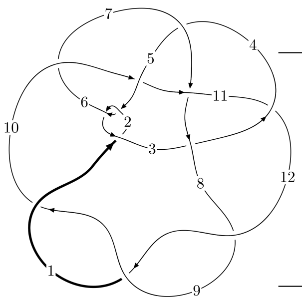
$12a_{0266}$ $(K12a_{0266})$



A knot diagram[1]

Linearized knot diagam

$\rightarrow \downarrow_{3} \rightarrow \downarrow_{6} \rightarrow \downarrow_{8} \rightarrow \uparrow_{7} \rightarrow \downarrow_{2} \rightarrow \downarrow_{10} \rightarrow \uparrow_{11} \rightarrow \downarrow_{12} \rightarrow \downarrow_{1} \rightarrow \downarrow_{5} \rightarrow \uparrow_{4} \rightarrow \downarrow_{9} \rightarrow$

3 6 8 7 2 10 11 12 1 5 4 9

Solving Sequence

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

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

$$\begin{aligned}
I_1^u = \langle &-5.65100 \times 10^{376} u^{138} - 1.59780 \times 10^{377} u^{137} + \cdots + 1.07658 \times 10^{378} b - 5.53322 \times 10^{378},\\
&1.04283 \times 10^{379} u^{138} + 2.43820 \times 10^{379} u^{137} + \cdots + 5.92116 \times 10^{379} a - 1.92434 \times 10^{381},\\
&u^{139} + 4u^{138} + \cdots + 472u - 55\rangle\\
I_2^u = \langle &10u^{18} - 3u^{17} + \cdots + b - 10,\ 9u^{18} - u^{17} + \cdots + a - 7,\ u^{19} - u^{18} + \cdots - 3u + 1\rangle\\
I_3^u = \langle &-u^2 a + au - u^2 + b + u - 1,\ u^2 a + a^2 - 3au + 3u^2 + 2a - 3u + 2,\ u^3 - u^2 + 1\rangle\\
I_4^u = \langle &-3a^3 + 2a^2 + 31b - 8a + 6,\ a^4 - a^3 - 4a^2 + 4a + 11,\ u + 1\rangle
\end{aligned}$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 168 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. $\boldsymbol{I_1^u = \langle -5.65 \times 10^{376} u^{138} - 1.60 \times 10^{377} u^{137} + \cdots + 1.08 \times 10^{378} b - 5.53 \times 10^{378},\ 1.04 \times 10^{379} u^{138} + 2.44 \times 10^{379} u^{137} + \cdots + 5.92 \times 10^{379} a - 1.92 \times 10^{381},\ u^{139} + 4u^{138} + \cdots + 472u - 55 \rangle}$

