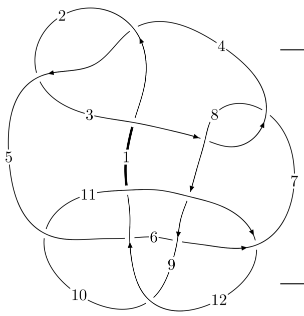
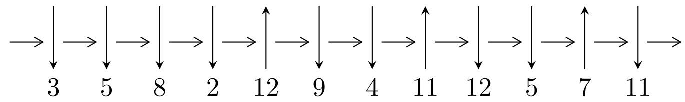
$12n_{0176}$ ($K12n_{0176}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle 3.05361\times10^{37}u^{37} - 6.31699\times10^{37}u^{36} + \cdots + 7.79069\times10^{38}b - 1.45053\times10^{39},$$
$$6.57951\times10^{37}u^{37} - 1.30883\times10^{38}u^{36} + \cdots + 7.79069\times10^{38}a + 3.29567\times10^{39},\ u^{38} - 2u^{37} + \cdots - 16u +$$
$$I_2^u = \langle -u^{11} - 2u^9 - 2u^7 + u^3 + b,\ -u^{11} + u^{10} - 3u^9 + 3u^8 - 4u^7 + 5u^6 - 2u^5 + 4u^4 + u^3 + 2u^2 + a + u + 1,$$
$$u^{12} + 3u^{10} + 5u^8 + 4u^6 + 2u^4 + u^2 + 1\rangle$$
$$I_3^u = \langle -a^2u^2 - 4a^2u - 2a^2 + b + 4u + 2,\ -4a^2u^2 + a^3 - 2a^2u + 16u^2a - 6a^2 + 7au - 8u^2 + 27a - 3u - 15,$$
$$u^3 + u^2 + 2u + 1\rangle$$

$$I_1^v = \langle a,\ -2v^3 - 3v^2 + 4b - 8v - 3,\ 2v^4 + v^3 + 5v^2 - v + 1\rangle$$

