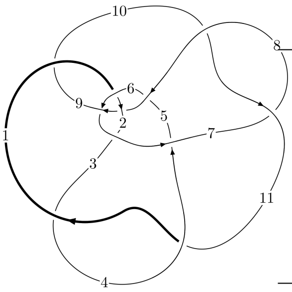
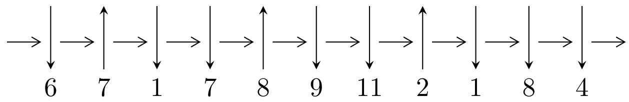
$11n_{163}$ $(K11n_{163})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle b-u,\ -45168u^{15}+5735u^{14}+\cdots+12553a-4016,$$
$$u^{16}+4u^{14}+13u^{12}+25u^{10}+37u^8+u^7+39u^6+5u^5+24u^4+7u^3+8u^2+2u+1\rangle$$
$$I_2^u = \langle 9.55720\times10^{54}u^{41}+1.20936\times10^{55}u^{40}+\cdots+1.06854\times10^{57}b+1.17356\times10^{57},$$
$$1.73442\times10^{56}u^{41}+5.21769\times10^{56}u^{40}+\cdots+1.06854\times10^{57}a+1.20542\times10^{58},\ u^{42}+3u^{41}+\cdots+36u-$$
$$I_3^u = \langle b+u,\ 2u^6-4u^5+7u^4-6u^3+4u^2+a-u-1,\ u^7-2u^6+4u^5-4u^4+4u^3-2u^2+u-1\rangle$$
$$I_4^u = \langle -u^5+2u^4-4u^3+5u^2+b-4u+2,\ -u^4+2u^3-4u^2+a+5u-3,\ u^6-2u^5+4u^4-5u^3+4u^2-2u+1$$

* 4 irreducible components of $\dim_{\mathbb{C}}=0$, with total 71 representations.

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

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

I.

