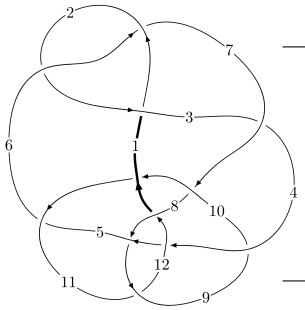
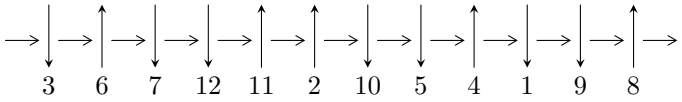
$12a_{0264}$ $(K12a_{0264})$



A knot diagram[1]

Linearized knot diagam



Solving Sequence

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

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

$$\begin{aligned}
I_1^u &= \langle -71842065294u^{61} + 662395268252u^{60} + \cdots + 947973767b + 56178798404, \\
&\quad -56178798404u^{61} + 433767120342u^{60} + \cdots + 947973767a - 15382227914, \\
&\quad u^{62} - 9u^{61} + \cdots - 9u + 1\rangle \\
I_2^u &= \langle -1.15142 \times 10^{23}a^3u^{30} + 3.05276 \times 10^{22}a^2u^{30} + \cdots + 4.65181 \times 10^{23}a - 9.65820 \times 10^{21}, \\
&\quad 3u^{30}a^3 - u^{30}a^2 + \cdots - 18a + 10,\ u^{31} + 2u^{30} + \cdots + 2u + 1\rangle \\
I_3^u &= \langle 44u^{32} - 157u^{31} + \cdots + 13b + 41,\ 41u^{32} - 120u^{31} + \cdots + 13a - 46,\ u^{33} - 4u^{32} + \cdots + 4u - 1\rangle \\
I_4^u &= \langle au + b + u,\ a^2 + a + u + 1,\ u^2 + u + 1\rangle \\
I_5^u &= \langle au + b + 1,\ a^2 - au - a - 1,\ u^2 + u + 1\rangle
\end{aligned}$$

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

* 6 irreducible components of $\dim_{\mathbb{C}} = 0$, with total 229 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.

$\boldsymbol{I_1^u = \langle -7.18\times 10^{10}u^{61}+6.62\times 10^{11}u^{60}+\cdots+9.48\times 10^{8}b+5.62\times 10^{10},\ -5.62\times 10^{10}u^{61}+4.34\times 10^{11}u^{60}+\cdots+9.48\times 10^{8}a-1.54\times 10^{10},\ u^{62}-9u^{61}+\cdots-9u+1\rangle}$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} u^4+u^2+1 \\ u^6+2u^4+u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} 59.2620u^{61}-457.573u^{60}+\cdots-124.491u+16.2264 \\ 75.7849u^{61}-698.749u^{60}+\cdots+549.584u-59.2620 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} 26.0492u^{61}-110.514u^{60}+\cdots-664.765u+81.5999 \\ 123.929u^{61}-1041.10u^{60}+\cdots+317.043u-26.0492 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 21.8645u^{61}-173.195u^{60}+\cdots-70.1773u+7.31002 \\ 12.1565u^{61}-154.001u^{60}+\cdots+304.732u-34.9708 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} -33.7261u^{61}+221.896u^{60}+\cdots+215.277u-30.0257 \\ -86.1071u^{61}+778.556u^{60}+\cdots-566.052u+61.5872 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} 25.5468u^{61}-184.840u^{60}+\cdots-106.937u+11.1098 \\ 45.3238u^{61}-418.805u^{60}+\cdots+361.540u-39.5968 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 27.2394u^{61}-187.426u^{60}+\cdots-205.689u+23.8141 \\ 59.1448u^{61}-545.854u^{60}+\cdots+444.357u-48.0120 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes

$= \frac{219232172873}{947973767}u^{61}-\frac{1832051343164}{947973767}u^{60}+\cdots+\frac{602326693966}{947973767}u-\frac{55701717280}{947973767}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{62}+33u^{61}+\cdots+25u+1$
c_2, c_6	$u^{62}-9u^{61}+\cdots-9u+1$
c_3	$u^{62}+9u^{61}+\cdots+7773u+1609$
c_4, c_8	$u^{62}+6u^{60}+\cdots-u+1$
c_5, c_9	$u^{62}-u^{61}+\cdots+187u+73$
c_7, c_{10}	$u^{62}+u^{61}+\cdots+5u+1$
c_{11}	$u^{62}-47u^{61}+\cdots-u+1$
c_{12}	$u^{62}-59u^{61}+\cdots-16642998272u+536870912$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{62} + y^{61} + \cdots + 65y + 1$
c_2, c_6	$y^{62} + 33y^{61} + \cdots + 25y + 1$
c_3	$y^{62} - 25y^{61} + \cdots + 73803251y + 2588881$
c_4, c_8	$y^{62} + 12y^{61} + \cdots + 11y + 1$
c_5, c_9	$y^{62} + 31y^{61} + \cdots + 117455y + 5329$
c_7, c_{10}	$y^{62} - y^{61} + \cdots + 19y + 1$
c_{11}	$y^{62} - 17y^{61} + \cdots + 51y + 1$
c_{12}	$y^{62} - 7y^{61} + \cdots + 2449958197289549824y + 288230376151711744$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.525310+0.867009I$ $a=-0.600768+0.046229I$ $b=\ \ 0.275509-0.545156I$	$-0.65471-6.07228I$	0
$u=-0.525310-0.867009I$ $a=-0.600768-0.046229I$ $b=\ \ 0.275509+0.545156I$	$-0.65471+6.07228I$	0
$u=\ \ 0.926844+0.250739I$ $a=\ \ 0.830188-0.409540I$ $b=\ \ 0.872143-0.171419I$	$-4.43605+4.89104I$	0
$u=\ \ 0.926844-0.250739I$ $a=\ \ 0.830188+0.409540I$ $b=\ \ 0.872143+0.171419I$	$-4.43605-4.89104I$	0
$u=-0.743064+0.765206I$ $a=-0.217081-0.304286I$ $b=\ \ 0.394147+0.059992I$	$-1.25651+8.15591I$	0
$u=-0.743064-0.765206I$ $a=-0.217081+0.304286I$ $b=\ \ 0.394147-0.059992I$	$-1.25651-8.15591I$	0
$u=\ \ 0.905499+0.201824I$ $a=-1.164320-0.612671I$ $b=-0.930636-0.789761I$	$-1.16212-6.88778I$	0
$u=\ \ 0.905499-0.201824I$ $a=-1.164320+0.612671I$ $b=-0.930636+0.789761I$	$-1.16212+6.88778I$	0
$u=-0.588989+0.909257I$ $a=-0.357883-0.232559I$ $b=\ \ 0.422245-0.188433I$	$3.61259-5.49425I$	0
$u=-0.588989-0.909257I$ $a=-0.357883+0.232559I$ $b=\ \ 0.422245+0.188433I$	$3.61259+5.49425I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.704169+0.833864I$ $a=\ \ 0.375620-0.256229I$ $b=-0.050840+0.493644I$	$-1.47564-13.57830I$	0
$u=-0.704169-0.833864I$ $a=\ \ 0.375620+0.256229I$ $b=-0.050840-0.493644I$	$-1.47564+13.57830I$	0
$u=\ \ 0.363326+1.041380I$ $a=-0.006840+1.261370I$ $b=-1.316050+0.451165I$	$-0.62412+1.89501I$	0
$u=\ \ 0.363326-1.041380I$ $a=-0.006840-1.261370I$ $b=-1.316050-0.451165I$	$-0.62412-1.89501I$	0
$u=\ \ 0.859506+0.242025I$ $a=\ \ 2.19391+0.43936I$ $b=\ \ 1.77934+0.90861I$	$-4.9023-15.9432I$	0
$u=\ \ 0.859506-0.242025I$ $a=\ \ 2.19391-0.43936I$ $b=\ \ 1.77934-0.90861I$	$-4.9023+15.9432I$	0
$u=-0.611207+0.637669I$ $a=\ \ 0.531727-0.177328I$ $b=-0.211918+0.447450I$	$4.39375+0.78474I$	0
$u=-0.611207-0.637669I$ $a=\ \ 0.531727+0.177328I$ $b=-0.211918-0.447450I$	$4.39375-0.78474I$	0
$u=-0.079319+1.136990I$ $a=-0.480569+0.187083I$ $b=-0.174592-0.561239I$	$-4.25152+0.98540I$	0
$u=-0.079319-1.136990I$ $a=-0.480569-0.187083I$ $b=-0.174592+0.561239I$	$-4.25152-0.98540I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.322729 + 0.794916I$ $a = -0.159263 + 0.827046I$ $b = -0.708831 + 0.140311I$	$-0.36795 + 1.81592I$	0
$u = 0.322729 - 0.794916I$ $a = -0.159263 - 0.827046I$ $b = -0.708831 - 0.140311I$	$-0.36795 - 1.81592I$	0
$u = 0.822129 + 0.164447I$ $a = -2.15991 - 0.84806I$ $b = -1.63626 - 1.05240I$	$-4.15394 - 6.65764I$	0
$u = 0.822129 - 0.164447I$ $a = -2.15991 + 0.84806I$ $b = -1.63626 + 1.05240I$	$-4.15394 + 6.65764I$	0
$u = 0.467496 + 1.073050I$ $a = 0.99436 - 1.41095I$ $b = 1.97888 + 0.40739I$	$-2.20413 + 1.48132I$	0
$u = 0.467496 - 1.073050I$ $a = 0.99436 + 1.41095I$ $b = 1.97888 - 0.40739I$	$-2.20413 - 1.48132I$	0
$u = 0.447709 + 1.086620I$ $a = -1.01373 - 2.04574I$ $b = 1.76907 - 2.01743I$	$-2.32380 + 5.58924I$	0
$u = 0.447709 - 1.086620I$ $a = -1.01373 + 2.04574I$ $b = 1.76907 + 2.01743I$	$-2.32380 - 5.58924I$	0
$u = -0.447214 + 1.106010I$ $a = 0.151688 + 0.548614I$ $b = -0.674609 - 0.077580I$	$-2.58526 - 1.53767I$	0
$u = -0.447214 - 1.106010I$ $a = 0.151688 - 0.548614I$ $b = -0.674609 + 0.077580I$	$-2.58526 + 1.53767I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.465829+1.109780I$ $a=-0.305120-0.386147I$ $b=\ 0.570673-0.158738I$	$-2.44735-5.91573I$	0
$u=-0.465829-1.109780I$ $a=-0.305120+0.386147I$ $b=\ 0.570673+0.158738I$	$-2.44735+5.91573I$	0
$u=\ 0.524715+1.119440I$ $a=\ 0.30721+1.72675I$ $b=-1.77180+1.24996I$	$0.65537+5.40224I$	0
$u=\ 0.524715-1.119440I$ $a=\ 0.30721-1.72675I$ $b=-1.77180-1.24996I$	$0.65537-5.40224I$	0
$u=\ 0.684789+0.295063I$ $a=\ 1.77135+0.60140I$ $b=\ 1.035550+0.934494I$	$3.04799-0.75044I$	$4.58779+0.I$
$u=\ 0.684789-0.295063I$ $a=\ 1.77135-0.60140I$ $b=\ 1.035550-0.934494I$	$3.04799+0.75044I$	$4.58779+0.I$
$u=\ 0.285665+1.242200I$ $a=-0.25269+1.39333I$ $b=-1.80297+0.08414I$	$-9.6661-12.2478I$	0
$u=\ 0.285665-1.242200I$ $a=-0.25269-1.39333I$ $b=-1.80297-0.08414I$	$-9.6661+12.2478I$	0
$u=\ 0.355011+1.228510I$ $a=\ 0.60399-1.37956I$ $b=\ 1.90923+0.25225I$	$-8.41459-2.70649I$	0
$u=\ 0.355011-1.228510I$ $a=\ 0.60399+1.37956I$ $b=\ 1.90923-0.25225I$	$-8.41459+2.70649I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.426262 + 0.581117I$ $a = 1.029220 + 0.592225I$ $b = 0.094565 + 0.850540I$	$0.53461 + 1.44743I$	$2.35332 - 4.97569I$
$u = 0.426262 - 0.581117I$ $a = 1.029220 - 0.592225I$ $b = 0.094565 - 0.850540I$	$0.53461 - 1.44743I$	$2.35332 + 4.97569I$
$u = -0.914984 + 0.919264I$ $a = -0.0316931 + 0.0671937I$ $b = -0.0327701 - 0.0906155I$	$4.13536 - 3.34743I$	0
$u = -0.914984 - 0.919264I$ $a = -0.0316931 - 0.0671937I$ $b = -0.0327701 + 0.0906155I$	$4.13536 + 3.34743I$	0
$u = 0.276810 + 1.269650I$ $a = 0.405750 + 0.751740I$ $b = -0.842133 + 0.723251I$	$-9.47922 + 8.77165I$	0
$u = 0.276810 - 1.269650I$ $a = 0.405750 - 0.751740I$ $b = -0.842133 - 0.723251I$	$-9.47922 - 8.77165I$	0
$u = -0.386760 + 0.580436I$ $a = 0.762720 + 0.409085I$ $b = -0.532437 + 0.284493I$	$0.08971 + 1.99827I$	$0. - 5.14014I$
$u = -0.386760 - 0.580436I$ $a = 0.762720 - 0.409085I$ $b = -0.532437 - 0.284493I$	$0.08971 - 1.99827I$	$0. + 5.14014I$
$u = 0.527206 + 1.191840I$ $a = -0.36417 - 1.97114I$ $b = 2.15730 - 1.47324I$	$-7.19182 + 11.60850I$	0
$u = 0.527206 - 1.191840I$ $a = -0.36417 + 1.97114I$ $b = 2.15730 + 1.47324I$	$-7.19182 - 11.60850I$	0

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.563841 + 1.186620I$ $a = 0.03603 + 2.02308I$ $b = -2.38032 + 1.18345I$	$-7.7309 + 21.1689I$	0
$u = 0.563841 - 1.186620I$ $a = 0.03603 - 2.02308I$ $b = -2.38032 - 1.18345I$	$-7.7309 - 21.1689I$	0
$u = 0.306314 + 1.296820I$ $a = 0.256862 - 0.683661I$ $b = 0.965266 + 0.123689I$	$-6.02592 - 2.76578I$	0
$u = 0.306314 - 1.296820I$ $a = 0.256862 + 0.683661I$ $b = 0.965266 - 0.123689I$	$-6.02592 + 2.76578I$	0
$u = 0.561587 + 1.211320I$ $a = -0.292964 - 1.250370I$ $b = 1.35008 - 1.05707I$	$-4.20911 + 12.20800I$	0
$u = 0.561587 - 1.211320I$ $a = -0.292964 + 1.250370I$ $b = 1.35008 + 1.05707I$	$-4.20911 - 12.20800I$	0
$u = 0.572365 + 1.220510I$ $a = -0.301969 + 0.816851I$ $b = -1.169810 + 0.098980I$	$-7.42381 + 0.58624I$	0
$u = 0.572365 - 1.220510I$ $a = -0.301969 - 0.816851I$ $b = -1.169810 - 0.098980I$	$-7.42381 - 0.58624I$	0
$u = -0.340885 + 0.253081I$ $a = 1.47965 - 0.49678I$ $b = -0.378665 + 0.543817I$	$0.02739 + 2.02423I$	$0.22056 - 4.25353I$
$u = -0.340885 - 0.253081I$ $a = 1.47965 + 0.49678I$ $b = -0.378665 - 0.543817I$	$0.02739 - 2.02423I$	$0.22056 + 4.25353I$

