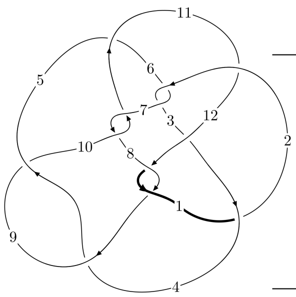
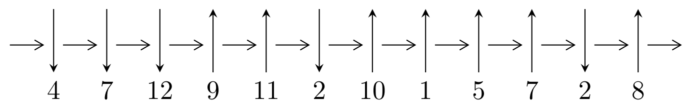
$12n_{0833}$ $(K12n_{0833})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle b - u,\ 48548678896552u^{20} - 6006433459385u^{19} + \cdots + 71783344195601a - 47045556341686,$$
$$u^{21} + 14u^{19} + \cdots + 2u - 1\rangle$$
$$I_2^u = \langle -3.76288 \times 10^{173}u^{53} + 8.45874 \times 10^{173}u^{52} + \cdots + 2.19868 \times 10^{176}b - 6.84188 \times 10^{175},$$
$$-1.56755 \times 10^{176}u^{53} + 6.60310 \times 10^{176}u^{52} + \cdots + 1.93703 \times 10^{179}a - 1.61567 \times 10^{180},$$
$$u^{54} - 2u^{53} + \cdots + 8u - 881\rangle$$
$$I_3^u = \langle b + u,\ -222u^{10} - 336u^9 + \cdots + a - 435,$$
$$u^{11} + u^{10} + 5u^9 + 5u^8 + 8u^7 + 4u^6 - u^5 - 8u^4 - 5u^3 + 4u^2 + 2u - 1\rangle$$
$$I_4^u = \langle -415u^9 - 3u^8 - 1587u^7 + 1035u^6 - 446u^5 + 2078u^4 - 356u^3 - 176u^2 + 947b - 236u + 990,$$
$$-990u^9 + 415u^8 - 3957u^7 + 4557u^6 - 3015u^5 + 7376u^4 - 5048u^3 + 356u^2 + 947a - 814u + 2259,$$
$$u^{10} + 4u^8 - 3u^7 + 2u^6 - 7u^5 + 3u^4 + u^2 - 3u - 1\rangle$$
$$I_5^u = \langle b + 1,\ a + 1,\ u^2 + u + 1\rangle$$
$$I_6^u = \langle b - a,\ a^2 - a + 1,\ u - 1\rangle$$
$$I_7^u = \langle b + 1,\ a + 1,\ u - 1\rangle$$

* 7 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 101 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. $I_1^u = \langle b - u,\ 4.85 \times 10^{13} u^{20} - 6.01 \times 10^{12} u^{19} + \cdots + 7.18 \times 10^{13} a - 4.70 \times 10^{13},\ u^{21} + 14u^{19} + \cdots + 2u - 1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_{11} = \begin{pmatrix} -0.676322u^{20} + 0.0836745u^{19} + \cdots - 0.904643u + 0.655383 \\ u \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.676322u^{20} + 0.0836745u^{19} + \cdots - 1.90464u + 0.655383 \\ u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.278559u^{20} + 0.719791u^{19} + \cdots - 0.164650u + 1.12048 \\ -0.135676u^{20} + 0.00165013u^{19} + \cdots + 0.646987u - 0.365331 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.366756u^{20} + 0.375883u^{19} + \cdots + 0.868662u - 0.228102 \\ -0.233031u^{20} - 0.107091u^{19} + \cdots + 0.832055u - 0.0591206 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.431470u^{20} + 0.0592084u^{19} + \cdots - 3.92201u - 0.662751 \\ -0.365331u^{20} - 0.135676u^{19} + \cdots + 1.84367u - 0.0836745 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.676322u^{20} + 0.0836745u^{19} + \cdots - 0.904643u + 0.655383 \\ 0.365331u^{20} + 0.135676u^{19} + \cdots + 0.156329u + 0.0836745 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.0661390u^{20} + 0.0764679u^{19} + \cdots + 4.07834u + 0.746425 \\ 0.00757019u^{20} - 0.0951795u^{19} + \cdots - 0.0627460u + 0.160142 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.0437773u^{20} + 0.585804u^{19} + \cdots + 1.76176u + 0.123227 \\ 0.501792u^{20} + 0.0290138u^{19} + \cdots - 0.808907u + 0.835921 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes
$= \frac{93023336471019}{71783344195601}u^{20} - \frac{12342208661863}{71783344195601}u^{19} + \cdots - \frac{521990187380724}{71783344195601}u + \frac{687807135458680}{71783344195601}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{21} - 13u^{20} + \cdots - 80u + 16$
c_2, c_6, c_{11}	$u^{21} + 14u^{19} + \cdots + 2u - 1$
c_3	$u^{21} - u^{20} + \cdots + 32u - 4$
c_4, c_8, c_9 c_{12}	$u^{21} - 9u^{19} + \cdots - 3u - 1$
c_5	$u^{21} - 16u^{20} + \cdots - 96u + 16$
c_7, c_{10}	$u^{21} + 12u^{20} + \cdots - 48u - 32$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{21} - y^{20} + \cdots + 9088y - 256$
c_2, c_6, c_{11}	$y^{21} + 28y^{20} + \cdots - 2y - 1$
c_3	$y^{21} + 9y^{20} + \cdots + 416y - 16$
c_4, c_8, c_9 c_{12}	$y^{21} - 18y^{20} + \cdots + 17y - 1$
c_5	$y^{21} - 18y^{20} + \cdots + 19840y - 256$
c_7, c_{10}	$y^{21} + 4y^{20} + \cdots + 16128y - 1024$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.931812$		
$a = -1.10584$	-1.23294	-9.61470
$b = -0.931812$		
$u = 0.158069 + 0.768821I$		
$a = 1.54952 + 0.85996I$	$3.14578 - 1.78255I$	$5.78902 + 2.84245I$
$b = 0.158069 + 0.768821I$		
$u = 0.158069 - 0.768821I$		
$a = 1.54952 - 0.85996I$	$3.14578 + 1.78255I$	$5.78902 - 2.84245I$
$b = 0.158069 - 0.768821I$		
$u = 0.368613 + 0.559573I$		
$a = -0.687955 + 1.093130I$	$7.34275 + 2.74966I$	$8.62625 - 1.12631I$
$b = 0.368613 + 0.559573I$		
$u = 0.368613 - 0.559573I$		
$a = -0.687955 - 1.093130I$	$7.34275 - 2.74966I$	$8.62625 + 1.12631I$
$b = 0.368613 - 0.559573I$		
$u = -0.669849$		
$a = -0.412127$	-1.30942	-8.50190
$b = -0.669849$		
$u = 0.462672 + 0.435720I$		
$a = -1.84142 - 1.00748I$	$3.45656 + 7.33502I$	$6.59710 - 2.57057I$
$b = 0.462672 + 0.435720I$		
$u = 0.462672 - 0.435720I$		
$a = -1.84142 + 1.00748I$	$3.45656 - 7.33502I$	$6.59710 + 2.57057I$
$b = 0.462672 - 0.435720I$		
$u = 0.21115 + 1.51032I$		
$a = 0.507410 + 0.503080I$	$3.60338 + 0.39260I$	$1.59132 - 2.36452I$
$b = 0.21115 + 1.51032I$		
$u = 0.21115 - 1.51032I$		
$a = 0.507410 - 0.503080I$	$3.60338 - 0.39260I$	$1.59132 + 2.36452I$
$b = 0.21115 - 1.51032I$		