* 4 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 63 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. $\boldsymbol{I^u_1 =}$
$\boldsymbol{\langle 3.05\times10^{37}u^{37}-6.32\times10^{37}u^{36}+\cdots+7.79\times10^{38}b-1.45\times10^{39},\ 6.58\times10^{37}u^{37}-1.31\times10^{38}u^{36}+\cdots+7.79\times10^{38}a+3.30\times10^{39},\ u^{38}-2u^{37}+\cdots-16u+64\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.0844535u^{37} + 0.168000u^{36} + \cdots - 5.59244u - 4.23026 \\ -0.0391956u^{37} + 0.0810838u^{36} + \cdots - 11.2341u + 1.86188 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.0835952u^{37} + 0.174732u^{36} + \cdots - 10.9131u + 0.727986 \\ 0.0870239u^{37} - 0.136889u^{36} + \cdots + 10.6763u + 8.29286 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} -0.123649u^{37} + 0.249084u^{36} + \cdots - 16.8266u - 2.36838 \\ -0.0391956u^{37} + 0.0810838u^{36} + \cdots - 11.2341u + 1.86188 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} -0.100768u^{37} + 0.165433u^{36} + \cdots - 8.51486u - 7.59481 \\ -0.0261741u^{37} + 0.0152352u^{36} + \cdots - 1.41664u - 8.18193 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.0775401u^{37} + 0.125316u^{36} + \cdots - 7.03756u - 7.83004 \\ -0.0160423u^{37} - 0.00551256u^{36} + \cdots - 1.32448u - 8.82286 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.199765u^{37} + 0.392882u^{36} + \cdots - 29.9030u - 7.71626 \\ -0.0575627u^{37} + 0.156935u^{36} + \cdots - 18.3766u + 7.51449 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -0.0221640u^{37} + 0.0480035u^{36} + \cdots - 1.22673u + 2.89771 \\ 0.0786038u^{37} - 0.117429u^{36} + \cdots + 7.28813u + 10.4925 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.0238166u^{37} - 0.105781u^{36} + \cdots + 18.0697u - 10.6973 \\ 0.0874152u^{37} - 0.224299u^{36} + \cdots + 22.3080u - 6.95902 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -0.284536u^{37} + 0.695784u^{36} + \cdots - 86.8413u + 36.9834$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{38} + 16u^{37} + \cdots + 49u + 16$
c_2, c_4	$u^{38} - 4u^{37} + \cdots - 35u + 4$
c_3, c_7	$u^{38} - 2u^{37} + \cdots - 16u + 64$
c_5	$u^{38} + 4u^{37} + \cdots - 28u + 49$
c_6, c_{10}	$u^{38} - 2u^{37} + \cdots + 42u + 9$
c_8	$u^{38} + 14u^{37} + \cdots + 95422u + 43691$
c_9	$u^{38} - 8u^{37} + \cdots + 235720u + 204268$
c_{11}	$u^{38} - 2u^{37} + \cdots + 18u + 9$
c_{12}	$u^{38} + 2u^{37} + \cdots - 576u + 81$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{38} + 16y^{37} + \cdots + 137023y + 256$
c_2, c_4	$y^{38} - 16y^{37} + \cdots - 49y + 16$
c_3, c_7	$y^{38} + 24y^{37} + \cdots + 78592y + 4096$
c_5	$y^{38} - 92y^{37} + \cdots - 3136y + 2401$
c_6, c_{10}	$y^{38} + 58y^{37} + \cdots + 2304y + 81$
c_8	$y^{38} - 48y^{37} + \cdots - 15294799908y + 1908903481$
c_9	$y^{38} + 70y^{37} + \cdots + 426020361080y + 41725415824$
c_{11}	$y^{38} + 2y^{37} + \cdots - 576y + 81$
c_{12}	$y^{38} + 82y^{37} + \cdots + 166536y + 6561$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.988171 + 0.101317I$ $a = 0.357719 + 0.096343I$ $b = -0.706300 - 0.532125I$	$0.60571 + 3.27765I$	$-3.71492 - 6.11137I$
$u = 0.988171 - 0.101317I$ $a = 0.357719 - 0.096343I$ $b = -0.706300 + 0.532125I$	$0.60571 - 3.27765I$	$-3.71492 + 6.11137I$
$u = -0.859103 + 0.407305I$ $a = 0.195881 + 0.507732I$ $b = -0.415895 - 0.161770I$	$-0.113764 - 0.661154I$	$-3.22428 + 0.50932I$