$$I_1^u = \langle b-u,\ -45168u^{15}+5735u^{14}+\cdots+12553a-4016,\ u^{16}+4u^{14}+\cdots+2u+1\rangle$$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} 3.59818u^{15} - 0.456863u^{14} + \cdots + 6.71059u + 0.319924 \\ u \end{pmatrix}$$
$$a_7 = \begin{pmatrix} 3.59818u^{15} - 0.456863u^{14} + \cdots + 7.71059u + 0.319924 \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -2.45439u^{15} - 4.20816u^{14} + \cdots - 29.2987u - 12.3139 \\ 1.39951u^{15} - 0.238270u^{14} + \cdots + 3.68446u - 0.456863 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -2.66016u^{15} - 2.57118u^{14} + \cdots - 20.1125u - 7.64885 \\ 0.808412u^{15} - 0.199793u^{14} + \cdots + 2.76149u - 0.218593 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0.456863u^{15} + 1.39951u^{14} + \cdots + 6.87644u + 4.59818 \\ -u^2 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 0.695133u^{15} + 1.99060u^{14} + \cdots + 10.1323u + 5.99769 \\ -0.0384769u^{15} - 0.336175u^{14} + \cdots - 1.42046u - 0.591094 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1.01418u^{15} - 1.83677u^{14} + \cdots - 6.42476u - 4.88361 \\ 0.591094u^{15} - 0.0384769u^{14} + \cdots + 1.92297u - 0.238270 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 1.01418u^{15} - 1.83677u^{14} + \cdots - 6.42476u - 4.88361 \\ 0.591094u^{15} - 0.0384769u^{14} + \cdots + 1.92297u - 0.238270 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{31115}{12553}u^{15} + \frac{20322}{12553}u^{14} + \cdots - \frac{177549}{12553}u - \frac{9899}{12553}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{16} - u^{15} + \cdots - u + 1$
c_2, c_5	$u^{16} - u^{15} + \cdots + 15u^2 + 1$
c_3, c_7, c_{10} c_{11}	$u^{16} + 4u^{14} + \cdots + 2u + 1$
c_4	$u^{16} - 13u^{15} + \cdots - 352u + 64$
c_8	$u^{16} - 13u^{15} + \cdots - 36u + 8$
c_9	$u^{16} - 16u^{15} + \cdots - 544u + 64$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{16} - 3y^{15} + \cdots - 5y + 1$
c_2, c_5	$y^{16} + 9y^{15} + \cdots + 30y + 1$
c_3, c_7, c_{10} c_{11}	$y^{16} + 8y^{15} + \cdots + 12y + 1$
c_4	$y^{16} + 5y^{15} + \cdots + 40448y + 4096$
c_8	$y^{16} - y^{15} + \cdots + 496y + 64$
c_9	$y^{16} - 4y^{15} + \cdots + 23552y + 4096$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.362872 + 0.921754I$ $a = 0.762991 - 0.560929I$ $b = 0.362872 + 0.921754I$	$3.94475 + 1.12356I$	$1.32088 + 0.73756I$
$u = 0.362872 - 0.921754I$ $a = 0.762991 + 0.560929I$ $b = 0.362872 - 0.921754I$	$3.94475 - 1.12356I$	$1.32088 - 0.73756I$
$u = -0.067924 + 1.048980I$ $a = 0.59848 - 1.57127I$ $b = -0.067924 + 1.048980I$	$3.11555 + 2.14731I$	$-0.93627 - 3.92704I$
$u = -0.067924 - 1.048980I$ $a = 0.59848 + 1.57127I$ $b = -0.067924 - 1.048980I$	$3.11555 - 2.14731I$	$-0.93627 + 3.92704I$
$u = 0.867369 + 0.851352I$ $a = 0.39653 - 1.47637I$ $b = 0.867369 + 0.851352I$	$-4.45687 + 2.76976I$	$-6.60351 - 1.02062I$
$u = 0.867369 - 0.851352I$ $a = 0.39653 + 1.47637I$ $b = 0.867369 - 0.851352I$	$-4.45687 - 2.76976I$	$-6.60351 + 1.02062I$
$u = -0.924080 + 0.993395I$ $a = -0.062325 - 1.181310I$ $b = -0.924080 + 0.993395I$	$-2.56347 + 5.89381I$	$-14.0887 - 6.8568I$
$u = -0.924080 - 0.993395I$ $a = -0.062325 + 1.181310I$ $b = -0.924080 - 0.993395I$	$-2.56347 - 5.89381I$	$-14.0887 + 6.8568I$
$u = -0.037947 + 0.609427I$ $a = -4.09907 - 0.73703I$ $b = -0.037947 + 0.609427I$	$0.98282 - 4.26271I$	$-0.536037 - 0.693456I$
$u = -0.037947 - 0.609427I$ $a = -4.09907 + 0.73703I$ $b = -0.037947 - 0.609427I$	$0.98282 + 4.26271I$	$-0.536037 + 0.693456I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.74781+1.20294I$ $a=-0.21869-1.80308I$ $b=-0.74781+1.20294I$	$-0.89621+7.24124I$	$-3.27217-13.36826I$
$u=-0.74781-1.20294I$ $a=-0.21869+1.80308I$ $b=-0.74781-1.20294I$	$-0.89621-7.24124I$	$-3.27217+13.36826I$
$u=0.82584+1.20295I$ $a=0.47696-1.60926I$ $b=0.82584+1.20295I$	$-2.2047-16.1487I$	$-3.69661+9.09082I$
$u=0.82584-1.20295I$ $a=0.47696+1.60926I$ $b=0.82584-1.20295I$	$-2.2047+16.1487I$	$-3.69661-9.09082I$
$u=-0.278326+0.368111I$ $a=1.14513-0.86473I$ $b=-0.278326+0.368111I$	$-0.389238+1.281380I$	$-3.68762-5.53338I$
$u=-0.278326-0.368111I$ $a=1.14513+0.86473I$ $b=-0.278326-0.368111I$	$-0.389238-1.281380I$	$-3.68762+5.53338I$

