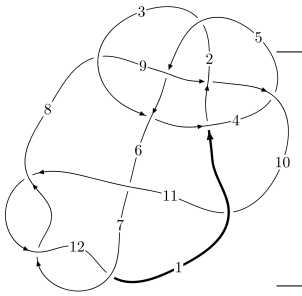
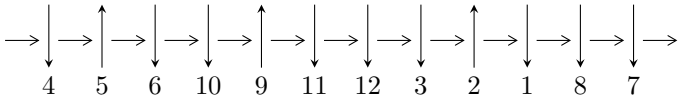
$12a_{0810}$ $(K12a_{0810})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle -53291u^{57} - 330291u^{56} + \cdots + 14534b - 482502,$$
$$\quad -241251u^{57} - 1340924u^{56} + \cdots + 29068a - 1111355,\ u^{58} + 6u^{57} + \cdots + 37u + 4\rangle$$
$$I_2^u = \langle -2u^{40} + 3u^{39} + \cdots + b + 3,\ 3u^{42}a + 11u^{42} + \cdots - 6a - 25,\ u^{43} - 2u^{42} + \cdots - 6u + 1\rangle$$
$$I_3^u = \langle -u^{15} + u^{14} - 7u^{13} + 6u^{12} - 20u^{11} + 12u^{10} - 29u^9 + 6u^8 - 20u^7 - 8u^6 - 10u^4 + 7u^3 - 5u^2 + b + u - 2,$$
$$\quad 2u^{16} - 2u^{15} + \cdots + a - 3,\ u^{17} - u^{16} + \cdots - 2u + 1\rangle$$
$$I_4^u = \langle au - u^2 + b - u - 1,\ u^2a + a^2 + 2u^2 + a + u + 3,\ u^3 + u^2 + 2u + 1\rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 167 representations.

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

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

I.

