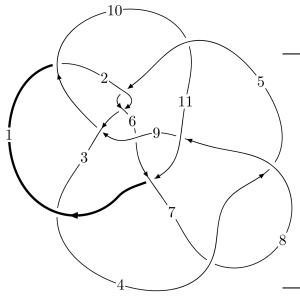
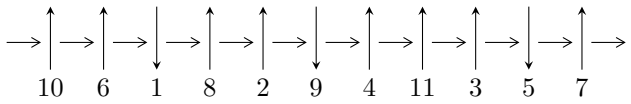
$11a_{302}$ $(K11a_{302})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle 86810u^{20} - 51179u^{19} + \cdots + 203617b - 498356, \\
&\quad 548161u^{20} - 27309u^{19} + \cdots + 203617a + 1419959,\ u^{21} - 7u^{19} + \cdots + 5u + 1\rangle \\
I_2^u &= \langle 1.93742 \times 10^{205}u^{83} - 1.36676 \times 10^{204}u^{82} + \cdots + 2.85391 \times 10^{204}b + 1.87510 \times 10^{205}, \\
&\quad - 8.01634 \times 10^{204}u^{83} - 1.47295 \times 10^{204}u^{82} + \cdots + 2.85391 \times 10^{204}a - 2.38032 \times 10^{205}, \\
&\quad u^{84} + u^{83} + \cdots + 13u + 1\rangle \\
I_3^u &= \langle 330474083u^{21} + 170598791u^{20} + \cdots + 3329501103b - 35950927, \\
&\quad - 211438488u^{21} + 97373739u^{20} + \cdots + 332950103a + 43876857,\ u^{22} - 6u^{20} + \cdots - u + 1\rangle \\
I_4^u &= \langle b + u,\ u^2 + a,\ u^3 - u + 1\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 130 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. $I_1^u = \langle 86810u^{20} - 51179u^{19} + \cdots + 203617b - 498356,\ 5.48 \times 10^5 u^{20} - 2.73 \times 10^4 u^{19} + \cdots + 2.04 \times 10^5 a + 1.42 \times 10^6,\ u^{21} - 7u^{19} + \cdots + 5u + 1 \rangle$