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.207390+0.342456I$ $a=2.58416-1.74247I$ $b=-0.207390+0.342456I$	$-3.33864+1.70008I$	$4.87006-6.64334I$
$u=-0.207390-0.342456I$ $a=2.58416+1.74247I$ $b=-0.207390-0.342456I$	$-3.33864-1.70008I$	$4.87006+6.64334I$
$u=0.355382$ $a=1.68281$ $b=0.355382$	0.901391	11.0500
$u=-0.40653+1.63380I$ $a=-0.447826+0.505871I$ $b=-0.40653+1.63380I$	$3.41140+5.44166I$	$0.03097-2.59655I$
$u=-0.40653-1.63380I$ $a=-0.447826-0.505871I$ $b=-0.40653-1.63380I$	$3.41140-5.44166I$	$0.03097+2.59655I$
$u=-0.43942+1.74488I$ $a=-0.453249+0.941647I$ $b=-0.43942+1.74488I$	$7.19102+6.99016I$	$6.70966-6.90115I$
$u=-0.43942-1.74488I$ $a=-0.453249-0.941647I$ $b=-0.43942-1.74488I$	$7.19102-6.99016I$	$6.70966+6.90115I$
$u=-0.03915+1.83375I$ $a=-0.354012+0.901091I$ $b=-0.03915+1.83375I$	$14.3089-7.4913I$	$8.52687+5.06459I$
$u=-0.03915-1.83375I$ $a=-0.354012-0.901091I$ $b=-0.03915-1.83375I$	$14.3089+7.4913I$	$8.52687-5.06459I$
$u=0.51512+1.80013I$ $a=0.560954+0.682183I$ $b=0.51512+1.80013I$	$11.8699-16.2021I$	$6.29206+7.56505I$

	Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	$0.51512 - 1.80013I$		
$a =$	$0.560954 - 0.682183I$	$11.8699 + 16.2021I$	$6.29206 - 7.56505I$
$b =$	$0.51512 - 1.80013I$		