$u = -0.859103 - 0.407305I$ $a = 0.195881 - 0.507732I$ $b = -0.415895 + 0.161770I$	$-0.113764 + 0.661154I$	$-3.22428 - 0.50932I$
$u = -0.057356 + 0.905930I$ $a = 0.690281 - 0.347775I$ $b = -0.294609 - 0.999645I$	$-0.317569 + 1.038530I$	$-6.65259 - 1.29718I$
$u = -0.057356 - 0.905930I$ $a = 0.690281 + 0.347775I$ $b = -0.294609 + 0.999645I$	$-0.317569 - 1.038530I$	$-6.65259 + 1.29718I$
$u = 0.513402 + 1.056580I$ $a = -0.548129 - 0.950989I$ $b = 0.629901 - 0.115553I$	$4.15976 - 1.13418I$	$1.31812 + 0.91951I$
$u = 0.513402 - 1.056580I$ $a = -0.548129 + 0.950989I$ $b = 0.629901 + 0.115553I$	$4.15976 + 1.13418I$	$1.31812 - 0.91951I$
$u = 0.499541 + 1.066880I$ $a = 0.678051 + 0.671685I$ $b = -0.123848 + 1.082220I$	$-1.77296 - 5.49964I$	$-11.19640 + 5.85708I$
$u = 0.499541 - 1.066880I$ $a = 0.678051 - 0.671685I$ $b = -0.123848 - 1.082220I$	$-1.77296 + 5.49964I$	$-11.19640 - 5.85708I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.636697 + 0.515733I$ $a = 1.48373 + 1.08936I$ $b = 0.050362 + 0.915692I$	$-3.49167 + 1.02692I$	$-15.5440 - 0.4261I$
$u = 0.636697 - 0.515733I$ $a = 1.48373 - 1.08936I$ $b = 0.050362 - 0.915692I$	$-3.49167 - 1.02692I$	$-15.5440 + 0.4261I$
$u = -0.632708 + 1.049740I$ $a = -0.318350 + 0.929181I$ $b = 0.386295 + 0.336655I$	$1.72214 + 6.04516I$	$-1.25225 - 6.03705I$
$u = -0.632708 - 1.049740I$ $a = -0.318350 - 0.929181I$ $b = 0.386295 - 0.336655I$	$1.72214 - 6.04516I$	$-1.25225 + 6.03705I$
$u = -0.116308 + 0.741636I$ $a = -1.59041 + 2.36341I$ $b = 0.483477 - 0.463055I$	$-1.04131 - 1.37519I$	$-0.70276 + 2.28236I$
$u = -0.116308 - 0.741636I$ $a = -1.59041 - 2.36341I$ $b = 0.483477 + 0.463055I$	$-1.04131 + 1.37519I$	$-0.70276 - 2.28236I$
$u = -0.120470 + 1.245000I$ $a = 1.85282 + 0.54192I$ $b = -1.07360 - 1.05803I$	$8.23228 + 3.92903I$	$-3.32062 - 2.35045I$
$u = -0.120470 - 1.245000I$ $a = 1.85282 - 0.54192I$ $b = -1.07360 + 1.05803I$	$8.23228 - 3.92903I$	$-3.32062 + 2.35045I$
$u = 1.330860 + 0.099817I$ $a = -0.271191 - 0.510477I$ $b = 1.14380 - 1.00359I$	$10.21150 - 1.13879I$	$-3.05135 - 0.25663I$
$u = 1.330860 - 0.099817I$ $a = -0.271191 + 0.510477I$ $b = 1.14380 + 1.00359I$	$10.21150 + 1.13879I$	$-3.05135 + 0.25663I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.316680+0.320236I$ $a=-0.223799-0.516251I$ $b=\ \ 1.05336-1.13298I$	$9.76921-6.87392I$	$-3.78751+4.34762I$
$u=-1.316680-0.320236I$ $a=-0.223799+0.516251I$ $b=\ \ 1.05336+1.13298I$	$9.76921+6.87392I$	$-3.78751-4.34762I$
$u=-0.20211+1.41718I$ $a=-1.355950-0.243842I$ $b=\ \ 0.995463+0.570318I$	$6.08307+2.78224I$	$0.-2.28655I$
$u=-0.20211-1.41718I$ $a=-1.355950+0.243842I$ $b=\ \ 0.995463-0.570318I$	$6.08307-2.78224I$	$0.+2.28655I$
$u=-0.072001+0.547844I$ $a=-0.238648-0.632863I$ $b=\ \ 0.790221-0.913835I$	$5.57535-2.98438I$	$5.83310-0.97501I$
$u=-0.072001-0.547844I$ $a=-0.238648+0.632863I$ $b=\ \ 0.790221+0.913835I$	$5.57535+2.98438I$	$5.83310+0.97501I$
$u=\ \ 0.52721+1.38450I$ $a=-1.43906-0.13679I$ $b=\ \ 0.974228-0.765508I$	$4.71055-8.92356I$	$-6.00000+7.15584I$
$u=\ \ 0.52721-1.38450I$ $a=-1.43906+0.13679I$ $b=\ \ 0.974228+0.765508I$	$4.71055+8.92356I$	$-6.00000-7.15584I$
$u=-0.194741+0.457992I$ $a=\ \ 0.933635-0.070105I$ $b=-0.245714-0.786744I$	$-0.451389+1.231000I$	$-5.01122-5.21291I$
$u=-0.194741-0.457992I$ $a=\ \ 0.933635+0.070105I$ $b=-0.245714+0.786744I$	$-0.451389-1.231000I$	$-5.01122+5.21291I$