(i) Arc colorings

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

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

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

$$a_5 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -2.69212u^{20} + 0.134119u^{19} + \cdots - 28.2075u - 6.97368 \\ -0.426340u^{20} + 0.251349u^{19} + \cdots + 7.71376u + 2.44752 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -1.85734u^{20} + 0.844581u^{19} + \cdots - 20.6981u - 4.31433 \\ 0.385469u^{20} + 0.103538u^{19} + \cdots + 11.0661u + 3.11846 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -3.11846u^{20} + 0.385469u^{19} + \cdots - 20.4938u - 4.52616 \\ -0.426340u^{20} + 0.251349u^{19} + \cdots + 7.71376u + 2.44752 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -0.482258u^{20} - 0.0237357u^{19} + \cdots - 5.29877u - 0.756499 \\ -0.287854u^{20} + 0.284623u^{19} + \cdots - 5.89970u - 1.78023 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.979437u^{20} + 0.0931160u^{19} + \cdots - 4.09981u - 0.575374 \\ 0.0237357u^{20} + 0.194404u^{19} + \cdots - 1.65479u - 0.482258 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.575374u^{20} - 0.979437u^{19} + \cdots + 0.173792u + 0.222938 \\ -0.482258u^{20} - 0.0237357u^{19} + \cdots - 5.29877u - 1.75650 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -3.91939u^{20} + 0.521779u^{19} + \cdots - 30.2187u - 6.71970 \\ -1.01138u^{20} + 0.674192u^{19} + \cdots + 6.41358u + 3.08915 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -3.91939u^{20} + 0.521779u^{19} + \cdots - 30.2187u - 6.71970 \\ -1.01138u^{20} + 0.674192u^{19} + \cdots + 6.41358u + 3.08915 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{338440}{203617}u^{20} + \frac{515137}{203617}u^{19} + \cdots + \frac{12952739}{203617}u + \frac{6217185}{203617}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_8	$u^{21} - 2u^{20} + \cdots + u + 1$
c_2, c_4, c_5 c_7	$u^{21} - 7u^{19} + \cdots + 5u - 1$
c_3, c_6	$u^{21} - u^{20} + \cdots + 8u - 4$
c_9, c_{11}	$u^{21} - 7u^{19} + \cdots - 3u - 1$
c_{10}	$u^{21} - 7u^{20} + \cdots + 256u - 64$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^{21} + 32y^{19} + \cdots + 25y - 1$
c_2, c_4, c_5 c_7	$y^{21} - 14y^{20} + \cdots + 7y - 1$
c_3, c_6	$y^{21} + 17y^{20} + \cdots - 192y - 16$
c_9, c_{11}	$y^{21} - 14y^{20} + \cdots + 7y - 1$
c_{10}	$y^{21} + 9y^{20} + \cdots - 32768y - 4096$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.928185 + 0.189936I$ $a = 0.674396 - 0.216214I$ $b = -0.735536 - 1.073720I$	$3.43423 + 3.77228I$	$11.55133 - 4.69984I$
$u = 0.928185 - 0.189936I$ $a = 0.674396 + 0.216214I$ $b = -0.735536 + 1.073720I$	$3.43423 - 3.77228I$	$11.55133 + 4.69984I$
$u = -0.827440 + 0.723293I$ $a = 0.126743 - 0.809716I$ $b = 0.567919 - 0.288839I$	$2.18487 - 3.00976I$	$10.87376 - 0.69402I$
$u = -0.827440 - 0.723293I$ $a = 0.126743 + 0.809716I$ $b = 0.567919 + 0.288839I$	$2.18487 + 3.00976I$	$10.87376 + 0.69402I$
$u = -0.067511 + 1.157490I$ $a = 0.0502069 - 0.0817577I$ $b = 0.997381 - 0.629444I$	$1.79260 - 6.58426I$	$8.00865 + 7.58329I$
$u = -0.067511 - 1.157490I$ $a = 0.0502069 + 0.0817577I$ $b = 0.997381 + 0.629444I$	$1.79260 + 6.58426I$	$8.00865 - 7.58329I$
$u = 1.111710 + 0.428960I$ $a = -1.95911 + 0.31173I$ $b = 1.78476 + 0.65605I$	$4.95885 + 9.25397I$	$8.29327 - 10.96531I$
$u = 1.111710 - 0.428960I$ $a = -1.95911 - 0.31173I$ $b = 1.78476 - 0.65605I$	$4.95885 - 9.25397I$	$8.29327 + 10.96531I$
$u = -1.205890 + 0.106741I$ $a = -1.92936 + 0.40120I$ $b = 1.207310 + 0.326297I$	$8.49324 - 2.76851I$	$15.4777 + 0.9885I$
$u = -1.205890 - 0.106741I$ $a = -1.92936 - 0.40120I$ $b = 1.207310 - 0.326297I$	$8.49324 + 2.76851I$	$15.4777 - 0.9885I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.789234$ $a=\ \ 1.20750$ $b=-0.556308$	1.38786	6.70340
$u=\ \ 1.188640+0.329356I$ $a=-1.011510-0.120494I$ $b=\ \ 0.284184-0.245258I$	$5.15265+4.73162I$	$8.09798-4.44428I$
$u=\ \ 1.188640-0.329356I$ $a=-1.011510+0.120494I$ $b=\ \ 0.284184+0.245258I$	$5.15265-4.73162I$	$8.09798+4.44428I$
$u=-0.372563+0.410285I$ $a=-0.39105+1.43567I$ $b=-0.909633-0.829475I$	$0.48724+1.81194I$	$3.30153-2.05952I$
$u=-0.372563-0.410285I$ $a=-0.39105-1.43567I$ $b=-0.909633+0.829475I$	$0.48724-1.81194I$	$3.30153+2.05952I$
$u=\ \ 1.36146+0.57065I$ $a=\ \ 0.843025-0.608835I$ $b=-1.304890+0.034538I$	$10.21620+5.64989I$	$15.0241-3.8611I$
$u=\ \ 1.36146-0.57065I$ $a=\ \ 0.843025+0.608835I$ $b=-1.304890-0.034538I$	$10.21620-5.64989I$	$15.0241+3.8611I$
$u=-1.41669+0.52365I$ $a=\ \ 1.55271+0.10596I$ $b=-1.38942+1.03688I$	$11.2036-18.3943I$	$11.0076+9.0976I$
$u=-1.41669-0.52365I$ $a=\ \ 1.55271-0.10596I$ $b=-1.38942-1.03688I$	$11.2036+18.3943I$	$11.0076-9.0976I$
$u=-0.305278+0.294373I$ $a=\ \ 0.94021-1.42121I$ $b=-0.223914+0.503703I$	$0.730644-1.059890I$	$8.01231+6.34216I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.305278-0.294373I$		
$a=\ \ 0.94021+1.42121I$	$0.730644+1.059890I$	$8.01231-6.34216I$
$b=-0.223914-0.503703I$		

II. $I_2^u = \langle 1.94\times 10^{205}u^{83} - 1.37\times 10^{204}u^{82} + \cdots + 2.85\times 10^{204}b + 1.88\times 10^{205},\ -8.02\times 10^{204}u^{83} - 1.47\times 10^{204}u^{82} + \cdots + 2.85\times 10^{204}a - 2.38\times 10^{205},\ u^{84} + u^{83} + \cdots + 13u + 1\rangle$