II. $\boldsymbol{I_2^u =}$
$\boldsymbol{\langle 9.56\times 10^{54}u^{41}+1.21\times 10^{55}u^{40}+\cdots+1.07\times 10^{57}b+1.17\times 10^{57},\ 1.73\times 10^{56}u^{41}+ 5.22\times 10^{56}u^{40}+\cdots+1.07\times 10^{57}a+1.21\times 10^{58},\ u^{42}+3u^{41}+\cdots+36u-1\rangle}$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3+u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} -0.162317u^{41}-0.488303u^{40}+\cdots+6.42121u-11.2810 \\ -0.00894419u^{41}-0.0113179u^{40}+\cdots-3.72593u-1.09829 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -0.171261u^{41}-0.499621u^{40}+\cdots+2.69528u-12.3793 \\ -0.00894419u^{41}-0.0113179u^{40}+\cdots-3.72593u-1.09829 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.0765764u^{41}+0.218473u^{40}+\cdots-9.92664u-3.95597 \\ 0.0117602u^{41}+0.0207404u^{40}+\cdots-5.71991u-0.217988 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 0.0458921u^{41}+0.116885u^{40}+\cdots-1.72493u-3.74924 \\ -0.00981888u^{41}-0.0511014u^{40}+\cdots-3.81460u-0.236598 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.222058u^{41}-0.640758u^{40}+\cdots-2.30612u-12.3439 \\ 0.00407009u^{41}-0.00144471u^{40}+\cdots-7.80288u-1.22358 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.234716u^{41}-0.693689u^{40}+\cdots-8.97199u-13.5929 \\ -0.0134003u^{41}-0.0709336u^{40}+\cdots-7.27710u-1.23853 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.245729u^{41}+0.839363u^{40}+\cdots+9.37284u+4.46731 \\ 0.0686483u^{41}+0.146810u^{40}+\cdots-6.32759u+0.755792 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0.245729u^{41}+0.839363u^{40}+\cdots+9.37284u+4.46731 \\ 0.0686483u^{41}+0.146810u^{40}+\cdots-6.32759u+0.755792 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.445546u^{41}+1.05637u^{40}+\cdots-7.66940u+9.51539$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^{42} - u^{41} + \cdots - 7u - 1$
c_2, c_5	$u^{42} + 7u^{40} + \cdots + 1895u + 457$
c_3, c_7, c_{10} c_{11}	$u^{42} + 3u^{41} + \cdots + 36u - 1$
c_4	$(u^{21} + 8u^{20} + \cdots + 43u + 7)^2$
c_8	$(u^{21} + 6u^{20} + \cdots + 5u + 1)^2$
c_9	$(u^{21} + 6u^{20} + \cdots + 9u + 1)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^{42} - y^{41} + \cdots - 45y + 1$
c_2, c_5	$y^{42} + 14y^{41} + \cdots + 2544657y + 208849$
c_3, c_7, c_{10} c_{11}	$y^{42} + 11y^{41} + \cdots - 1288y + 1$
c_4	$(y^{21} - 10y^{20} + \cdots + 1149y - 49)^2$
c_8	$(y^{21} + 2y^{20} + \cdots - 11y - 1)^2$
c_9	$(y^{21} - 8y^{20} + \cdots + 33y - 1)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.885119 + 0.440669I$ $a = 0.437217 + 0.545665I$ $b = -0.998691 - 0.783756I$	$-3.16717 - 1.07030I$	$-12.89268 + 5.67416I$