(i) Arc colorings

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

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_{10} = \begin{pmatrix} -0.176119u^{138} - 0.411777u^{137} + \cdots - 182.170u + 32.4994 \\ 0.0524905u^{138} + 0.148415u^{137} + \cdots - 54.4052u + 5.13965 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -0.00182425u^{138} - 0.00973214u^{137} + \cdots - 175.493u + 13.5208 \\ 0.144407u^{138} + 0.352288u^{137} + \cdots + 58.8870u - 6.47093 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.228609u^{138} - 0.560192u^{137} + \cdots - 127.765u + 27.3597 \\ 0.0524905u^{138} + 0.148415u^{137} + \cdots - 54.4052u + 5.13965 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.586546u^{138} - 1.77386u^{137} + \cdots - 408.709u + 48.7522 \\ 0.508633u^{138} + 1.39800u^{137} + \cdots + 106.194u - 12.7124 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} 0.125067u^{138} + 0.930157u^{137} + \cdots - 129.743u + 15.4604 \\ -0.100367u^{138} - 0.428049u^{137} + \cdots - 80.1730u + 9.18097 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.226178u^{138} - 0.541512u^{137} + \cdots - 136.597u + 27.7184 \\ 0.0388748u^{138} + 0.0924747u^{137} + \cdots - 31.6327u + 2.65267 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.607158u^{138} - 2.10441u^{137} + \cdots - 159.069u + 30.0427 \\ 0.206637u^{138} + 0.507832u^{137} + \cdots + 37.1120u - 5.50176 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.0201009u^{138} - 0.638391u^{137} + \cdots - 384.484u + 31.1094$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{139} + 62u^{138} + \cdots + 388114u + 3025$
c_2, c_5	$u^{139} + 4u^{138} + \cdots + 472u - 55$
c_3	$u^{139} + 5u^{138} + \cdots + 4330u + 1331$
c_4	$u^{139} + 13u^{138} + \cdots + 1376u + 64$
c_6	$u^{139} + 2u^{138} + \cdots - 62783u + 13079$
c_7	$u^{139} + 7u^{138} + \cdots + 472u + 80$
c_8, c_9, c_{12}	$u^{139} + 5u^{138} + \cdots - 23u + 1$
c_{10}	$u^{139} + 2u^{138} + \cdots - 2000u + 55$
c_{11}	$u^{139} - 2u^{138} + \cdots - 18072u + 112685$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{139} + 34y^{138} + \cdots + 100560976946y - 9150625$
c_2, c_5	$y^{139} - 62y^{138} + \cdots + 388114y - 3025$
c_3	$y^{139} - 21y^{138} + \cdots + 280322344y - 1771561$
c_4	$y^{139} + 23y^{138} + \cdots - 1334272y - 4096$
c_6	$y^{139} - 18y^{138} + \cdots + 16255714379y - 171060241$
c_7	$y^{139} - 29y^{138} + \cdots + 253504y - 6400$
c_8, c_9, c_{12}	$y^{139} - 149y^{138} + \cdots + 11y - 1$
c_{10}	$y^{139} + 34y^{138} + \cdots + 7730100y - 3025$
c_{11}	$y^{139} + 38y^{138} + \cdots - 869428969396y - 12697909225$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.518078 + 0.849429I$ $a = -0.121879 - 0.241704I$ $b = 0.83527 + 1.24208I$	$2.15020 - 9.13760I$	0
$u = -0.518078 - 0.849429I$ $a = -0.121879 + 0.241704I$ $b = 0.83527 - 1.24208I$	$2.15020 + 9.13760I$	0
$u = -0.903632 + 0.398748I$ $a = -2.38251 + 0.30931I$ $b = -0.29379 + 2.08108I$	$-7.96514 + 1.62416I$	0
$u = -0.903632 - 0.398748I$ $a = -2.38251 - 0.30931I$ $b = -0.29379 - 2.08108I$	$-7.96514 - 1.62416I$	0
$u = 0.529919 + 0.829440I$ $a = -0.241841 - 0.146508I$ $b = -0.057048 + 0.842750I$	$4.01767 + 1.61831I$	0
$u = 0.529919 - 0.829440I$ $a = -0.241841 + 0.146508I$ $b = -0.057048 - 0.842750I$	$4.01767 - 1.61831I$	0
$u = 0.321719 + 0.964111I$ $a = 0.401303 - 0.061655I$ $b = 0.011976 - 0.757600I$	$-2.03450 + 4.35648I$	0
$u = 0.321719 - 0.964111I$ $a = 0.401303 + 0.061655I$ $b = 0.011976 + 0.757600I$	$-2.03450 - 4.35648I$	0
$u = -0.503973 + 0.844551I$ $a = 0.402615 - 0.230848I$ $b = 0.811807 + 0.685570I$	$-6.58796 - 5.00116I$	0
$u = -0.503973 - 0.844551I$ $a = 0.402615 + 0.230848I$ $b = 0.811807 - 0.685570I$	$-6.58796 + 5.00116I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.733246 + 0.708001I$ $a = -0.147313 + 0.297625I$ $b = 0.051814 - 0.970327I$	$3.40281 - 2.04784I$	0
$u = 0.733246 - 0.708001I$ $a = -0.147313 - 0.297625I$ $b = 0.051814 + 0.970327I$	$3.40281 + 2.04784I$	0
$u = 0.890456 + 0.407068I$ $a = -2.23689 + 1.04535I$ $b = -0.169447 - 1.257180I$	$-9.52383 - 1.67989I$	0
$u = 0.890456 - 0.407068I$ $a = -2.23689 - 1.04535I$ $b = -0.169447 + 1.257180I$	$-9.52383 + 1.67989I$	0
$u = 0.929520 + 0.430078I$ $a = 0.742660 + 0.613640I$ $b = 0.504193 - 1.039700I$	$-4.80822 + 3.72203I$	0
$u = 0.929520 - 0.430078I$ $a = 0.742660 - 0.613640I$ $b = 0.504193 + 1.039700I$	$-4.80822 - 3.72203I$	0
$u = -0.907164 + 0.355967I$ $a = 0.71826 + 1.35959I$ $b = 0.777868 + 0.880844I$	$-1.88897 + 1.69399I$	0
$u = -0.907164 - 0.355967I$ $a = 0.71826 - 1.35959I$ $b = 0.777868 - 0.880844I$	$-1.88897 - 1.69399I$	0
$u = -0.834450 + 0.604586I$ $a = -1.85162 - 0.45829I$ $b = -0.039995 + 0.449436I$	$2.12387 - 1.25259I$	0
$u = -0.834450 - 0.604586I$ $a = -1.85162 + 0.45829I$ $b = -0.039995 - 0.449436I$	$2.12387 + 1.25259I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.948446 + 0.180026I$ $a = 1.69385 - 1.15565I$ $b = 0.965800 + 0.048534I$	$-4.24387 + 0.18160I$	0
$u = 0.948446 - 0.180026I$ $a = 1.69385 + 1.15565I$ $b = 0.965800 - 0.048534I$	$-4.24387 - 0.18160I$	0
$u = 0.471493 + 0.841619I$ $a = -0.285061 + 0.229037I$ $b = 0.696487 - 1.156910I$	$3.67001 + 2.09092I$	0
$u = 0.471493 - 0.841619I$ $a = -0.285061 - 0.229037I$ $b = 0.696487 + 1.156910I$	$3.67001 - 2.09092I$	0
$u = -0.955165 + 0.401924I$ $a = 0.396434 + 0.614106I$ $b = 0.87232 + 1.22907I$	$-3.55379 + 2.24799I$	0
$u = -0.955165 - 0.401924I$ $a = 0.396434 - 0.614106I$ $b = 0.87232 - 1.22907I$	$-3.55379 - 2.24799I$	0
$u = -0.991267 + 0.351517I$ $a = -2.25608 - 0.28666I$ $b = -1.36258 + 1.01519I$	$-3.26735 + 0.35606I$	0
