THE CENTER OF HECKE-CLIFFORD SUPERALGERA

Got 0: 1,
Got 1: T_1,
Got 2: T_2,
Got 3: c_1,
Got 4: c_2,
Got 5: c_3,
Got 6: T_1T_2,
Got 7: T_2T_1,
Got 8: T_2c_1,
Got 9: T_2c_2,
Got 10: T_2c_3,
Got 11: T_1c_1,
Got 12: c_1c_2,
Got 13: c_1c_3,
Got 14: T_1c_2,
Got 15: c_2c_3,
Got 16: T_1c_3,
Got 17: $T_2T_1c_3$,
Got 18: $T_1c_1c_2$,
Got 19: $T_2c_1c_2$,
Got 20: $T_2c_1c_3$,
Got 21: $T_1c_1c_3$,
Got 22: $T_2c_2c_3$,
Got 23: $T_1T_2c_1$,
Got 24: $T_1c_2c_3$,
Got 25: $T_1T_2c_2$,
Got 26: $c_1c_2c_3$,
Got 27: $T_1T_2c_3$,
Got 28: $T_1T_2T_1$,
Got 29: $T_2T_1c_1$,
Got 30: $T_2T_1c_2$,
Got 31: $T_1T_2T_1c_1$,
Got 32: $T_1T_2c_1c_2$,
Got 33: $T_1c_1c_2c_3$,
Got 34: $T_2T_1c_1c_2$,
Got 35: $T_2T_1c_1c_3$,
Got 36: $T_1T_2c_1c_3$,
Got 37: $T_2T_1c_2c_3$,
Got 38: $T_1T_2T_1c_2$,
Got 39: $T_1T_2c_2c_3$,
Got 40: $T_1T_2T_1c_3$,
Got 41: $T_2c_1c_2c_3$,
Got 42: $T_1T_2T_1c_2c_3$,

Got 43: $T_2T_1c_1c_2c_3$,
Got 44: $T_1T_2c_1c_2c_3$,
Got 45: $T_1T_2T_1c_1c_3$,
Got 46: $T_1T_2T_1c_1c_2$,
Got 47: $T_1T_2T_1c_1c_2c_3$,
Bases: 48.
Assume z is in center, and

$$\begin{aligned}z = a_1 &+ a_2T_1 + a_3T_2 + a_4c_1 + a_5c_2 + a_6c_3 + a_7T_1T_2 + a_8T_2T_1 + a_9T_2c_1\\ &+ a_{10}T_2c_2 + a_{11}T_2c_3 + a_{12}T_1c_1 + a_{13}c_1c_2 + a_{14}c_1c_3 + a_{15}T_1c_2 + a_{16}c_2c_3\\ &+ a_{17}T_1c_3 + a_{18}T_2T_1c_3 + a_{19}T_1c_1c_2 + a_{20}T_2c_1c_2 + a_{21}T_2c_1c_3 + a_{22}T_1c_1c_3\\ &+ a_{23}T_2c_2c_3 + a_{24}T_1T_2c_1 + a_{25}T_1c_2c_3 + a_{26}T_1T_2c_2 + a_{27}c_1c_2c_3\\ &+ a_{28}T_1T_2c_3 + a_{29}T_1T_2T_1 + a_{30}T_2T_1c_1 + a_{31}T_2T_1c_2 + a_{32}T_1T_2T_1c_1\\ &+ a_{33}T_1T_2c_1c_2 + a_{34}T_1c_1c_2c_3 + a_{35}T_2T_1c_1c_2 + a_{36}T_2T_1c_1c_3\\ &+ a_{37}T_1T_2c_1c_3 + a_{38}T_2T_1c_2c_3 + a_{39}T_1T_2T_1c_2 + a_{40}T_1T_2c_2c_3\\ &+ a_{41}T_1T_2T_1c_3 + a_{42}T_2c_1c_2c_3 + a_{43}T_1T_2T_1c_2c_3 + a_{44}T_2T_1c_1c_2c_3\\ &+ a_{45}T_1T_2c_1c_2c_3 + a_{46}T_1T_2T_1c_1c_3 + a_{47}T_1T_2T_1c_1c_2 + a_{48}T_1T_2T_1c_1c_2c_3\end{aligned}$$

