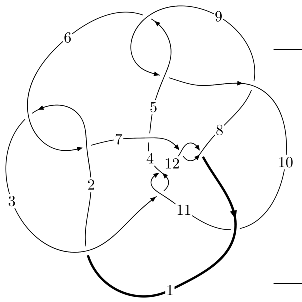
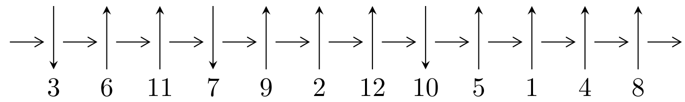
$12a_{0466}$ ($K12a_{0466}$)



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$I_1^u = \langle b - u,\ 3747u^{13} - 7659u^{12} + \cdots + 14581a + 18101,$$
$$u^{14} - 5u^{12} + 10u^{10} + 2u^9 - 5u^8 - 6u^7 - 4u^6 + 4u^5 + 4u^4 + 7u^3 - 1\rangle$$
$$I_2^u = \langle 5.39240 \times 10^{368}u^{101} - 7.26688 \times 10^{368}u^{100} + \cdots + 4.52702 \times 10^{370}b - 8.26613 \times 10^{371},$$
$$-7.29228 \times 10^{372}u^{101} + 2.80450 \times 10^{373}u^{100} + \cdots + 1.94571 \times 10^{374}a - 1.76617 \times 10^{376},$$
$$u^{102} - 3u^{101} + \cdots + 6720u + 1228\rangle$$
$$I_3^u = \langle b - 1,\ 18a^2 - 3au + 24a - 2u + 7,\ u^2 + 2\rangle$$
$$I_4^u = \langle 54a^3 - 27a^2 + 58b + 153a - 25,\ 27a^4 - 18a^3 + 57a^2 - 18a + 19,\ u + 1\rangle$$
$$I_5^u = \langle b,\ a^2 - a + 1,\ u - 1\rangle$$

$$I_1^v = \langle a,\ b + 1,\ v^2 - v + 1\rangle$$

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 128 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.

$$\boldsymbol{I_1^u = \langle b-u,\ 3747u^{13}-7659u^{12}+\cdots+14581a+18101,\ u^{14}-5u^{12}+\cdots+7u^3-1\rangle}$$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix}1\\0\end{pmatrix}$$

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

$$a_4 = \begin{pmatrix}-0.256978u^{13}+0.525273u^{12}+\cdots+1.54427u-1.24141\\u\end{pmatrix}$$

$$a_7 = \begin{pmatrix}-u\\u\end{pmatrix}$$

$$a_5 = \begin{pmatrix}0.0739318u^{13}+0.434950u^{12}+\cdots+1.80125u-1.76668\\-0.330910u^{13}+0.0903230u^{12}+\cdots+0.743022u+0.525273\end{pmatrix}$$

$$a_{11} = \begin{pmatrix}0.525273u^{13}-0.330910u^{12}+\cdots-1.24141u+0.743022\\u^2\end{pmatrix}$$

$$a_3 = \begin{pmatrix}0.0739318u^{13}+0.434950u^{12}+\cdots+0.801248u-1.76668\\-u^3+u\end{pmatrix}$$

$$a_2 = \begin{pmatrix}0.355737u^{13}-0.504561u^{12}+\cdots-1.69659u+1.25252\\0.149304u^{13}+0.216035u^{12}+\cdots+0.364858u-0.645703\end{pmatrix}$$

$$a_6 = \begin{pmatrix}u^2-1\\-0.434950u^{13}+0.467115u^{12}+\cdots+1.76668u-0.0739318\end{pmatrix}$$

$$a_{10} = \begin{pmatrix}0.434950u^{13}-0.467115u^{12}+\cdots-1.76668u+1.07393\\0.0202318u^{13}-0.0423839u^{12}+\cdots+0.0903230u+0.136205\end{pmatrix}$$