$u = -0.991267 - 0.351517I$ $a = -2.25608 + 0.28666I$ $b = -1.36258 - 1.01519I$	$-3.26735 - 0.35606I$	0
$u = -0.848516 + 0.622237I$ $a = 0.559231 - 0.936522I$ $b = -0.053638 + 0.727288I$	$2.08931 + 6.08106I$	0
$u = -0.848516 - 0.622237I$ $a = 0.559231 + 0.936522I$ $b = -0.053638 - 0.727288I$	$2.08931 - 6.08106I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.368090 + 0.991975I$ $a = -0.089353 + 0.210330I$ $b = 0.542713 - 0.655345I$	$1.43820 + 4.87898I$	0
$u = -0.368090 - 0.991975I$ $a = -0.089353 - 0.210330I$ $b = 0.542713 + 0.655345I$	$1.43820 - 4.87898I$	0
$u = 0.659318 + 0.666217I$ $a = 0.918035 - 0.482740I$ $b = -0.44035 + 1.47663I$	$0.75819 - 1.58915I$	0
$u = 0.659318 - 0.666217I$ $a = 0.918035 + 0.482740I$ $b = -0.44035 - 1.47663I$	$0.75819 + 1.58915I$	0
$u = 0.881320 + 0.274701I$ $a = 0.94855 - 1.98464I$ $b = 1.33307 - 0.72765I$	$-1.35292 + 3.00511I$	0
$u = 0.881320 - 0.274701I$ $a = 0.94855 + 1.98464I$ $b = 1.33307 + 0.72765I$	$-1.35292 - 3.00511I$	0
$u = 0.459781 + 0.798318I$ $a = 0.668492 + 0.368732I$ $b = 0.607211 - 0.957006I$	$-5.49109 + 3.15305I$	0
$u = 0.459781 - 0.798318I$ $a = 0.668492 - 0.368732I$ $b = 0.607211 + 0.957006I$	$-5.49109 - 3.15305I$	0
$u = -0.954231 + 0.521077I$ $a = -0.701801 + 1.021260I$ $b = -0.009712 - 0.858088I$	$-4.17893 + 8.80419I$	0
$u = -0.954231 - 0.521077I$ $a = -0.701801 - 1.021260I$ $b = -0.009712 + 0.858088I$	$-4.17893 - 8.80419I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.975387 + 0.496311I$ $a = 0.421033 - 0.834158I$ $b = 0.105808 + 1.032970I$	$-2.93021 - 3.29605I$	0
$u = 0.975387 - 0.496311I$ $a = 0.421033 + 0.834158I$ $b = 0.105808 - 1.032970I$	$-2.93021 + 3.29605I$	0
$u = -0.459258 + 1.002080I$ $a = -0.043384 + 0.293718I$ $b = -0.85556 - 1.19146I$	$-4.58375 - 13.11560I$	0
$u = -0.459258 - 1.002080I$ $a = -0.043384 - 0.293718I$ $b = -0.85556 + 1.19146I$	$-4.58375 + 13.11560I$	0
$u = -0.892198 + 0.054746I$ $a = -2.82485 + 1.20562I$ $b = -1.76384 + 1.30643I$	$-2.85597 + 0.13907I$	0
$u = -0.892198 - 0.054746I$ $a = -2.82485 - 1.20562I$ $b = -1.76384 - 1.30643I$	$-2.85597 - 0.13907I$	0
$u = -0.509346 + 0.733928I$ $a = 0.715702 + 0.179651I$ $b = 0.646144 - 0.550499I$	$-6.57221 + 1.67196I$	0
$u = -0.509346 - 0.733928I$ $a = 0.715702 - 0.179651I$ $b = 0.646144 + 0.550499I$	$-6.57221 - 1.67196I$	0
$u = -0.718936 + 0.511146I$ $a = 2.90211 - 0.00953I$ $b = -0.012600 - 0.504221I$	$-3.41226 - 4.59332I$	0
$u = -0.718936 - 0.511146I$ $a = 2.90211 + 0.00953I$ $b = -0.012600 + 0.504221I$	$-3.41226 + 4.59332I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.018350 + 0.462157I$ $a = -1.12350 + 1.36853I$ $b = -1.65694 + 0.22058I$	$-2.60610 - 5.91528I$	0
$u = 1.018350 - 0.462157I$ $a = -1.12350 - 1.36853I$ $b = -1.65694 - 0.22058I$	$-2.60610 + 5.91528I$	0
$u = 0.912754 + 0.649174I$ $a = -1.294420 + 0.405595I$ $b = -0.203435 - 0.835272I$	$2.85743 - 3.15401I$	0
$u = 0.912754 - 0.649174I$ $a = -1.294420 - 0.405595I$ $b = -0.203435 + 0.835272I$	$2.85743 + 3.15401I$	0
$u = 0.301233 + 1.080840I$ $a = 0.0748882 - 0.0706043I$ $b = -0.808597 + 0.934476I$	$-0.72564 + 4.81319I$	0
$u = 0.301233 - 1.080840I$ $a = 0.0748882 + 0.0706043I$ $b = -0.808597 - 0.934476I$	$-0.72564 - 4.81319I$	0
$u = 1.120180 + 0.070932I$ $a = -1.58929 - 0.92264I$ $b = -1.008550 - 0.842235I$	$-4.05140 - 7.62984I$	0
$u = 1.120180 - 0.070932I$ $a = -1.58929 + 0.92264I$ $b = -1.008550 + 0.842235I$	$-4.05140 + 7.62984I$	0
$u = 0.810128 + 0.335559I$ $a = -3.04549 - 0.55867I$ $b = -0.787438 - 0.753727I$	$-4.31191 - 7.04636I$	0
$u = 0.810128 - 0.335559I$ $a = -3.04549 + 0.55867I$ $b = -0.787438 + 0.753727I$	$-4.31191 + 7.04636I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.098190 + 0.247781I$ $a = 0.627114 + 1.189960I$ $b = 0.515369 + 0.576541I$	$-3.32878 - 0.58457I$	0
$u = -1.098190 - 0.247781I$ $a = 0.627114 - 1.189960I$ $b = 0.515369 - 0.576541I$	$-3.32878 + 0.58457I$	0
$u = 0.866721 + 0.727969I$ $a = -0.788162 + 0.827515I$ $b = -0.015964 - 0.988715I$	$2.99231 - 2.77523I$	0
$u = 0.866721 - 0.727969I$ $a = -0.788162 - 0.827515I$ $b = -0.015964 + 0.988715I$	$2.99231 + 2.77523I$	0
$u = 1.005840 + 0.530808I$ $a = 0.200411 + 1.358880I$ $b = -1.00788 + 1.44489I$	$-6.76770 - 3.68595I$	0
$u = 1.005840 - 0.530808I$ $a = 0.200411 - 1.358880I$ $b = -1.00788 - 1.44489I$	$-6.76770 + 3.68595I$	0
$u = -0.606352 + 0.611604I$ $a = 0.546479 + 0.021013I$ $b = -0.79238 - 1.37477I$	$1.92028 - 3.63228I$	0
$u = -0.606352 - 0.611604I$ $a = 0.546479 - 0.021013I$ $b = -0.79238 + 1.37477I$	$1.92028 + 3.63228I$	0
$u = 0.981328 + 0.590112I$ $a = 1.89749 - 0.54304I$ $b = 0.57472 + 1.52482I$	$-0.22895 - 3.29490I$	0
$u = 0.981328 - 0.590112I$ $a = 1.89749 + 0.54304I$ $b = 0.57472 - 1.52482I$	$-0.22895 + 3.29490I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.862243+0.761524I$ $a=\ \ 0.092919+1.076800I$ $b=\ \ 0.112965-0.475621I$	$0.80182+2.99396I$	0
$u=-0.862243-0.761524I$ $a=\ \ 0.092919-1.076800I$ $b=\ \ 0.112965+0.475621I$	$0.80182-2.99396I$	0
$u=-1.000820+0.579437I$ $a=\ \ 2.22083+0.55037I$ $b=\ \ 1.07625-1.48327I$	$0.72769+8.36455I$	0
$u=-1.000820-0.579437I$ $a=\ \ 2.22083-0.55037I$ $b=\ \ 1.07625+1.48327I$	$0.72769-8.36455I$	0
$u=-1.013830+0.575381I$ $a=-0.485574-1.004790I$ $b=-0.654459-0.747764I$	$-8.04761+3.28161I$	0
$u=-1.013830-0.575381I$ $a=-0.485574+1.004790I$ $b=-0.654459+0.747764I$	$-8.04761-3.28161I$	0
$u=-0.927701+0.711502I$ $a=\ \ 0.912057+0.792550I$ $b=\ \ 0.098744-0.385414I$	$0.57585+2.66839I$	0
$u=-0.927701-0.711502I$ $a=\ \ 0.912057-0.792550I$ $b=\ \ 0.098744+0.385414I$	$0.57585-2.66839I$	0