Round 2, Calculating $T_1z = zT_1$, We got 48 equations .
Totally 8 solutions, dup count: 0.

$$\begin{aligned}a_{19} &= 0\\ a_{13} &= 0\\ a_{34} &= 0\\ a_{27} &= 0\\ a_9 &= qa_{39}\\ a_{20} &= -qa_{47}\\ a_{21} &= qa_{43}\\ a_{42} &= -qa_{48}\end{aligned}$$

Center:

$$\begin{aligned}z = a_1 &+ a_2T_1 + a_3T_2 + a_4c_1 + a_5c_2 + a_6c_3 + a_7T_1T_2 + a_8T_2T_1 + qa_{39}T_2c_1\\ &+ a_{10}T_2c_2 + a_{11}T_2c_3 + a_{12}T_1c_1 + a_{14}c_1c_3 + a_{15}T_1c_2 + a_{16}c_2c_3 + a_{17}T_1c_3\\ &+ a_{18}T_2T_1c_3 - qa_{47}T_2c_1c_2 + qa_{43}T_2c_1c_3 + a_{22}T_1c_1c_3 + a_{23}T_2c_2c_3\\ &+ a_{24}T_1T_2c_1 + a_{25}T_1c_2c_3 + a_{26}T_1T_2c_2 + a_{28}T_1T_2c_3 + a_{29}T_1T_2T_1\\ &+ a_{30}T_2T_1c_1 + a_{31}T_2T_1c_2 + a_{32}T_1T_2T_1c_1 + a_{33}T_1T_2c_1c_2 + a_{35}T_2T_1c_1c_2\\ &+ a_{36}T_2T_1c_1c_3 + a_{37}T_1T_2c_1c_3 + a_{38}T_2T_1c_2c_3 + a_{39}T_1T_2T_1c_2\\ &+ a_{40}T_1T_2c_2c_3 + a_{41}T_1T_2T_1c_3 - qa_{48}T_2c_1c_2c_3 + a_{43}T_1T_2T_1c_2c_3\\ &+ a_{44}T_2T_1c_1c_2c_3 + a_{45}T_1T_2c_1c_2c_3 + a_{46}T_1T_2T_1c_1c_3 + a_{47}T_1T_2T_1c_1c_2\\ &+ a_{48}T_1T_2T_1c_1c_2c_3\end{aligned}$$

Round 3, Calculating $T_2z = zT_2$, We got 48 equations .

Totally 20 solutions, dup count: 0.