$$a_9 = \begin{pmatrix}1.15026u^{13}-0.219875u^{12}+\cdots-1.79357u-0.720595\\-0.269392u^{13}+0.0181058u^{12}+\cdots+1.02105u+0.155408\end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= \frac{6748}{2083}u^{13} - \frac{6908}{14581}u^{12} + \cdots + \frac{3068}{2083}u + \frac{110818}{14581}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_8	$u^{14}+6u^{13}+\cdots-8u+1$
c_2, c_5, c_6 c_9	$u^{14}+3u^{12}+6u^{10}+7u^8-2u^7+6u^6-4u^5+6u^4-5u^3+4u^2-4u+1$
c_3, c_7, c_{11} c_{12}	$u^{14}-5u^{12}+10u^{10}+2u^9-5u^8-6u^7-4u^6+4u^5+4u^4+7u^3-1$
c_4	$49(49u^{14}-567u^{13}+\cdots-6400u+512)$
c_{10}	$49(49u^{14}+567u^{13}+\cdots-256u-32)$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^{14} + 6y^{13} + \cdots - 88y + 1$
c_2, c_5, c_6 c_9	$y^{14} + 6y^{13} + \cdots - 8y + 1$
c_3, c_7, c_{11} c_{12}	$y^{14} - 10y^{13} + \cdots - 8y^2 + 1$
c_4	$2401(2401y^{14} + 13671y^{13} + \cdots - 8978432y + 262144)$
c_{10}	$2401(2401y^{14} - 27489y^{13} + \cdots - 15872y + 1024)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.516196 + 0.668974I$ $a = 1.017360 + 0.288726I$ $b = -0.516196 + 0.668974I$	$-5.02201 - 5.08838I$	$-1.61799 + 8.05922I$
$u = -0.516196 - 0.668974I$ $a = 1.017360 - 0.288726I$ $b = -0.516196 - 0.668974I$	$-5.02201 + 5.08838I$	$-1.61799 - 8.05922I$
$u = 0.049265 + 0.817919I$ $a = 0.729990 + 0.633371I$ $b = 0.049265 + 0.817919I$	$-0.60028 + 8.39490I$	$2.98961 - 7.37830I$
$u = 0.049265 - 0.817919I$ $a = 0.729990 - 0.633371I$ $b = 0.049265 - 0.817919I$	$-0.60028 - 8.39490I$	$2.98961 + 7.37830I$
$u = 1.187260 + 0.433713I$ $a = -1.66682 + 0.63904I$ $b = 1.187260 + 0.433713I$	$-0.83636 + 3.84412I$	$2.45895 - 3.50905I$
$u = 1.187260 - 0.433713I$ $a = -1.66682 - 0.63904I$ $b = 1.187260 - 0.433713I$	$-0.83636 - 3.84412I$	$2.45895 + 3.50905I$
$u = -1.33396$ $a = 2.15674$ $b = -1.33396$	6.74792	14.5770
$u = -0.261143 + 0.528763I$ $a = -1.18448 + 0.94699I$ $b = -0.261143 + 0.528763I$	$1.62602 + 1.81371I$	$5.85449 - 2.18660I$
$u = -0.261143 - 0.528763I$ $a = -1.18448 - 0.94699I$ $b = -0.261143 - 0.528763I$	$1.62602 - 1.81371I$	$5.85449 + 2.18660I$
$u = 0.480208$ $a = -0.845526$ $b = 0.480208$	0.732652	13.8190

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 1.45636 + 0.53970I$ $a = -1.66668 + 0.71755I$ $b = 1.45636 + 0.53970I$	$8.7153 + 19.0009I$	$9.38864 - 10.26527I$
$u = 1.45636 - 0.53970I$ $a = -1.66668 - 0.71755I$ $b = 1.45636 - 0.53970I$	$8.7153 - 19.0009I$	$9.38864 + 10.26527I$
$u = -1.48868 + 0.46189I$ $a = 1.61503 + 0.60076I$ $b = -1.48868 + 0.46189I$	$12.11620 - 6.67391I$	$13.58514 + 1.84206I$
$u = -1.48868 - 0.46189I$ $a = 1.61503 - 0.60076I$ $b = -1.48868 - 0.46189I$	$12.11620 + 6.67391I$	$13.58514 - 1.84206I$