Solutions to I_1^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \quad 0.107927 + 0.259314I$		
$a = -4.52132 - 0.11032I$	$0.00080 - 2.02201I$	$-0.23371 + 3.69190I$
$b = -0.459364 - 1.184350I$		
$u = \quad 0.107927 - 0.259314I$		
$a = -4.52132 + 0.11032I$	$0.00080 + 2.02201I$	$-0.23371 - 3.69190I$
$b = -0.459364 + 1.184350I$		

II. $\boldsymbol{I_2^u = \langle -1.15 \times 10^{23} a^3 u^{30} + 3.05 \times 10^{22} a^2 u^{30} + \cdots + 4.65 \times 10^{23} a - 9.66 \times 10^{21},\ 3u^{30}a^3 - u^{30}a^2 + \cdots - 18a + 10,\ u^{31} + 2u^{30} + \cdots + 2u + 1\rangle}$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^6 + 2u^4 + u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} a \\ 0.451411a^3u^{30} - 0.119683a^2u^{30} + \cdots - 1.82373a + 0.0378647 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.373853a^3u^{30} + 0.531329a^2u^{30} + \cdots + 0.699566a + 0.411044 \\ -0.0166007a^3u^{30} - 0.209233a^2u^{30} + \cdots - 1.71928a + 1.22047 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} 0.119608a^3u^{30} + 0.0998373a^2u^{30} + \cdots + 0.965753a + 0.360922 \\ 0.696660a^3u^{30} + 0.0996759a^2u^{30} + \cdots - 2.18360a + 0.496833 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 0.251392a^3u^{30} - 0.224937a^2u^{30} + \cdots - 0.101854a + 0.472548 \\ 0.593381a^3u^{30} - 0.540369a^2u^{30} + \cdots - 1.15752a - 1.74635 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -0.141193a^3u^{30} + 0.628129a^2u^{30} + \cdots + 1.85936a - 0.310951 \\ 0.399349a^3u^{30} + 0.335752a^2u^{30} + \cdots - 2.04734a - 0.151275 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.110556a^3u^{30} - 0.680306a^2u^{30} + \cdots + 0.0928968a + 2.38372 \\ 0.658693a^3u^{30} - 0.0994206a^2u^{30} + \cdots - 2.94567a - 3.78264 \end{pmatrix}$$