$$
\begin{aligned}
a_{19} &= 0\\
a_{13} &= 0\\
a_{34} &= 0\\
a_{27} &= 0\\
a_{9} &= qa_{39}\\
a_{20} &= -qa_{47}\\
a_{21} &= -qa_{47}\\
a_{42} &= 0\\
a_{23} &= 0\\
a_{16} &= 0\\
a_{48} &= 0\\
a_{46} &= 0\\
a_{14} &= -qa_{47} + q^2a_{47}\\
a_{15} &= qa_{41}\\
a_{43} &= -a_{47}\\
a_{25} &= -qa_{43}\\
a_{24} &= a_{30}\\
a_{35} &= a_{37}\\
a_{33} &= a_{36}\\
a_{44} &= -a_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &+ a_2T_1 + a_3T_2 + a_4c_1 + a_5c_2 + a_6c_3 + a_7T_1T_2 + a_8T_2T_1 + qa_{39}T_2c_1\\
&+ a_{10}T_2c_2 + a_{11}T_2c_3 + a_{12}T_1c_1 - qa_{47}c_1c_3 + q^2a_{47}c_1c_3 + qa_{41}T_1c_2\\
&+ a_{17}T_1c_3 + a_{18}T_2T_1c_3 - qa_{47}T_2c_1c_2 - qa_{47}T_2c_1c_3 + a_{22}T_1c_1c_3\\
&+ a_{30}T_1T_2c_1 - qa_{43}T_1c_2c_3 + a_{26}T_1T_2c_2 + a_{28}T_1T_2c_3 + a_{29}T_1T_2T_1\\
&+ a_{30}T_2T_1c_1 + a_{31}T_2T_1c_2 + a_{32}T_1T_2T_1c_1 + a_{36}T_1T_2c_1c_2 + a_{37}T_2T_1c_1c_2\\
&+ a_{36}T_2T_1c_1c_3 + a_{37}T_1T_2c_1c_3 + a_{38}T_2T_1c_2c_3 + a_{39}T_1T_2T_1c_2\\
&+ a_{40}T_1T_2c_2c_3 + a_{41}T_1T_2T_1c_3 - a_{47}T_1T_2T_1c_2c_3 - a_{45}T_2T_1c_1c_2c_3\\
&+ a_{45}T_1T_2c_1c_2c_3 + a_{47}T_1T_2T_1c_1c_2
\end{aligned}
$$

Round 4, Calculating $c_1z = zc_1$, We got 37 equations .
Totally 26 solutions, dup count: 0.

$$
\begin{aligned}
a_{19} &= 0\\
a_{13} &= 0\\
a_{34} &= 0\\
a_{27} &= 0\\
a_{9} &= qa_{39}\\
a_{20} &= 0\\
a_{21} &= 0\\
a_{42} &= 0\\
a_{23} &= 0\\
a_{16} &= 0\\
a_{48} &= 0\\
a_{46} &= 0\\
a_{14} &= 0\\
a_{15} &= qa_{41}\\
a_{43} &= 0\\
a_{25} &= -qa_{43}\\
a_{24} &= a_{30}\\
a_{35} &= a_{37}\\
a_{33} &= a_{40}\\
a_{44} &= -a_{45}\\
a_{47} &= 0\\
a_{7} &= a_{37}\\
a_{28} &= a_{30}\\
a_{26} &= a_{45}\\
a_{32} &= a_{41}\\
a_{36} &= a_{40}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &+ a_2T_1 + a_3T_2 + a_4c_1 + a_5c_2 + a_6c_3 + a_{37}T_1T_2 + a_8T_2T_1 + qa_{39}T_2c_1\\
&+ a_{10}T_2c_2 + a_{11}T_2c_3 + a_{12}T_1c_1 + qa_{41}T_1c_2 + a_{17}T_1c_3 + a_{18}T_2T_1c_3\\
&+ a_{22}T_1c_1c_3 + a_{30}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{30}T_1T_2c_3 + a_{29}T_1T_2T_1\\
&+ a_{30}T_2T_1c_1 + a_{31}T_2T_1c_2 + a_{41}T_1T_2T_1c_1 + a_{40}T_1T_2c_1c_2 + a_{37}T_2T_1c_1c_2\\
&+ a_{40}T_2T_1c_1c_3 + a_{37}T_1T_2c_1c_3 + a_{38}T_2T_1c_2c_3 + a_{39}T_1T_2T_1c_2\\
&+ a_{40}T_1T_2c_2c_3 + a_{41}T_1T_2T_1c_3 - a_{45}T_2T_1c_1c_2c_3 + a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 5, Calculating $c_2z = zc_2$, We got 31 equations .
Totally 33 solutions, dup count: 0.