II. $I_2^u = \langle -3.76 \times 10^{173}u^{53} + 8.46 \times 10^{173}u^{52} + \cdots + 2.20 \times 10^{176}b - 6.84 \times 10^{175},\ -1.57 \times 10^{176}u^{53} + 6.60 \times 10^{176}u^{52} + \cdots + 1.94 \times 10^{179}a - 1.62 \times 10^{180},\ u^{54} - 2u^{53} + \cdots + 8u - 881 \rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 0.000809251u^{53} - 0.00340887u^{52} + \cdots - 16.8712u + 8.34097 \\ 0.00171143u^{53} - 0.00384720u^{52} + \cdots - 7.47610u + 0.311182 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.000902179u^{53} + 0.000438327u^{52} + \cdots - 9.39509u + 8.02979 \\ 0.00171143u^{53} - 0.00384720u^{52} + \cdots - 7.47610u + 0.311182 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.000743820u^{53} - 0.00251322u^{52} + \cdots - 13.5685u - 1.47274 \\ 0.00262451u^{53} - 0.00732419u^{52} + \cdots - 0.123838u + 3.07143 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.00152046u^{53} + 0.00483363u^{52} + \cdots + 18.9650u - 5.02558 \\ -0.00233209u^{53} + 0.00820063u^{52} + \cdots + 1.99689u - 4.64813 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.00275204u^{53} - 0.00635627u^{52} + \cdots - 36.5154u - 0.446341 \\ 0.00127045u^{53} - 0.00284976u^{52} + \cdots + 4.78832u - 1.13398 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.000809251u^{53} - 0.00340887u^{52} + \cdots - 16.8712u + 8.34097 \\ 0.00116466u^{53} - 0.00178627u^{52} + \cdots - 6.74883u - 1.26613 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.00524804u^{53} + 0.0100044u^{52} + \cdots + 35.6558u + 4.16462 \\ -0.000245414u^{53} - 0.000548473u^{52} + \cdots - 5.47921u + 3.28507 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.00350037u^{53} + 0.00769598u^{52} + \cdots + 33.6542u + 5.02678 \\ -0.00147629u^{53} + 0.00489924u^{52} + \cdots - 8.61805u - 1.40443 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.0184310u^{53} - 0.0467511u^{52} + \cdots - 24.9350u + 14.3006$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{27} + 3u^{26} + \cdots + 81u + 31)^2$
c_2, c_6, c_{11}	$u^{54} - 2u^{53} + \cdots + 8u - 881$
c_3	$u^{54} + 5u^{53} + \cdots + 653278u + 100003$
c_4, c_8, c_9 c_{12}	$u^{54} + 2u^{53} + \cdots + 150u - 131$
c_5	$(u^{27} + 7u^{26} + \cdots + 4u + 4)^2$
c_7, c_{10}	$(u^{27} - 4u^{26} + \cdots - 9u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{27} + 17y^{26} + \cdots - 12163y - 961)^2$
c_2, c_6, c_{11}	$y^{54} + 54y^{53} + \cdots + 40772616y + 776161$
c_3	$y^{54} + 29y^{53} + \cdots - 50799866454y + 10000600009$
c_4, c_8, c_9 c_{12}	$y^{54} - 38y^{53} + \cdots - 141448y + 17161$
c_5	$(y^{27} - 39y^{26} + \cdots + 520y - 16)^2$
c_7, c_{10}	$(y^{27} + 12y^{26} + \cdots + 5y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.999576 + 0.200215I$ $a = 0.056971 - 0.695193I$ $b = -0.369310 - 0.746851I$	$-1.89161 + 0.09963I$	$-2.61530 - 0.73623I$
$u = -0.999576 - 0.200215I$ $a = 0.056971 + 0.695193I$ $b = -0.369310 + 0.746851I$	$-1.89161 - 0.09963I$	$-2.61530 + 0.73623I$
$u = 0.813130 + 0.646744I$ $a = 0.722059 + 0.136619I$ $b = 0.112951 + 0.378161I$	$1.32145 - 0.50921I$	$7.89189 + 0.74907I$
$u = 0.813130 - 0.646744I$ $a = 0.722059 - 0.136619I$ $b = 0.112951 - 0.378161I$	$1.32145 + 0.50921I$	$7.89189 - 0.74907I$
$u = -0.859323 + 0.602277I$ $a = -0.910439 + 0.753077I$ $b = -0.069617 - 0.196529I$	$-1.40206 - 1.58564I$	$1.82793 - 1.68869I$
$u = -0.859323 - 0.602277I$ $a = -0.910439 - 0.753077I$ $b = -0.069617 + 0.196529I$	$-1.40206 + 1.58564I$	$1.82793 + 1.68869I$
$u = 0.107451 + 0.916597I$ $a = -0.492470 - 0.528025I$ $b = -1.308180 + 0.112852I$	$1.02545 - 1.78671I$	$7.36667 + 4.23667I$
$u = 0.107451 - 0.916597I$ $a = -0.492470 + 0.528025I$ $b = -1.308180 - 0.112852I$	$1.02545 + 1.78671I$	$7.36667 - 4.23667I$
$u = 1.035250 + 0.334870I$ $a = 0.084787 - 0.942859I$ $b = -0.049724 - 0.771785I$	$-0.03561 - 4.27592I$	$3.10305 + 6.89248I$
$u = 1.035250 - 0.334870I$ $a = 0.084787 + 0.942859I$ $b = -0.049724 + 0.771785I$	$-0.03561 + 4.27592I$	$3.10305 - 6.89248I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.369310 + 0.746851I$ $a = -0.803654 + 0.287281I$ $b = -0.999576 - 0.200215I$	$-1.89161 - 0.09963I$	$-2.61530 + 0.73623I$
$u = -0.369310 - 0.746851I$ $a = -0.803654 - 0.287281I$ $b = -0.999576 + 0.200215I$	$-1.89161 + 0.09963I$	$-2.61530 - 0.73623I$
$u = -0.263308 + 0.734509I$ $a = 2.06100 - 0.38717I$ $b = 0.877552 - 0.994760I$	$1.99589 + 3.47011I$	$5.94769 - 2.08047I$