$u=-1.016740+0.578489I$ $a=\ \ 1.84258+0.75971I$ $b=\ \ 1.147400-0.673024I$	$-1.83353+6.03575I$	0
$u=-1.016740-0.578489I$ $a=\ \ 1.84258-0.75971I$ $b=\ \ 1.147400+0.673024I$	$-1.83353-6.03575I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.040120 + 0.539538I$ $a = 2.16829 - 0.23719I$ $b = 0.732412 + 0.947828I$	$-1.55374 - 7.40909I$	0
$u = 1.040120 - 0.539538I$ $a = 2.16829 + 0.23719I$ $b = 0.732412 - 0.947828I$	$-1.55374 + 7.40909I$	0
$u = -1.163300 + 0.153806I$ $a = -1.12634 - 1.30599I$ $b = -0.482739 - 0.780412I$	$-10.72090 - 0.89969I$	0
$u = -1.163300 - 0.153806I$ $a = -1.12634 + 1.30599I$ $b = -0.482739 + 0.780412I$	$-10.72090 + 0.89969I$	0
$u = 0.724908 + 0.388397I$ $a = 2.39282 - 0.83223I$ $b = 0.055387 + 0.513550I$	$-1.96799 - 0.52862I$	0
$u = 0.724908 - 0.388397I$ $a = 2.39282 + 0.83223I$ $b = 0.055387 - 0.513550I$	$-1.96799 + 0.52862I$	0
$u = -1.18087$ $a = 0.107746$ $b = -0.109489$	-2.14969	0
$u = 1.182930 + 0.036068I$ $a = -1.63453 + 0.61137I$ $b = -0.885401 + 0.429436I$	$-12.53890 + 3.02692I$	0
$u = 1.182930 - 0.036068I$ $a = -1.63453 - 0.61137I$ $b = -0.885401 - 0.429436I$	$-12.53890 - 3.02692I$	0
$u = 0.178997 + 0.794105I$ $a = 0.066955 + 1.016670I$ $b = -1.128420 - 0.556413I$	$-6.47593 + 5.99478I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.178997 - 0.794105I$ $a = 0.066955 - 1.016670I$ $b = -1.128420 + 0.556413I$	$-6.47593 - 5.99478I$	0
$u = -1.19698$ $a = -1.28059$ $b = -1.29312$	-2.28585	0
$u = -1.143510 + 0.354671I$ $a = -0.657278 - 0.431659I$ $b = -0.801048 - 0.085424I$	$-2.15976 + 0.47143I$	0
$u = -1.143510 - 0.354671I$ $a = -0.657278 + 0.431659I$ $b = -0.801048 + 0.085424I$	$-2.15976 - 0.47143I$	0
$u = -0.546539 + 0.584872I$ $a = -0.326905 - 0.250699I$ $b = -0.823610 - 0.673732I$	$-0.46177 - 1.34329I$	0
$u = -0.546539 - 0.584872I$ $a = -0.326905 + 0.250699I$ $b = -0.823610 + 0.673732I$	$-0.46177 + 1.34329I$	0
$u = 0.480588 + 0.604530I$ $a = 1.056010 - 0.903091I$ $b = 0.718777 + 1.105690I$	$-5.27965 - 0.75760I$	0
$u = 0.480588 - 0.604530I$ $a = 1.056010 + 0.903091I$ $b = 0.718777 - 1.105690I$	$-5.27965 + 0.75760I$	0
$u = 0.892512 + 0.871500I$ $a = 0.615038 - 1.072300I$ $b = -0.079001 + 1.044370I$	$-1.42582 - 3.20188I$	0
$u = 0.892512 - 0.871500I$ $a = 0.615038 + 1.072300I$ $b = -0.079001 - 1.044370I$	$-1.42582 + 3.20188I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.070190 + 0.662222I$ $a = 1.279770 - 0.042929I$ $b = 0.300355 + 0.781437I$	$2.39451 - 7.18069I$	0
$u = 1.070190 - 0.662222I$ $a = 1.279770 + 0.042929I$ $b = 0.300355 - 0.781437I$	$2.39451 + 7.18069I$	0
$u = 1.147560 + 0.534595I$ $a = 0.875570 - 1.095370I$ $b = 1.56571 - 0.51458I$	$-9.2609 - 10.8273I$	0
$u = 1.147560 - 0.534595I$ $a = 0.875570 + 1.095370I$ $b = 1.56571 + 0.51458I$	$-9.2609 + 10.8273I$	0
$u = 1.103930 + 0.632263I$ $a = -2.00172 + 0.43188I$ $b = -0.684500 - 0.959780I$	$-7.40721 - 8.54738I$	0
$u = 1.103930 - 0.632263I$ $a = -2.00172 - 0.43188I$ $b = -0.684500 + 0.959780I$	$-7.40721 + 8.54738I$	0
$u = -1.089210 + 0.658755I$ $a = -1.92235 - 0.54409I$ $b = -0.97782 + 1.35307I$	$0.4142 + 14.7469I$	0
$u = -1.089210 - 0.658755I$ $a = -1.92235 + 0.54409I$ $b = -0.97782 - 1.35307I$	$0.4142 - 14.7469I$	0
$u = 1.102580 + 0.642997I$ $a = -1.71783 + 0.43351I$ $b = -0.90728 - 1.34634I$	$1.77091 - 7.61475I$	0
$u = 1.102580 - 0.642997I$ $a = -1.71783 - 0.43351I$ $b = -0.90728 + 1.34634I$	$1.77091 + 7.61475I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -1.244000 + 0.288672I$ $a = 1.59379 + 0.06668I$ $b = 1.11976 - 1.18242I$	$-10.96610 - 2.26870I$	0
$u = -1.244000 - 0.288672I$ $a = 1.59379 - 0.06668I$ $b = 1.11976 + 1.18242I$	$-10.96610 + 2.26870I$	0
$u = -1.099600 + 0.661660I$ $a = -1.67436 - 0.76737I$ $b = -0.913455 + 0.759311I$	$-8.38225 + 10.62080I$	0
$u = -1.099600 - 0.661660I$ $a = -1.67436 + 0.76737I$ $b = -0.913455 - 0.759311I$	$-8.38225 - 10.62080I$	0
$u = 0.618479 + 0.354846I$ $a = -0.977460 - 0.497555I$ $b = -0.529786 + 0.969847I$	$0.05862 + 3.28480I$	$-12.7291 - 7.0074I$
$u = 0.618479 - 0.354846I$ $a = -0.977460 + 0.497555I$ $b = -0.529786 - 0.969847I$	$0.05862 - 3.28480I$	$-12.7291 + 7.0074I$
$u = 1.184930 + 0.643384I$ $a = -1.244090 - 0.173011I$ $b = -0.306874 - 0.748914I$	$-4.62352 - 10.15990I$	0
$u = 1.184930 - 0.643384I$ $a = -1.244090 + 0.173011I$ $b = -0.306874 + 0.748914I$	$-4.62352 + 10.15990I$	0
$u = -1.169880 + 0.690427I$ $a = 1.77420 + 0.48835I$ $b = 0.93706 - 1.31367I$	$-6.7965 + 19.2422I$	0
$u = -1.169880 - 0.690427I$ $a = 1.77420 - 0.48835I$ $b = 0.93706 + 1.31367I$	$-6.7965 - 19.2422I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.505914+1.263450I$ $a=-0.045713-0.239155I$ $b=-0.624033+0.485135I$	$-4.05749+6.13939I$	0
$u=-0.505914-1.263450I$ $a=-0.045713+0.239155I$ $b=-0.624033-0.485135I$	$-4.05749-6.13939I$	0
$u=1.373060+0.015360I$ $a=1.176540+0.631295I$ $b=1.040680+0.888333I$	$-11.6433-9.9628I$	0
$u=1.373060-0.015360I$ $a=1.176540-0.631295I$ $b=1.040680-0.888333I$	$-11.6433+9.9628I$	0
$u=1.226320+0.661413I$ $a=1.52899-0.30797I$ $b=1.03102+1.20126I$	$-3.56276-10.96500I$	0
$u=1.226320-0.661413I$ $a=1.52899+0.30797I$ $b=1.03102-1.20126I$	$-3.56276+10.96500I$	0
$u=-1.32194+0.55749I$ $a=0.678335+0.224414I$ $b=0.961004-0.138952I$	$-7.53833+0.82289I$	0
$u=-1.32194-0.55749I$ $a=0.678335-0.224414I$ $b=0.961004+0.138952I$	$-7.53833-0.82289I$	0
$u=-1.14010+0.89061I$ $a=-0.374253-0.328665I$ $b=-0.187156+0.245428I$	$-6.72646+3.71560I$	0
$u=-1.14010-0.89061I$ $a=-0.374253+0.328665I$ $b=-0.187156-0.245428I$	$-6.72646-3.71560I$	0