II. $\boldsymbol{I^u_2 = \langle 5.39 \times 10^{368} u^{101} - 7.27 \times 10^{368} u^{100} + \cdots + 4.53 \times 10^{370} b - 8.27 \times 10^{371},\ -7.29 \times 10^{372} u^{101} + 2.80 \times 10^{373} u^{100} + \cdots + 1.95 \times 10^{374} a - 1.77 \times 10^{376},\ u^{102} - 3u^{101} + \cdots + 6720u + 1228\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ -u^2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0.0374787u^{101} - 0.144138u^{100} + \cdots + 313.271u + 90.7725 \\ -0.0119116u^{101} + 0.0160523u^{100} + \cdots + 117.702u + 18.2596 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 0.0601079u^{101} - 0.156706u^{100} + \cdots - 0.634123u + 27.6729 \\ -0.0345408u^{101} + 0.0286206u^{100} + \cdots + 431.607u + 81.3592 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} -0.0596673u^{101} + 0.232521u^{100} + \cdots - 592.389u - 163.559 \\ -0.0317617u^{101} + 0.0733669u^{100} + \cdots + 12.4678u - 8.62955 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -0.00617077u^{101} + 0.0554503u^{100} + \cdots - 356.870u - 88.3022 \\ -0.0245955u^{101} + 0.0557894u^{100} + \cdots + 26.7586u - 5.47531 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -0.00465371u^{101} - 0.0244415u^{100} + \cdots + 335.002u + 75.6856 \\ 0.0104418u^{101} - 0.0279042u^{100} + \cdots + 9.19679u + 7.32337 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} -0.00445873u^{101} + 0.0379717u^{100} + \cdots - 220.187u - 56.7212 \\ -0.0369380u^{101} + 0.0898244u^{100} + \cdots + 46.8346u - 7.57770 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} -0.0393466u^{101} + 0.143102u^{100} + \cdots - 318.483u - 89.2086 \\ -0.0178019u^{101} + 0.0644717u^{100} + \cdots - 153.806u - 43.5741 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} -0.0544767u^{101} + 0.177113u^{100} + \cdots - 336.426u - 101.063 \\ -0.0360286u^{101} + 0.136503u^{100} + \cdots - 317.173u - 93.1241 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= 0.0665059u^{101} - 0.191404u^{100} + \cdots - 267.385u + 0.0474288$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_8	$u^{102} + 42u^{101} + \cdots + 107216u + 5776$
c_2, c_5, c_6 c_9	$u^{102} - 2u^{101} + \cdots + 172u + 76$
c_3, c_7, c_{11} c_{12}	$u^{102} - 3u^{101} + \cdots + 6720u + 1228$
c_4	$49(7u^{51} + 68u^{50} + \cdots - 1074u + 167)^2$
c_{10}	$49(7u^{51} - 65u^{50} + \cdots + 4991u - 373)^2$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^{102} + 42y^{101} + \cdots + 456890624y + 33362176$
c_2, c_5, c_6 c_9	$y^{102} + 42y^{101} + \cdots + 107216y + 5776$
c_3, c_7, c_{11} c_{12}	$y^{102} - 71y^{101} + \cdots - 636032y + 1507984$
c_4	$2401(49y^{51} + 738y^{50} + \cdots - 123072y - 27889)^2$
c_{10}	$2401(49y^{51} - 2279y^{50} + \cdots + 1.33762 \times 10^7 y - 139129)^2$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -0.938800 + 0.219906I$ $a = -0.104097 - 0.814218I$ $b = 0.306890 + 1.203660I$	$-3.98676 + 1.42787I$	0
$u = -0.938800 - 0.219906I$ $a = -0.104097 + 0.814218I$ $b = 0.306890 - 1.203660I$	$-3.98676 - 1.42787I$	0
$u = -0.132342 + 0.952090I$ $a = 0.675049 + 0.192146I$ $b = -0.480609 + 0.312195I$	$-4.31975 + 1.46497I$	0
$u = -0.132342 - 0.952090I$ $a = 0.675049 - 0.192146I$ $b = -0.480609 - 0.312195I$	$-4.31975 - 1.46497I$	0
$u = 0.899835 + 0.223758I$ $a = 1.89347 - 0.47084I$ $b = 0.899835 - 0.223758I$	3.64125	0
$u = 0.899835 - 0.223758I$ $a = 1.89347 + 0.47084I$ $b = 0.899835 + 0.223758I$	3.64125	0
$u = -1.039410 + 0.270775I$ $a = -1.42959 + 1.12062I$ $b = -0.496445 + 0.034634I$	$2.87536 - 0.22281I$	0
$u = -1.039410 - 0.270775I$ $a = -1.42959 - 1.12062I$ $b = -0.496445 - 0.034634I$	$2.87536 + 0.22281I$	0
$u = 1.125680 + 0.169366I$ $a = 2.86751 - 0.62703I$ $b = -1.283310 + 0.005598I$	$3.75261 + 3.46176I$	0
$u = 1.125680 - 0.169366I$ $a = 2.86751 + 0.62703I$ $b = -1.283310 - 0.005598I$	$3.75261 - 3.46176I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.123400 + 0.263250I$ $a = -1.290530 - 0.397846I$ $b = -0.440373 + 0.187785I$	$2.83235 - 4.49472I$	0
$u = 1.123400 - 0.263250I$ $a = -1.290530 + 0.397846I$ $b = -0.440373 - 0.187785I$	$2.83235 + 4.49472I$	0
$u = -1.158280 + 0.038901I$ $a = -0.044900 - 1.082900I$ $b = 0.10892 + 1.76473I$	$-2.47417 - 2.36609I$	0
$u = -1.158280 - 0.038901I$ $a = -0.044900 + 1.082900I$ $b = 0.10892 - 1.76473I$	$-2.47417 + 2.36609I$	0
$u = 0.635991 + 0.544847I$ $a = 0.163228 + 0.980450I$ $b = 1.213660 + 0.118860I$	$4.29974 - 0.52525I$	0
$u = 0.635991 - 0.544847I$ $a = 0.163228 - 0.980450I$ $b = 1.213660 - 0.118860I$	$4.29974 + 0.52525I$	0
$u = 1.148780 + 0.231094I$ $a = -0.178896 + 0.316978I$ $b = 0.211521 - 0.622388I$	$0.95763 + 1.31939I$	0
$u = 1.148780 - 0.231094I$ $a = -0.178896 - 0.316978I$ $b = 0.211521 + 0.622388I$	$0.95763 - 1.31939I$	0
$u = 0.284402 + 1.150140I$ $a = 0.436714 - 0.359320I$ $b = -1.306890 - 0.351758I$	$5.05561 + 7.21324I$	0
$u = 0.284402 - 1.150140I$ $a = 0.436714 + 0.359320I$ $b = -1.306890 + 0.351758I$	$5.05561 - 7.21324I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.180890 + 0.101925I$ $a = -0.329287 + 0.402844I$ $b = 0.070577 - 0.397364I$	$1.03755 + 1.42394I$	0
$u = 1.180890 - 0.101925I$ $a = -0.329287 - 0.402844I$ $b = 0.070577 + 0.397364I$	$1.03755 - 1.42394I$	0
$u = -0.630547 + 0.473331I$ $a = -0.771433 - 0.171537I$ $b = 0.202395 - 0.600140I$	$-1.85835 - 1.85518I$	$2.88110 + 4.86946I$
$u = -0.630547 - 0.473331I$ $a = -0.771433 + 0.171537I$ $b = 0.202395 + 0.600140I$	$-1.85835 + 1.85518I$	$2.88110 - 4.86946I$
$u = 1.213660 + 0.118860I$ $a = -0.294299 + 0.615882I$ $b = 0.635991 + 0.544847I$	$4.29974 - 0.52525I$	0
$u = 1.213660 - 0.118860I$ $a = -0.294299 - 0.615882I$ $b = 0.635991 - 0.544847I$	$4.29974 + 0.52525I$	0
$u = -1.198720 + 0.266772I$ $a = -0.224557 - 0.808357I$ $b = 0.554100 - 0.529784I$	$4.19644 - 4.78402I$	0
$u = -1.198720 - 0.266772I$ $a = -0.224557 + 0.808357I$ $b = 0.554100 + 0.529784I$	$4.19644 + 4.78402I$	0
$u = 0.042252 + 0.768572I$ $a = 0.259981 - 0.234911I$ $b = -1.243120 + 0.401275I$	$-0.75830 - 6.15523I$	$2.54266 + 5.39268I$
$u = 0.042252 - 0.768572I$ $a = 0.259981 + 0.234911I$ $b = -1.243120 - 0.401275I$	$-0.75830 + 6.15523I$	$2.54266 - 5.39268I$