$u = -0.263308 - 0.734509I$ $a = 2.06100 + 0.38717I$ $b = 0.877552 + 0.994760I$	$1.99589 - 3.47011I$	$5.94769 + 2.08047I$
$u = -0.027660 + 0.776154I$ $a = 0.943960 + 0.930036I$ $b = 1.46919 + 0.36440I$	$4.69434 - 8.65979I$	$7.06084 + 6.43035I$
$u = -0.027660 - 0.776154I$ $a = 0.943960 - 0.930036I$ $b = 1.46919 - 0.36440I$	$4.69434 + 8.65979I$	$7.06084 - 6.43035I$
$u = -0.049724 + 0.771785I$ $a = 1.189320 - 0.599452I$ $b = 1.035250 - 0.334870I$	$-0.03561 + 4.27592I$	$3.10305 - 6.89248I$
$u = -0.049724 - 0.771785I$ $a = 1.189320 + 0.599452I$ $b = 1.035250 + 0.334870I$	$-0.03561 - 4.27592I$	$3.10305 + 6.89248I$
$u = 0.286573 + 1.197040I$ $a = 0.012252 - 0.314090I$ $b = 0.14576 - 1.79863I$	$9.62723 - 2.79194I$	0
$u = 0.286573 - 1.197040I$ $a = 0.012252 + 0.314090I$ $b = 0.14576 + 1.79863I$	$9.62723 + 2.79194I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.308180+0.112852I$ $a=-0.360346+0.357343I$ $b=\ \ 0.107451+0.916597I$	$1.02545-1.78671I$	0
$u=-1.308180-0.112852I$ $a=-0.360346-0.357343I$ $b=\ \ 0.107451-0.916597I$	$1.02545+1.78671I$	0
$u=\ \ 0.877552+0.994760I$ $a=-1.042240-0.659781I$ $b=-0.263308-0.734509I$	$1.99589-3.47011I$	0
$u=\ \ 0.877552-0.994760I$ $a=-1.042240+0.659781I$ $b=-0.263308+0.734509I$	$1.99589+3.47011I$	0
$u=-0.323634+1.349310I$ $a=-0.553042+0.621426I$ $b=\ \ 0.19309+1.92766I$	$11.74090+3.23440I$	0
$u=-0.323634-1.349310I$ $a=-0.553042-0.621426I$ $b=\ \ 0.19309-1.92766I$	$11.74090-3.23440I$	0
$u=-1.44084$ $a=\ \ 0.744869$ $b=\ \ 0.336535$	0.903331	0
$u=\ \ 1.46919+0.36440I$ $a=-0.367164+0.572239I$ $b=-0.027660+0.776154I$	$4.69434-8.65979I$	0
$u=\ \ 1.46919-0.36440I$ $a=-0.367164-0.572239I$ $b=-0.027660-0.776154I$	$4.69434+8.65979I$	0
$u=\ \ 0.08057+1.52846I$ $a=\ \ 0.211067-0.658010I$ $b=\ \ 0.02830-1.86575I$	$9.52525-3.10529I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.08057 - 1.52846I$ $a = 0.211067 + 0.658010I$ $b = 0.02830 + 1.86575I$	$9.52525 + 3.10529I$	0
$u = 0.112951 + 0.378161I$ $a = 1.76513 - 0.79172I$ $b = 0.813130 + 0.646744I$	$1.32145 - 0.50921I$	$7.89189 + 0.74907I$
$u = 0.112951 - 0.378161I$ $a = 1.76513 + 0.79172I$ $b = 0.813130 - 0.646744I$	$1.32145 + 0.50921I$	$7.89189 - 0.74907I$
$u = 0.47882 + 1.56299I$ $a = -0.565280 - 0.793048I$ $b = -0.25503 - 1.70161I$	$5.12232 - 4.49310I$	0
$u = 0.47882 - 1.56299I$ $a = -0.565280 + 0.793048I$ $b = -0.25503 + 1.70161I$	$5.12232 + 4.49310I$	0
$u = 0.336535$ $a = -3.18907$ $b = -1.44084$	0.903331	10.7580
$u = -0.02444 + 1.69640I$ $a = 0.551913 + 0.384089I$ $b = 0.73964 + 1.55006I$	$11.80540 - 1.90633I$	0
$u = -0.02444 - 1.69640I$ $a = 0.551913 - 0.384089I$ $b = 0.73964 - 1.55006I$	$11.80540 + 1.90633I$	0
$u = 0.34221 + 1.67023I$ $a = -0.621298 - 0.577503I$ $b = -0.60853 - 1.79153I$	$6.88193 - 9.55690I$	0
$u = 0.34221 - 1.67023I$ $a = -0.621298 + 0.577503I$ $b = -0.60853 + 1.79153I$	$6.88193 + 9.55690I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.73964 + 1.55006I$ $a = 0.320300 + 0.581891I$ $b = -0.02444 + 1.69640I$	$11.80540 - 1.90633I$	0
$u = 0.73964 - 1.55006I$ $a = 0.320300 - 0.581891I$ $b = -0.02444 - 1.69640I$	$11.80540 + 1.90633I$	0
$u = -0.25503 + 1.70161I$ $a = 0.642616 - 0.665691I$ $b = 0.47882 - 1.56299I$	$5.12232 + 4.49310I$	0
$u = -0.25503 - 1.70161I$ $a = 0.642616 + 0.665691I$ $b = 0.47882 + 1.56299I$	$5.12232 - 4.49310I$	0
$u = -0.069617 + 0.196529I$ $a = 4.87818 - 3.40103I$ $b = -0.859323 - 0.602277I$	$-1.40206 + 1.58564I$	$1.82793 + 1.68869I$
$u = -0.069617 - 0.196529I$ $a = 4.87818 + 3.40103I$ $b = -0.859323 + 0.602277I$	$-1.40206 - 1.58564I$	$1.82793 - 1.68869I$
$u = 0.14576 + 1.79863I$ $a = 0.058603 - 0.206239I$ $b = 0.286573 - 1.197040I$	$9.62723 + 2.79194I$	0
$u = 0.14576 - 1.79863I$ $a = 0.058603 + 0.206239I$ $b = 0.286573 + 1.197040I$	$9.62723 - 2.79194I$	0
$u = 0.02830 + 1.86575I$ $a = -0.136152 - 0.550235I$ $b = 0.08057 - 1.52846I$	$9.52525 + 3.10529I$	0
$u = 0.02830 - 1.86575I$ $a = -0.136152 + 0.550235I$ $b = 0.08057 + 1.52846I$	$9.52525 - 3.10529I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.60853 + 1.79153I$ $a = 0.490396 - 0.586300I$ $b = 0.34221 - 1.67023I$	$6.88193 + 9.55690I$	0
$u = -0.60853 - 1.79153I$ $a = 0.490396 + 0.586300I$ $b = 0.34221 + 1.67023I$	$6.88193 - 9.55690I$	0
$u = 0.19309 + 1.92766I$ $a = -0.520491 + 0.289994I$ $b = -0.323634 + 1.349310I$	$11.74090 + 3.23440I$	0
$u = 0.19309 - 1.92766I$ $a = -0.520491 - 0.289994I$ $b = -0.323634 - 1.349310I$	$11.74090 - 3.23440I$	0