$u = -0.885119 - 0.440669I$ $a = 0.437217 - 0.545665I$ $b = -0.998691 + 0.783756I$	$-3.16717 + 1.07030I$	$-12.89268 - 5.67416I$
$u = -0.221318 + 0.954664I$ $a = 1.023340 + 0.577719I$ $b = 0.715301 - 0.650320I$	$2.51518 + 5.37801I$	$0.71786 - 8.23406I$
$u = -0.221318 - 0.954664I$ $a = 1.023340 - 0.577719I$ $b = 0.715301 + 0.650320I$	$2.51518 - 5.37801I$	$0.71786 + 8.23406I$
$u = 0.715301 + 0.650320I$ $a = -1.186310 - 0.108494I$ $b = -0.221318 - 0.954664I$	$2.51518 - 5.37801I$	$0.71786 + 8.23406I$
$u = 0.715301 - 0.650320I$ $a = -1.186310 + 0.108494I$ $b = -0.221318 + 0.954664I$	$2.51518 + 5.37801I$	$0.71786 - 8.23406I$
$u = 0.660616 + 0.665590I$ $a = 0.142774 + 0.166906I$ $b = -1.181090 + 0.555383I$	$-3.87464 - 0.10689I$	$-16.3307 + 2.6685I$
$u = 0.660616 - 0.665590I$ $a = 0.142774 - 0.166906I$ $b = -1.181090 - 0.555383I$	$-3.87464 + 0.10689I$	$-16.3307 - 2.6685I$
$u = 0.746526 + 0.760439I$ $a = 0.567031 - 0.156980I$ $b = -0.884140 + 0.948082I$	$-2.33356 + 1.75773I$	$-7.03716 - 6.33959I$
$u = 0.746526 - 0.760439I$ $a = 0.567031 + 0.156980I$ $b = -0.884140 - 0.948082I$	$-2.33356 - 1.75773I$	$-7.03716 + 6.33959I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.549689 + 0.965680I$ $a = 1.164290 + 0.499543I$ $b = -0.011102 - 0.408161I$	$0.21083 + 2.02252I$	$-3.27794 - 3.16369I$
$u = -0.549689 - 0.965680I$ $a = 1.164290 - 0.499543I$ $b = -0.011102 + 0.408161I$	$0.21083 - 2.02252I$	$-3.27794 + 3.16369I$
$u = 0.587817 + 1.024500I$ $a = -0.44869 + 1.75524I$ $b = -0.903022 - 0.809434I$	$-2.75188 - 4.82047I$	$-10.54242 + 4.40996I$
$u = 0.587817 - 1.024500I$ $a = -0.44869 - 1.75524I$ $b = -0.903022 + 0.809434I$	$-2.75188 + 4.82047I$	$-10.54242 - 4.40996I$
$u = 0.112117 + 0.790036I$ $a = 0.80867 - 3.05059I$ $b = -0.175620 + 1.395210I$	$5.06212 + 3.17952I$	$3.66314 + 2.07098I$
$u = 0.112117 - 0.790036I$ $a = 0.80867 + 3.05059I$ $b = -0.175620 - 1.395210I$	$5.06212 - 3.17952I$	$3.66314 - 2.07098I$
$u = 0.716213 + 0.968774I$ $a = -0.72128 + 1.60893I$ $b = -0.84147 - 1.24514I$	$-1.69311 - 7.34221I$	$-7.2251 + 12.7560I$
$u = 0.716213 - 0.968774I$ $a = -0.72128 - 1.60893I$ $b = -0.84147 + 1.24514I$	$-1.69311 + 7.34221I$	$-7.2251 - 12.7560I$
$u = -1.20681$ $a = 0.255916$ $b = 0.0276533$	-2.39902	9.38220
$u = -0.903022 + 0.809434I$ $a = 0.95127 + 1.48619I$ $b = 0.587817 - 1.024500I$	$-2.75188 + 4.82047I$	$-10.54242 - 4.40996I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.903022 - 0.809434I$ $a = 0.95127 - 1.48619I$ $b = 0.587817 + 1.024500I$	$-2.75188 - 4.82047I$	$-10.54242 + 4.40996I$