(i) Arc colorings

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

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

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

$$a_5 = \begin{pmatrix} u \\ -u^3+u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 2.80890u^{83} + 0.516116u^{82} + \cdots + 106.773u + 8.34055 \\ -6.78864u^{83} + 0.478907u^{82} + \cdots - 76.5519u - 6.57029 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -3.38419u^{83} - 0.362972u^{82} + \cdots - 77.5673u + 7.17563 \\ -2.53005u^{83} + 0.224618u^{82} + \cdots - 43.3946u - 3.81230 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -3.97974u^{83} + 0.995023u^{82} + \cdots + 30.2214u + 1.77026 \\ -6.78864u^{83} + 0.478907u^{82} + \cdots - 76.5519u - 6.57029 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -5.43747u^{83} + 0.177775u^{82} + \cdots - 43.6461u + 4.25595 \\ -1.66531u^{83} + 0.0104175u^{82} + \cdots - 30.8069u - 1.97472 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 2.24631u^{83} + 0.604610u^{82} + \cdots + 192.633u + 22.6033 \\ 2.43802u^{83} - 0.303260u^{82} + \cdots + 7.34022u + 1.81171 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -2.47215u^{83} - 0.763880u^{82} + \cdots - 175.607u - 18.2174 \\ -2.61767u^{83} + 0.377913u^{82} + \cdots - 16.3564u - 2.21693 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -4.55591u^{83} + 1.15513u^{82} + \cdots + 27.0524u + 1.66528 \\ -5.34136u^{83} + 0.404432u^{82} + \cdots - 59.5879u - 5.24176 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -4.55591u^{83} + 1.15513u^{82} + \cdots + 27.0524u + 1.66528 \\ -5.34136u^{83} + 0.404432u^{82} + \cdots - 59.5879u - 5.24176 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -1.51665u^{83} - 0.0478998u^{82} + \cdots + 23.8004u + 16.1335$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_8	$u^{84} - 2u^{83} + \cdots + 184899u + 14113$
c_2, c_4, c_5 c_7	$u^{84} - u^{83} + \cdots - 13u + 1$
c_3, c_6	$u^{84} - 8u^{83} + \cdots - 1444332u + 360028$
c_9, c_{11}	$u^{84} - 9u^{82} + \cdots - 7203u + 9091$
c_{10}	$(u^{42} + 3u^{41} + \cdots - 803u + 865)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^{84} - 42y^{83} + \cdots - 25475290137y + 199176769$
c_2, c_4, c_5 c_7	$y^{84} - 59y^{83} + \cdots + 111y + 1$
c_3, c_6	$y^{84} + 30y^{83} + \cdots + 3877148205504y + 129620160784$
c_9, c_{11}	$y^{84} - 18y^{83} + \cdots - 1277331827y + 82646281$
c_{10}	$(y^{42} + 27y^{41} + \cdots + 7816621y + 748225)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.962597+0.318394I$ $a=\ 1.377300-0.139751I$ $b=-0.664367+0.492109I$	1.17898	0
$u=-0.962597-0.318394I$ $a=\ 1.377300+0.139751I$ $b=-0.664367-0.492109I$	1.17898	0
$u=\ 0.985326+0.021789I$ $a=-1.93810-1.17823I$ $b=\ 0.947964+0.368637I$	$4.13302+3.67085I$	0
$u=\ 0.985326-0.021789I$ $a=-1.93810+1.17823I$ $b=\ 0.947964-0.368637I$	$4.13302-3.67085I$	0