$\boldsymbol{I_1^u = \langle -5.33\times 10^4 u^{57} - 3.30\times 10^5 u^{56} + \cdots + 1.45\times 10^4 b - 4.83\times 10^5,\ -2.41\times 10^5 u^{57} - 1.34\times 10^6 u^{56} + \cdots + 2.91\times 10^4 a - 1.11\times 10^6,\ u^{58} + 6u^{57} + \cdots + 37u + 4\rangle}$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^2 + 1 \\ u^4 + 2u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 8.29954u^{57} + 46.1306u^{56} + \cdots + 337.485u + 38.2329 \\ 3.66664u^{57} + 22.7254u^{56} + \cdots + 268.850u + 33.1982 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -2.89765u^{57} - 15.3587u^{56} + \cdots - 105.156u - 12.0214 \\ -2.02725u^{57} - 12.7218u^{56} + \cdots - 94.1918u - 11.5906 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^3 + 2u \\ u^3 + u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 3.21223u^{57} + 16.7379u^{56} + \cdots + 84.4613u + 8.61301 \\ 2.41510u^{57} + 14.4401u^{56} + \cdots + 114.725u + 14.5737 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -2.60875u^{57} - 12.7540u^{56} + \cdots - 168.192u - 25.1931 \\ -4.24625u^{57} - 24.3533u^{56} + \cdots - 130.976u - 17.3985 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 7.39765u^{57} + 42.3587u^{56} + \cdots + 357.156u + 41.5214 \\ 1.63940u^{57} + 11.0036u^{56} + \cdots + 286.658u + 36.6075 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^6 - 3u^4 - 2u^2 + 1 \\ -u^8 - 4u^6 - 4u^4 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{47209}{7267}u^{57} - \frac{39509}{1118}u^{56} + \cdots - \frac{5750393}{14534}u - \frac{461504}{7267}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^{58} + 10u^{57} + \cdots - 5u + 1$
c_2	$u^{58} + 30u^{57} + \cdots + 7u + 2$
c_4, c_8	$u^{58} + 8u^{56} + \cdots + 5u + 2$
c_5, c_9	$u^{58} - 2u^{57} + \cdots - u + 1$
c_6	$u^{58} - 6u^{57} + \cdots + 10406u + 1768$
c_7, c_{11}, c_{12}	$u^{58} + 6u^{57} + \cdots + 37u + 4$
c_{10}	$u^{58} - 10u^{57} + \cdots - 79407u + 9248$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{58} - 20y^{57} + \cdots - 37y + 1$
c_2	$y^{58} + 12y^{56} + \cdots - 17y + 4$
c_4, c_8	$y^{58} + 16y^{57} + \cdots + 47y + 4$
c_5, c_9	$y^{58} + 32y^{57} + \cdots + 67y + 1$
c_6	$y^{58} + 14y^{57} + \cdots + 31546284y + 3125824$
c_7, c_{11}, c_{12}	$y^{58} + 54y^{57} + \cdots - 89y + 16$
c_{10}	$y^{58} + 30y^{57} + \cdots + 1679029599y + 85525504$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.486650+0.826191I$ $a=\ \ 0.344322-0.261471I$ $b=-0.048461-0.411721I$	$0.75504+4.17161I$	$-17.2218-16.9606I$
$u=-0.486650-0.826191I$ $a=\ \ 0.344322+0.261471I$ $b=-0.048461+0.411721I$	$0.75504-4.17161I$	$-17.2218+16.9606I$
$u=\ \ 0.305000+1.120370I$ $a=\ \ 0.337905-0.211727I$ $b=-0.340274-0.314004I$	$-0.40781+4.56651I$	0
$u=\ \ 0.305000-1.120370I$ $a=\ \ 0.337905+0.211727I$ $b=-0.340274+0.314004I$	$-0.40781-4.56651I$	0
$u=-0.683075+0.462128I$ $a=-0.542422+1.104780I$ $b=\ \ 0.140036+1.005320I$	$0.22278+2.22232I$	$-13.09381-5.11160I$
$u=-0.683075-0.462128I$ $a=-0.542422-1.104780I$ $b=\ \ 0.140036-1.005320I$	$0.22278-2.22232I$	$-13.09381+5.11160I$
$u=-0.537460+0.617600I$ $a=\ \ 1.94977+0.77515I$ $b=\ \ 1.52666-0.78757I$	$2.39350-11.33360I$	$-3.90914+5.14948I$
$u=-0.537460-0.617600I$ $a=\ \ 1.94977-0.77515I$ $b=\ \ 1.52666+0.78757I$	$2.39350+11.33360I$	$-3.90914-5.14948I$
$u=-0.729161+0.366582I$ $a=-1.28232-2.43009I$ $b=-1.82584-1.30185I$	$1.4886+15.6557I$	$-5.70789-10.38760I$
$u=-0.729161-0.366582I$ $a=-1.28232+2.43009I$ $b=-1.82584+1.30185I$	$1.4886-15.6557I$	$-5.70789+10.38760I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.013312+1.213490I$ $a=-1.198630+0.354187I$ $b=\ \ 0.41384+1.45923I$	$0.694497+0.076769I$	0
$u=-0.013312-1.213490I$ $a=-1.198630-0.354187I$ $b=\ \ 0.41384-1.45923I$	$0.694497-0.076769I$	0
$u=\ \ 0.188583+1.225570I$ $a=-0.795866-0.034391I$ $b=\ \ 0.107938+0.981875I$	$-0.66118-4.66603I$	0
$u=\ \ 0.188583-1.225570I$ $a=-0.795866+0.034391I$ $b=\ \ 0.107938-0.981875I$	$-0.66118+4.66603I$	0
$u=-0.667450+0.362079I$ $a=\ \ 1.42453+2.98943I$ $b=\ \ 2.03321+1.47950I$	$-0.49660+6.79598I$	$-12.1715-9.4069I$
$u=-0.667450-0.362079I$ $a=\ \ 1.42453-2.98943I$ $b=\ \ 2.03321-1.47950I$	$-0.49660-6.79598I$	$-12.1715+9.4069I$
$u=\ \ 0.748570+0.048874I$ $a=-0.400924-0.165680I$ $b=\ \ 0.292022+0.143618I$	$-3.68988-8.42336I$	$-10.53471+7.87489I$
$u=\ \ 0.748570-0.048874I$ $a=-0.400924+0.165680I$ $b=\ \ 0.292022-0.143618I$	$-3.68988+8.42336I$	$-10.53471-7.87489I$