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = 0.554100 + 0.529784I$ $a = -0.362391 - 1.294170I$ $b = -1.198720 - 0.266772I$	$4.19644 + 4.78402I$	$10.46471 - 6.58648I$
$u = 0.554100 - 0.529784I$ $a = -0.362391 + 1.294170I$ $b = -1.198720 + 0.266772I$	$4.19644 - 4.78402I$	$10.46471 + 6.58648I$
$u = 0.306890 + 1.203660I$ $a = 0.633484 - 0.068432I$ $b = -0.938800 + 0.219906I$	$-3.98676 + 1.42787I$	0
$u = 0.306890 - 1.203660I$ $a = 0.633484 + 0.068432I$ $b = -0.938800 - 0.219906I$	$-3.98676 - 1.42787I$	0
$u = 0.028710 + 0.734651I$ $a = -0.946199 - 0.618995I$ $b = -0.209148 - 0.578349I$	$0.87132 + 3.18706I$	$5.01381 - 3.27800I$
$u = 0.028710 - 0.734651I$ $a = -0.946199 + 0.618995I$ $b = -0.209148 + 0.578349I$	$0.87132 - 3.18706I$	$5.01381 + 3.27800I$
$u = -0.721694 + 0.102104I$ $a = -0.322451 - 1.362520I$ $b = 0.021380 - 0.371251I$	$0.94758 - 2.34060I$	$1.25710 + 5.53583I$
$u = -0.721694 - 0.102104I$ $a = -0.322451 + 1.362520I$ $b = 0.021380 + 0.371251I$	$0.94758 + 2.34060I$	$1.25710 - 5.53583I$
$u = -0.132750 + 1.267920I$ $a = 0.533990 + 0.282704I$ $b = -1.318190 + 0.376845I$	$3.68801 - 12.72800I$	0
$u = -0.132750 - 1.267920I$ $a = 0.533990 - 0.282704I$ $b = -1.318190 - 0.376845I$	$3.68801 + 12.72800I$	0