$u=\ 0.787842+0.559097I$ $a=\ 1.18409-1.21681I$ $b=\ 0.073486-1.072000I$	$-0.36053+2.27504I$	0
$u=\ 0.787842-0.559097I$ $a=\ 1.18409+1.21681I$ $b=\ 0.073486+1.072000I$	$-0.36053-2.27504I$	0
$u=\ 0.069362+1.055510I$ $a=\ 0.006053+0.302515I$ $b=\ 1.042160+0.610320I$	$6.25983+0.22821I$	0
$u=\ 0.069362-1.055510I$ $a=\ 0.006053-0.302515I$ $b=\ 1.042160-0.610320I$	$6.25983-0.22821I$	0
$u=-0.906187+0.158270I$ $a=-1.40959-1.04548I$ $b=\ 0.422407+0.578901I$	$1.30396-0.89340I$	$5.00000+0.I$
$u=-0.906187-0.158270I$ $a=-1.40959+1.04548I$ $b=\ 0.422407-0.578901I$	$1.30396+0.89340I$	$5.00000+0.I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.396919 + 0.818374I$ $a = 0.150512 - 0.842112I$ $b = -1.076570 + 0.628616I$	$2.66616 - 4.59027I$	$9.89989 + 8.77883I$
$u = 0.396919 - 0.818374I$ $a = 0.150512 + 0.842112I$ $b = -1.076570 - 0.628616I$	$2.66616 + 4.59027I$	$9.89989 - 8.77883I$
$u = -0.254789 + 0.872661I$ $a = -0.065466 - 0.179749I$ $b = -0.655792 + 0.532899I$	$0.89781 - 2.28879I$	$5.00000 + 0.I$
$u = -0.254789 - 0.872661I$ $a = -0.065466 + 0.179749I$ $b = -0.655792 - 0.532899I$	$0.89781 + 2.28879I$	$5.00000 + 0.I$
$u = -1.092250 + 0.002765I$ $a = -0.733789 + 0.407597I$ $b = 0.29106 - 1.51046I$	$2.41193 - 0.49575I$	0
$u = -1.092250 - 0.002765I$ $a = -0.733789 - 0.407597I$ $b = 0.29106 + 1.51046I$	$2.41193 + 0.49575I$	0
$u = 1.095190 + 0.136546I$ $a = 0.596121 - 0.839742I$ $b = -0.528751 - 0.778109I$	$3.31027 + 4.01412I$	0
$u = 1.095190 - 0.136546I$ $a = 0.596121 + 0.839742I$ $b = -0.528751 + 0.778109I$	$3.31027 - 4.01412I$	0
$u = 0.478559 + 0.748201I$ $a = 0.876962 + 0.549123I$ $b = -0.017116 - 0.689696I$	$2.41193 + 0.49575I$	$6.97126 + 0.I$
$u = 0.478559 - 0.748201I$ $a = 0.876962 - 0.549123I$ $b = -0.017116 + 0.689696I$	$2.41193 - 0.49575I$	$6.97126 + 0.I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.069760+0.315438I$ $a=\ \ 2.47968+0.26967I$ $b=-0.463529+0.567527I$	$6.34003-8.91423I$	0
$u=-1.069760-0.315438I$ $a=\ \ 2.47968-0.26967I$ $b=-0.463529-0.567527I$	$6.34003+8.91423I$	0
$u=-1.107920+0.242581I$ $a=-2.35624+0.11814I$ $b=\ \ 2.03515-1.07118I$	$2.66616-4.59027I$	0
$u=-1.107920-0.242581I$ $a=-2.35624-0.11814I$ $b=\ \ 2.03515+1.07118I$	$2.66616+4.59027I$	0
$u=-0.415622+0.740224I$ $a=-0.0020036-0.1082310I$ $b=\ \ 0.069817+0.926327I$	$-0.53461-4.05993I$	$2.13658+6.95533I$
$u=-0.415622-0.740224I$ $a=-0.0020036+0.1082310I$ $b=\ \ 0.069817-0.926327I$	$-0.53461+4.05993I$	$2.13658-6.95533I$
$u=\ \ 1.092540+0.366898I$ $a=\ \ 1.60708-0.10147I$ $b=-0.711297-0.697297I$	$-0.53461+4.05993I$	0
$u=\ \ 1.092540-0.366898I$ $a=\ \ 1.60708+0.10147I$ $b=-0.711297+0.697297I$	$-0.53461-4.05993I$	0
$u=-0.058275+1.155740I$ $a=\ \ 0.235480+0.247651I$ $b=-0.956335-0.271666I$	$5.14021+2.16348I$	0
$u=-0.058275-1.155740I$ $a=\ \ 0.235480-0.247651I$ $b=-0.956335+0.271666I$	$5.14021-2.16348I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.096511 + 1.182560I$ $a = -0.0394892 - 0.0002488I$ $b = 0.993395 + 0.687665I$	$6.42748 + 12.43880I$	0