$u=\ \ 0.182516+1.252480I$ $a=-0.460878+0.482200I$ $b=\ \ 0.688062+0.489231I$	$-0.537435-1.220210I$	0
$u=\ \ 0.182516-1.252480I$ $a=-0.460878-0.482200I$ $b=\ \ 0.688062-0.489231I$	$-0.537435+1.220210I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.716893+0.148103I$ $a=-0.586320-0.467569I$ $b=-0.489577-0.248361I$	$-1.46760+0.14646I$	$-10.66155-6.45496I$
$u=-0.716893-0.148103I$ $a=-0.586320+0.467569I$ $b=-0.489577+0.248361I$	$-1.46760-0.14646I$	$-10.66155+6.45496I$
$u=0.598802+0.420280I$ $a=-0.056377+0.342481I$ $b=0.177697-0.181384I$	$3.17991-1.93750I$	$-0.05128+3.41899I$
$u=0.598802-0.420280I$ $a=-0.056377-0.342481I$ $b=0.177697+0.181384I$	$3.17991+1.93750I$	$-0.05128-3.41899I$
$u=0.296710+1.235000I$ $a=0.503062+0.098001I$ $b=-0.028232-0.650361I$	$0.26982-12.21040I$	0
$u=0.296710-1.235000I$ $a=0.503062-0.098001I$ $b=-0.028232+0.650361I$	$0.26982+12.21040I$	0
$u=-0.498652+0.501751I$ $a=-2.45024-1.17096I$ $b=-1.80935+0.64551I$	$0.14979-2.90525I$	$-9.74237+2.76855I$
$u=-0.498652-0.501751I$ $a=-2.45024+1.17096I$ $b=-1.80935-0.64551I$	$0.14979+2.90525I$	$-9.74237-2.76855I$
$u=-0.068712+1.333800I$ $a=0.769513+0.152421I$ $b=0.256174-1.015900I$	$3.90944+2.10883I$	0
$u=-0.068712-1.333800I$ $a=0.769513-0.152421I$ $b=0.256174+1.015900I$	$3.90944-2.10883I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.554749 + 0.320999I$ $a = 0.363194 - 0.745212I$ $b = -0.440694 + 0.296820I$	$-1.24071 - 1.57402I$	$-9.37561 + 4.19103I$
$u = 0.554749 - 0.320999I$ $a = 0.363194 + 0.745212I$ $b = -0.440694 - 0.296820I$	$-1.24071 + 1.57402I$	$-9.37561 - 4.19103I$
$u = 0.620237 + 0.005952I$ $a = 0.684603 - 0.312047I$ $b = -0.426474 + 0.189468I$	$-4.34476 + 1.69097I$	$-17.4074 - 4.2929I$
$u = 0.620237 - 0.005952I$ $a = 0.684603 + 0.312047I$ $b = -0.426474 - 0.189468I$	$-4.34476 - 1.69097I$	$-17.4074 + 4.2929I$
$u = -0.552154 + 0.262175I$ $a = -0.00417 + 2.56788I$ $b = 0.67093 + 1.41896I$	$-1.55541 + 1.68524I$	$-10.30877 - 5.83070I$
$u = -0.552154 - 0.262175I$ $a = -0.00417 - 2.56788I$ $b = 0.67093 - 1.41896I$	$-1.55541 - 1.68524I$	$-10.30877 + 5.83070I$
$u = -0.247870 + 1.385030I$ $a = -0.001904 + 0.889063I$ $b = 1.230910 + 0.223010I$	$3.45219 + 3.47788I$	0
$u = -0.247870 - 1.385030I$ $a = -0.001904 - 0.889063I$ $b = 1.230910 - 0.223010I$	$3.45219 - 3.47788I$	0
$u = -0.21441 + 1.40281I$ $a = 0.99934 - 1.05859I$ $b = -1.27072 - 1.62886I$	$3.77827 + 4.51742I$	0
$u = -0.21441 - 1.40281I$ $a = 0.99934 + 1.05859I$ $b = -1.27072 + 1.62886I$	$3.77827 - 4.51742I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.21996 + 1.42291I$ $a = -0.231668 + 0.476881I$ $b = 0.729514 + 0.224747I$	$4.35313 - 4.46243I$	0
$u = 0.21996 - 1.42291I$ $a = -0.231668 - 0.476881I$ $b = 0.729514 - 0.224747I$	$4.35313 + 4.46243I$	0
$u = -0.18090 + 1.45437I$ $a = 0.24700 + 1.67631I$ $b = 2.48266 - 0.05598I$	$6.36667 - 0.42955I$	0
$u = -0.18090 - 1.45437I$ $a = 0.24700 - 1.67631I$ $b = 2.48266 + 0.05598I$	$6.36667 + 0.42955I$	0
$u = -0.25301 + 1.44537I$ $a = 0.91357 - 1.91598I$ $b = -2.53814 - 1.80521I$	$5.31051 + 10.16090I$	0
$u = -0.25301 - 1.44537I$ $a = 0.91357 + 1.91598I$ $b = -2.53814 + 1.80521I$	$5.31051 - 10.16090I$	0
$u = 0.22159 + 1.45553I$ $a = 0.072388 - 0.270086I$ $b = -0.409159 - 0.045515I$	$9.20820 - 4.94870I$	0
$u = 0.22159 - 1.45553I$ $a = 0.072388 + 0.270086I$ $b = -0.409159 + 0.045515I$	$9.20820 + 4.94870I$	0
$u = -0.27798 + 1.45411I$ $a = -0.70415 + 1.66871I$ $b = 2.23074 + 1.48777I$	$7.3380 + 19.3241I$	0
$u = -0.27798 - 1.45411I$ $a = -0.70415 - 1.66871I$ $b = 2.23074 - 1.48777I$	$7.3380 - 19.3241I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.14926+1.49263I$ $a=-0.200412-1.212690I$ $b=-1.84002+0.11814I$	$9.24070-8.97855I$	0
$u=-0.14926-1.49263I$ $a=-0.200412+1.212690I$ $b=-1.84002-0.11814I$	$9.24070+8.97855I$	0
$u=-0.25822+1.48249I$ $a=\ \ 0.628146-0.442430I$ $b=-0.493697-1.045470I$	$6.49112+5.68833I$	0
$u=-0.25822-1.48249I$ $a=\ \ 0.628146+0.442430I$ $b=-0.493697+1.045470I$	$6.49112-5.68833I$	0
$u=-0.11942+1.52627I$ $a=-0.327180+0.242381I$ $b=\ \ 0.330868+0.528310I$	$8.42211+6.12728I$	0
$u=-0.11942-1.52627I$ $a=-0.327180-0.242381I$ $b=\ \ 0.330868-0.528310I$	$8.42211-6.12728I$	0
$u=-0.282114+0.301857I$ $a=-1.86889+0.58508I$ $b=-0.350628+0.729197I$	$-0.937840+0.856649I$	$-7.17209-5.06992I$
$u=-0.282114-0.301857I$ $a=-1.86889-0.58508I$ $b=-0.350628-0.729197I$	$-0.937840-0.856649I$	$-7.17209+5.06992I$