III. $\boldsymbol{I_3^u = \langle b + u,\ -222u^{10} - 336u^9 + \cdots + a - 435,\ u^{11} + u^{10} + \cdots + 2u - 1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 222u^{10} + 336u^9 + \cdots - 21u + 435 \\ -u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 222u^{10} + 336u^9 + \cdots - 20u + 435 \\ -u \end{pmatrix}$$
$$a_4 = \begin{pmatrix} -200u^{10} - 302u^9 + \cdots + 18u - 386 \\ 30u^{10} + 45u^9 + \cdots - 2u + 58 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 71u^{10} + 108u^9 + \cdots - 8u + 137 \\ -38u^{10} - 57u^9 + \cdots + u - 72 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -107u^{10} - 163u^9 + \cdots + 19u - 207 \\ 58u^{10} + 88u^9 + \cdots - 5u + 114 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 222u^{10} + 336u^9 + \cdots - 21u + 435 \\ 58u^{10} + 88u^9 + \cdots - 7u + 114 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 49u^{10} + 75u^9 + \cdots - 12u + 93 \\ -44u^{10} - 67u^9 + \cdots + 4u - 88 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 70u^{10} + 106u^9 + \cdots - 8u + 132 \\ -11u^{10} - 16u^9 + \cdots - u - 21 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= 52u^{10} + 80u^9 + 306u^8 + 428u^7 + 662u^6 + 580u^5 + 289u^4 - 248u^3 - 387u^2 - 24u + 83$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{11} - 2u^{10} + \cdots + 16u - 5$
c_2, c_{11}	$u^{11} + u^{10} + 5u^9 + 5u^8 + 8u^7 + 4u^6 - u^5 - 8u^4 - 5u^3 + 4u^2 + 2u - 1$
c_3	$u^{11} + 3u^9 - 2u^8 + 6u^7 + u^6 - 4u^5 + 2u^4 + 2u^3 - 4u^2 - 4u + 4$
c_4, c_8	$u^{11} - u^{10} - 4u^9 + 4u^8 + 7u^7 - 8u^6 - 3u^5 + 6u^4 - 3u^2 + u + 1$
c_5	$u^{11} - 7u^{10} + \cdots - 18u + 9$
c_6	$u^{11} - u^{10} + 5u^9 - 5u^8 + 8u^7 - 4u^6 - u^5 + 8u^4 - 5u^3 - 4u^2 + 2u + 1$
c_7	$u^{11} + 2u^{10} + \cdots + 7u + 1$
c_9, c_{12}	$u^{11} + u^{10} - 4u^9 - 4u^8 + 7u^7 + 8u^6 - 3u^5 - 6u^4 + 3u^2 + u - 1$
c_{10}	$u^{11} - 2u^{10} + \cdots + 7u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{11} + 8y^{10} + \cdots + 46y - 25$
c_2, c_6, c_{11}	$y^{11} + 9y^{10} + \cdots + 12y - 1$
c_3	$y^{11} + 6y^{10} + \cdots + 48y - 16$
c_4, c_8, c_9 c_{12}	$y^{11} - 9y^{10} + \cdots + 7y - 1$
c_5	$y^{11} - 9y^{10} + \cdots + 216y - 81$
c_7, c_{10}	$y^{11} + 12y^{10} + \cdots + 15y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.764733 + 0.907103I$ $a = 1.32980 - 0.80414I$ $b = 0.764733 - 0.907103I$	$1.14680 + 4.22750I$	$-1.36621 - 8.43394I$
$u = -0.764733 - 0.907103I$ $a = 1.32980 + 0.80414I$ $b = 0.764733 + 0.907103I$	$1.14680 - 4.22750I$	$-1.36621 + 8.43394I$
$u = -0.733496 + 0.174852I$ $a = 0.12549 + 1.45658I$ $b = 0.733496 - 0.174852I$	$2.59459 + 8.35550I$	$1.41259 - 6.78712I$
$u = -0.733496 - 0.174852I$ $a = 0.12549 - 1.45658I$ $b = 0.733496 + 0.174852I$	$2.59459 - 8.35550I$	$1.41259 + 6.78712I$
$u = 0.599843$ $a = 0.370877$ $b = -0.599843$	-0.711473	7.33160
$u = 0.511585 + 0.003373I$ $a = 0.17657 - 2.30312I$ $b = -0.511585 - 0.003373I$	$-3.83973 - 1.32944I$	$-6.18276 - 0.13949I$
$u = 0.511585 - 0.003373I$ $a = 0.17657 + 2.30312I$ $b = -0.511585 + 0.003373I$	$-3.83973 + 1.32944I$	$-6.18276 + 0.13949I$
$u = -0.23085 + 1.58674I$ $a = 0.228794 - 0.236470I$ $b = 0.23085 - 1.58674I$	$11.32230 - 0.31593I$	$7.05420 + 0.54035I$
$u = -0.23085 - 1.58674I$ $a = 0.228794 + 0.236470I$ $b = 0.23085 + 1.58674I$	$11.32230 + 0.31593I$	$7.05420 - 0.54035I$
$u = 0.41757 + 1.70908I$ $a = -0.546090 - 0.778511I$ $b = -0.41757 - 1.70908I$	$5.58114 - 6.07222I$	$4.91640 + 5.82146I$