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.74805 + 1.38740I$ $a = 1.46219 - 0.60021I$ $b = -0.96971 - 1.27489I$	$13.1525 + 14.1820I$	0
$u = -0.74805 - 1.38740I$ $a = 1.46219 + 0.60021I$ $b = -0.96971 + 1.27489I$	$13.1525 - 14.1820I$	0
$u = 0.53207 + 1.50578I$ $a = 1.45703 + 0.26277I$ $b = -1.06014 + 1.24087I$	$15.4688 - 7.6978I$	0
$u = 0.53207 - 1.50578I$ $a = 1.45703 - 0.26277I$ $b = -1.06014 - 1.24087I$	$15.4688 + 7.6978I$	0
$u = 0.64254 + 1.50454I$ $a = 0.570332 + 0.670108I$ $b = -1.32203 - 0.83464I$	$14.6938 - 5.9617I$	0
$u = 0.64254 - 1.50454I$ $a = 0.570332 - 0.670108I$ $b = -1.32203 + 0.83464I$	$14.6938 + 5.9617I$	0
$u = -0.35097 + 1.60847I$ $a = 0.866365 - 0.578189I$ $b = -1.29525 + 0.97186I$	$16.4349 - 0.8014I$	0
$u = -0.35097 - 1.60847I$ $a = 0.866365 + 0.578189I$ $b = -1.29525 - 0.97186I$	$16.4349 + 0.8014I$	0