II. $I_2^u =$
$\langle -2u^{40}+3u^{39}+\cdots+b+3,\ 3u^{42}a+11u^{42}+\cdots-6a-25,\ u^{43}-2u^{42}+\cdots-6u+1\rangle$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^2+1 \\ u^4+2u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} a \\ 2u^{40}-3u^{39}+\cdots+12u-3 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^{42}a-u^{42}+\cdots-2a+4 \\ u^{42}a-3u^{41}a+\cdots-2a-1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} u^3+2u \\ u^3+u \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u^{42}-2u^{41}+\cdots+a-2 \\ 3u^{40}-5u^{39}+\cdots+15u-4 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 4u^{42}-5u^{41}+\cdots-a-9 \\ -u^{41}a+3u^{42}+\cdots+17u-4 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^{39}+u^{38}+\cdots+a+1 \\ 2u^{40}-4u^{39}+\cdots+11u-3 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -u^6-3u^4-2u^2+1 \\ -u^8-4u^6-4u^4 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -u^{42}-4u^{41}+\cdots+25u-15$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^{86} - 7u^{85} + \cdots + 79u - 4$
c_2	$(u^{43} - 21u^{42} + \cdots - 20u + 8)^2$
c_4, c_8	$u^{86} - 2u^{85} + \cdots + 14276u + 1576$
c_5, c_9	$u^{86} - 4u^{85} + \cdots - 3u + 2$
c_6	$(u^{43} + 2u^{42} + \cdots - 189u + 26)^2$
c_7, c_{11}, c_{12}	$(u^{43} - 2u^{42} + \cdots - 6u + 1)^2$
c_{10}	$(u^{43} - 8u^{42} + \cdots - 160u + 25)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{86} + 33y^{85} + \cdots + 551y + 16$
c_2	$(y^{43} - 7y^{42} + \cdots + 1296y - 64)^2$
c_4, c_8	$y^{86} + 12y^{85} + \cdots + 61922032y + 2483776$
c_5, c_9	$y^{86} - 16y^{85} + \cdots + 127y + 4$
c_6	$(y^{43} + 8y^{42} + \cdots + 517y - 676)^2$
c_7, c_{11}, c_{12}	$(y^{43} + 40y^{42} + \cdots + 10y - 1)^2$
c_{10}	$(y^{43} + 24y^{42} + \cdots + 3550y - 625)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.166107+1.122630I$ $a=-0.943447+0.723919I$ $b=\ 0.485509-0.343469I$	$-0.25076+4.18783I$	$-11.21753-7.87764I$
$u=-0.166107+1.122630I$ $a=\ 0.362014+0.378909I$ $b=\ 0.655982+1.179390I$	$-0.25076+4.18783I$	$-11.21753-7.87764I$
$u=-0.166107-1.122630I$ $a=-0.943447-0.723919I$ $b=\ 0.485509+0.343469I$	$-0.25076-4.18783I$	$-11.21753+7.87764I$
$u=-0.166107-1.122630I$ $a=\ 0.362014-0.378909I$ $b=\ 0.655982-1.179390I$	$-0.25076-4.18783I$	$-11.21753+7.87764I$
$u=\ 0.728452+0.355363I$ $a=\ 1.30301-1.48050I$ $b=\ 1.53789-0.75478I$	$3.01372-7.42675I$	$-1.58849+8.96440I$
$u=\ 0.728452+0.355363I$ $a=-1.29704+1.66888I$ $b=-1.47529+0.61543I$	$3.01372-7.42675I$	$-1.58849+8.96440I$
$u=\ 0.728452-0.355363I$ $a=\ 1.30301+1.48050I$ $b=\ 1.53789+0.75478I$	$3.01372+7.42675I$	$-1.58849-8.96440I$
$u=\ 0.728452-0.355363I$ $a=-1.29704-1.66888I$ $b=-1.47529-0.61543I$	$3.01372+7.42675I$	$-1.58849-8.96440I$
$u=\ 0.515250+0.625157I$ $a=\ 1.146030-0.789959I$ $b=\ 1.253930+0.218600I$	$3.99431+3.15841I$	$1.13775-2.94710I$
$u=\ 0.515250+0.625157I$ $a=-1.19266+1.02280I$ $b=-1.084340-0.309421I$	$3.99431+3.15841I$	$1.13775-2.94710I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.515250 - 0.625157I$ $a = 1.146030 + 0.789959I$ $b = 1.253930 - 0.218600I$	$3.99431 - 3.15841I$	$1.13775 + 2.94710I$
$u = 0.515250 - 0.625157I$ $a = -1.19266 - 1.02280I$ $b = -1.084340 + 0.309421I$	$3.99431 - 3.15841I$	$1.13775 + 2.94710I$
$u = -0.298241 + 1.201080I$ $a = 0.413065 + 0.139598I$ $b = 0.384660 + 0.184593I$	$2.17074 + 3.81123I$	$5.45803 - 7.32123I$
$u = -0.298241 + 1.201080I$ $a = -0.069857 + 0.337608I$ $b = 0.290861 - 0.454491I$	$2.17074 + 3.81123I$	$5.45803 - 7.32123I$
$u = -0.298241 - 1.201080I$ $a = 0.413065 - 0.139598I$ $b = 0.384660 - 0.184593I$	$2.17074 - 3.81123I$	$5.45803 + 7.32123I$
$u = -0.298241 - 1.201080I$ $a = -0.069857 - 0.337608I$ $b = 0.290861 + 0.454491I$	$2.17074 - 3.81123I$	$5.45803 + 7.32123I$
$u = -0.749297$ $a = -0.634113$ $b = -0.306363$	-1.51538	2.92720
$u = -0.749297$ $a = -0.408867$ $b = -0.475139$	-1.51538	2.92720