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -\frac{1789628072329663146377 40}{25507128451702529751 1259}u^{30}a^3 + \frac{1852262034999569053971 52}{25507128451702529751 1259}u^{30}a^2 + \cdots + \frac{1121798392287197993176964}{2550712845170252975 11259}a - \frac{1126780589381091404557979}{2550712845170252975 11259}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$(u^{31}+16u^{30}+\cdots-2u-1)^4$
c_2, c_6	$(u^{31}+2u^{30}+\cdots+2u+1)^4$
c_3	$(u^{31}-2u^{30}+\cdots-26u+5)^4$
c_4, c_8	$u^{124}-21u^{122}+\cdots-u+1$
c_5, c_9	$u^{124}+29u^{122}+\cdots+14899434913u+3986390929$
c_7, c_{10}	$u^{124}+5u^{123}+\cdots-2429506u+230137$
c_{11}	$(u^{31}+15u^{30}+\cdots+6u+4)^4$
c_{12}	$(u^2+u+1)^{62}$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$(y^{31}+32y^{29}+\cdots+14y-1)^4$
c_2, c_6	$(y^{31}+16y^{30}+\cdots-2y-1)^4$
c_3	$(y^{31}-16y^{30}+\cdots-534y-25)^4$
c_4, c_8	$y^{124}-42y^{123}+\cdots-289y+1$
c_5, c_9	$y^{124}+58y^{123}+\cdots+5.62\times10^{20}y+1.59\times10^{19}$
c_7, c_{10}	$y^{124}-53y^{123}+\cdots-2641994793520y+52963038769$
c_{11}	$(y^{31}-5y^{30}+\cdots+236y-16)^4$
c_{12}	$(y^2+y+1)^{62}$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.700328 + 0.800493I$ $a = 0.664259 + 0.251566I$ $b = 0.314563 - 0.171232I$	$-0.98466 + 4.68217I$	$-15.4216 - 9.2051I$
$u = 0.700328 + 0.800493I$ $a = -0.260578 + 0.651220I$ $b = -0.0501855 - 0.0149205I$	$-0.984660 + 0.622402I$	$-15.4216 - 2.2769I$
$u = 0.700328 + 0.800493I$ $a = 0.073571 - 0.328596I$ $b = 0.263822 + 0.707914I$	$-0.98466 + 4.68217I$	$-15.4216 - 9.2051I$
$u = 0.700328 + 0.800493I$ $a = -0.0416266 + 0.0262754I$ $b = -0.703787 + 0.247476I$	$-0.984660 + 0.622402I$	$-15.4216 - 2.2769I$
$u = 0.700328 - 0.800493I$ $a = 0.664259 - 0.251566I$ $b = 0.314563 + 0.171232I$	$-0.98466 - 4.68217I$	$-15.4216 + 9.2051I$
$u = 0.700328 - 0.800493I$ $a = -0.260578 - 0.651220I$ $b = -0.0501855 + 0.0149205I$	$-0.984660 - 0.622402I$	$-15.4216 + 2.2769I$
$u = 0.700328 - 0.800493I$ $a = 0.073571 + 0.328596I$ $b = 0.263822 - 0.707914I$	$-0.98466 - 4.68217I$	$-15.4216 + 9.2051I$
$u = 0.700328 - 0.800493I$ $a = -0.0416266 - 0.0262754I$ $b = -0.703787 - 0.247476I$	$-0.984660 - 0.622402I$	$-15.4216 + 2.2769I$
$u = 0.576719 + 0.939494I$ $a = 1.059950 + 0.394036I$ $b = -0.162297 + 0.738120I$	$0.15499 + 3.45295I$	$-0.03280 + 3.60229I$
$u = 0.576719 + 0.939494I$ $a = -0.928139 + 0.888938I$ $b = -0.367406 - 0.553035I$	$0.154987 - 0.606820I$	$-0.03280 + 10.53049I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.576719 + 0.939494I$ $a = 0.493608 + 0.475757I$ $b = 0.241098 + 1.223060I$	$0.15499 + 3.45295I$	$-0.03280 + 3.60229I$
$u = 0.576719 + 0.939494I$ $a = -0.601901 + 0.021584I$ $b = -1.37043 - 0.35931I$	$0.154987 - 0.606820I$	$-0.03280 + 10.53049I$
$u = 0.576719 - 0.939494I$ $a = 1.059950 - 0.394036I$ $b = -0.162297 - 0.738120I$	$0.15499 - 3.45295I$	$-0.03280 - 3.60229I$
$u = 0.576719 - 0.939494I$ $a = -0.928139 - 0.888938I$ $b = -0.367406 + 0.553035I$	$0.154987 + 0.606820I$	$-0.03280 - 10.53049I$
$u = 0.576719 - 0.939494I$ $a = 0.493608 - 0.475757I$ $b = 0.241098 - 1.223060I$	$0.15499 - 3.45295I$	$-0.03280 - 3.60229I$
$u = 0.576719 - 0.939494I$ $a = -0.601901 - 0.021584I$ $b = -1.37043 + 0.35931I$	$0.154987 + 0.606820I$	$-0.03280 - 10.53049I$
$u = -0.847519 + 0.248601I$ $a = -1.246040 - 0.305531I$ $b = -1.274570 - 0.076430I$	$-4.12908 + 2.96247I$	$-9.07968 - 2.45371I$
$u = -0.847519 + 0.248601I$ $a = 1.36039 + 0.48922I$ $b = 1.132000 - 0.050822I$	$-4.12908 + 2.96247I$	$-9.07968 - 2.45371I$
$u = -0.847519 + 0.248601I$ $a = -2.01636 + 0.13113I$ $b = -1.71522 + 0.79951I$	$-4.12908 + 7.02224I$	$-9.07968 - 9.38191I$
$u = -0.847519 + 0.248601I$ $a = 2.11826 - 0.32201I$ $b = 1.67630 - 0.61241I$	$-4.12908 + 7.02224I$	$-9.07968 - 9.38191I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.847519-0.248601I$ $a=-1.246040+0.305531I$ $b=-1.274570+0.076430I$	$-4.12908-2.96247I$	$-9.07968+2.45371I$
$u=-0.847519-0.248601I$ $a=\ \ 1.36039-0.48922I$ $b=\ \ 1.132000+0.050822I$	$-4.12908-2.96247I$	$-9.07968+2.45371I$
$u=-0.847519-0.248601I$ $a=-2.01636-0.13113I$ $b=-1.71522-0.79951I$	$-4.12908-7.02224I$	$-9.07968+9.38191I$
$u=-0.847519-0.248601I$ $a=\ \ 2.11826+0.32201I$ $b=\ \ 1.67630+0.61241I$	$-4.12908-7.02224I$	$-9.07968+9.38191I$
$u=\ \ 0.613097+0.623277I$ $a=\ \ 0.929351-0.319011I$ $b=\ \ 0.783857-0.797190I$	$1.06858+5.29669I$	$3.13719-12.06996I$
$u=\ \ 0.613097+0.623277I$ $a=\ \ 0.770806+0.783171I$ $b=-0.402554+0.590660I$	$1.06858+1.23693I$	$3.13719-5.14176I$
$u=\ \ 0.613097+0.623277I$ $a=\ \ 0.158747+0.802021I$ $b=-0.015554+0.960586I$	$1.06858+1.23693I$	$3.13719-5.14176I$
$u=\ \ 0.613097+0.623277I$ $a=-0.021312-1.278600I$ $b=\ \ 0.768615+0.383659I$	$1.06858+5.29669I$	$3.13719-12.06996I$
$u=\ \ 0.613097-0.623277I$ $a=\ \ 0.929351+0.319011I$ $b=\ \ 0.783857+0.797190I$	$1.06858-5.29669I$	$3.13719+12.06996I$
$u=\ \ 0.613097-0.623277I$ $a=\ \ 0.770806-0.783171I$ $b=-0.402554-0.590660I$	$1.06858-1.23693I$	$3.13719+5.14176I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.613097 - 0.623277I$ $a = 0.158747 - 0.802021I$ $b = -0.015554 - 0.960586I$	$1.06858 - 1.23693I$	$3.13719 + 5.14176I$
$u = 0.613097 - 0.623277I$ $a = -0.021312 + 1.278600I$ $b = 0.768615 - 0.383659I$	$1.06858 - 5.29669I$	$3.13719 + 12.06996I$
$u = -0.358609 + 1.074610I$ $a = 0.228824 - 0.595956I$ $b = -1.38323 - 0.88688I$	$-3.94298 - 0.01595I$	$-5.20942 - 0.29784I$
$u = -0.358609 + 1.074610I$ $a = -0.35610 + 1.40602I$ $b = 0.558364 + 0.459613I$	$-3.94298 - 0.01595I$	$-5.20942 - 0.29784I$
$u = -0.358609 + 1.074610I$ $a = 0.26809 + 2.06495I$ $b = 2.35757 + 1.38040I$	$-3.94298 + 4.04382I$	$-5.20942 - 7.22605I$
$u = -0.358609 + 1.074610I$ $a = 0.49708 - 2.35976I$ $b = -2.31516 - 0.45241I$	$-3.94298 + 4.04382I$	$-5.20942 - 7.22605I$
$u = -0.358609 - 1.074610I$ $a = 0.228824 + 0.595956I$ $b = -1.38323 + 0.88688I$	$-3.94298 + 0.01595I$	$-5.20942 + 0.29784I$
$u = -0.358609 - 1.074610I$ $a = -0.35610 - 1.40602I$ $b = 0.558364 - 0.459613I$	$-3.94298 + 0.01595I$	$-5.20942 + 0.29784I$
$u = -0.358609 - 1.074610I$ $a = 0.26809 - 2.06495I$ $b = 2.35757 - 1.38040I$	$-3.94298 - 4.04382I$	$-5.20942 + 7.22605I$
$u = -0.358609 - 1.074610I$ $a = 0.49708 + 2.35976I$ $b = -2.31516 + 0.45241I$	$-3.94298 - 4.04382I$	$-5.20942 + 7.22605I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.066980+0.843210I$ $a=\ \ 0.016270+0.584419I$ $b=-0.446554-1.324890I$	$-3.47334+0.60290I$	$-10.56232+2.65852I$
$u=-0.066980+0.843210I$ $a=-0.11619+1.41223I$ $b=\ \ 0.48383+1.68216I$	$-3.47334+4.66267I$	$-10.56232-4.26969I$
$u=-0.066980+0.843210I$ $a=-1.51959+0.65030I$ $b=-0.493877-0.025426I$	$-3.47334+0.60290I$	$-10.56232+2.65852I$
$u=-0.066980+0.843210I$ $a=\ \ 1.93715-0.72768I$ $b=-1.183030-0.192565I$	$-3.47334+4.66267I$	$-10.56232-4.26969I$
$u=-0.066980-0.843210I$ $a=\ \ 0.016270-0.584419I$ $b=-0.446554+1.324890I$	$-3.47334-0.60290I$	$-10.56232-2.65852I$
$u=-0.066980-0.843210I$ $a=-0.11619-1.41223I$ $b=\ \ 0.48383-1.68216I$	$-3.47334-4.66267I$	$-10.56232+4.26969I$
$u=-0.066980-0.843210I$ $a=-1.51959-0.65030I$ $b=-0.493877+0.025426I$	$-3.47334-0.60290I$	$-10.56232-2.65852I$
$u=-0.066980-0.843210I$ $a=\ \ 1.93715+0.72768I$ $b=-1.183030+0.192565I$	$-3.47334-4.66267I$	$-10.56232+4.26969I$
$u=\ \ 0.423601+1.144370I$ $a=\ \ 0.65472-1.44085I$ $b=\ \ 2.71106-0.05324I$	$-6.95850+1.60558I$	$-12.76845-2.57313I$
$u=\ \ 0.423601+1.144370I$ $a=\ \ 1.51311+1.07231I$ $b=-1.80665+1.78737I$	$-6.95850-2.45419I$	$-12.76845+4.35507I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.423601 + 1.144370I$ $a = 0.85970 + 1.89697I$ $b = -0.58615 + 2.18578I$	$-6.95850 - 2.45419I$	$-12.76845 + 4.35507I$
$u = 0.423601 + 1.144370I$ $a = 0.73033 - 2.09871I$ $b = 1.92620 + 0.13890I$	$-6.95850 + 1.60558I$	$-12.76845 - 2.57313I$
$u = 0.423601 - 1.144370I$ $a = 0.65472 + 1.44085I$ $b = 2.71106 + 0.05324I$	$-6.95850 - 1.60558I$	$-12.76845 + 2.57313I$