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.119885 + 0.481859I$ $a = -0.449528 + 0.346769I$ $b = -0.535213 + 0.937256I$	$0.29273 + 3.29427I$	$-8.66948 - 3.26734I$
$u = 0.119885 - 0.481859I$ $a = -0.449528 - 0.346769I$ $b = -0.535213 - 0.937256I$	$0.29273 - 3.29427I$	$-8.66948 + 3.26734I$
$u = -1.52353$ $a = -0.230634$ $b = 0.0198354$	-8.51194	0
$u = 0.087210 + 0.467581I$ $a = -1.11876 - 0.90909I$ $b = 0.926757 + 0.354839I$	$-0.46853 + 2.38662I$	$-7.20849 - 3.95616I$
$u = 0.087210 - 0.467581I$ $a = -1.11876 + 0.90909I$ $b = 0.926757 - 0.354839I$	$-0.46853 - 2.38662I$	$-7.20849 + 3.95616I$
$u = -1.55730$ $a = 0.829010$ $b = 1.14267$	-7.79251	0
$u = -0.356659 + 0.209440I$ $a = -1.029550 + 0.446670I$ $b = -0.426561 + 0.548037I$	$-0.850285 + 0.820786I$	$-7.15043 - 5.37763I$
$u = -0.356659 - 0.209440I$ $a = -1.029550 - 0.446670I$ $b = -0.426561 - 0.548037I$	$-0.850285 - 0.820786I$	$-7.15043 + 5.37763I$
$u = 0.0976189$ $a = 11.8660$ $b = -0.539403$	-1.94515	-3.57150