Solutions to I_3^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = \quad 0.41757 - 1.70908I$ $a = -0.546090 + 0.778511I$ $b = -0.41757 + 1.70908I$	$5.58114 + 6.07222I$	$4.91640 - 5.82146I$

IV. $I_4^u = \langle -415u^9 - 3u^8 + \cdots + 947b + 990,\ -990u^9 + 415u^8 + \cdots + 947a + 2259,\ u^{10} + 4u^8 + \cdots - 3u - 1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_{11} = \begin{pmatrix} 1.04541u^9 - 0.438226u^8 + \cdots + 0.859556u - 2.38543 \\ 0.438226u^9 + 0.00316790u^8 + \cdots + 0.249208u - 1.04541 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.607181u^9 - 0.441394u^8 + \cdots + 0.610348u - 1.34002 \\ 0.438226u^9 + 0.00316790u^8 + \cdots + 0.249208u - 1.04541 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -0.456177u^9 + 0.100317u^8 + \cdots + 1.22492u + 2.89546 \\ -0.0443506u^9 + 0.0791975u^8 + \cdots - 0.769799u + 0.864836 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} 0.165787u^9 - 0.367476u^8 + \cdots + 1.09187u - 1.73284 \\ 0.409715u^9 - 0.303062u^8 + \cdots + 0.825766u - 0.989440 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u \\ u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.0105597u^9 + 0.409715u^8 + \cdots - 0.102429u + 0.794087 \\ -0.483633u^9 + 0.435058u^8 + \cdots + 0.891235u + 0.430834 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 1.04541u^9 - 0.438226u^8 + \cdots + 0.859556u - 2.38543 \\ 0.435058u^9 + 0.0802534u^8 + \cdots - 0.0200634u - 1.48363 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.472017u^9 - 0.485744u^8 + \cdots + 1.12144u - 1.70433 \\ 0.635692u^9 - 0.135164u^8 + \cdots + 0.0337909u - 1.39599 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.795143u^9 - 0.348469u^8 + \cdots + 1.58712u - 1.00528 \\ 0.635692u^9 - 0.135164u^8 + \cdots - 0.966209u - 1.39599 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes
$= \frac{727}{947}u^9 + \frac{934}{947}u^8 + \frac{2593}{947}u^7 + \frac{1644}{947}u^6 - \frac{1617}{947}u^5 - \frac{1728}{947}u^4 - \frac{4068}{947}u^3 + \frac{3341}{947}u^2 - \frac{4495}{947}u + \frac{2396}{947}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^5 - u^2 - 1)^2$
c_2, c_{11}	$u^{10} + 4u^8 - 3u^7 + 2u^6 - 7u^5 + 3u^4 + u^2 - 3u - 1$
c_3	$u^{10} - 5u^9 + 14u^8 - 21u^7 + 13u^6 + 17u^5 - 29u^4 + 5u^3 + 2u^2 + 3u + 1$
c_4, c_8	$u^{10} - 4u^8 + u^7 + 4u^6 + u^5 + u^4 - 8u^3 + u^2 + 5u - 1$
c_5	$(u^5 + 3u^4 + 3u^3 + 5u^2 + 8u + 3)^2$
c_6	$u^{10} + 4u^8 + 3u^7 + 2u^6 + 7u^5 + 3u^4 + u^2 + 3u - 1$
c_7	$(u^5 + u^3 + 1)^2$
c_9, c_{12}	$u^{10} - 4u^8 - u^7 + 4u^6 - u^5 + u^4 + 8u^3 + u^2 - 5u - 1$
c_{10}	$(u^5 + u^3 - 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^5 - y^2 - 2y - 1)^2$
c_2, c_6, c_{11}	$y^{10} + 8y^9 + \cdots - 11y + 1$
c_3	$y^{10} + 3y^9 + \cdots - 5y + 1$
c_4, c_8, c_9 c_{12}	$y^{10} - 8y^9 + \cdots - 27y + 1$
c_5	$(y^5 - 3y^4 - 5y^3 + 5y^2 + 34y - 9)^2$
c_7, c_{10}	$(y^5 + 2y^4 + y^3 - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.708454 + 0.548065I$ $a = 0.989557 + 0.881651I$ $b = 0.490601 - 0.618886I$	$-1.28683 + 2.49842I$	$2.82575 - 5.47824I$
$u = 0.708454 - 0.548065I$ $a = 0.989557 - 0.881651I$ $b = 0.490601 + 0.618886I$	$-1.28683 - 2.49842I$	$2.82575 + 5.47824I$
$u = 1.12964$ $a = 0.741495$ $b = 0.292016$	-0.487604	4.31500
$u = -0.490601 + 0.618886I$ $a = 0.98657 - 1.13408I$ $b = -0.708454 - 0.548065I$	$-1.28683 + 2.49842I$	$2.82575 - 5.47824I$
$u = -0.490601 - 0.618886I$ $a = 0.98657 + 1.13408I$ $b = -0.708454 + 0.548065I$	$-1.28683 - 2.49842I$	$2.82575 + 5.47824I$
$u = -0.484903 + 1.213150I$ $a = -0.291566 + 0.641344I$ $b = 0.15176 + 1.87785I$	$9.75531 + 3.69319I$	$5.51677 - 7.22620I$
$u = -0.484903 - 1.213150I$ $a = -0.291566 - 0.641344I$ $b = 0.15176 - 1.87785I$	$9.75531 - 3.69319I$	$5.51677 + 7.22620I$
$u = -0.292016$ $a = -2.86840$ $b = -1.12964$	-0.487604	4.31500
$u = -0.15176 + 1.87785I$ $a = 0.378895 + 0.308418I$ $b = 0.484903 + 1.213150I$	$9.75531 - 3.69319I$	$5.51677 + 7.22620I$
$u = -0.15176 - 1.87785I$ $a = 0.378895 - 0.308418I$ $b = 0.484903 - 1.213150I$	$9.75531 + 3.69319I$	$5.51677 - 7.22620I$