$u = 0.072880 + 1.255020I$ $a = 0.367200 - 0.883639I$ $b = -0.17474 + 2.14293I$	$3.68125 - 5.05648I$	$0. + 9.54550I$
$u = 0.072880 + 1.255020I$ $a = -1.69368 - 0.23759I$ $b = -1.135750 - 0.396445I$	$3.68125 - 5.05648I$	$0. + 9.54550I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.072880 - 1.255020I$ $a = 0.367200 + 0.883639I$ $b = -0.17474 - 2.14293I$	$3.68125 + 5.05648I$	$0. - 9.54550I$
$u = 0.072880 - 1.255020I$ $a = -1.69368 + 0.23759I$ $b = -1.135750 + 0.396445I$	$3.68125 + 5.05648I$	$0. - 9.54550I$
$u = 0.594323 + 0.424749I$ $a = -0.000767 + 0.967530I$ $b = -0.050270 + 0.212676I$	$3.18915 - 1.94047I$	$0.07176 + 3.68376I$
$u = 0.594323 + 0.424749I$ $a = -0.113294 - 0.276878I$ $b = 0.411413 - 0.574699I$	$3.18915 - 1.94047I$	$0.07176 + 3.68376I$
$u = 0.594323 - 0.424749I$ $a = -0.000767 - 0.967530I$ $b = -0.050270 - 0.212676I$	$3.18915 + 1.94047I$	$0.07176 - 3.68376I$
$u = 0.594323 - 0.424749I$ $a = -0.113294 + 0.276878I$ $b = 0.411413 + 0.574699I$	$3.18915 + 1.94047I$	$0.07176 - 3.68376I$
$u = 0.662452 + 0.307770I$ $a = -1.04468 + 2.39874I$ $b = -1.81272 + 1.07558I$	$-1.07433 - 6.97867I$	$-11.2100 + 9.9328I$
$u = 0.662452 + 0.307770I$ $a = 1.63018 - 2.38101I$ $b = 1.43031 - 1.26753I$	$-1.07433 - 6.97867I$	$-11.2100 + 9.9328I$
$u = 0.662452 - 0.307770I$ $a = -1.04468 - 2.39874I$ $b = -1.81272 - 1.07558I$	$-1.07433 + 6.97867I$	$-11.2100 - 9.9328I$
$u = 0.662452 - 0.307770I$ $a = 1.63018 + 2.38101I$ $b = 1.43031 + 1.26753I$	$-1.07433 + 6.97867I$	$-11.2100 - 9.9328I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.602232+0.367369I$ $a=\ \ 2.52885+1.09942I$ $b=\ \ 2.22765+0.30146I$	$2.66264+6.12754I$	$-1.33584-9.50761I$
$u=-0.602232+0.367369I$ $a=\ \ 2.47329+2.00931I$ $b=\ \ 1.92685-0.26692I$	$2.66264+6.12754I$	$-1.33584-9.50761I$
$u=-0.602232-0.367369I$ $a=\ \ 2.52885-1.09942I$ $b=\ \ 2.22765-0.30146I$	$2.66264-6.12754I$	$-1.33584+9.50761I$
$u=-0.602232-0.367369I$ $a=\ \ 2.47329-2.00931I$ $b=\ \ 1.92685+0.26692I$	$2.66264-6.12754I$	$-1.33584+9.50761I$
$u=-0.668648+0.115442I$ $a=-0.589888+1.183360I$ $b=-0.814550+0.545174I$	$-3.17456-0.99810I$	$-14.6431+6.0970I$
$u=-0.668648+0.115442I$ $a=-1.31964+0.58750I$ $b=-0.257818+0.859350I$	$-3.17456-0.99810I$	$-14.6431+6.0970I$
$u=-0.668648-0.115442I$ $a=-0.589888-1.183360I$ $b=-0.814550-0.545174I$	$-3.17456+0.99810I$	$-14.6431-6.0970I$
$u=-0.668648-0.115442I$ $a=-1.31964-0.58750I$ $b=-0.257818-0.859350I$	$-3.17456+0.99810I$	$-14.6431-6.0970I$
$u=\ \ 0.010728+1.322970I$ $a=\ \ 1.244150+0.551389I$ $b=-0.648154-0.430906I$	$4.82449+2.56349I$	0
$u=\ \ 0.010728+1.322970I$ $a=\ \ 0.329663-0.487250I$ $b=\ \ 0.71612-1.65189I$	$4.82449+2.56349I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.010728 - 1.322970I$ $a = 1.244150 - 0.551389I$ $b = -0.648154 + 0.430906I$	$4.82449 - 2.56349I$	0
$u = 0.010728 - 1.322970I$ $a = 0.329663 + 0.487250I$ $b = 0.71612 + 1.65189I$	$4.82449 - 2.56349I$	0
$u = -0.542094 + 0.403826I$ $a = -1.18402 - 2.00462I$ $b = -2.07820 - 0.81935I$	$2.88555 - 2.52090I$	$0.109990 + 1.127839I$
$u = -0.542094 + 0.403826I$ $a = -1.74137 - 2.80867I$ $b = -1.45137 - 0.60855I$	$2.88555 - 2.52090I$	$0.109990 + 1.127839I$
$u = -0.542094 - 0.403826I$ $a = -1.18402 + 2.00462I$ $b = -2.07820 + 0.81935I$	$2.88555 + 2.52090I$	$0.109990 - 1.127839I$
$u = -0.542094 - 0.403826I$ $a = -1.74137 + 2.80867I$ $b = -1.45137 + 0.60855I$	$2.88555 + 2.52090I$	$0.109990 - 1.127839I$
$u = -0.256969 + 1.321500I$ $a = 0.946134 + 0.516154I$ $b = 0.062124 - 0.663605I$	$1.32438 + 2.35380I$	0
$u = -0.256969 + 1.321500I$ $a = 0.492675 - 0.048791I$ $b = 0.92522 - 1.11768I$	$1.32438 + 2.35380I$	0
$u = -0.256969 - 1.321500I$ $a = 0.946134 - 0.516154I$ $b = 0.062124 + 0.663605I$	$1.32438 - 2.35380I$	0
$u = -0.256969 - 1.321500I$ $a = 0.492675 + 0.048791I$ $b = 0.92522 + 1.11768I$	$1.32438 - 2.35380I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.324328 + 0.492223I$ $a = 0.89618 - 1.35706I$ $b = 1.249870 + 0.610441I$	$-0.04060 + 3.47279I$	$-8.09430 - 4.02435I$