II.

$\boldsymbol{I_2^u = \langle 10u^{18} - 3u^{17} + \cdots + b - 10,\ 9u^{18} - u^{17} + \cdots + a - 7,\ u^{19} - u^{18} + \cdots - 3u + 1 \rangle}$

(i) Arc colorings

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

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

$$a_{10} = \begin{pmatrix} -9u^{18} + u^{17} + \cdots - 21u + 7 \\ -10u^{18} + 3u^{17} + \cdots - 24u + 10 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -2u^{18} + 6u^{17} + \cdots - 13u + 13 \\ -u^{18} + 4u^{16} + \cdots + 3u^3 - 3u \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} u^{18} - 2u^{17} + \cdots + 3u - 3 \\ -10u^{18} + 3u^{17} + \cdots - 24u + 10 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} u^{18} + 6u^{17} + \cdots - 4u + 8 \\ 7u^{18} - u^{17} + \cdots + 14u - 6 \end{pmatrix}$$

$$a_1 = \begin{pmatrix} u^3 \\ u^5 - u^3 + u \end{pmatrix}$$

$$a_4 = \begin{pmatrix} -12u^{18} - 2u^{17} + \cdots - 22u + 2 \\ 7u^{18} - u^{17} + \cdots + 17u - 7 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -5u^{18} + 20u^{16} + \cdots - 12u + 2 \\ -6u^{18} + 2u^{17} + \cdots - 14u + 6 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 10u^{18} - 8u^{17} + \cdots + 34u - 14 \\ -8u^{18} + 3u^{17} + \cdots - 19u + 10 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -25u^{18} + 15u^{17} + 107u^{16} - 81u^{15} - 211u^{14} + 112u^{13} + 303u^{12} - 70u^{11} - 312u^{10} - 86u^{9} + 273u^{8} + 200u^{7} - 245u^{6} - 110u^{5} + 55u^{4} + 138u^{3} - 40u^{2} - 70u + 36$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{19} - 9u^{18} + \cdots + 5u - 1$
c_2	$u^{19} + u^{18} + \cdots - 3u - 1$
c_3	$u^{19} + 2u^{18} + \cdots - u^2 - 1$
c_4	$u^{19} - u^{17} + \cdots + 169u - 19$
c_5	$u^{19} - u^{18} + \cdots - 3u + 1$
c_6	$u^{19} + 2u^{18} + \cdots + 2u + 1$
c_7	$u^{19} - 5u^{18} + \cdots - 18u + 5$
c_8, c_9	$u^{19} + 2u^{18} + \cdots + 2u + 1$
c_{10}	$u^{19} + 4u^{17} + \cdots + 2u^3 + 1$
c_{11}	$u^{19} + 2u^{16} + \cdots + 4u^2 + 1$
c_{12}	$u^{19} - 2u^{18} + \cdots + 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{19} - y^{18} + \cdots - 15y - 1$
c_2, c_5	$y^{19} - 9y^{18} + \cdots + 5y - 1$
c_3	$y^{19} - 16y^{18} + \cdots - 2y - 1$
c_4	$y^{19} - 2y^{18} + \cdots + 31221y - 361$
c_6	$y^{19} + 12y^{18} + \cdots + 2y - 1$
c_7	$y^{19} - 5y^{18} + \cdots + 484y - 25$
c_8, c_9, c_{12}	$y^{19} - 26y^{18} + \cdots - 10y - 1$
c_{10}	$y^{19} + 8y^{18} + \cdots - 4y^2 - 1$
c_{11}	$y^{19} + 4y^{17} + \cdots - 8y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\text{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.884875 + 0.416641I$ $a = 2.27848 + 0.00194I$ $b = 0.18618 + 1.88904I$	$-7.71278 - 1.72198I$	$-0.60180 + 7.55176I$
$u = 0.884875 - 0.416641I$ $a = 2.27848 - 0.00194I$ $b = 0.18618 - 1.88904I$	$-7.71278 + 1.72198I$	$-0.60180 - 7.55176I$
$u = -0.309564 + 0.904543I$ $a = 0.681870 + 0.134171I$ $b = -0.380494 + 0.509090I$	$-3.24978 + 5.70054I$	$-5.60451 - 5.25885I$
$u = -0.309564 - 0.904543I$ $a = 0.681870 - 0.134171I$ $b = -0.380494 - 0.509090I$	$-3.24978 - 5.70054I$	$-5.60451 + 5.25885I$
$u = -0.544749 + 0.743331I$ $a = -0.212742 + 0.573682I$ $b = 0.435543 - 0.686831I$	$1.26041 + 4.35989I$	$-7.53612 - 4.70457I$
$u = -0.544749 - 0.743331I$ $a = -0.212742 - 0.573682I$ $b = 0.435543 + 0.686831I$	$1.26041 - 4.35989I$	$-7.53612 + 4.70457I$
$u = 1.014760 + 0.532753I$ $a = -2.05269 + 0.34384I$ $b = -0.995678 - 0.891914I$	$-0.62955 - 7.05446I$	$-6.31432 + 8.24460I$
$u = 1.014760 - 0.532753I$ $a = -2.05269 - 0.34384I$ $b = -0.995678 + 0.891914I$	$-0.62955 + 7.05446I$	$-6.31432 - 8.24460I$
$u = 0.672238 + 0.466249I$ $a = 0.651722 - 0.191858I$ $b = 0.727860 - 0.990023I$	$0.57229 + 2.89015I$	$-3.55717 - 0.49519I$
$u = 0.672238 - 0.466249I$ $a = 0.651722 + 0.191858I$ $b = 0.727860 + 0.990023I$	$0.57229 - 2.89015I$	$-3.55717 + 0.49519I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.812419$ $a=-2.36743$ $b=-1.02346$	-2.77296	-16.2660
$u=-1.19429$ $a=-0.974950$ $b=-0.861786$	-2.53278	-22.7690
$u=-1.023080+0.651033I$ $a=-0.179893+0.651598I$ $b=\ \ 0.455452+0.967111I$	$-6.17182+2.90306I$	$-8.82043-0.05771I$
$u=-1.023080-0.651033I$ $a=-0.179893-0.651598I$ $b=\ \ 0.455452-0.967111I$	$-6.17182-2.90306I$	$-8.82043+0.05771I$
$u=\ \ 1.129730+0.578827I$ $a=\ \ 1.66572-0.00286I$ $b=\ \ 0.713842+0.637875I$	$-6.07975-10.05750I$	$-11.2886+9.0481I$
$u=\ \ 1.129730-0.578827I$ $a=\ \ 1.66572+0.00286I$ $b=\ \ 0.713842-0.637875I$	$-6.07975+10.05750I$	$-11.2886-9.0481I$
$u=\ \ 0.471704+0.444750I$ $a=-2.40959+0.65367I$ $b=-0.487396+0.698425I$	$-3.83594+5.50297I$	$-9.04721-6.95742I$
$u=\ \ 0.471704-0.444750I$ $a=-2.40959-0.65367I$ $b=-0.487396-0.698425I$	$-3.83594-5.50297I$	$-9.04721+6.95742I$
$u=-1.58513$ $a=\ \ 0.496613$ $b=\ \ 0.574618$	-8.79777	-26.4250