V. $I_5^u = \langle b+1,\ a+1,\ u^2+u+1\rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.500000 + 0.866025I$ $a = -1.00000$ $b = -1.00000$	0	3.00000
$u = -0.500000 - 0.866025I$ $a = -1.00000$ $b = -1.00000$	0	3.00000

VI. $I_6^u = \langle b - a,\ a^2 - a + 1,\ u - 1\rangle$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} a \\ a \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0 \\ a \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ a \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -a + 1 \\ -a + 1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

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

$$a_{10} = \begin{pmatrix} a \\ 2a \end{pmatrix}$$

$$a_8 = \begin{pmatrix} a - 1 \\ 2a - 1 \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

	Solutions to I^u_6	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	1.00000		
$a =$	$0.500000 + 0.866025I$	0	3.00000
$b =$	$0.500000 + 0.866025I$		
$u =$	1.00000		
$a =$	$0.500000 - 0.866025I$	0	3.00000
$b =$	$0.500000 - 0.866025I$		

VII. $\boldsymbol{I^u_7 = \langle b+1,\ a+1,\ u-1\rangle}$

(i) Arc colorings

$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -1 \\ -1 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -1 \\ -4 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$

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

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

$$a_8 = \begin{pmatrix} 1 \\ 3 \end{pmatrix}$$

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 0$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y-4$
c_2, c_3, c_4 c_6, c_7, c_8 c_9, c_{10}, c_{11} c_{12}	$y-1$
c_5	y

(vi) Complex Volumes and Cusp Shapes

Solutions to I_7^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.00000$ $a = -1.00000$ $b = -1.00000$	0	0