Solutions to I_2^u	$\sqrt{-1}(\text{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.283310 + 0.005598I$ $a = -2.59874 + 0.16023I$ $b = 1.125680 + 0.169366I$	$3.75261 + 3.46176I$	0
$u = -1.283310 - 0.005598I$ $a = -2.59874 - 0.16023I$ $b = 1.125680 - 0.169366I$	$3.75261 - 3.46176I$	0
$u = 1.255770 + 0.318257I$ $a = 1.98536 - 0.52012I$ $b = -1.56842 - 0.37132I$	$4.44605 + 4.92843I$	0
$u = 1.255770 - 0.318257I$ $a = 1.98536 + 0.52012I$ $b = -1.56842 + 0.37132I$	$4.44605 - 4.92843I$	0
$u = -1.243120 + 0.401275I$ $a = -0.094878 - 0.183378I$ $b = 0.042252 + 0.768572I$	$-0.75830 - 6.15523I$	0
$u = -1.243120 - 0.401275I$ $a = -0.094878 + 0.183378I$ $b = 0.042252 - 0.768572I$	$-0.75830 + 6.15523I$	0
$u = 0.294469 + 1.272850I$ $a = -0.491997 + 0.240143I$ $b = 1.315060 + 0.204346I$	$6.39603 + 0.76029I$	0
$u = 0.294469 - 1.272850I$ $a = -0.491997 - 0.240143I$ $b = 1.315060 - 0.204346I$	$6.39603 - 0.76029I$	0
$u = 1.279400 + 0.354549I$ $a = -1.92627 + 0.47196I$ $b = 1.57701 + 0.54463I$	$3.13819 + 10.25710I$	0
$u = 1.279400 - 0.354549I$ $a = -1.92627 - 0.47196I$ $b = 1.57701 - 0.54463I$	$3.13819 - 10.25710I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.315060 + 0.204346I$ $a = -0.398620 - 0.360491I$ $b = 0.294469 + 1.272850I$	$6.39603 + 0.76029I$	0
$u = 1.315060 - 0.204346I$ $a = -0.398620 + 0.360491I$ $b = 0.294469 - 1.272850I$	$6.39603 - 0.76029I$	0
$u = 1.333590 + 0.062848I$ $a = 1.70068 - 0.12225I$ $b = -1.62808 + 0.65945I$	$8.12140 + 5.35202I$	0
$u = 1.333590 - 0.062848I$ $a = 1.70068 + 0.12225I$ $b = -1.62808 - 0.65945I$	$8.12140 - 5.35202I$	0
$u = 1.335810 + 0.021201I$ $a = -1.52156 + 0.07833I$ $b = 1.48991 - 0.81435I$	$8.28003 - 0.08726I$	0
$u = 1.335810 - 0.021201I$ $a = -1.52156 - 0.07833I$ $b = 1.48991 + 0.81435I$	$8.28003 + 0.08726I$	0
$u = 1.319500 + 0.242954I$ $a = 0.302778 + 0.490529I$ $b = -0.081953 - 1.362050I$	$5.54688 + 6.19194I$	0
$u = 1.319500 - 0.242954I$ $a = 0.302778 - 0.490529I$ $b = -0.081953 + 1.362050I$	$5.54688 - 6.19194I$	0
$u = 0.211521 + 0.622388I$ $a = -0.601398 + 0.243507I$ $b = 1.148780 - 0.231094I$	$0.95763 - 1.31939I$	$5.50400 - 0.11930I$
$u = 0.211521 - 0.622388I$ $a = -0.601398 - 0.243507I$ $b = 1.148780 + 0.231094I$	$0.95763 + 1.31939I$	$5.50400 + 0.11930I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-1.306890+0.351758I$ $a=-0.460310+0.182244I$ $b=\ \ 0.284402-1.150140I$	$5.05561-7.21324I$	0
$u=-1.306890-0.351758I$ $a=-0.460310-0.182244I$ $b=\ \ 0.284402+1.150140I$	$5.05561+7.21324I$	0
$u=-0.081953+1.362050I$ $a=-0.539640-0.173352I$ $b=\ \ 1.319500-0.242954I$	$5.54688-6.19194I$	0
$u=-0.081953-1.362050I$ $a=-0.539640+0.173352I$ $b=\ \ 1.319500+0.242954I$	$5.54688+6.19194I$	0
$u=\ \ 0.202395+0.600140I$ $a=\ \ 0.670871-0.719561I$ $b=-0.630547-0.473331I$	$-1.85835+1.85518I$	$2.88110-4.86946I$
$u=\ \ 0.202395-0.600140I$ $a=\ \ 0.670871+0.719561I$ $b=-0.630547+0.473331I$	$-1.85835-1.85518I$	$2.88110+4.86946I$
$u=-1.318190+0.376845I$ $a=\ \ 0.429309-0.362425I$ $b=-0.132750+1.267920I$	$3.68801-12.72800I$	0
$u=-1.318190-0.376845I$ $a=\ \ 0.429309+0.362425I$ $b=-0.132750-1.267920I$	$3.68801+12.72800I$	0
$u=-0.209148+0.578349I$ $a=\ \ 0.853649-1.048020I$ $b=\ \ 0.028710-0.734651I$	$0.87132-3.18706I$	$5.01381+3.27800I$
$u=-0.209148-0.578349I$ $a=\ \ 0.853649+1.048020I$ $b=\ \ 0.028710+0.734651I$	$0.87132+3.18706I$	$5.01381-3.27800I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.389870 + 0.127948I$ $a = -1.64619 - 0.16333I$ $b = 1.53449 - 0.70295I$	$10.26190 - 6.79269I$	0