$u = 0.423601 - 1.144370I$ $a = 1.51311 - 1.07231I$ $b = -1.80665 - 1.78737I$	$-6.95850 + 2.45419I$	$-12.76845 - 4.35507I$
$u = 0.423601 - 1.144370I$ $a = 0.85970 - 1.89697I$ $b = -0.58615 - 2.18578I$	$-6.95850 + 2.45419I$	$-12.76845 - 4.35507I$
$u = 0.423601 - 1.144370I$ $a = 0.73033 + 2.09871I$ $b = 1.92620 - 0.13890I$	$-6.95850 - 1.60558I$	$-12.76845 + 2.57313I$
$u = 0.470485 + 1.145180I$ $a = -1.46047 + 0.81577I$ $b = -2.80957 - 0.91703I$	$-6.62488 + 10.46240I$	$-11.4154 - 12.6305I$
$u = 0.470485 + 1.145180I$ $a = -0.55916 - 1.69926I$ $b = 2.44278 - 1.29459I$	$-6.62488 + 6.40260I$	$-11.41543 - 5.70235I$
$u = 0.470485 + 1.145180I$ $a = -0.21742 - 2.22241I$ $b = 1.68289 - 1.43982I$	$-6.62488 + 6.40260I$	$-11.41543 - 5.70235I$
$u = 0.470485 + 1.145180I$ $a = -1.54751 + 1.81760I$ $b = -1.62134 - 1.28870I$	$-6.62488 + 10.46240I$	$-11.4154 - 12.6305I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.470485 - 1.145180I$ $a = -1.46047 - 0.81577I$ $b = -2.80957 + 0.91703I$	$-6.62488 - 10.46240I$	$-11.4154 + 12.6305I$
$u = 0.470485 - 1.145180I$ $a = -0.55916 + 1.69926I$ $b = 2.44278 + 1.29459I$	$-6.62488 - 6.40260I$	$-11.41543 + 5.70235I$
$u = 0.470485 - 1.145180I$ $a = -0.21742 + 2.22241I$ $b = 1.68289 + 1.43982I$	$-6.62488 - 6.40260I$	$-11.41543 + 5.70235I$
$u = 0.470485 - 1.145180I$ $a = -1.54751 - 1.81760I$ $b = -1.62134 + 1.28870I$	$-6.62488 - 10.46240I$	$-11.4154 + 12.6305I$
$u = -0.526321 + 1.124110I$ $a = -0.266485 + 1.038710I$ $b = 1.52572 + 0.52112I$	$-2.67637 - 7.44811I$	$-2.45568 + 6.41849I$
$u = -0.526321 + 1.124110I$ $a = -0.140992 - 1.291250I$ $b = -1.027370 - 0.846255I$	$-2.67637 - 7.44811I$	$-2.45568 + 6.41849I$
$u = -0.526321 + 1.124110I$ $a = 0.20472 + 2.27955I$ $b = 2.70261 + 1.56380I$	$-2.67637 - 11.50790I$	$-2.45568 + 13.34669I$
$u = -0.526321 + 1.124110I$ $a = 0.21773 - 2.50616I$ $b = -2.67022 - 0.96965I$	$-2.67637 - 11.50790I$	$-2.45568 + 13.34669I$
$u = -0.526321 - 1.124110I$ $a = -0.266485 - 1.038710I$ $b = 1.52572 - 0.52112I$	$-2.67637 + 7.44811I$	$-2.45568 - 6.41849I$
$u = -0.526321 - 1.124110I$ $a = -0.140992 + 1.291250I$ $b = -1.027370 + 0.846255I$	$-2.67637 + 7.44811I$	$-2.45568 - 6.41849I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.526321-1.124110I$ $a=\ \ 0.20472-2.27955I$ $b=\ \ 2.70261-1.56380I$	$-2.67637+11.50790I$	$-2.45568-13.34669I$
$u=-0.526321-1.124110I$ $a=\ \ 0.21773+2.50616I$ $b=-2.67022+0.96965I$	$-2.67637+11.50790I$	$-2.45568-13.34669I$
$u=-0.442008+1.171670I$ $a=-0.866279-1.066100I$ $b=-2.24665+0.12196I$	$-7.34243-2.16784I$	$-12.88583+0.23702I$
$u=-0.442008+1.171670I$ $a=-0.97809+1.33461I$ $b=\ \ 1.80402+1.41454I$	$-7.34243-6.22761I$	$-12.8858+7.1652I$
$u=-0.442008+1.171670I$ $a=\ \ 0.72436+1.64421I$ $b=\ \ 1.63202-0.54377I$	$-7.34243-2.16784I$	$-12.88583+0.23702I$
$u=-0.442008+1.171670I$ $a=\ \ 0.54839-1.74657I$ $b=-1.13140-1.73591I$	$-7.34243-6.22761I$	$-12.8858+7.1652I$
$u=-0.442008-1.171670I$ $a=-0.866279+1.066100I$ $b=-2.24665-0.12196I$	$-7.34243+2.16784I$	$-12.88583-0.23702I$
$u=-0.442008-1.171670I$ $a=-0.97809-1.33461I$ $b=\ \ 1.80402-1.41454I$	$-7.34243+6.22761I$	$-12.8858-7.1652I$
$u=-0.442008-1.171670I$ $a=\ \ 0.72436-1.64421I$ $b=\ \ 1.63202+0.54377I$	$-7.34243+2.16784I$	$-12.88583-0.23702I$
$u=-0.442008-1.171670I$ $a=\ \ 0.54839+1.74657I$ $b=-1.13140+1.73591I$	$-7.34243+6.22761I$	$-12.8858-7.1652I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.688548+0.289520I$ $a=-0.714895+0.059146I$ $b=-0.872929+0.636144I$	$-0.25228+2.77775I$	$1.37986-3.06700I$
$u=-0.688548+0.289520I$ $a=\ \ 1.40742-0.33210I$ $b=\ \ 0.475116-0.247702I$	$-0.25228+2.77775I$	$1.37986-3.06700I$
$u=-0.688548+0.289520I$ $a=\ \ 2.29627-0.40579I$ $b=\ \ 1.99892-0.79393I$	$-0.25228+6.83751I$	$1.37986-9.99520I$
$u=-0.688548+0.289520I$ $a=-2.87892-0.05748I$ $b=-1.46361+0.94422I$	$-0.25228+6.83751I$	$1.37986-9.99520I$
$u=-0.688548-0.289520I$ $a=-0.714895-0.059146I$ $b=-0.872929-0.636144I$	$-0.25228-2.77775I$	$1.37986+3.06700I$
$u=-0.688548-0.289520I$ $a=\ \ 1.40742+0.33210I$ $b=\ \ 0.475116+0.247702I$	$-0.25228-2.77775I$	$1.37986+3.06700I$
$u=-0.688548-0.289520I$ $a=\ \ 2.29627+0.40579I$ $b=\ \ 1.99892+0.79393I$	$-0.25228-6.83751I$	$1.37986+9.99520I$
$u=-0.688548-0.289520I$ $a=-2.87892+0.05748I$ $b=-1.46361-0.94422I$	$-0.25228-6.83751I$	$1.37986+9.99520I$
$u=-0.282165+1.228290I$ $a=-0.498515+0.928241I$ $b=\ \ 1.191030+0.667601I$	$-8.85098-0.63724I$	$-14.1587+1.3834I$
$u=-0.282165+1.228290I$ $a=\ \ 0.304688-1.039660I$ $b=-0.999487-0.874238I$	$-8.85098-0.63724I$	$-14.1587+1.3834I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.282165+1.228290I$ $a=-0.084827-1.247050I$ $b=-1.83040-0.31025I$	$-8.85098+3.42253I$	$-14.1587-5.5448I$
$u=-0.282165+1.228290I$ $a=\ \ 0.08525+1.47062I$ $b=\ \ 1.55567+0.24768I$	$-8.85098+3.42253I$	$-14.1587-5.5448I$
$u=-0.282165-1.228290I$ $a=-0.498515-0.928241I$ $b=\ \ 1.191030-0.667601I$	$-8.85098+0.63724I$	$-14.1587-1.3834I$
$u=-0.282165-1.228290I$ $a=\ \ 0.304688+1.039660I$ $b=-0.999487+0.874238I$	$-8.85098+0.63724I$	$-14.1587-1.3834I$
$u=-0.282165-1.228290I$ $a=-0.084827+1.247050I$ $b=-1.83040+0.31025I$	$-8.85098-3.42253I$	$-14.1587+5.5448I$
$u=-0.282165-1.228290I$ $a=\ \ 0.08525-1.47062I$ $b=\ \ 1.55567-0.24768I$	$-8.85098-3.42253I$	$-14.1587+5.5448I$
$u=-0.729174$ $a=-1.50657+0.71407I$ $b=-1.38557+1.01783I$	$-3.98778+2.02988I$	$-9.47960-3.46410I$
$u=-0.729174$ $a=-1.50657-0.71407I$ $b=-1.38557-1.01783I$	$-3.98778-2.02988I$	$-9.47960+3.46410I$
$u=-0.729174$ $a=\ \ 1.90020+1.39586I$ $b=\ \ 1.098550+0.520685I$	$-3.98778-2.02988I$	$-9.47960+3.46410I$
$u=-0.729174$ $a=\ \ 1.90020-1.39586I$ $b=\ \ 1.098550-0.520685I$	$-3.98778+2.02988I$	$-9.47960-3.46410I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.280769+0.672881I$ $a=\ \ 0.220942+0.003201I$ $b=-0.06271-1.71546I$	$-2.59857-2.66219I$	$-5.29896+7.91147I$
$u=-0.280769+0.672881I$ $a=-2.13825+0.98541I$ $b=-0.064187+0.147769I$	$-2.59857-2.66219I$	$-5.29896+7.91147I$
$u=-0.280769+0.672881I$ $a=\ \ 2.42403-0.96197I$ $b=\ \ 1.45441-1.22723I$	$-2.59857-6.72196I$	$-5.2990+14.8397I$
$u=-0.280769+0.672881I$ $a=-2.32154-1.19278I$ $b=-0.03330+1.90118I$	$-2.59857-6.72196I$	$-5.2990+14.8397I$
$u=-0.280769-0.672881I$ $a=\ \ 0.220942-0.003201I$ $b=-0.06271+1.71546I$	$-2.59857+2.66219I$	$-5.29896-7.91147I$
$u=-0.280769-0.672881I$ $a=-2.13825-0.98541I$ $b=-0.064187-0.147769I$	$-2.59857+2.66219I$	$-5.29896-7.91147I$
$u=-0.280769-0.672881I$ $a=\ \ 2.42403+0.96197I$ $b=\ \ 1.45441+1.22723I$	$-2.59857+6.72196I$	$-5.2990-14.8397I$
$u=-0.280769-0.672881I$ $a=-2.32154+1.19278I$ $b=-0.03330-1.90118I$	$-2.59857+6.72196I$	$-5.2990-14.8397I$
$u=-0.562423+1.180730I$ $a=-0.482522-1.144740I$ $b=-1.74339-0.25581I$	$-6.91463-8.15357I$	$-10.99915+5.78993I$
$u=-0.562423+1.180730I$ $a=\ \ 0.396671+1.287600I$ $b=\ \ 1.62301+0.07410I$	$-6.91463-8.15357I$	$-10.99915+5.78993I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.562423+1.180730I$ $a=\ 0.05322+1.82079I$ $b=\ 2.39734+0.94781I$	$-6.91463-12.21330I$	$-10.9991+12.7181I$
$u=-0.562423+1.180730I$ $a=-0.13401-1.96656I$ $b=-2.17978-0.96122I$	$-6.91463-12.21330I$	$-10.9991+12.7181I$
$u=-0.562423-1.180730I$ $a=-0.482522+1.144740I$ $b=-1.74339+0.25581I$	$-6.91463+8.15357I$	$-10.99915-5.78993I$
$u=-0.562423-1.180730I$ $a=\ 0.396671-1.287600I$ $b=\ 1.62301-0.07410I$	$-6.91463+8.15357I$	$-10.99915-5.78993I$
$u=-0.562423-1.180730I$ $a=\ 0.05322-1.82079I$ $b=\ 2.39734-0.94781I$	$-6.91463+12.21330I$	$-10.9991-12.7181I$
$u=-0.562423-1.180730I$ $a=-0.13401+1.96656I$ $b=-2.17978+0.96122I$	$-6.91463+12.21330I$	$-10.9991-12.7181I$
$u=\ 0.635699+0.077135I$ $a=\ 1.73187-0.93607I$ $b=\ 1.49174-1.51912I$	$-3.69862-6.25262I$	$-8.98921+9.37331I$
$u=\ 0.635699+0.077135I$ $a=-2.30894-0.24953I$ $b=-1.59915-0.98084I$	$-3.69862-2.19285I$	$-8.98921+2.44511I$
$u=\ 0.635699+0.077135I$ $a=-2.66357-1.21974I$ $b=-1.44854-0.33672I$	$-3.69862-2.19285I$	$-8.98921+2.44511I$
$u=\ 0.635699+0.077135I$ $a=\ 2.02681-2.63561I$ $b=\ 1.173150-0.461472I$	$-3.69862-6.25262I$	$-8.98921+9.37331I$

