-2u-1)$ $\cdot(u^{80}+2u^{79}+\cdots+418062244u+41568281)$
c_7	$u^7(u^6+u^5+\cdots+u+1)(u^{40}-u^{39}+\cdots+8u+4)^2$ $\cdot(u^{48}-9u^{46}+\cdots-688u+128)$
c_8, c_9	$((u+1)^6)(u^3+2u+1)(u^4-u^3+\cdots-2u+1)(u^{48}-6u^{47}+\cdots+8u+1)$ $\cdot(u^{80}+14u^{79}+\cdots+4u+1)$
c_{10}	$u^6(u^2+u+1)^2(u^3-3u^2+5u-2)(u^{40}-2u^{39}+\cdots+4u^2+1)^2$ $\cdot(u^{48}+6u^{47}+\cdots-61440u-16384)$
c_{11}, c_{12}	$((u-1)^6)(u^3+2u-1)(u^4+u^3+\cdots+2u+1)(u^{48}-6u^{47}+\cdots+8u+1)$ $\cdot(u^{80}+14u^{79}+\cdots+4u+1)$

VII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^7)(y^6+y^5+\cdots+3y+1)(y^{40}-y^{39}+\cdots+17y+1)^2$ $\cdot(y^{48}-y^{47}+\cdots-1631257409y+65536)$
c_2, c_4	$(y-1)^7(y^6-3y^5+5y^4-4y^3+2y^2-y+1)$ $\cdot((y^{40}-21y^{39}+\cdots-3y+1)^2)(y^{48}-25y^{47}+\cdots-42145y+256)$
c_3, c_7	$y^7(y^6-3y^5+5y^4-4y^3+2y^2-y+1)$ $\cdot(y^{40}-15y^{39}+\cdots-120y+16)^2$ $\cdot(y^{48}-18y^{47}+\cdots-312576y+16384)$
c_5, c_6	$16777216(y^3+4y^2+4y-1)(y^4+3y^3+2y^2+1)$ $\cdot(4096y^6+1024y^5+1280y^4+96y^2+12y+1)$ $\cdot(4096y^{48}+82944y^{47}+\cdots+10y+1)$ $\cdot(y^{80}+42y^{79}+\cdots+5456149534708088y+1727921985294961)$
c_8, c_9, c_{11} c_{12}	$(y-1)^6(y^3+4y^2+4y-1)(y^4+3y^3+2y^2+1)$ $\cdot(y^{48}+26y^{47}+\cdots-20y+1)(y^{80}+54y^{79}+\cdots-32y^2+1)$
c_{10}	$y^6(y^2+y+1)^2(y^3+y^2+13y-4)(y^{40}+14y^{39}+\cdots+8y+1)^2$ $\cdot(y^{48}+14y^{47}+\cdots+6325010432y+268435456)$