$u = -1.389870 - 0.127948I$ $a = -1.64619 + 0.16333I$ $b = 1.53449 + 0.70295I$	$10.26190 + 6.79269I$	0
$u = -1.393480 + 0.095069I$ $a = 1.75498 + 0.14814I$ $b = -1.61445 + 0.53714I$	$10.66800 - 1.12994I$	0
$u = -1.393480 - 0.095069I$ $a = 1.75498 - 0.14814I$ $b = -1.61445 - 0.53714I$	$10.66800 + 1.12994I$	0
$u = -0.480609 + 0.312195I$ $a = 0.985140 - 0.644437I$ $b = -0.132342 + 0.952090I$	$-4.31975 + 1.46497I$	$-2.47124 - 1.07580I$
$u = -0.480609 - 0.312195I$ $a = 0.985140 + 0.644437I$ $b = -0.132342 - 0.952090I$	$-4.31975 - 1.46497I$	$-2.47124 + 1.07580I$
$u = -0.496445 + 0.034634I$ $a = -2.58741 + 2.94549I$ $b = -1.039410 + 0.270775I$	$2.87536 - 0.22281I$	$6.45523 + 2.31553I$
$u = -0.496445 - 0.034634I$ $a = -2.58741 - 2.94549I$ $b = -1.039410 - 0.270775I$	$2.87536 + 0.22281I$	$6.45523 - 2.31553I$
$u = -0.440373 + 0.187785I$ $a = 1.93985 + 2.61358I$ $b = 1.123400 + 0.263250I$	$2.83235 - 4.49472I$	$6.56893 + 6.15189I$
$u = -0.440373 - 0.187785I$ $a = 1.93985 - 2.61358I$ $b = 1.123400 - 0.263250I$	$2.83235 + 4.49472I$	$6.56893 - 6.15189I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.46278 + 0.45766I$ $a = -1.66720 - 0.61988I$ $b = 1.47529 - 0.56121I$	$10.5630 - 12.8142I$	0
$u = -1.46278 - 0.45766I$ $a = -1.66720 + 0.61988I$ $b = 1.47529 + 0.56121I$	$10.5630 + 12.8142I$	0
$u = 1.47529 + 0.56121I$ $a = 1.57971 - 0.69835I$ $b = -1.46278 - 0.45766I$	$10.5630 + 12.8142I$	0
$u = 1.47529 - 0.56121I$ $a = 1.57971 + 0.69835I$ $b = -1.46278 + 0.45766I$	$10.5630 - 12.8142I$	0
$u = 0.070577 + 0.397364I$ $a = -1.26496 + 0.85723I$ $b = 1.180890 - 0.101925I$	$1.03755 - 1.42394I$	$2.53124 - 0.77932I$
$u = 0.070577 - 0.397364I$ $a = -1.26496 - 0.85723I$ $b = 1.180890 + 0.101925I$	$1.03755 + 1.42394I$	$2.53124 + 0.77932I$
$u = -1.56842 + 0.37132I$ $a = -1.60212 - 0.39288I$ $b = 1.255770 - 0.318257I$	$4.44605 - 4.92843I$	0
$u = -1.56842 - 0.37132I$ $a = -1.60212 + 0.39288I$ $b = 1.255770 + 0.318257I$	$4.44605 + 4.92843I$	0
$u = 0.021380 + 0.371251I$ $a = -2.49403 - 1.14518I$ $b = -0.721694 - 0.102104I$	$0.94758 + 2.34060I$	$1.25710 - 5.53583I$
$u = 0.021380 - 0.371251I$ $a = -2.49403 + 1.14518I$ $b = -0.721694 + 0.102104I$	$0.94758 - 2.34060I$	$1.25710 + 5.53583I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.57701 + 0.54463I$ $a = -1.50651 + 0.47010I$ $b = 1.279400 + 0.354549I$	$3.13819 + 10.25710I$	0
$u = 1.57701 - 0.54463I$ $a = -1.50651 - 0.47010I$ $b = 1.279400 - 0.354549I$	$3.13819 - 10.25710I$	0
$u = 1.53449 + 0.70295I$ $a = 1.239640 - 0.578553I$ $b = -1.389870 - 0.127948I$	$10.26190 + 6.79269I$	0
$u = 1.53449 - 0.70295I$ $a = 1.239640 + 0.578553I$ $b = -1.389870 + 0.127948I$	$10.26190 - 6.79269I$	0
$u = 1.48991 + 0.81435I$ $a = -1.071690 + 0.537184I$ $b = 1.335810 - 0.021201I$	$8.28003 + 0.08726I$	0
$u = 1.48991 - 0.81435I$ $a = -1.071690 - 0.537184I$ $b = 1.335810 + 0.021201I$	$8.28003 - 0.08726I$	0
$u = -1.61445 + 0.53714I$ $a = 1.36431 + 0.47844I$ $b = -1.393480 + 0.095069I$	$10.66800 - 1.12994I$	0
$u = -1.61445 - 0.53714I$ $a = 1.36431 - 0.47844I$ $b = -1.393480 - 0.095069I$	$10.66800 + 1.12994I$	0
$u = -1.62808 + 0.65945I$ $a = -1.212780 - 0.456745I$ $b = 1.333590 + 0.062848I$	$8.12140 + 5.35202I$	0
$u = -1.62808 - 0.65945I$ $a = -1.212780 + 0.456745I$ $b = 1.333590 - 0.062848I$	$8.12140 - 5.35202I$	0