Solutions to I_2^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.635699 - 0.077135I$ $a = 1.73187 + 0.93607I$ $b = 1.49174 + 1.51912I$	$-3.69862 + 6.25262I$	$-8.98921 - 9.37331I$
$u = 0.635699 - 0.077135I$ $a = -2.30894 + 0.24953I$ $b = -1.59915 + 0.98084I$	$-3.69862 + 2.19285I$	$-8.98921 - 2.44511I$
$u = 0.635699 - 0.077135I$ $a = -2.66357 + 1.21974I$ $b = -1.44854 + 0.33672I$	$-3.69862 + 2.19285I$	$-8.98921 - 2.44511I$
$u = 0.635699 - 0.077135I$ $a = 2.02681 + 2.63561I$ $b = 1.173150 + 0.461472I$	$-3.69862 + 6.25262I$	$-8.98921 - 9.37331I$

III. $I_3^u = \langle 44u^{32} - 157u^{31} + \cdots + 13b + 41,\ 41u^{32} - 120u^{31} + \cdots + 13a - 46,\ u^{33} - 4u^{32} + \cdots + 4u - 1\rangle$

(i) Arc colorings

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

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

$$a_2 = \begin{pmatrix} 1 \\ u^2 \end{pmatrix}$$

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

$$a_4 = \begin{pmatrix} u^4 + u^2 + 1 \\ u^6 + 2u^4 + u^2 \end{pmatrix}$$

$$a_{10} = \begin{pmatrix} -3.15385u^{32} + 9.23077u^{31} + \cdots - 1.53846u + 3.53846 \\ -3.38462u^{32} + 12.0769u^{31} + \cdots + 16.1538u - 3.15385 \end{pmatrix}$$

$$a_8 = \begin{pmatrix} -0.153846u^{32} - 1.76923u^{31} + \cdots - 12.5385u + 1.53846 \\ -2.38462u^{32} + 10.0769u^{31} + \cdots + 3.15385u - 0.153846 \end{pmatrix}$$

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

$$a_{11} = \begin{pmatrix} -1.84615u^{32} + 5.76923u^{31} + \cdots - 4.46154u + 3.46154 \\ -2.15385u^{32} + 10.2308u^{31} + \cdots + 21.4615u - 4.46154 \end{pmatrix}$$

$$a_5 = \begin{pmatrix} 9.23077u^{32} - 34.8462u^{31} + \cdots - 36.6923u + 6.69231 \\ 0.769231u^{32} - 10.1538u^{31} + \cdots - 31.3077u + 10.3077 \end{pmatrix}$$

$$a_9 = \begin{pmatrix} -3.15385u^{32} + 9.23077u^{31} + \cdots - 7.53846u + 4.53846 \\ -3.84615u^{32} + 14.7692u^{31} + \cdots + 21.5385u - 4.53846 \end{pmatrix}$$

$$a_{12} = \begin{pmatrix} 0.153846u^{32} + 3.76923u^{31} + \cdots + 28.5385u - 7.53846 \\ 4.84615u^{32} - 18.7692u^{31} + \cdots - 10.5385u + 0.538462 \end{pmatrix}$$