$u = 0.096511 - 1.182560I$ $a = -0.0394892 + 0.0002488I$ $b = 0.993395 - 0.687665I$	$6.42748 - 12.43880I$	0
$u = -0.152546 + 0.783755I$ $a = 0.804335 - 0.372548I$ $b = 0.249934 + 0.532891I$	$1.30396 - 0.89340I$	$6.53370 + 0.64889I$
$u = -0.152546 - 0.783755I$ $a = 0.804335 + 0.372548I$ $b = 0.249934 - 0.532891I$	$1.30396 + 0.89340I$	$6.53370 - 0.64889I$
$u = -1.124540 + 0.428916I$ $a = 1.038230 + 0.027685I$ $b = -1.012970 + 0.956168I$	$4.13302 - 3.67085I$	0
$u = -1.124540 - 0.428916I$ $a = 1.038230 - 0.027685I$ $b = -1.012970 - 0.956168I$	$4.13302 + 3.67085I$	0
$u = -1.208240 + 0.063695I$ $a = 1.52740 + 1.46381I$ $b = -0.649430 + 0.363725I$	$9.40902 - 7.37920I$	0
$u = -1.208240 - 0.063695I$ $a = 1.52740 - 1.46381I$ $b = -0.649430 - 0.363725I$	$9.40902 + 7.37920I$	0
$u = 1.209410 + 0.050801I$ $a = -1.57865 - 0.62605I$ $b = 0.856376 - 0.171706I$	$5.14325 + 1.81373I$	0
$u = 1.209410 - 0.050801I$ $a = -1.57865 + 0.62605I$ $b = 0.856376 + 0.171706I$	$5.14325 - 1.81373I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.334826 + 0.714497I$ $a = 0.113127 - 0.180207I$ $b = 0.313370 - 0.821251I$	-2.88354	$-3.04446 + 0.I$
$u = 0.334826 - 0.714497I$ $a = 0.113127 + 0.180207I$ $b = 0.313370 + 0.821251I$	-2.88354	$-3.04446 + 0.I$
$u = 1.208860 + 0.113613I$ $a = 1.24948 - 1.29597I$ $b = -1.42986 + 2.01391I$	$9.41934 + 8.23155I$	0
$u = 1.208860 - 0.113613I$ $a = 1.24948 + 1.29597I$ $b = -1.42986 - 2.01391I$	$9.41934 - 8.23155I$	0
$u = -1.230690 + 0.043766I$ $a = 1.50014 + 1.11883I$ $b = -1.73790 - 1.78298I$	$5.14021 - 2.16348I$	0
$u = -1.230690 - 0.043766I$ $a = 1.50014 - 1.11883I$ $b = -1.73790 + 1.78298I$	$5.14021 + 2.16348I$	0
$u = 1.248010 + 0.079685I$ $a = -1.85795 - 0.34215I$ $b = 1.41535 + 1.16871I$	$9.16439 + 2.30003I$	0
$u = 1.248010 - 0.079685I$ $a = -1.85795 + 0.34215I$ $b = 1.41535 - 1.16871I$	$9.16439 - 2.30003I$	0
$u = 0.529370 + 0.527660I$ $a = 0.217817 - 0.094410I$ $b = -0.713712 - 0.939195I$	$3.31027 + 4.01412I$	$10.91907 - 8.56399I$
$u = 0.529370 - 0.527660I$ $a = 0.217817 + 0.094410I$ $b = -0.713712 + 0.939195I$	$3.31027 - 4.01412I$	$10.91907 + 8.56399I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.358302+0.602891I$ $a=-0.280820+1.307900I$ $b=\ \ 0.512934+0.986421I$	$4.28784+5.30125I$	$7.89549-5.60852I$
$u=-0.358302-0.602891I$ $a=-0.280820-1.307900I$ $b=\ \ 0.512934-0.986421I$	$4.28784-5.30125I$	$7.89549+5.60852I$
$u=\ \ 1.331970+0.037459I$ $a=\ \ 1.18314-0.83290I$ $b=-1.35866+1.43338I$	$9.93256-3.56952I$	0
$u=\ \ 1.331970-0.037459I$ $a=\ \ 1.18314+0.83290I$ $b=-1.35866-1.43338I$	$9.93256+3.56952I$	0
$u=-1.357030+0.020794I$ $a=-1.26007-0.76022I$ $b=\ \ 0.725277-0.025979I$	$9.16439+2.30003I$	0
$u=-1.357030-0.020794I$ $a=-1.26007+0.76022I$ $b=\ \ 0.725277+0.025979I$	$9.16439-2.30003I$	0
$u=\ \ 1.38593+0.43780I$ $a=-1.47248-0.00386I$ $b=\ \ 1.32846+0.78944I$	$5.90536+7.10956I$	0