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.10892+1.76473I$ $a = 0.710356-0.009498I$ $b = -1.158280+0.038901I$	$-2.47417-2.36609I$	0
$u = 0.10892-1.76473I$ $a = 0.710356+0.009498I$ $b = -1.158280-0.038901I$	$-2.47417+2.36609I$	0

III. $\boldsymbol{I_3^u = \langle b-1,\ 18a^2 - 3au + 24a - 2u + 7,\ u^2 + 2\rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix} 0 \\ u \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ 2 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} a \\ 1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} -u \\ u \end{pmatrix}$$
$$a_5 = \begin{pmatrix} 3a+2 \\ -2a-1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} a+1 \\ 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} -1 \\ 0 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} -1 \\ 2 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} 0 \\ -u \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 3a+2 \\ 4a+3 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} 3a - \frac{1}{2}u + 2 \\ -au + 4a - \frac{1}{3}u + \frac{8}{3} \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -12au - 8u + 4$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u-2)^4$
c_2, c_6, c_7 c_{12}	$(u^2+2)^2$
c_3	$(u+1)^4$
c_4	$27(27u^4+18u^3+21u^2+6u+1)$
c_5, c_8	$(u^2-u+1)^2$
c_9	$(u^2+u+1)^2$
c_{10}	$27(27u^4+36u^3+12u^2+1)$
c_{11}	$(u-1)^4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y-4)^4$
c_2, c_6, c_7 c_{12}	$(y+2)^4$
c_3, c_{11}	$(y-1)^4$
c_4	$729(729y^4+810y^3+279y^2+6y+1)$
c_5, c_8, c_9	$(y^2+y+1)^2$
c_{10}	$729(729y^4-648y^3+198y^2+24y+1)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 1.414210I$ $a = -0.870791+0.117851I$ $b = 1.00000$	$-3.28987-2.02988I$	$6.00000+3.46410I$
$u = 1.414210I$ $a = -0.462543+0.117851I$ $b = 1.00000$	$-3.28987+2.02988I$	$6.00000-3.46410I$
$u = -1.414210I$ $a = -0.870791-0.117851I$ $b = 1.00000$	$-3.28987+2.02988I$	$6.00000-3.46410I$
$u = -1.414210I$ $a = -0.462543-0.117851I$ $b = 1.00000$	$-3.28987-2.02988I$	$6.00000+3.46410I$

IV.

$\boldsymbol{I_4^u = \langle 54a^3 - 27a^2 + 58b + 153a - 25,\ 27a^4 - 18a^3 + 57a^2 - 18a + 19,\ u + 1\rangle}$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} a \\ -0.931034a^3 + 0.465517a^2 - 2.63793a + 0.431034 \end{pmatrix}$$

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

$$a_5 = \begin{pmatrix} 0.931034a^3 - 0.465517a^2 + 2.63793a - 0.431034 \\ -1.86207a^3 + 0.931034a^2 - 4.27586a + 0.862069 \end{pmatrix}$$

$$a_{11} = \begin{pmatrix} -0.155172a^3 - 0.672414a^2 - 0.189655a + 1.65517 \\ -2 \end{pmatrix}$$

$$a_3 = \begin{pmatrix} 0.931034a^3 - 0.465517a^2 + 5.63793a - 0.431034 \\ -2.79310a^3 + 1.39655a^2 - 7.91379a + 1.29310 \end{pmatrix}$$

$$a_2 = \begin{pmatrix} -0.465517a^3 + 6.98276a^2 - 0.568966a + 6.96552 \\ -1.39655a^3 - 6.05172a^2 - 1.70690a - 7.10345 \end{pmatrix}$$

$$a_6 = \begin{pmatrix} -2.79310a^3 + 1.39655a^2 - 7.91379a + 1.29310 \\ 4.65517a^3 - 2.32759a^2 + 10.1897a - 2.15517 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 2 \\ -0.155172a^3 - 0.672414a^2 - 0.189655a - 2.34483 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 4 \\ -0.310345a^3 - 1.34483a^2 - 0.379310a - 5.68966 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= -\frac{216}{29}a^3 + \frac{108}{29}a^2 - \frac{264}{29}a + \frac{216}{29}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1, c_2	$(u^2 - u + 1)^2$
c_3, c_5, c_9 c_{11}	$(u^2 + 2)^2$
c_4	$27(27u^4 + 18u^3 + 21u^2 + 6u + 1)$
c_6	$(u^2 + u + 1)^2$
c_7	$(u - 1)^4$
c_8	$(u - 2)^4$
c_{10}	$27(27u^4 + 36u^3 + 12u^2 + 1)$
c_{12}	$(u + 1)^4$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1, c_2, c_6	$(y^2 + y + 1)^2$
c_3, c_5, c_9 c_{11}	$(y + 2)^4$
c_4	$729(729y^4 + 810y^3 + 279y^2 + 6y + 1)$
c_7, c_{12}	$(y - 1)^4$
c_8	$(y - 4)^4$
c_{10}	$729(729y^4 - 648y^3 + 198y^2 + 24y + 1)$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u = -1.00000$ $a = \quad 0.166667 + 1.231480I$ $b = \quad - 1.414210I$	$-3.28987 - 2.02988I$	$6.00000 + 3.46410I$
$u = -1.00000$ $a = \quad 0.166667 - 1.231480I$ $b = \quad 1.414210I$	$-3.28987 + 2.02988I$	$6.00000 - 3.46410I$
$u = -1.00000$ $a = \quad 0.166667 + 0.654134I$ $b = \quad - 1.414210I$	$-3.28987 + 2.02988I$	$6.00000 - 3.46410I$
$u = -1.00000$ $a = \quad 0.166667 - 0.654134I$ $b = \quad 1.414210I$	$-3.28987 - 2.02988I$	$6.00000 + 3.46410I$

V. $I_5^u = \langle b,\ a^2 - a + 1,\ u - 1 \rangle$

(i) Arc colorings

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

$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$

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

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

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

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

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

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

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

$$a_6 = \begin{pmatrix} 0 \\ a \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4a + 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

	Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$u =$	1.00000		
$a =$	$0.500000 + 0.866025I$	$1.64493 - 2.02988I$	$12.00000 + 3.46410I$
$b =$	0		
$u =$	1.00000		
$a =$	$0.500000 - 0.866025I$	$1.64493 + 2.02988I$	$12.00000 - 3.46410I$
$b =$	0		

VI. $\boldsymbol{I_1^v = \langle a,\ b+1,\ v^2-v+1 \rangle}$

(i) Arc colorings

$$a_8 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_{12} = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_1 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_4 = \begin{pmatrix} 0 \\ -1 \end{pmatrix}$$
$$a_7 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_5 = \begin{pmatrix} v-1 \\ -1 \end{pmatrix}$$
$$a_{11} = \begin{pmatrix} 1 \\ 1 \end{pmatrix}$$
$$a_3 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_2 = \begin{pmatrix} 1 \\ 0 \end{pmatrix}$$
$$a_6 = \begin{pmatrix} v \\ 0 \end{pmatrix}$$
$$a_{10} = \begin{pmatrix} 0 \\ 1 \end{pmatrix}$$
$$a_9 = \begin{pmatrix} v \\ v \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 4v + 10$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^v	$\sqrt{-1}(\mathrm{vol} + \sqrt{-1}CS)$	Cusp shape
$v = 0.500000 + 0.866025I$ $a = 0$ $b = -1.00000$	$1.64493 - 2.02988I$	$12.00000 + 3.46410I$
$v = 0.500000 - 0.866025I$ $a = 0$ $b = -1.00000$	$1.64493 + 2.02988I$	$12.00000 - 3.46410I$

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1, c_8	$u^2(u-2)^4(u^2-u+1)^3(u^{14}+6u^{13}+\cdots-8u+1)$ $\cdot(u^{102}+42u^{101}+\cdots+107216u+5776)$
c_2, c_5	$u^2(u^2+2)^2(u^2-u+1)^2(u^2+u+1)$ $\cdot(u^{14}+3u^{12}+6u^{10}+7u^8-2u^7+6u^6-4u^5+6u^4-5u^3+4u^2-4u+1)$ $\cdot(u^{102}-2u^{101}+\cdots+172u+76)$
c_3, c_{12}	$u^2(u-1)^2(u+1)^4(u^2+2)^2$ $\cdot(u^{14}-5u^{12}+10u^{10}+2u^9-5u^8-6u^7-4u^6+4u^5+4u^4+7u^3-1)$ $\cdot(u^{102}-3u^{101}+\cdots+6720u+1228)$
c_4	$1750329(u^2-u+1)^2(27u^4+18u^3+21u^2+6u+1)^2$ $\cdot(49u^{14}-567u^{13}+\cdots-6400u+512)$ $\cdot(7u^{51}+68u^{50}+\cdots-1074u+167)^2$
c_6, c_9	$u^2(u^2+2)^2(u^2-u+1)(u^2+u+1)^2$ $\cdot(u^{14}+3u^{12}+6u^{10}+7u^8-2u^7+6u^6-4u^5+6u^4-5u^3+4u^2-4u+1)$ $\cdot(u^{102}-2u^{101}+\cdots+172u+76)$
c_7, c_{11}	$u^2(u-1)^4(u+1)^2(u^2+2)^2$ $\cdot(u^{14}-5u^{12}+10u^{10}+2u^9-5u^8-6u^7-4u^6+4u^5+4u^4+7u^3-1)$ $\cdot(u^{102}-3u^{101}+\cdots+6720u+1228)$
c_{10}	$1750329(u+1)^4(27u^4+36u^3+12u^2+1)^2$ $\cdot(49u^{14}+567u^{13}+\cdots-256u-32)$ $\cdot(7u^{51}-65u^{50}+\cdots+4991u-373)^2$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1, c_8	$y^2(y-4)^4(y^2+y+1)^3(y^{14}+6y^{13}+\cdots-88y+1)$ $\cdot(y^{102}+42y^{101}+\cdots+456890624y+33362176)$
c_2, c_5, c_6 c_9	$y^2(y+2)^4(y^2+y+1)^3(y^{14}+6y^{13}+\cdots-8y+1)$ $\cdot(y^{102}+42y^{101}+\cdots+107216y+5776)$
c_3, c_7, c_{11} c_{12}	$y^2(y-1)^6(y+2)^4(y^{14}-10y^{13}+\cdots-8y^2+1)$ $\cdot(y^{102}-71y^{101}+\cdots-636032y+1507984)$
c_4	$3063651608241(y^2+y+1)^2(729y^4+810y^3+279y^2+6y+1)^2$ $\cdot(2401y^{14}+13671y^{13}+\cdots-8978432y+262144)$ $\cdot(49y^{51}+738y^{50}+\cdots-123072y-27889)^2$
c_{10}	$3063651608241(y-1)^4(729y^4-648y^3+198y^2+24y+1)^2$ $\cdot(2401y^{14}-27489y^{13}+\cdots-15872y+1024)$ $\cdot(49y^{51}-2279y^{50}+\cdots+13376175y-139129)^2$