$u = 0.324328 + 0.492223I$ $a = -2.03136 + 1.20077I$ $b = -0.958632 - 0.000991I$	$-0.04060 + 3.47279I$	$-8.09430 - 4.02435I$
$u = 0.324328 - 0.492223I$ $a = 0.89618 + 1.35706I$ $b = 1.249870 - 0.610441I$	$-0.04060 - 3.47279I$	$-8.09430 + 4.02435I$
$u = 0.324328 - 0.492223I$ $a = -2.03136 - 1.20077I$ $b = -0.958632 + 0.000991I$	$-0.04060 - 3.47279I$	$-8.09430 + 4.02435I$
$u = 0.17630 + 1.41651I$ $a = 0.096486 - 1.257610I$ $b = 2.50835 - 0.78501I$	$5.67023 + 1.42487I$	0
$u = 0.17630 + 1.41651I$ $a = 0.32870 + 1.81171I$ $b = -1.79843 + 0.08504I$	$5.67023 + 1.42487I$	0
$u = 0.17630 - 1.41651I$ $a = 0.096486 + 1.257610I$ $b = 2.50835 + 0.78501I$	$5.67023 - 1.42487I$	0
$u = 0.17630 - 1.41651I$ $a = 0.32870 - 1.81171I$ $b = -1.79843 - 0.08504I$	$5.67023 - 1.42487I$	0
$u = 0.25512 + 1.42436I$ $a = 0.48456 + 1.65129I$ $b = -2.06107 + 1.74576I$	$4.47634 - 10.32970I$	0
$u = 0.25512 + 1.42436I$ $a = -0.93642 - 1.61474I$ $b = 2.22840 - 1.11147I$	$4.47634 - 10.32970I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.25512 - 1.42436I$ $a = 0.48456 - 1.65129I$ $b = -2.06107 - 1.74576I$	$4.47634 + 10.32970I$	0
$u = 0.25512 - 1.42436I$ $a = -0.93642 + 1.61474I$ $b = 2.22840 + 1.11147I$	$4.47634 + 10.32970I$	0
$u = -0.20779 + 1.44208I$ $a = -0.82626 + 1.33991I$ $b = 2.58288 + 0.93449I$	$8.79083 + 0.26279I$	0
$u = -0.20779 + 1.44208I$ $a = -0.38201 + 1.84612I$ $b = 1.76058 + 1.46995I$	$8.79083 + 0.26279I$	0
$u = -0.20779 - 1.44208I$ $a = -0.82626 - 1.33991I$ $b = 2.58288 - 0.93449I$	$8.79083 - 0.26279I$	0
$u = -0.20779 - 1.44208I$ $a = -0.38201 - 1.84612I$ $b = 1.76058 - 1.46995I$	$8.79083 - 0.26279I$	0
$u = -0.23021 + 1.43938I$ $a = -0.19100 - 1.45184I$ $b = -3.10116 - 0.20307I$	$8.45919 + 9.19448I$	0
$u = -0.23021 + 1.43938I$ $a = -0.19843 - 2.12276I$ $b = -2.13373 - 0.05931I$	$8.45919 + 9.19448I$	0
$u = -0.23021 - 1.43938I$ $a = -0.19100 + 1.45184I$ $b = -3.10116 + 0.20307I$	$8.45919 - 9.19448I$	0
$u = -0.23021 - 1.43938I$ $a = -0.19843 + 2.12276I$ $b = -2.13373 + 0.05931I$	$8.45919 - 9.19448I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.21830 + 1.45337I$ $a = -0.229747 - 0.721592I$ $b = 0.186966 - 0.603079I$	$9.21760 - 4.91390I$	0
$u = 0.21830 + 1.45337I$ $a = 0.386900 + 0.186755I$ $b = -0.998591 + 0.491430I$	$9.21760 - 4.91390I$	0
$u = 0.21830 - 1.45337I$ $a = -0.229747 + 0.721592I$ $b = 0.186966 + 0.603079I$	$9.21760 + 4.91390I$	0
$u = 0.21830 - 1.45337I$ $a = 0.386900 - 0.186755I$ $b = -0.998591 - 0.491430I$	$9.21760 + 4.91390I$	0
$u = 0.27891 + 1.44938I$ $a = 0.293485 + 1.280960I$ $b = -2.00481 + 0.83557I$	$8.8077 - 11.0948I$	0
$u = 0.27891 + 1.44938I$ $a = -0.29925 - 1.44081I$ $b = 1.77473 - 0.78264I$	$8.8077 - 11.0948I$	0
$u = 0.27891 - 1.44938I$ $a = 0.293485 - 1.280960I$ $b = -2.00481 - 0.83557I$	$8.8077 + 11.0948I$	0
$u = 0.27891 - 1.44938I$ $a = -0.29925 + 1.44081I$ $b = 1.77473 + 0.78264I$	$8.8077 + 11.0948I$	0
$u = 0.14206 + 1.48462I$ $a = -0.127936 - 1.024860I$ $b = 1.232200 - 0.477498I$	$10.80640 + 0.93464I$	0
$u = 0.14206 + 1.48462I$ $a = 0.240014 + 0.852942I$ $b = -1.50335 + 0.33553I$	$10.80640 + 0.93464I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.14206 - 1.48462I$ $a = -0.127936 + 1.024860I$ $b = 1.232200 + 0.477498I$	$10.80640 - 0.93464I$	0
$u = 0.14206 - 1.48462I$ $a = 0.240014 - 0.852942I$ $b = -1.50335 - 0.33553I$	$10.80640 - 0.93464I$	0
$u = 0.367839 + 0.121390I$ $a = -2.22244 + 1.37771I$ $b = -0.88352 + 1.20133I$	$0.28028 + 3.43207I$	$-11.92037 - 3.46520I$
$u = 0.367839 + 0.121390I$ $a = 1.19410 - 3.65999I$ $b = 0.984742 - 0.236994I$	$0.28028 + 3.43207I$	$-11.92037 - 3.46520I$
$u = 0.367839 - 0.121390I$ $a = -2.22244 - 1.37771I$ $b = -0.88352 - 1.20133I$	$0.28028 - 3.43207I$	$-11.92037 + 3.46520I$
$u = 0.367839 - 0.121390I$ $a = 1.19410 + 3.65999I$ $b = 0.984742 + 0.236994I$	$0.28028 - 3.43207I$	$-11.92037 + 3.46520I$