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= \frac{4}{13}u^{32} - \frac{188}{13}u^{31} + \cdots - \frac{857}{13}u + \frac{194}{13}$

(iv) u-Polynomials at the component

Crossings	u-Polynomials at each crossing
c_1	$u^{33} - 18u^{32} + \cdots - 8u + 1$
c_2	$u^{33} - 4u^{32} + \cdots + 4u - 1$
c_3	$u^{33} + 4u^{32} + \cdots + 6u - 1$
c_4, c_8	$u^{33} - u^{32} + \cdots - 2u + 1$
c_5, c_9	$u^{33} + 8u^{31} + \cdots + 9u^2 - 1$
c_6	$u^{33} + 4u^{32} + \cdots + 4u + 1$
c_7, c_{10}	$u^{33} - 8u^{32} + \cdots + 14u - 1$
c_{11}	$u^{33} + 22u^{32} + \cdots + 1638u + 169$
c_{12}	$u^{33} + 11u^{32} + \cdots + 19u + 1$

(v) Riley Polynomials at the component

Crossings	Riley Polynomials at each crossing
c_1	$y^{33} + 2y^{32} + \cdots + 16y - 1$
c_2, c_6	$y^{33} + 18y^{32} + \cdots - 8y - 1$
c_3	$y^{33} - 8y^{32} + \cdots - 2y - 1$
c_4, c_8	$y^{33} - 11y^{32} + \cdots + 18y - 1$
c_5, c_9	$y^{33} + 16y^{32} + \cdots + 18y - 1$
c_7, c_{10}	$y^{33} - 16y^{32} + \cdots + 62y - 1$
c_{11}	$y^{33} - 12y^{32} + \cdots - 205166y - 28561$
c_{12}	$y^{33} - 7y^{32} + \cdots + 53y - 1$

(vi) Complex Volumes and Cusp Shapes

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.624701+0.783289I$ $a=-0.402434+0.260106I$ $b=\ \ 0.047662-0.477710I$	$-0.24436-4.51186I$	$-1.39084+6.52044I$
$u=-0.624701-0.783289I$ $a=-0.402434-0.260106I$ $b=\ \ 0.047662+0.477710I$	$-0.24436+4.51186I$	$-1.39084-6.52044I$
$u=-0.616920+0.819893I$ $a=\ \ 0.159793+0.333234I$ $b=-0.371795-0.074566I$	$-0.334625-0.327489I$	$-1.91642-2.33968I$
$u=-0.616920-0.819893I$ $a=\ \ 0.159793-0.333234I$ $b=-0.371795+0.074566I$	$-0.334625+0.327489I$	$-1.91642+2.33968I$
$u=-0.094611+1.064520I$ $a=-0.610207+0.316676I$ $b=-0.279375-0.679538I$	$-4.53724+0.98979I$	$-24.3179-4.9151I$
$u=-0.094611-1.064520I$ $a=-0.610207-0.316676I$ $b=-0.279375+0.679538I$	$-4.53724-0.98979I$	$-24.3179+4.9151I$
$u=\ \ 0.825311+0.216879I$ $a=-2.04456-0.42568I$ $b=-1.59508-0.79474I$	$-3.26501-6.10201I$	$-2.66167+3.54169I$
$u=\ \ 0.825311-0.216879I$ $a=-2.04456+0.42568I$ $b=-1.59508+0.79474I$	$-3.26501+6.10201I$	$-2.66167-3.54169I$
$u=\ \ 0.409481+1.075810I$ $a=\ \ 0.95565+2.32259I$ $b=-2.10735+1.97916I$	$-4.69247-2.96530I$	$-9.07068+0.57735I$
$u=\ \ 0.409481-1.075810I$ $a=\ \ 0.95565-2.32259I$ $b=-2.10735-1.97916I$	$-4.69247+2.96530I$	$-9.07068-0.57735I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = \ 0.513867 + 1.089260I$ $a = -1.05738 + 1.71820I$ $b = -2.41490 - 0.26883I$	$-3.92239 + 10.03720I$	$-7.05193 - 9.50792I$
$u = \ 0.513867 - 1.089260I$ $a = -1.05738 - 1.71820I$ $b = -2.41490 + 0.26883I$	$-3.92239 - 10.03720I$	$-7.05193 + 9.50792I$
$u = -0.089152 + 0.776504I$ $a = -1.336450 + 0.049295I$ $b = \ 0.080870 - 1.042160I$	$-3.33632 - 1.97963I$	$-13.24495 + 3.27568I$
$u = -0.089152 - 0.776504I$ $a = -1.336450 - 0.049295I$ $b = \ 0.080870 + 1.042160I$	$-3.33632 + 1.97963I$	$-13.24495 - 3.27568I$
$u = -0.449810 + 1.152880I$ $a = -0.025864 - 0.429678I$ $b = \ 0.507002 + 0.163455I$	$-6.18796 - 9.08570I$	$-8.45367 + 7.16094I$
$u = -0.449810 - 1.152880I$ $a = -0.025864 + 0.429678I$ $b = \ 0.507002 - 0.163455I$	$-6.18796 + 9.08570I$	$-8.45367 - 7.16094I$
$u = \ 0.442886 + 1.166860I$ $a = \ 0.02512 - 1.82358I$ $b = \ 2.13897 - 0.77832I$	$-7.28553 + 4.16568I$	$-13.00961 - 3.76204I$
$u = \ 0.442886 - 1.166860I$ $a = \ 0.02512 + 1.82358I$ $b = \ 2.13897 + 0.77832I$	$-7.28553 - 4.16568I$	$-13.00961 + 3.76204I$
$u = -0.436048 + 1.179340I$ $a = \ 0.152591 + 0.284968I$ $b = -0.402611 + 0.055697I$	$-6.23886 + 0.79398I$	$-8.97582 - 1.52794I$
$u = -0.436048 - 1.179340I$ $a = \ 0.152591 - 0.284968I$ $b = -0.402611 - 0.055697I$	$-6.23886 - 0.79398I$	$-8.97582 + 1.52794I$

Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u = 0.320239 + 1.222920I$ $a = 0.288602 - 1.331550I$ $b = 1.72080 - 0.07348I$	$-7.72797 - 2.38604I$	$-7.36564 + 0.94630I$
$u = 0.320239 - 1.222920I$ $a = 0.288602 + 1.331550I$ $b = 1.72080 + 0.07348I$	$-7.72797 + 2.38604I$	$-7.36564 - 0.94630I$
$u = 0.718329$ $a = -2.09595$ $b = -1.50558$	-3.96826	-9.55110
$u = 0.899316 + 0.922061I$ $a = 0.153573 + 0.101917I$ $b = 0.044137 + 0.233259I$	$4.19248 + 3.30525I$	$42.0821 + 30.3850I$
$u = 0.899316 - 0.922061I$ $a = 0.153573 - 0.101917I$ $b = 0.044137 - 0.233259I$	$4.19248 - 3.30525I$	$42.0821 - 30.3850I$
$u = 0.547434 + 1.181830I$ $a = -0.06374 - 1.85461I$ $b = 2.15694 - 1.09061I$	$-6.12590 + 11.16710I$	$-5.65453 - 6.80113I$
$u = 0.547434 - 1.181830I$ $a = -0.06374 + 1.85461I$ $b = 2.15694 + 1.09061I$	$-6.12590 - 11.16710I$	$-5.65453 + 6.80113I$
$u = -0.693444 + 0.060916I$ $a = -0.329512 + 0.418469I$ $b = 0.203006 - 0.310257I$	$-2.94763 - 5.05460I$	$-3.66921 + 4.28026I$
$u = -0.693444 - 0.060916I$ $a = -0.329512 - 0.418469I$ $b = 0.203006 + 0.310257I$	$-2.94763 + 5.05460I$	$-3.66921 - 4.28026I$
$u = 0.534172 + 0.413595I$ $a = 1.29582 - 1.77161I$ $b = 1.42492 - 0.41040I$	$-1.89031 - 5.68794I$	$-3.45615 + 5.59146I$