III.
$\boldsymbol{I^u_3 = \langle -u^2a+au-u^2+b+u-1,\ u^2a+a^2-3au+3u^2+2a-3u+2,\ u^3-u^2+1\rangle}$

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 2u^2a-5au+5u^2+2a-3u$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3	$(y^3 + 3y^2 + 2y - 1)^2$
c_2, c_5	$(y^3 - y^2 + 2y - 1)^2$
c_4	y^6
c_6, c_7	$y^6 - 9y^5 + 28y^4 - 35y^3 + 21y^2 - 6y + 1$
c_8, c_9, c_{12}	$(y - 1)^6$
c_{10}, c_{11}	$y^6 + 4y^5 + 4y^4 + y^3 + 4y^2 + 4y + 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.877439 + 0.744862I$ $a = 1.021100 - 0.455284I$ $b = -0.08270 + 1.43799I$	$1.37919 - 2.82812I$	$-4.06063 + 4.05868I$
$u = 0.877439 + 0.744862I$ $a = -0.60387 + 1.38273I$ $b = -0.039862 - 0.693124I$	$1.37919 - 2.82812I$	$1.15973 + 2.26538I$
$u = 0.877439 - 0.744862I$ $a = 1.021100 + 0.455284I$ $b = -0.08270 - 1.43799I$	$1.37919 + 2.82812I$	$-4.06063 - 4.05868I$
$u = 0.877439 - 0.744862I$ $a = -0.60387 - 1.38273I$ $b = -0.039862 + 0.693124I$	$1.37919 + 2.82812I$	$1.15973 - 2.26538I$
$u = -0.754878$ $a = -2.41724 + 0.36211I$ $b = -0.877439 + 0.479689I$	-2.75839	$-11.59911 + 2.50363I$
$u = -0.754878$ $a = -2.41724 - 0.36211I$ $b = -0.877439 - 0.479689I$	-2.75839	$-11.59911 - 2.50363I$

IV. $\boldsymbol{I_4^u = \langle -3a^3 + 2a^2 + 31b - 8a + 6,\ a^4 - a^3 - 4a^2 + 4a + 11,\ u + 1\rangle}$

(i) Arc colorings

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

$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} a \\ 0.0967742a^3 - 0.0645161a^2 + 0.258065a - 0.193548 \end{pmatrix}$$