II. $\boldsymbol{I_2^u = \langle -u^{11} - 2u^9 - 2u^7 + u^3 + b,\ -u^{11} + u^{10} + \cdots + a + 1,\ u^{12} + 3u^{10} + 5u^8 + 4u^6 + 2u^4 + u^2 + 1 \rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} u^{11} - u^{10} + 3u^9 - 3u^8 + 4u^7 - 5u^6 + 2u^5 - 4u^4 - u^3 - 2u^2 - u - 1 \\ u^{11} + 2u^9 + 2u^7 - u^3 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 2u^{11} - u^{10} + 5u^9 - 3u^8 + 6u^7 - 5u^6 + 2u^5 - 4u^4 - 2u^3 - 3u^2 - u - 1 \\ u^{11} + 2u^9 + 2u^7 - u^3 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 2u^{11} - u^{10} + 5u^9 - 3u^8 + 6u^7 - 5u^6 + 2u^5 - 4u^4 - 2u^3 - 2u^2 - u - 1 \\ u^{11} + 2u^9 + 2u^7 - u^3 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} u^{11} + 2u^9 + 2u^7 - u^3 \\ 0 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^7 - 2u^5 - 2u^3 \\ -u^7 - u^5 + u \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -u^{11} - u^{10} - 4u^9 - 3u^8 - 6u^7 - 5u^6 - 5u^5 - 4u^4 - u^3 - 2u^2 + 2 \\ 1 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} u^9 + 2u^7 + 3u^5 + 2u^3 + u \\ u^{11} + 3u^9 + 4u^7 + 3u^5 + u^3 + u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} u^{11} - u^{10} + 3u^9 - 3u^8 + 4u^7 - 5u^6 + 2u^5 - 4u^4 - u^3 - u^2 - u \\ u^{11} + 2u^9 + 2u^7 - u^3 + u^2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4u^{10} + 12u^8 + 16u^6 + 8u^4 - 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^6-3u^5+5u^4-4u^3+2u^2-u+1)^2$
c_2	$(u^6+u^5-u^4-2u^3+u+1)^2$
c_3, c_7	$u^{12}+3u^{10}+5u^8+4u^6+2u^4+u^2+1$
c_4	$(u^6-u^5-u^4+2u^3-u+1)^2$
c_5	$u^{12}-6u^{11}+\cdots-24u+9$
c_6, c_{10}, c_{11}	$(u^2+1)^6$
c_8	$u^{12}+12u^{11}+\cdots+60u+9$
c_9	$u^{12}-u^{10}+5u^8+6u^4-3u^2+1$
c_{12}	$(u+1)^{12}$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^6 + y^5 + 5y^4 + 6y^2 + 3y + 1)^2$
c_2, c_4	$(y^6 - 3y^5 + 5y^4 - 4y^3 + 2y^2 - y + 1)^2$
c_3, c_7	$(y^6 + 3y^5 + 5y^4 + 4y^3 + 2y^2 + y + 1)^2$
c_5	$y^{12} + 14y^{11} + \cdots + 108y + 81$
c_6, c_{10}, c_{11}	$(y + 1)^{12}$
c_8	$y^{12} - 14y^{11} + \cdots - 108y + 81$
c_9	$(y^6 - y^5 + 5y^4 + 6y^2 - 3y + 1)^2$
c_{12}	$(y - 1)^{12}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.295542 + 1.002190I$ $a = -0.272397 - 0.266417I$ $b = 1.000000I$	$1.89061 - 0.92430I$	$-2.28328 + 0.79423I$
$u = 0.295542 - 1.002190I$ $a = -0.272397 + 0.266417I$ $b = -1.000000I$	$1.89061 + 0.92430I$	$-2.28328 - 0.79423I$
$u = -0.295542 + 1.002190I$ $a = -1.26642 + 0.72760I$ $b = 1.000000I$	$1.89061 + 0.92430I$	$-2.28328 - 0.79423I$
$u = -0.295542 - 1.002190I$ $a = -1.26642 - 0.72760I$ $b = -1.000000I$	$1.89061 - 0.92430I$	$-2.28328 + 0.79423I$
$u = 0.664531 + 0.428243I$ $a = -0.79605 - 3.11811I$ $b = -1.000000I$	$-1.89061 + 0.92430I$	$-9.71672 - 0.79423I$
$u = 0.664531 - 0.428243I$ $a = -0.79605 + 3.11811I$ $b = 1.000000I$	$-1.89061 - 0.92430I$	$-9.71672 + 0.79423I$
$u = -0.664531 + 0.428243I$ $a = 2.11811 - 0.20395I$ $b = -1.000000I$	$-1.89061 - 0.92430I$	$-9.71672 + 0.79423I$
$u = -0.664531 - 0.428243I$ $a = 2.11811 + 0.20395I$ $b = 1.000000I$	$-1.89061 + 0.92430I$	$-9.71672 - 0.79423I$
$u = 0.558752 + 1.073950I$ $a = -0.95037 - 1.16713I$ $b = -1.000000I$	$-5.69302I$	$-6.00000 + 5.51057I$
$u = 0.558752 - 1.073950I$ $a = -0.95037 + 1.16713I$ $b = 1.000000I$	$5.69302I$	$-6.00000 - 5.51057I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = -0.558752 + 1.073950I$ $a = 0.167130 - 0.049626I$ $b = -1.000000I$	$5.69302I$	$-6.00000 - 5.51057I$
$u = -0.558752 - 1.073950I$ $a = 0.167130 + 0.049626I$ $b = 1.000000I$	$-5.69302I$	$-6.00000 + 5.51057I$