III.

$\boldsymbol{I_3^u = \langle -u^{15}+u^{14}+\cdots+b-2,\ 2u^{16}-2u^{15}+\cdots+a-3,\ u^{17}-u^{16}+\cdots-2u+1\rangle}$

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_7 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^2+1 \\ u^4+2u^2 \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -2u^{16}+2u^{15}+\cdots-5u+3 \\ u^{15}-u^{14}+\cdots-u+2 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -u^{16}-7u^{14}+\cdots-u-1 \\ -u^{16}+2u^{15}+\cdots-4u+1 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} u^3+2u \\ u^3+u \end{pmatrix}$$

$$a_3 = \begin{pmatrix} -u^{16}+u^{15}+\cdots-4u+1 \\ -u^{15}+u^{14}+\cdots-u^2+u \end{pmatrix}$$

$$a_9 = \begin{pmatrix} u^{16}-u^{15}+\cdots-3u^2+3u \\ u^{15}+u^{14}+\cdots+2u-1 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -u^{16}+u^{15}+\cdots-2u+1 \\ u^{11}+5u^9+8u^7+3u^5-u^3+u^2+1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -u^6-3u^4-2u^2+1 \\ -u^8-4u^6-4u^4 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -2u^{15}-6u^{14}-6u^{13}-42u^{12}+12u^{11}-108u^{10}+66u^9-114u^8+80u^7-26u^6+17u^5+30u^4-26u^3+20u^2-13u+4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3	$u^{17} - 4u^{16} + \cdots + 4u - 1$
c_2	$u^{17} + 13u^{16} + \cdots + 492u + 55$
c_4, c_8	$u^{17} - 2u^{15} + \cdots + 2u^2 - 1$
c_5, c_9	$u^{17} - 2u^{15} + \cdots + 2u^2 - 1$
c_6	$u^{17} - u^{16} + \cdots - 4u - 1$
c_7	$u^{17} + u^{16} + \cdots - 2u - 1$
c_{10}	$u^{17} + 3u^{16} + \cdots - 8u - 1$
c_{11}, c_{12}	$u^{17} - u^{16} + \cdots - 2u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$y^{17} + 16y^{16} + \cdots - 4y - 1$
c_2	$y^{17} + 7y^{16} + \cdots + 2704y - 3025$
c_4, c_8	$y^{17} - 4y^{16} + \cdots + 4y - 1$
c_5, c_9	$y^{17} - 4y^{16} + \cdots + 4y - 1$
c_6	$y^{17} + 5y^{16} + \cdots - 8y - 1$
c_7, c_{11}, c_{12}	$y^{17} + 17y^{16} + \cdots - 6y - 1$
c_{10}	$y^{17} + 5y^{16} + \cdots + 2y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.226846+1.074950I$ $a=\ \ 0.280723-0.296179I$ $b=\ \ 0.254698+0.368951I$	$1.37776+4.07487I$	$-4.75927-9.57829I$
$u=-0.226846-1.074950I$ $a=\ \ 0.280723+0.296179I$ $b=\ \ 0.254698-0.368951I$	$1.37776-4.07487I$	$-4.75927+9.57829I$
$u=-0.826052$ $a=-0.125381$ $b=\ \ 0.103571$	-1.78096	-36.8030
$u=\ \ 0.657980+0.330013I$ $a=-2.04222+2.19942I$ $b=-2.06958+0.77322I$	$0.69054-6.88630I$	$-4.75043+9.91438I$
$u=\ \ 0.657980-0.330013I$ $a=-2.04222-2.19942I$ $b=-2.06958-0.77322I$	$0.69054+6.88630I$	$-4.75043-9.91438I$
$u=\ \ 0.008379+1.297160I$ $a=-1.128220+0.428770I$ $b=-0.56564-1.45988I$	$4.26670-3.72263I$	$-1.66158+6.42655I$
$u=\ \ 0.008379-1.297160I$ $a=-1.128220-0.428770I$ $b=-0.56564+1.45988I$	$4.26670+3.72263I$	$-1.66158-6.42655I$
$u=\ \ 0.434959+0.422256I$ $a=\ \ 1.70189-2.41770I$ $b=\ \ 1.76114-0.33297I$	$1.44897+3.32356I$	$-2.50461-3.66335I$
$u=\ \ 0.434959-0.422256I$ $a=\ \ 1.70189+2.41770I$ $b=\ \ 1.76114+0.33297I$	$1.44897-3.32356I$	$-2.50461+3.66335I$
$u=\ \ 0.18670+1.43747I$ $a=\ \ 0.29511+1.87628I$ $b=-2.64199+0.77451I$	$7.34687+0.89678I$	$1.38946-4.29809I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ 0.18670 - 1.43747I$ $a = \ 0.29511 - 1.87628I$ $b = -2.64199 - 0.77451I$	$7.34687 - 0.89678I$	$1.38946 + 4.29809I$
$u = -0.222618 + 0.502273I$ $a = -0.753888 - 0.350585I$ $b = \ 0.343918 - 0.300611I$	$1.26383 + 3.80210I$	$-1.63515 - 6.00657I$
$u = -0.222618 - 0.502273I$ $a = -0.753888 + 0.350585I$ $b = \ 0.343918 + 0.300611I$	$1.26383 - 3.80210I$	$-1.63515 + 6.00657I$
$u = \ 0.25256 + 1.43441I$ $a = -0.41060 - 1.90729I$ $b = \ 2.63214 - 1.07067I$	$6.35635 - 10.21900I$	$-0.12977 + 9.37561I$
$u = \ 0.25256 - 1.43441I$ $a = -0.41060 + 1.90729I$ $b = \ 2.63214 + 1.07067I$	$6.35635 + 10.21900I$	$-0.12977 - 9.37561I$
$u = -0.17808 + 1.48097I$ $a = \ 0.119877 - 0.172094I$ $b = \ 0.233518 + 0.208181I$	$7.74827 + 5.86104I$	$-3.04695 - 6.97760I$
$u = -0.17808 - 1.48097I$ $a = \ 0.119877 + 0.172094I$ $b = \ 0.233518 - 0.208181I$	$7.74827 - 5.86104I$	$-3.04695 + 6.97760I$