$$a_7 = \begin{pmatrix} 0.0322581a^3 - 0.354839a^2 - 0.580645a - 0.0645161 \\ -0.0645161a^3 - 0.290323a^2 + 0.161290a + 1.12903 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.0967742a^3 + 0.0645161a^2 + 0.741935a + 0.193548 \\ 0.0967742a^3 - 0.0645161a^2 + 0.258065a - 0.193548 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 0.0322581a^3 - 0.354839a^2 - 0.580645a - 0.0645161 \\ -0.0645161a^3 - 0.290323a^2 + 0.161290a + 1.12903 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} 0.354839a^3 + 0.0967742a^2 - 1.38710a - 0.709677 \\ 0.0322581a^3 - 0.354839a^2 - 0.580645a - 0.0645161 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0.0967742a^3 - 0.0645161a^2 + 0.258065a - 0.193548 \\ 0.193548a^3 - 0.129032a^2 - 0.483871a - 0.387097 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} -0.0645161a^3 - 0.290323a^2 + 0.161290a - 0.870968 \\ -0.161290a^3 - 0.225806a^2 + 0.903226a + 0.322581 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{5}{31}a^3 - \frac{24}{31}a^2 - \frac{28}{31}a - \frac{351}{31}$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.00000$ $a=-1.42705+0.58779I$ $b=-0.809017+0.587785I$	-2.63189	$-11.57295+1.31433I$
$u=-1.00000$ $a=-1.42705-0.58779I$ $b=-0.809017-0.587785I$	-2.63189	$-11.57295-1.31433I$
$u=-1.00000$ $a=\quad 1.92705+0.95106I$ $b=\quad 0.309017+0.951057I$	-10.5276	$-14.9271-2.1266I$
$u=-1.00000$ $a=\quad 1.92705-0.95106I$ $b=\quad 0.309017-0.951057I$	-10.5276	$-14.9271+2.1266I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$((u-1)^4)(u^3-u^2+2u-1)^2(u^{19}-9u^{18}+\cdots+5u-1)$ $\cdot(u^{139}+62u^{138}+\cdots+388114u+3025)$
c_2	$((u-1)^4)(u^3+u^2-1)^2(u^{19}+u^{18}+\cdots-3u-1)$ $\cdot(u^{139}+4u^{138}+\cdots+472u-55)$
c_3	$((u^3-u^2+2u-1)^2)(u^4-2u^3+\cdots-3u+1)(u^{19}+2u^{18}+\cdots-u^2-1)$ $\cdot(u^{139}+5u^{138}+\cdots+4330u+1331)$
c_4	$u^6(u^4-2u^3+\cdots-3u+1)(u^{19}-u^{17}+\cdots+169u-19)$ $\cdot(u^{139}+13u^{138}+\cdots+1376u+64)$
c_5	$((u+1)^4)(u^3-u^2+1)^2(u^{19}-u^{18}+\cdots-3u+1)$ $\cdot(u^{139}+4u^{138}+\cdots+472u-55)$
c_6	$((u^2+u-1)^2)(u^6-3u^5+\cdots-2u+1)(u^{19}+2u^{18}+\cdots+2u+1)$ $\cdot(u^{139}+2u^{138}+\cdots-62783u+13079)$
c_7	$u^4(u^6-3u^5+\cdots-2u+1)(u^{19}-5u^{18}+\cdots-18u+5)$ $\cdot(u^{139}+7u^{138}+\cdots+472u+80)$
c_8, c_9	$((u-1)^6)(u^2+u-1)^2(u^{19}+2u^{18}+\cdots+2u+1)$ $\cdot(u^{139}+5u^{138}+\cdots-23u+1)$
c_{10}	$(u^4-u^3+u^2-u+1)(u^6-2u^5+4u^4-5u^3+4u^2-2u+1)$ $\cdot(u^{19}+4u^{17}+\cdots+2u^3+1)(u^{139}+2u^{138}+\cdots-2000u+55)$
c_{11}	$(u^4-u^3+u^2-u+1)(u^6-2u^5+4u^4-5u^3+4u^2-2u+1)$ $\cdot(u^{19}+2u^{16}+\cdots+4u^2+1)(u^{139}-2u^{138}+\cdots-18072u+112685)$
c_{12}	$((u+1)^6)(u^2-u-1)^2(u^{19}-2u^{18}+\cdots+2u-1)$ $\cdot(u^{139}+5u^{138}+\cdots-23u+1)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$((y-1)^4)(y^3+3y^2+2y-1)^2(y^{19}-y^{18}+\cdots-15y-1)$ $\cdot(y^{139}+34y^{138}+\cdots+100560976946y-9150625)$
c_2, c_5	$((y-1)^4)(y^3-y^2+2y-1)^2(y^{19}-9y^{18}+\cdots+5y-1)$ $\cdot(y^{139}-62y^{138}+\cdots+388114y-3025)$
c_3	$(y^3+3y^2+2y-1)^2(y^4+4y^3+6y^2-y+1)$ $\cdot(y^{19}-16y^{18}+\cdots-2y-1)$ $\cdot(y^{139}-21y^{138}+\cdots+280322344y-1771561)$
c_4	$y^6(y^4+4y^3+6y^2-y+1)(y^{19}-2y^{18}+\cdots+31221y-361)$ $\cdot(y^{139}+23y^{138}+\cdots-1334272y-4096)$
c_6	$(y^2-3y+1)^2(y^6-9y^5+28y^4-35y^3+21y^2-6y+1)$ $\cdot(y^{19}+12y^{18}+\cdots+2y-1)$ $\cdot(y^{139}-18y^{138}+\cdots+16255714379y-171060241)$
c_7	$y^4(y^6-9y^5+28y^4-35y^3+21y^2-6y+1)$ $\cdot(y^{19}-5y^{18}+\cdots+484y-25)(y^{139}-29y^{138}+\cdots+253504y-6400)$
c_8, c_9, c_{12}	$((y-1)^6)(y^2-3y+1)^2(y^{19}-26y^{18}+\cdots-10y-1)$ $\cdot(y^{139}-149y^{138}+\cdots+11y-1)$
c_{10}	$(y^4+y^3+y^2+y+1)(y^6+4y^5+4y^4+y^3+4y^2+4y+1)$ $\cdot(y^{19}+8y^{18}+\cdots-4y^2-1)(y^{139}+34y^{138}+\cdots+7730100y-3025)$
c_{11}	$(y^4+y^3+y^2+y+1)(y^6+4y^5+4y^4+y^3+4y^2+4y+1)$ $\cdot(y^{19}+4y^{17}+\cdots-8y-1)$ $\cdot(y^{139}+38y^{138}+\cdots-869428969396y-12697909225)$