III. $I^u_3 =$
$\langle -a^2u^2-4a^2u-2a^2+b+4u+2,\ -4a^2u^2+16u^2a+\cdots+27a-15,\ u^3+u^2+2u+1\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} a \\ a^2u^2+4a^2u+2a^2-4u-2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} a^2u^2+4a^2u+2a^2+a-4u-2 \\ a^2u^2+4a^2u+2a^2-4u-2 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} a^2u^2+4a^2u+2a^2+a-4u-2 \\ a^2u^2+4a^2u+2a^2-4u-2 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ -u^2-u-1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} u^2+1 \\ u^2+u+1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -a^2u^2+u^2a+a \\ -a^2u^2-4a^2u+u^2a-2a^2+4u+2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} a^2u^2+4a^2u+2a^2+a-4u-2 \\ a^2u^2+4a^2u+2a^2-4u-2 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4u^2-4u-10$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_3, c_7	$(u^3+u^2+2u+1)^3$
c_2, c_4	$(u^3-u^2+1)^3$
c_5, c_6, c_{10} c_{11}	$u^9+3u^7-3u^6+3u^5-6u^4+3u^3-3u^2+2u+1$
c_8	$u^9-6u^8+15u^7-15u^6-5u^5+24u^4-9u^3-15u^2+10u+1$
c_9	u^9
c_{12}	$u^9+6u^8+15u^7+15u^6-5u^5-24u^4-9u^3+15u^2+10u-1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_3, c_7	$(y^3+3y^2+2y-1)^3$
c_2, c_4	$(y^3-y^2+2y-1)^3$
c_5, c_6, c_{10} c_{11}	$y^9+6y^8+15y^7+15y^6-5y^5-24y^4-9y^3+15y^2+10y-1$
c_8, c_{12}	$y^9-6y^8+\cdots+130y-1$
c_9	y^9

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.215080 + 1.307140I$ $a = -0.933500 + 0.242758I$ $b = 0.550542 - 1.200360I$	$3.02413 + 2.82812I$	$-2.49024 - 2.97945I$
$u = -0.215080 + 1.307140I$ $a = 1.036610 - 0.079466I$ $b = -0.929255 - 0.157692I$	$3.02413 + 2.82812I$	$-2.49024 - 2.97945I$
$u = -0.215080 + 1.307140I$ $a = -1.182710 + 0.201873I$ $b = 0.378713 + 1.358050I$	$3.02413 + 2.82812I$	$-2.49024 - 2.97945I$
$u = -0.215080 - 1.307140I$ $a = -0.933500 - 0.242758I$ $b = 0.550542 + 1.200360I$	$3.02413 - 2.82812I$	$-2.49024 + 2.97945I$
$u = -0.215080 - 1.307140I$ $a = 1.036610 + 0.079466I$ $b = -0.929255 + 0.157692I$	$3.02413 - 2.82812I$	$-2.49024 + 2.97945I$
$u = -0.215080 - 1.307140I$ $a = -1.182710 - 0.201873I$ $b = 0.378713 - 1.358050I$	$3.02413 - 2.82812I$	$-2.49024 + 2.97945I$
$u = -0.569840$ $a = 0.644489$ $b = 0.298201$	-1.11345	-9.01950
$u = -0.569840$ $a = 2.75735 + 4.12910I$ $b = -0.149100 + 1.032810I$	-1.11345	-9.01950
$u = -0.569840$ $a = 2.75735 - 4.12910I$ $b = -0.149100 - 1.032810I$	-1.11345	-9.01950