VIII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-2)(u^2-u+1)^2(u^5-u^2-1)^2(u^{11}-2u^{10}+\cdots+16u-5)$ $\cdot(u^{21}-13u^{20}+\cdots-80u+16)(u^{27}+3u^{26}+\cdots+81u+31)^2$
c_2, c_{11}	$((u-1)^3)(u^2+u+1)(u^{10}+4u^8+\cdots-3u-1)$ $\cdot(u^{11}+u^{10}+5u^9+5u^8+8u^7+4u^6-u^5-8u^4-5u^3+4u^2+2u-1)$ $\cdot(u^{21}+14u^{19}+\cdots+2u-1)(u^{54}-2u^{53}+\cdots+8u-881)$
c_3	$(u+1)^3(u^2-u+1)$ $\cdot(u^{10}-5u^9+14u^8-21u^7+13u^6+17u^5-29u^4+5u^3+2u^2+3u+1)$ $\cdot(u^{11}+3u^9-2u^8+6u^7+u^6-4u^5+2u^4+2u^3-4u^2-4u+4)$ $\cdot(u^{21}-u^{20}+\cdots+32u-4)(u^{54}+5u^{53}+\cdots+653278u+100003)$
c_4, c_8	$((u+1)^3)(u^2-u+1)(u^{10}-4u^8+\cdots+5u-1)$ $\cdot(u^{11}-u^{10}-4u^9+4u^8+7u^7-8u^6-3u^5+6u^4-3u^2+u+1)$ $\cdot(u^{21}-9u^{19}+\cdots-3u-1)(u^{54}+2u^{53}+\cdots+150u-131)$
c_5	$u^5(u^5+3u^4+\cdots+8u+3)^2(u^{11}-7u^{10}+\cdots-18u+9)$ $\cdot(u^{21}-16u^{20}+\cdots-96u+16)(u^{27}+7u^{26}+\cdots+4u+4)^2$
c_6	$((u+1)^3)(u^2-u+1)(u^{10}+4u^8+\cdots+3u-1)$ $\cdot(u^{11}-u^{10}+5u^9-5u^8+8u^7-4u^6-u^5+8u^4-5u^3-4u^2+2u+1)$ $\cdot(u^{21}+14u^{19}+\cdots+2u-1)(u^{54}-2u^{53}+\cdots+8u-881)$
c_7	$(u-1)(u^2+u+1)^2(u^5+u^3+1)^2(u^{11}+2u^{10}+\cdots+7u+1)$ $\cdot(u^{21}+12u^{20}+\cdots-48u-32)(u^{27}-4u^{26}+\cdots-9u+1)^2$
c_9, c_{12}	$((u-1)^3)(u^2+u+1)(u^{10}-4u^8+\cdots-5u-1)$ $\cdot(u^{11}+u^{10}-4u^9-4u^8+7u^7+8u^6-3u^5-6u^4+3u^2+u-1)$ $\cdot(u^{21}-9u^{19}+\cdots-3u-1)(u^{54}+2u^{53}+\cdots+150u-131)$
c_{10}	$(u+1)(u^2-u+1)^2(u^5+u^3-1)^2(u^{11}-2u^{10}+\cdots+7u-1)$ $\cdot(u^{21}+12u^{20}+\cdots-48u-32)(u^{27}-4u^{26}+\cdots-9u+1)^2$

IX. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-4)(y^2+y+1)^2(y^5-y^2-2y-1)^2(y^{11}+8y^{10}+\cdots+46y-25)$ $\cdot(y^{21}-y^{20}+\cdots+9088y-256)(y^{27}+17y^{26}+\cdots-12163y-961)^2$
c_2, c_6, c_{11}	$((y-1)^3)(y^2+y+1)(y^{10}+8y^9+\cdots-11y+1)$ $\cdot(y^{11}+9y^{10}+\cdots+12y-1)(y^{21}+28y^{20}+\cdots-2y-1)$ $\cdot(y^{54}+54y^{53}+\cdots+40772616y+776161)$
c_3	$((y-1)^3)(y^2+y+1)(y^{10}+3y^9+\cdots-5y+1)$ $\cdot(y^{11}+6y^{10}+\cdots+48y-16)(y^{21}+9y^{20}+\cdots+416y-16)$ $\cdot(y^{54}+29y^{53}+\cdots-50799866454y+10000600009)$
c_4, c_8, c_9 c_{12}	$((y-1)^3)(y^2+y+1)(y^{10}-8y^9+\cdots-27y+1)$ $\cdot(y^{11}-9y^{10}+\cdots+7y-1)(y^{21}-18y^{20}+\cdots+17y-1)$ $\cdot(y^{54}-38y^{53}+\cdots-141448y+17161)$
c_5	$y^5(y^5-3y^4+\cdots+34y-9)^2(y^{11}-9y^{10}+\cdots+216y-81)$ $\cdot(y^{21}-18y^{20}+\cdots+19840y-256)(y^{27}-39y^{26}+\cdots+520y-16)^2$
c_7, c_{10}	$(y-1)(y^2+y+1)^2(y^5+2y^4+y^3-1)^2(y^{11}+12y^{10}+\cdots+15y-1)$ $\cdot(y^{21}+4y^{20}+\cdots+16128y-1024)(y^{27}+12y^{26}+\cdots+5y-1)^2$