$u = 0.280918 + 0.724094I$ $a = -0.42253 + 2.14926I$ $b = -0.06930 - 1.59935I$	$4.77684 - 4.89958I$	$-1.86079 + 9.83067I$
$u = 0.280918 - 0.724094I$ $a = -0.42253 - 2.14926I$ $b = -0.06930 + 1.59935I$	$4.77684 + 4.89958I$	$-1.86079 - 9.83067I$
$u = 0.819992 + 0.955539I$ $a = -0.487721 + 0.138368I$ $b = 1.170640 - 0.603687I$	$-4.12482 - 9.03603I$	$-5.90532 + 6.27658I$
$u = 0.819992 - 0.955539I$ $a = -0.487721 - 0.138368I$ $b = 1.170640 + 0.603687I$	$-4.12482 + 9.03603I$	$-5.90532 - 6.27658I$
$u = -0.998691 + 0.783756I$ $a = 0.529988 + 0.125234I$ $b = -0.885119 - 0.440669I$	$-3.16717 + 1.07030I$	$-12.89268 - 5.67416I$
$u = -0.998691 - 0.783756I$ $a = 0.529988 - 0.125234I$ $b = -0.885119 + 0.440669I$	$-3.16717 - 1.07030I$	$-12.89268 + 5.67416I$
$u = -0.884140 + 0.948082I$ $a = -0.108358 - 0.471345I$ $b = 0.746526 + 0.760439I$	$-2.33356 + 1.75773I$	$-7.03716 - 6.33959I$
$u = -0.884140 - 0.948082I$ $a = -0.108358 + 0.471345I$ $b = 0.746526 - 0.760439I$	$-2.33356 - 1.75773I$	$-7.03716 + 6.33959I$
$u = -1.181090 + 0.555383I$ $a = 0.078562 - 0.136872I$ $b = 0.660616 + 0.665590I$	$-3.87464 - 0.10689I$	$-16.3307 + 2.6685I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.181090-0.555383I$ $a=\ \ 0.078562+0.136872I$ $b=\ \ 0.660616-0.665590I$	$-3.87464+0.10689I$	$-16.3307-2.6685I$
$u=\ \ 1.170640+0.603687I$ $a=-0.236393+0.423087I$ $b=\ \ 0.819992-0.955539I$	$-4.12482+9.03603I$	$-5.90532-6.27658I$
$u=\ \ 1.170640-0.603687I$ $a=-0.236393-0.423087I$ $b=\ \ 0.819992+0.955539I$	$-4.12482-9.03603I$	$-5.90532+6.27658I$
$u=-0.175620+1.395210I$ $a=-0.01264-1.79079I$ $b=\ \ 0.112117+0.790036I$	$5.06212+3.17952I$	$3.66314+2.07098I$
$u=-0.175620-1.395210I$ $a=-0.01264+1.79079I$ $b=\ \ 0.112117-0.790036I$	$5.06212-3.17952I$	$3.66314-2.07098I$
$u=-0.84147+1.24514I$ $a=\ \ 0.523153+1.313150I$ $b=\ \ 0.716213-0.968774I$	$-1.69311+7.34221I$	$0.-12.75605I$
$u=-0.84147-1.24514I$ $a=\ \ 0.523153-1.313150I$ $b=\ \ 0.716213+0.968774I$	$-1.69311-7.34221I$	$0.+12.75605I$
$u=-0.011102+0.408161I$ $a=-2.00560+2.80444I$ $b=-0.549689-0.965680I$	$0.21083-2.02252I$	$-3.27794+3.16369I$
$u=-0.011102-0.408161I$ $a=-2.00560-2.80444I$ $b=-0.549689+0.965680I$	$0.21083+2.02252I$	$-3.27794-3.16369I$
$u=-0.06930+1.59935I$ $a=-0.140568+1.053370I$ $b=\ \ 0.280918-0.724094I$	$4.77684+4.89958I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.06930-1.59935I$ $a=-0.140568-1.053370I$ $b=\ \ 0.280918+0.724094I$	$4.77684-4.89958I$	0
$u=\ \ 0.0276533$ $a=-11.1684$ $b=-1.20681$	-2.39902	9.38220