$u=\ \ 1.38593-0.43780I$ $a=-1.47248+0.00386I$ $b=\ \ 1.32846-0.78944I$	$5.90536-7.10956I$	0
$u=-1.36930+0.49505I$ $a=\ \ 1.51004+0.26261I$ $b=-1.25954+1.06934I$	$10.75840-5.70483I$	0
$u=-1.36930-0.49505I$ $a=\ \ 1.51004-0.26261I$ $b=-1.25954-1.06934I$	$10.75840+5.70483I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.44638+0.30530I$ $a=-1.57740+0.38063I$ $b=\ \ 1.35856-1.09530I$	$9.40902-7.37920I$	0
$u=-1.44638-0.30530I$ $a=-1.57740-0.38063I$ $b=\ \ 1.35856+1.09530I$	$9.40902+7.37920I$	0
$u=\ \ 1.39980+0.47856I$ $a=-1.021700+0.576699I$ $b=\ \ 0.927889+0.295498I$	$9.93256+3.56952I$	0
$u=\ \ 1.39980-0.47856I$ $a=-1.021700-0.576699I$ $b=\ \ 0.927889-0.295498I$	$9.93256-3.56952I$	0
$u=\ \ 1.39804+0.51884I$ $a=\ \ 1.50066-0.14841I$ $b=-1.36732-1.06245I$	$6.42748+12.43880I$	0
$u=\ \ 1.39804-0.51884I$ $a=\ \ 1.50066+0.14841I$ $b=-1.36732+1.06245I$	$6.42748-12.43880I$	0
$u=-1.38900+0.54948I$ $a=-1.44142-0.29334I$ $b=\ \ 1.34989-0.51349I$	$9.41934-8.23155I$	0
$u=-1.38900-0.54948I$ $a=-1.44142+0.29334I$ $b=\ \ 1.34989+0.51349I$	$9.41934+8.23155I$	0
$u=-1.46634+0.53685I$ $a=\ \ 0.736389+0.411433I$ $b=-1.112130+0.159293I$	$6.25983+0.22821I$	0
$u=-1.46634-0.53685I$ $a=\ \ 0.736389-0.411433I$ $b=-1.112130-0.159293I$	$6.25983-0.22821I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.48689+0.57208I$ $a=-0.816525-0.119314I$ $b=\ \ 0.809610-0.627801I$	$4.28784-5.30125I$	0
$u=-1.48689-0.57208I$ $a=-0.816525+0.119314I$ $b=\ \ 0.809610+0.627801I$	$4.28784+5.30125I$	0
$u=\ \ 1.55256+0.46316I$ $a=-0.960208-0.267593I$ $b=\ \ 0.878289+0.947608I$	$6.34003+8.91423I$	0
$u=\ \ 1.55256-0.46316I$ $a=-0.960208+0.267593I$ $b=\ \ 0.878289-0.947608I$	$6.34003-8.91423I$	0
$u=-0.30112+1.60051I$ $a=-0.0041748-0.0290256I$ $b=-0.460657+0.107893I$	$-0.36053-2.27504I$	0
$u=-0.30112-1.60051I$ $a=-0.0041748+0.0290256I$ $b=-0.460657-0.107893I$	$-0.36053+2.27504I$	0
$u=\ \ 1.52347+0.60928I$ $a=\ \ 0.567285-0.456782I$ $b=-0.938984-0.052647I$	$10.75840-5.70483I$	0
$u=\ \ 1.52347-0.60928I$ $a=\ \ 0.567285+0.456782I$ $b=-0.938984+0.052647I$	$10.75840+5.70483I$	0
$u=\ \ 0.210295+0.240685I$ $a=\ \ 3.56655+0.84064I$ $b=\ \ 0.665854+0.321804I$	$0.89781-2.28879I$	$4.75450+2.28484I$
$u=\ \ 0.210295-0.240685I$ $a=\ \ 3.56655-0.84064I$ $b=\ \ 0.665854-0.321804I$	$0.89781+2.28879I$	$4.75450-2.28484I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.0011085 + 0.1043920I$ $a = -11.28360 + 8.01560I$ $b = 0.866225 + 0.595290I$	$5.90536 - 7.10956I$	$7.76610 + 3.18386I$
$u = 0.0011085 - 0.1043920I$ $a = -11.28360 - 8.01560I$ $b = 0.866225 - 0.595290I$	$5.90536 + 7.10956I$	$7.76610 - 3.18386I$
$u = -0.0781250 + 0.0575559I$ $a = 6.07183 - 5.26345I$ $b = -1.018550 - 0.454621I$	$5.14325 + 1.81373I$	$18.0633 - 2.4655I$
$u = -0.0781250 - 0.0575559I$ $a = 6.07183 + 5.26345I$ $b = -1.018550 + 0.454621I$	$5.14325 - 1.81373I$	$18.0633 + 2.4655I$