IV. $\boldsymbol{I_1^v = \langle a,\ -2v^3 - 3v^2 + 4b - 8v - 3,\ 2v^4 + v^3 + 5v^2 - v + 1\rangle}$

(i) Arc colorings

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

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

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

$$a_{11} = \begin{pmatrix} 0 \\ \frac{1}{2}v^3 + \frac{3}{4}v^2 + 2v + \frac{3}{4} \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 1 \\ -\frac{3}{2}v^3 - \frac{5}{4}v^2 - \frac{7}{2}v + \frac{1}{4} \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} \frac{1}{2}v^3 + \frac{3}{4}v^2 + 2v + \frac{3}{4} \\ \frac{1}{2}v^3 + \frac{3}{4}v^2 + 2v + \frac{3}{4} \end{pmatrix}$$

$$a_1 = \begin{pmatrix} \frac{1}{2}v^3 + \frac{3}{4}v^2 + 2v + \frac{3}{4} \\ 2v^3 + v^2 + 5v - 1 \end{pmatrix}$$

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

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

$$a_6 = \begin{pmatrix} \frac{3}{2}v^3 + \frac{5}{4}v^2 + \frac{7}{2}v + \frac{3}{4} \\ v^2 + \frac{1}{2}v + \frac{5}{2} \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -\frac{1}{2}v^3 - \frac{3}{4}v^2 - 2v - \frac{3}{4} \\ -2v^3 - v^2 - 5v + 1 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} \frac{3}{2}v^3 + \frac{1}{4}v^2 + 3v - \frac{7}{4} \\ -v^2 - \frac{1}{2}v - \frac{5}{2} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -6v^3 - 4v^2 - 12v - 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_4	$(y-1)^4$
c_3, c_7	y^4
c_5	$y^4 - 11y^3 + 31y^2 + 10y + 1$
c_6, c_{10}, c_{12}	$y^4 + 5y^3 + 7y^2 + 2y + 1$
c_8, c_{11}	$y^4 + y^3 + 3y^2 + 2y + 1$
c_9	$y^4 + 9y^3 + 31y^2 + 19y + 4$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$v = 0.130534 + 0.427872I$ $a = 0$ $b = 0.851808 + 0.911292I$	$5.14581 + 3.16396I$	$-10.48546 - 5.24252I$
$v = 0.130534 - 0.427872I$ $a = 0$ $b = 0.851808 - 0.911292I$	$5.14581 - 3.16396I$	$-10.48546 + 5.24252I$
$v = -0.38053 + 1.53420I$ $a = 0$ $b = -0.351808 + 0.720342I$	$-1.85594 - 1.41510I$	$-12.38954 + 3.92814I$
$v = -0.38053 - 1.53420I$ $a = 0$ $b = -0.351808 - 0.720342I$	$-1.85594 + 1.41510I$	$-12.38954 - 3.92814I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$(u-1)^4(u^3+u^2+2u+1)^3(u^6-3u^5+5u^4-4u^3+2u^2-u+1)^2$ $\cdot(u^{38}+16u^{37}+\cdots+49u+16)$
c_2	$(u-1)^4(u^3-u^2+1)^3(u^6+u^5-u^4-2u^3+u+1)^2$ $\cdot(u^{38}-4u^{37}+\cdots-35u+4)$
c_3, c_7	$u^4(u^3+u^2+2u+1)^3(u^{12}+3u^{10}+5u^8+4u^6+2u^4+u^2+1)$ $\cdot(u^{38}-2u^{37}+\cdots-16u+64)$
c_4	$(u+1)^4(u^3-u^2+1)^3(u^6-u^5-u^4+2u^3-u+1)^2$ $\cdot(u^{38}-4u^{37}+\cdots-35u+4)$
c_5	$(u^4+5u^3+7u^2+2u+1)$ $\cdot(u^9+3u^7-3u^6+3u^5-6u^4+3u^3-3u^2+2u+1)$ $\cdot(u^{12}-6u^{11}+\cdots-24u+9)(u^{38}+4u^{37}+\cdots-28u+49)$
c_6	$(u^2+1)^6(u^4-u^3+3u^2-2u+1)$ $\cdot(u^9+3u^7-3u^6+3u^5-6u^4+3u^3-3u^2+2u+1)$ $\cdot(u^{38}-2u^{37}+\cdots+42u+9)$
c_8	$(u^4-u^3+u^2+1)$ $\cdot(u^9-6u^8+15u^7-15u^6-5u^5+24u^4-9u^3-15u^2+10u+1)$ $\cdot(u^{12}+12u^{11}+\cdots+60u+9)(u^{38}+14u^{37}+\cdots+95422u+43691)$
c_9	$u^9(u^4+u^3+5u^2-u+2)(u^{12}-u^{10}+5u^8+6u^4-3u^2+1)$ $\cdot(u^{38}-8u^{37}+\cdots+235720u+204268)$
c_{10}	$(u^2+1)^6(u^4+u^3+3u^2+2u+1)$ $\cdot(u^9+3u^7-3u^6+3u^5-6u^4+3u^3-3u^2+2u+1)$ $\cdot(u^{38}-2u^{37}+\cdots+42u+9)$
c_{11}	$(u^2+1)^6(u^4+u^3+u^2+1)$ $\cdot(u^9+3u^7-3u^6+3u^5-6u^4+3u^3-3u^2+2u+1)$ $\cdot(u^{38}-2u^{37}+\cdots+18u+9)$
c_{12}	$(u+1)^{12}(u^4+u^3+3u^2+2u+1)$ $\cdot(u^9+6u^8+15u^7+15u^6-5u^5-24u^4-9u^3+15u^2+10u-1)$ $\cdot(u^{38}+2u^{37}+\cdots-576u+81)$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$(y-1)^4(y^3+3y^2+2y-1)^3(y^6+y^5+5y^4+6y^2+3y+1)^2$ $\cdot (y^{38}+16y^{37}+\cdots+137023y+256)$
c_2, c_4	$(y-1)^4(y^3-y^2+2y-1)^3(y^6-3y^5+5y^4-4y^3+2y^2-y+1)^2$ $\cdot (y^{38}-16y^{37}+\cdots-49y+16)$
c_3, c_7	$y^4(y^3+3y^2+2y-1)^3(y^6+3y^5+5y^4+4y^3+2y^2+y+1)^2$ $\cdot (y^{38}+24y^{37}+\cdots+78592y+4096)$
c_5	$(y^4-11y^3+31y^2+10y+1)$ $\cdot (y^9+6y^8+15y^7+15y^6-5y^5-24y^4-9y^3+15y^2+10y-1)$ $\cdot (y^{12}+14y^{11}+\cdots+108y+81)(y^{38}-92y^{37}+\cdots-3136y+2401)$
c_6, c_{10}	$(y+1)^{12}(y^4+5y^3+7y^2+2y+1)$ $\cdot (y^9+6y^8+15y^7+15y^6-5y^5-24y^4-9y^3+15y^2+10y-1)$ $\cdot (y^{38}+58y^{37}+\cdots+2304y+81)$
c_8	$(y^4+y^3+3y^2+2y+1)(y^9-6y^8+\cdots+130y-1)$ $\cdot (y^{12}-14y^{11}+\cdots-108y+81)$ $\cdot (y^{38}-48y^{37}+\cdots-15294799908y+1908903481)$
c_9	$y^9(y^4+9y^3+31y^2+19y+4)(y^6-y^5+5y^4+6y^2-3y+1)^2$ $\cdot (y^{38}+70y^{37}+\cdots+426020361080y+41725415824)$
c_{11}	$(y+1)^{12}(y^4+y^3+3y^2+2y+1)$ $\cdot (y^9+6y^8+15y^7+15y^6-5y^5-24y^4-9y^3+15y^2+10y-1)$ $\cdot (y^{38}+2y^{37}+\cdots-576y+81)$
c_{12}	$((y-1)^{12})(y^4+5y^3+\cdots+2y+1)(y^9-6y^8+\cdots+130y-1)$ $\cdot (y^{38}+82y^{37}+\cdots+166536y+6561)$