III. $\boldsymbol{I_3^u = \langle b+u,\ 2u^6-4u^5+7u^4-6u^3+4u^2+a-u-1,\ u^7-2u^6+4u^5-4u^4+4u^3-2u^2+u-1\rangle}$

(i) Arc colorings

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

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

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

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

$$a_8 = \begin{pmatrix} -2u^6+4u^5-7u^4+6u^3-4u^2+u+1 \\ -u \end{pmatrix}$$

$$a_7 = \begin{pmatrix} -2u^6+4u^5-7u^4+6u^3-4u^2+1 \\ -u \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -2u^5+6u^4-11u^3+13u^2-11u+4 \\ u^6-2u^5+4u^4-4u^3+3u^2-u \end{pmatrix}$$

$$a_2 = \begin{pmatrix} u^6-3u^5+7u^4-10u^3+10u^2-6u+2 \\ u^6-2u^5+3u^4-2u^3+2u^2 \end{pmatrix}$$

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

$$a_9 = \begin{pmatrix} u^5-3u^4+5u^3-5u^2+4u-2 \\ -u^6+u^5-2u^4+u^3-2u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^5+2u^4-4u^3+5u^2-5u+2 \\ u^4-u^3+u^2 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -u^5+2u^4-4u^3+5u^2-5u+2 \\ u^4-u^3+u^2 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -4u^6-u^5+2u^4-16u^3+11u^2-14u-1$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_6	$u^7 - u^6 + u^5 - u^4 + 3u^3 - u^2 - 1$
c_2, c_5	$u^7 - u^6 + 3u^5 - 5u^4 + 4u^3 - 5u^2 + 5u - 1$
c_3, c_{10}	$u^7 + 2u^6 + 4u^5 + 4u^4 + 4u^3 + 2u^2 + u + 1$
c_4	$u^7 - 6u^6 + 22u^5 - 53u^4 + 84u^3 - 80u^2 + 42u - 9$
c_7, c_{11}	$u^7 - 2u^6 + 4u^5 - 4u^4 + 4u^3 - 2u^2 + u - 1$
c_8	$u^7 - 2u^6 + u^5 + 2u^4 - 2u^3 + u^2 + u - 1$
c_9	$u^7 - u^6 - u^5 + 2u^4 - 2u^3 - u^2 + 2u - 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_6	$y^7 + y^6 + 5y^5 + 3y^4 + 5y^3 - 3y^2 - 2y - 1$
c_2, c_5	$y^7 + 5y^6 + 7y^5 - y^4 - 6y^3 + 5y^2 + 15y - 1$
c_3, c_7, c_{10} c_{11}	$y^7 + 4y^6 + 8y^5 + 10y^4 + 4y^3 - 4y^2 - 3y - 1$
c_4	$y^7 + 8y^6 + 16y^5 + 11y^4 + 316y^3 - 298y^2 + 324y - 81$
c_8	$y^7 - 2y^6 + 5y^5 - 2y^4 - 2y^3 - y^2 + 3y - 1$
c_9	$y^7 - 3y^6 + y^5 + 2y^4 + 2y^3 - 5y^2 + 2y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.820970$ $a = 0.144523$ $b = -0.820970$	-2.80107	-14.6220
$u = 0.090842 + 1.238600I$ $a = -0.38149 + 1.84270I$ $b = -0.090842 - 1.238600I$	$6.98186 - 4.35553I$	$4.40252 + 4.67318I$
$u = 0.090842 - 1.238600I$ $a = -0.38149 - 1.84270I$ $b = -0.090842 + 1.238600I$	$6.98186 + 4.35553I$	$4.40252 - 4.67318I$
$u = 0.780534 + 1.059930I$ $a = -0.46249 + 1.46757I$ $b = -0.780534 - 1.059930I$	$-1.42367 - 6.15520I$	$-4.27125 + 4.83482I$
$u = 0.780534 - 1.059930I$ $a = -0.46249 - 1.46757I$ $b = -0.780534 + 1.059930I$	$-1.42367 + 6.15520I$	$-4.27125 - 4.83482I$
$u = -0.281861 + 0.613464I$ $a = 3.27172 - 0.15712I$ $b = 0.281861 - 0.613464I$	$0.77714 + 4.87266I$	$-5.32028 - 10.34979I$
$u = -0.281861 - 0.613464I$ $a = 3.27172 + 0.15712I$ $b = 0.281861 + 0.613464I$	$0.77714 - 4.87266I$	$-5.32028 + 10.34979I$