	Solutions to I_3^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=$	$0.534172-0.413595I$		
$a=$	$1.29582+1.77161I$	$-1.89031+5.68794I$	$-3.45615-5.59146I$
$b=$	$1.42492+0.41040I$		
$u=$	$0.152814+0.579850I$		
$a=$	$2.88698-0.27320I$	$-2.68939+5.96377I$	$-6.06757-2.79841I$
$b=$	$0.59959+1.63227I$		
$u=$	$0.152814-0.579850I$		
$a=$	$2.88698+0.27320I$	$-2.68939-5.96377I$	$-6.06757+2.79841I$
$b=$	$0.59959-1.63227I$		

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 11u + 3$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_4^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.500000+0.866025I$ $a=\ \ 0.070696-0.758745I$ $b=-0.121744-1.306620I$	$-4.05977I$	$-2.50000+9.52628I$
$u=-0.500000+0.866025I$ $a=-1.070700+0.758745I$ $b=\ \ 0.621744+0.440597I$	$-4.05977I$	$-2.50000+9.52628I$
$u=-0.500000-0.866025I$ $a=\ \ 0.070696+0.758745I$ $b=-0.121744+1.306620I$	$4.05977I$	$-2.50000-9.52628I$
$u=-0.500000-0.866025I$ $a=-1.070700-0.758745I$ $b=\ \ 0.621744-0.440597I$	$4.05977I$	$-2.50000-9.52628I$

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

(i) Arc colorings

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

(ii) Obstruction class $= 1$

(iii) Cusp Shapes $= 3u - 1$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

Solutions to I_5^u	$\sqrt{-1}(\mathrm{vol}+\sqrt{-1}CS)$	Cusp shape
$u=-0.500000+0.866025I$ $a=-0.692440+0.318148I$ $b=-1.070700+0.758745I$	0	$-2.50000+2.59808I$
$u=-0.500000+0.866025I$ $a=\ \ 1.192440+0.547877I$ $b=\ \ 0.070696-0.758745I$	0	$-2.50000+2.59808I$
$u=-0.500000-0.866025I$ $a=-0.692440-0.318148I$ $b=-1.070700-0.758745I$	0	$-2.50000-2.59808I$
$u=-0.500000-0.866025I$ $a=\ \ 1.192440-0.547877I$ $b=\ \ 0.070696+0.758745I$	0	$-2.50000-2.59808I$

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

(i) Arc colorings

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

(ii) Obstruction class $= -1$

(iii) Cusp Shapes $= -4b-2$

(iv) u-Polynomials at the component

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

(v) Riley Polynomials at the component

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

(vi) Complex Volumes and Cusp Shapes

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

VII. u-Polynomials

Crossings	u-Polynomials at each crossing
c_1	$u^2(u^2-u+1)^4(u^{31}+16u^{30}+\cdots-2u-1)^4$ $\cdot(u^{33}-18u^{32}+\cdots-8u+1)(u^{62}+33u^{61}+\cdots+25u+1)$
c_2	$u^2(u^2+u+1)^4(u^{31}+2u^{30}+\cdots+2u+1)^4(u^{33}-4u^{32}+\cdots+4u-1)$ $\cdot(u^{62}-9u^{61}+\cdots-9u+1)$
c_3	$u^2(u^2-u+1)^4(u^{31}-2u^{30}+\cdots-26u+5)^4$ $\cdot(u^{33}+4u^{32}+\cdots+6u-1)(u^{62}+9u^{61}+\cdots+7773u+1609)$
c_4, c_8	$(u^2+u+1)(u^4-u^3+2u^2-2u+1)(u^4+2u^3+2u^2+u+1)$ $\cdot(u^{33}-u^{32}+\cdots-2u+1)(u^{62}+6u^{60}+\cdots-u+1)$ $\cdot(u^{124}-21u^{122}+\cdots-u+1)$
c_5, c_9	$(u^2+u+1)(u^4-u^3+2u^2-2u+1)(u^4+2u^3+2u^2+u+1)$ $\cdot(u^{33}+8u^{31}+\cdots+9u^2-1)(u^{62}-u^{61}+\cdots+187u+73)$ $\cdot(u^{124}+29u^{122}+\cdots+14899434913u+3986390929)$
c_6	$u^2(u^2-u+1)^4(u^{31}+2u^{30}+\cdots+2u+1)^4(u^{33}+4u^{32}+\cdots+4u+1)$ $\cdot(u^{62}-9u^{61}+\cdots-9u+1)$
c_7, c_{10}	$((u^2-u+1)^4)(u^2+u+1)(u^{33}-8u^{32}+\cdots+14u-1)$ $\cdot(u^{62}+u^{61}+\cdots+5u+1)(u^{124}+5u^{123}+\cdots-2429506u+230137)$
c_{11}	$u^{10}(u^{31}+15u^{30}+\cdots+6u+4)^4(u^{33}+22u^{32}+\cdots+1638u+169)$ $\cdot(u^{62}-47u^{61}+\cdots-u+1)$
c_{12}	$((u^2-u+1)^5)(u^2+u+1)^{62}(u^{33}+11u^{32}+\cdots+19u+1)$ $\cdot(u^{62}-59u^{61}+\cdots-16642998272u+536870912)$

VIII. Riley Polynomials

Crossings	Riley Polynomials at each crossing
c_1	$y^2(y^2+y+1)^4(y^{31}+32y^{29}+\cdots+14y-1)^4$ $\cdot(y^{33}+2y^{32}+\cdots+16y-1)(y^{62}+y^{61}+\cdots+65y+1)$
c_2, c_6	$y^2(y^2+y+1)^4(y^{31}+16y^{30}+\cdots-2y-1)^4$ $\cdot(y^{33}+18y^{32}+\cdots-8y-1)(y^{62}+33y^{61}+\cdots+25y+1)$
c_3	$y^2(y^2+y+1)^4(y^{31}-16y^{30}+\cdots-534y-25)^4$ $\cdot(y^{33}-8y^{32}+\cdots-2y-1)$ $\cdot(y^{62}-25y^{61}+\cdots+73803251y+2588881)$
c_4, c_8	$(y^2+y+1)(y^4+2y^2+3y+1)(y^4+3y^3+2y^2+1)$ $\cdot(y^{33}-11y^{32}+\cdots+18y-1)(y^{62}+12y^{61}+\cdots+11y+1)$ $\cdot(y^{124}-42y^{123}+\cdots-289y+1)$
c_5, c_9	$(y^2+y+1)(y^4+2y^2+3y+1)(y^4+3y^3+2y^2+1)$ $\cdot(y^{33}+16y^{32}+\cdots+18y-1)(y^{62}+31y^{61}+\cdots+117455y+5329)$ $\cdot(y^{124}+58y^{123}+\cdots+5.62\times10^{20}y+1.59\times10^{19})$
c_7, c_{10}	$((y^2+y+1)^5)(y^{33}-16y^{32}+\cdots+62y-1)(y^{62}-y^{61}+\cdots+19y+1)$ $\cdot(y^{124}-53y^{123}+\cdots-2641994793520y+52963038769)$
c_{11}	$y^{10}(y^{31}-5y^{30}+\cdots+236y-16)^4$ $\cdot(y^{33}-12y^{32}+\cdots-205166y-28561)(y^{62}-17y^{61}+\cdots+51y+1)$
c_{12}	$((y^2+y+1)^{67})(y^{33}-7y^{32}+\cdots+53y-1)$ $\cdot(y^{62}-7y^{61}+\cdots+2449958197289549824y+288230376151711744)$