III.

$\boldsymbol{I_3^u = \langle 3.30\times 10^8 u^{21} + 1.71\times 10^8 u^{20} + \cdots + 3.33\times 10^8 b - 3.60\times 10^7,\ -2.11\times 10^8 u^{21} + 9.74\times 10^7 u^{20} + \cdots + 3.33\times 10^8 a + 4.39\times 10^7,\ u^{22} - 6u^{20} + \cdots - u + 1\rangle}$

(i) Arc colorings

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

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

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

$$a_5 = \begin{pmatrix} u \\ -u^3 + u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} 0.635046u^{21} - 0.292457u^{20} + \cdots + 1.34171u - 0.131782 \\ -0.992563u^{21} - 0.512385u^{20} + \cdots - 1.17373u + 0.107977 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.889535u^{21} + 0.0966271u^{20} + \cdots + 0.989738u - 0.475909 \\ -0.0212194u^{21} - 0.0240420u^{20} + \cdots - 2.18136u + 0.983265 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} -0.357518u^{21} - 0.804843u^{20} + \cdots + 0.167975u - 0.0238052 \\ -0.992563u^{21} - 0.512385u^{20} + \cdots - 1.17373u + 0.107977 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.0573463u^{21} + 0.336094u^{20} + \cdots + 3.47754u - 0.657519 \\ 0.0219546u^{21} - 0.762143u^{20} + \cdots + 1.34055u + 0.187482 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} 0.386153u^{21} - 0.405453u^{20} + \cdots - 1.41651u + 1.50722 \\ 0.493967u^{21} + 0.175818u^{20} + \cdots + 2.18607u + 0.167488 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} 0.652627u^{21} - 0.172652u^{20} + \cdots + 2.19868u - 1.11453 \\ -0.670297u^{21} - 0.330174u^{20} + \cdots - 0.834144u + 0.0125608 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.336298u^{21} - 0.780801u^{20} + \cdots + 2.34934u - 0.00706984 \\ -0.863842u^{21} - 0.316590u^{20} + \cdots - 0.649099u - 0.255654 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -0.336298u^{21} - 0.780801u^{20} + \cdots + 2.34934u - 0.00706984 \\ -0.863842u^{21} - 0.316590u^{20} + \cdots - 0.649099u - 0.255654 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{50225472}{332950103}u^{21} - \frac{1070367108}{332950103}u^{20} + \cdots - \frac{3170922714}{332950103}u + \frac{2708776809}{332950103}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{22} - 9u^{21} + \cdots - 11u + 1$
c_2, c_4	$u^{22} - 6u^{20} + \cdots + u + 1$
c_3	$u^{22} + u^{21} + \cdots - 8u + 4$
c_5, c_7	$u^{22} - 6u^{20} + \cdots - u + 1$
c_6	$u^{22} - u^{21} + \cdots + 8u + 4$
c_8	$u^{22} + 9u^{21} + \cdots + 11u + 1$
c_9	$u^{22} - u^{21} + \cdots - 5u + 1$
c_{10}	$u^{22} + 7u^{20} + \cdots + 84u^2 + 23$
c_{11}	$u^{22} + u^{21} + \cdots + 5u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^{22} - 9y^{21} + \cdots - 17y + 1$
c_2, c_4, c_5 c_7	$y^{22} - 12y^{21} + \cdots + 5y + 1$
c_3, c_6	$y^{22} + 3y^{21} + \cdots + 256y + 16$
c_9, c_{11}	$y^{22} - 3y^{21} + \cdots - 21y + 1$
c_{10}	$(y^{11} + 7y^{10} + \cdots + 84y + 23)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.831103+0.513463I$ $a=-1.27286-1.19665I$ $b=\ \ 0.024234-1.029540I$	$-0.50092-2.11174I$	$-5.15528-11.05035I$
$u=-0.831103-0.513463I$ $a=-1.27286+1.19665I$ $b=\ \ 0.024234+1.029540I$	$-0.50092+2.11174I$	$-5.15528+11.05035I$
$u=\ \ 0.996853+0.278091I$ $a=\ \ 1.329730-0.474336I$ $b=-1.116110-0.772027I$	$2.14439+3.53044I$	$4.95647-3.30554I$
$u=\ \ 0.996853-0.278091I$ $a=\ \ 1.329730+0.474336I$ $b=-1.116110+0.772027I$	$2.14439-3.53044I$	$4.95647+3.30554I$
$u=-0.934195+0.222884I$ $a=\ \ 1.98665+1.58078I$ $b=-0.879814-0.359757I$	$7.04578-7.81545I$	$13.0279+5.9552I$
$u=-0.934195-0.222884I$ $a=\ \ 1.98665-1.58078I$ $b=-0.879814+0.359757I$	$7.04578+7.81545I$	$13.0279-5.9552I$
$u=\ \ 1.220700+0.018399I$ $a=-1.075790+0.004794I$ $b=\ \ 1.047590-0.787761I$	$4.05165+2.03043I$	$8.21995-2.84126I$
$u=\ \ 1.220700-0.018399I$ $a=-1.075790-0.004794I$ $b=\ \ 1.047590+0.787761I$	$4.05165-2.03043I$	$8.21995+2.84126I$
$u=\ \ 0.041486+0.760088I$ $a=\ \ 0.332109-0.176049I$ $b=-0.856724+0.482949I$	$4.05165-2.03043I$	$8.21995+2.84126I$
$u=\ \ 0.041486-0.760088I$ $a=\ \ 0.332109+0.176049I$ $b=-0.856724-0.482949I$	$4.05165+2.03043I$	$8.21995-2.84126I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.274880+0.054997I$ $a=\ 0.257710-0.116488I$ $b=\ 0.216019-0.842080I$	$8.58189+6.24482I$	$12.19966-3.97801I$
$u=-1.274880-0.054997I$ $a=\ 0.257710+0.116488I$ $b=\ 0.216019+0.842080I$	$8.58189-6.24482I$	$12.19966+3.97801I$
$u=\ 0.456280+0.389882I$ $a=\ 1.22510+1.37492I$ $b=\ 0.063660-0.989377I$	0.122720	$1.50261+0.I$
$u=\ 0.456280-0.389882I$ $a=\ 1.22510-1.37492I$ $b=\ 0.063660+0.989377I$	0.122720	$1.50261+0.I$
$u=\ 1.36566+0.38329I$ $a=-1.60654-0.00056I$ $b=\ 1.19451+0.76861I$	$8.58189+6.24482I$	$12.19966-3.97801I$
$u=\ 1.36566-0.38329I$ $a=-1.60654+0.00056I$ $b=\ 1.19451-0.76861I$	$8.58189-6.24482I$	$12.19966+3.97801I$
$u=-1.42191+0.45186I$ $a=-1.333420+0.069874I$ $b=\ 1.29904-0.80185I$	$7.04578-7.81545I$	$13.0279+5.9552I$
$u=-1.42191-0.45186I$ $a=-1.333420-0.069874I$ $b=\ 1.29904+0.80185I$	$7.04578+7.81545I$	$13.0279-5.9552I$
$u=\ 0.40576+1.50605I$ $a=\ 0.181803+0.126321I$ $b=\ 0.277976-0.054179I$	$-0.50092+2.11174I$	$-5.15528+11.05035I$
$u=\ 0.40576-1.50605I$ $a=\ 0.181803-0.126321I$ $b=\ 0.277976+0.054179I$	$-0.50092-2.11174I$	$-5.15528-11.05035I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.024657+0.437672I$ $a=-1.02449+1.22474I$ $b=-0.770375-0.789792I$	$2.14439+3.53044I$	$4.95647-3.30554I$
$u=-0.024657-0.437672I$ $a=-1.02449-1.22474I$ $b=-0.770375+0.789792I$	$2.14439-3.53044I$	$4.95647+3.30554I$