IV. $I_4^u = \langle -u^5 + 2u^4 - 4u^3 + 5u^2 + b - 4u + 2,\ -u^4 + 2u^3 - 4u^2 + a + 5u - 3,\ u^6 - 2u^5 + 4u^4 - 5u^3 + 4u^2 - 2u + 1\rangle$

(i) Arc colorings

$$a_4 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} u \\ u^3 + u \end{pmatrix}$$
$$a_8 = \begin{pmatrix} u^4 - 2u^3 + 4u^2 - 5u + 3 \\ u^5 - 2u^4 + 4u^3 - 5u^2 + 4u - 2 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} u^5 - u^4 + 2u^3 - u^2 - u + 1 \\ u^5 - 2u^4 + 4u^3 - 5u^2 + 4u - 2 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} -u^5 + 2u^4 - 3u^3 + 3u^2 - u - 1 \\ u^5 - u^4 + 2u^3 - u^2 + 1 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -u^5 + u^4 - 2u^3 + u^2 + 2u - 2 \\ u^4 - u^3 + 3u^2 - 3u + 2 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -3u^5 + 6u^4 - 11u^3 + 13u^2 - 8u + 2 \\ 2u^5 - 3u^4 + 6u^3 - 6u^2 + 3u \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -2u^5 + 5u^4 - 9u^3 + 11u^2 - 8u + 2 \\ 2u^5 - 4u^4 + 7u^3 - 8u^2 + 4u - 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -3u^5 + 6u^4 - 10u^3 + 12u^2 - 7u \\ 2u^5 - 3u^4 + 5u^3 - 5u^2 + 2u + 1 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -3u^5 + 6u^4 - 10u^3 + 12u^2 - 7u \\ 2u^5 - 3u^4 + 5u^3 - 5u^2 + 2u + 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3u^5 + u^4 - 2u^3 + 6u^2 - 12u + 2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.877439 + 0.479689I$ $a = 0.215080 - 0.117582I$ $b = -0.877439 + 0.479689I$	-2.90188	$-8.25352 + 0.I$
$u = 0.877439 - 0.479689I$ $a = 0.215080 + 0.117582I$ $b = -0.877439 - 0.479689I$	-2.90188	$-8.25352 + 0.I$
$u = 0.039862 + 0.693124I$ $a = 1.22636 - 2.63813I$ $b = -0.08270 + 1.43799I$	$4.74081 + 3.77083I$	$-0.87324 - 6.91540I$
$u = 0.039862 - 0.693124I$ $a = 1.22636 + 2.63813I$ $b = -0.08270 - 1.43799I$	$4.74081 - 3.77083I$	$-0.87324 + 6.91540I$
$u = 0.08270 + 1.43799I$ $a = -0.441444 - 1.330990I$ $b = -0.039862 + 0.693124I$	$4.74081 - 3.77083I$	$-0.87324 + 6.91540I$
$u = 0.08270 - 1.43799I$ $a = -0.441444 + 1.330990I$ $b = -0.039862 - 0.693124I$	$4.74081 + 3.77083I$	$-0.87324 - 6.91540I$

V. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_6	$(u^6 - 2u^3 + 4u^2 - 3u + 1)(u^7 - u^6 + u^5 - u^4 + 3u^3 - u^2 - 1)$ $\cdot (u^{16} - u^{15} + \cdots - u + 1)(u^{42} - u^{41} + \cdots - 7u - 1)$
c_2, c_5	$(u^6 + 3u^5 + 4u^4 + 4u^3 + 3u^2 + u + 1)$ $\cdot (u^7 - u^6 + \cdots + 5u - 1)(u^{16} - u^{15} + \cdots + 15u^2 + 1)$ $\cdot (u^{42} + 7u^{40} + \cdots + 1895u + 457)$
c_3, c_{10}	$(u^6 + 2u^5 + 4u^4 + 5u^3 + 4u^2 + 2u + 1)$ $\cdot (u^7 + 2u^6 + \cdots + u + 1)(u^{16} + 4u^{14} + \cdots + 2u + 1)$ $\cdot (u^{42} + 3u^{41} + \cdots + 36u - 1)$
c_4	$(u^3 + u^2 - 1)^2(u^7 - 6u^6 + 22u^5 - 53u^4 + 84u^3 - 80u^2 + 42u - 9)$ $\cdot (u^{16} - 13u^{15} + \cdots - 352u + 64)(u^{21} + 8u^{20} + \cdots + 43u + 7)^2$
c_7, c_{11}	$(u^6 - 2u^5 + 4u^4 - 5u^3 + 4u^2 - 2u + 1)$ $\cdot (u^7 - 2u^6 + \cdots + u - 1)(u^{16} + 4u^{14} + \cdots + 2u + 1)$ $\cdot (u^{42} + 3u^{41} + \cdots + 36u - 1)$
c_8	$(u^3 + u^2 - 1)^2(u^7 - 2u^6 + u^5 + 2u^4 - 2u^3 + u^2 + u - 1)$ $\cdot (u^{16} - 13u^{15} + \cdots - 36u + 8)(u^{21} + 6u^{20} + \cdots + 5u + 1)^2$
c_9	$(u^3 - u - 1)^2(u^7 - u^6 - u^5 + 2u^4 - 2u^3 - u^2 + 2u - 1)$ $\cdot (u^{16} - 16u^{15} + \cdots - 544u + 64)(u^{21} + 6u^{20} + \cdots + 9u + 1)^2$

VI. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_6	$(y^6 + 8y^4 - 2y^3 + 4y^2 - y + 1)(y^7 + y^6 + \cdots - 2y - 1)$ $\cdot (y^{16} - 3y^{15} + \cdots - 5y + 1)(y^{42} - y^{41} + \cdots - 45y + 1)$
c_2, c_5	$(y^6 - y^5 - 2y^4 + 4y^3 + 9y^2 + 5y + 1)$ $\cdot (y^7 + 5y^6 + \cdots + 15y - 1)(y^{16} + 9y^{15} + \cdots + 30y + 1)$ $\cdot (y^{42} + 14y^{41} + \cdots + 2544657y + 208849)$
c_3, c_7, c_{10} c_{11}	$(y^6 + 4y^5 + 4y^4 + y^3 + 4y^2 + 4y + 1)$ $\cdot (y^7 + 4y^6 + 8y^5 + 10y^4 + 4y^3 - 4y^2 - 3y - 1)$ $\cdot (y^{16} + 8y^{15} + \cdots + 12y + 1)(y^{42} + 11y^{41} + \cdots - 1288y + 1)$
c_4	$(y^3 - y^2 + 2y - 1)^2$ $\cdot (y^7 + 8y^6 + 16y^5 + 11y^4 + 316y^3 - 298y^2 + 324y - 81)$ $\cdot (y^{16} + 5y^{15} + \cdots + 40448y + 4096)$ $\cdot (y^{21} - 10y^{20} + \cdots + 1149y - 49)^2$
c_8	$(y^3 - y^2 + 2y - 1)^2(y^7 - 2y^6 + 5y^5 - 2y^4 - 2y^3 - y^2 + 3y - 1)$ $\cdot (y^{16} - y^{15} + \cdots + 496y + 64)(y^{21} + 2y^{20} + \cdots - 11y - 1)^2$
c_9	$(y^3 - 2y^2 + y - 1)^2(y^7 - 3y^6 + y^5 + 2y^4 + 2y^3 - 5y^2 + 2y - 1)$ $\cdot (y^{16} - 4y^{15} + \cdots + 23552y + 4096)(y^{21} - 8y^{20} + \cdots + 33y - 1)^2$