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

(i) Arc colorings

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

$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

$$a_4 = \begin{pmatrix} a \\ -au + u^2 + u + 1 \end{pmatrix}$$

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

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

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

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

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

$$a_{10} = \begin{pmatrix} 0 \\ u \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -5u^2 - 8u - 16$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$(y-1)^6$
c_2	y^6
c_4, c_5, c_8 c_9	$y^6 + 5y^5 + 13y^4 + 17y^3 + 13y^2 + 5y + 1$
c_6, c_{10}	$(y^3 - y^2 + 2y - 1)^2$
c_7, c_{11}, c_{12}	$(y^3 + 3y^2 + 2y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.215080+1.307140I$ $a=\ \ 1.086460+0.283545I$ $b=-0.273131-0.614306I$	$1.37919+2.82812I$	$-5.96757-7.64573I$
$u=-0.215080+1.307140I$ $a=-0.424098+0.278735I$ $b=-0.60431+1.35917I$	$1.37919+2.82812I$	$-5.96757-7.64573I$
$u=-0.215080-1.307140I$ $a=\ \ 1.086460-0.283545I$ $b=-0.273131+0.614306I$	$1.37919-2.82812I$	$-5.96757+7.64573I$
$u=-0.215080-1.307140I$ $a=-0.424098-0.278735I$ $b=-0.60431-1.35917I$	$1.37919-2.82812I$	$-5.96757+7.64573I$
$u=-0.569840$ $a=-0.66236+1.62508I$ $b=\ \ 0.377439+0.926035I$	-2.75839	-13.0650
$u=-0.569840$ $a=-0.66236-1.62508I$ $b=\ \ 0.377439-0.926035I$	-2.75839	-13.0650

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_3	$((u-1)^6)(u^{17}-4u^{16}+\cdots+4u-1)(u^{58}+10u^{57}+\cdots-5u+1)$ $\cdot(u^{86}-7u^{85}+\cdots+79u-4)$
c_2	$u^6(u^{17}+13u^{16}+\cdots+492u+55)(u^{43}-21u^{42}+\cdots-20u+8)^2$ $\cdot(u^{58}+30u^{57}+\cdots+7u+2)$
c_4, c_8	$(u^6+u^5+3u^4+u^3+3u^2+u+1)(u^{17}-2u^{15}+\cdots+2u^2-1)$ $\cdot(u^{58}+8u^{56}+\cdots+5u+2)(u^{86}-2u^{85}+\cdots+14276u+1576)$
c_5, c_9	$(u^6+u^5+3u^4+u^3+3u^2+u+1)(u^{17}-2u^{15}+\cdots+2u^2-1)$ $\cdot(u^{58}-2u^{57}+\cdots-u+1)(u^{86}-4u^{85}+\cdots-3u+2)$
c_6	$((u^3+u^2-1)^2)(u^{17}-u^{16}+\cdots-4u-1)$ $\cdot((u^{43}+2u^{42}+\cdots-189u+26)^2)(u^{58}-6u^{57}+\cdots+10406u+1768)$
c_7	$((u^3-u^2+2u-1)^2)(u^{17}+u^{16}+\cdots-2u-1)$ $\cdot((u^{43}-2u^{42}+\cdots-6u+1)^2)(u^{58}+6u^{57}+\cdots+37u+4)$
c_{10}	$((u^3+u^2-1)^2)(u^{17}+3u^{16}+\cdots-8u-1)$ $\cdot((u^{43}-8u^{42}+\cdots-160u+25)^2)(u^{58}-10u^{57}+\cdots-79407u+9248)$
c_{11}, c_{12}	$((u^3+u^2+2u+1)^2)(u^{17}-u^{16}+\cdots-2u+1)$ $\cdot((u^{43}-2u^{42}+\cdots-6u+1)^2)(u^{58}+6u^{57}+\cdots+37u+4)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_3	$((y-1)^6)(y^{17}+16y^{16}+\cdots-4y-1)(y^{58}-20y^{57}+\cdots-37y+1)$ $\cdot(y^{86}+33y^{85}+\cdots+551y+16)$
c_2	$y^6(y^{17}+7y^{16}+\cdots+2704y-3025)$ $\cdot((y^{43}-7y^{42}+\cdots+1296y-64)^2)(y^{58}+12y^{56}+\cdots-17y+4)$
c_4, c_8	$(y^6+5y^5+\cdots+5y+1)(y^{17}-4y^{16}+\cdots+4y-1)$ $\cdot(y^{58}+16y^{57}+\cdots+47y+4)$ $\cdot(y^{86}+12y^{85}+\cdots+61922032y+2483776)$
c_5, c_9	$(y^6+5y^5+\cdots+5y+1)(y^{17}-4y^{16}+\cdots+4y-1)$ $\cdot(y^{58}+32y^{57}+\cdots+67y+1)(y^{86}-16y^{85}+\cdots+127y+4)$
c_6	$((y^3-y^2+2y-1)^2)(y^{17}+5y^{16}+\cdots-8y-1)$ $\cdot(y^{43}+8y^{42}+\cdots+517y-676)^2$ $\cdot(y^{58}+14y^{57}+\cdots+31546284y+3125824)$
c_7, c_{11}, c_{12}	$((y^3+3y^2+2y-1)^2)(y^{17}+17y^{16}+\cdots-6y-1)$ $\cdot((y^{43}+40y^{42}+\cdots+10y-1)^2)(y^{58}+54y^{57}+\cdots-89y+16)$
c_{10}	$((y^3-y^2+2y-1)^2)(y^{17}+5y^{16}+\cdots+2y-1)$ $\cdot(y^{43}+24y^{42}+\cdots+3550y-625)^2$ $\cdot(y^{58}+30y^{57}+\cdots+1679029599y+85525504)$