IV. $I_4^u = \langle b+u,\ u^2+a,\ u^3-u+1 \rangle$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^2 - 9u + 12$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.662359 + 0.562280I$ $a = -0.122561 - 0.744862I$ $b = -0.662359 - 0.562280I$	$1.83893 + 3.77083I$	$5.54852 - 8.03996I$
$u = 0.662359 - 0.562280I$ $a = -0.122561 + 0.744862I$ $b = -0.662359 + 0.562280I$	$1.83893 - 3.77083I$	$5.54852 + 8.03996I$
$u = -1.32472$ $a = -1.75488$ $b = 1.32472$	9.48162	16.9030

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u^3-2u^2+u-1)(u^{21}-2u^{20}+\cdots+u+1)(u^{22}-9u^{21}+\cdots-11u+1)$ $\cdot(u^{84}-2u^{83}+\cdots+184899u+14113)$
c_2, c_4	$(u^3-u-1)(u^{21}-7u^{19}+\cdots+5u-1)(u^{22}-6u^{20}+\cdots+u+1)$ $\cdot(u^{84}-u^{83}+\cdots-13u+1)$
c_3	$(u^3+u^2+2u+1)(u^{21}-u^{20}+\cdots+8u-4)(u^{22}+u^{21}+\cdots-8u+4)$ $\cdot(u^{84}-8u^{83}+\cdots-1444332u+360028)$
c_5, c_7	$(u^3-u+1)(u^{21}-7u^{19}+\cdots+5u-1)(u^{22}-6u^{20}+\cdots-u+1)$ $\cdot(u^{84}-u^{83}+\cdots-13u+1)$
c_6	$(u^3-u^2+2u-1)(u^{21}-u^{20}+\cdots+8u-4)(u^{22}-u^{21}+\cdots+8u+4)$ $\cdot(u^{84}-8u^{83}+\cdots-1444332u+360028)$
c_8	$(u^3+2u^2+u+1)(u^{21}-2u^{20}+\cdots+u+1)(u^{22}+9u^{21}+\cdots+11u+1)$ $\cdot(u^{84}-2u^{83}+\cdots+184899u+14113)$
c_9	$(u^3-u-1)(u^{21}-7u^{19}+\cdots-3u-1)(u^{22}-u^{21}+\cdots-5u+1)$ $\cdot(u^{84}-9u^{82}+\cdots-7203u+9091)$
c_{10}	$u^3(u^{21}-7u^{20}+\cdots+256u-64)(u^{22}+7u^{20}+\cdots+84u^2+23)$ $\cdot(u^{42}+3u^{41}+\cdots-803u+865)^2$
c_{11}	$(u^3-u+1)(u^{21}-7u^{19}+\cdots-3u-1)(u^{22}+u^{21}+\cdots+5u+1)$ $\cdot(u^{84}-9u^{82}+\cdots-7203u+9091)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_8	$(y^3-2y^2-3y-1)(y^{21}+32y^{19}+\cdots+25y-1)$ $\cdot(y^{22}-9y^{21}+\cdots-17y+1)$ $\cdot(y^{84}-42y^{83}+\cdots-25475290137y+199176769)$
c_2, c_4, c_5 c_7	$(y^3-2y^2+y-1)(y^{21}-14y^{20}+\cdots+7y-1)$ $\cdot(y^{22}-12y^{21}+\cdots+5y+1)(y^{84}-59y^{83}+\cdots+111y+1)$
c_3, c_6	$(y^3+3y^2+2y-1)(y^{21}+17y^{20}+\cdots-192y-16)$ $\cdot(y^{22}+3y^{21}+\cdots+256y+16)$ $\cdot(y^{84}+30y^{83}+\cdots+3877148205504y+129620160784)$
c_9, c_{11}	$(y^3-2y^2+y-1)(y^{21}-14y^{20}+\cdots+7y-1)$ $\cdot(y^{22}-3y^{21}+\cdots-21y+1)$ $\cdot(y^{84}-18y^{83}+\cdots-1277331827y+82646281)$
c_{10}	$y^3(y^{11}+7y^{10}+\cdots+84y+23)^2(y^{21}+9y^{20}+\cdots-32768y-4096)$ $\cdot(y^{42}+27y^{41}+\cdots+7816621y+748225)^2$