$$
\begin{aligned}
a_{19} &= 0 \\
a_{13} &= 0 \\
a_{34} &= 0 \\
a_{27} &= 0 \\
a_9 &= qa_{39} \\
a_{20} &= 0 \\
a_{21} &= 0 \\
a_{42} &= 0 \\
a_{23} &= 0 \\
a_{16} &= 0 \\
a_{48} &= 0 \\
a_{46} &= 0 \\
a_{14} &= 0 \\
a_{15} &= 0 \\
a_{43} &= 0 \\
a_{25} &= -qa_{43} \\
a_{24} &= a_{45} \\
a_{35} &= -a_{40} \\
a_{33} &= a_{40} \\
a_{44} &= -a_{45} \\
a_{47} &= 0 \\
a_7 &= -a_{40} \\
a_{28} &= a_{45} \\
a_{26} &= a_{45} \\
a_{32} &= 0 \\
a_{36} &= a_{40} \\
a_3 &= 0 \\
a_{41} &= 0 \\
a_{10} &= a_{11} \\
a_8 &= a_{38} \\
a_{18} &= a_{31} \\
a_{30} &= a_{45} \\
a_{37} &= -a_{40}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 + a_2T_1 + a_4c_1 + a_5c_2 + a_6c_3 - a_{40}T_1T_2 + a_{38}T_2T_1 + qa_{39}T_2c_1 + a_{11}T_2c_2 \\
+ a_{11}T_2c_3 + a_{12}T_1c_1 + a_{17}T_1c_3 + a_{31}T_2T_1c_3 + a_{22}T_1c_1c_3 + a_{45}T_1T_2c_1
\end{aligned}
$$

$$+ a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 + a_{29}T_1T_2T_1 + a_{45}T_2T_1c_1 + a_{31}T_2T_1c_2$$
$$+ a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 - a_{40}T_1T_2c_1c_3$$
$$+ a_{38}T_2T_1c_2c_3 + a_{39}T_1T_2T_1c_2 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3$$
$$+ a_{45}T_1T_2c_1c_2c_3$$

Round 6, Calculating $c_3z = zc_3$, We got 26 equations .
Totally 39 solutions, dup count: 0.

$$a_{19} = 0$$
$$a_{13} = 0$$
$$a_{34} = 0$$
$$a_{27} = 0$$
$$a_9 = qa_{39}$$
$$a_{20} = 0$$
$$a_{21} = 0$$
$$a_{42} = 0$$
$$a_{23} = 0$$
$$a_{16} = 0$$
$$a_{48} = 0$$
$$a_{46} = 0$$
$$a_{14} = 0$$
$$a_{15} = 0$$
$$a_{43} = 0$$
$$a_{25} = -qa_{43}$$
$$a_{24} = a_{45}$$
$$a_{35} = -a_{40}$$
$$a_{33} = a_{40}$$
$$a_{44} = -a_{45}$$
$$a_{47} = 0$$
$$a_7 = -a_{40}$$
$$a_{28} = a_{45}$$
$$a_{26} = a_{45}$$
$$a_{32} = 0$$
$$a_{36} = a_{40}$$
$$a_3 = 0$$
$$a_{41} = 0$$
$$a_{10} = a_{11}$$
$$a_8 = -a_{40}$$
$$a_{18} = a_{45}$$
$$a_{30} = a_{45}$$

$$
\begin{aligned}
a_{37} &= -a_{40} \\
a_4 &= 0 \\
a_5 &= 0 \\
a_{12} &= 0 \\
a_{22} &= 0 \\
a_{38} &= -a_{40} \\
a_{31} &= a_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &+ a_2T_1 + a_6c_3 - a_{40}T_1T_2 - a_{40}T_2T_1 + qa_{39}T_2c_1 + a_{11}T_2c_2 + a_{11}T_2c_3 \\
&+ a_{17}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 + a_{29}T_1T_2T_1 \\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{39}T_1T_2T_1c_2 + a_{40}T_1T_2c_2c_3 \\
&- a_{45}T_2T_1c_1c_2c_3 + a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 7, Calculating $T_1T_2z = zT_1T_2$, We got 38 equations .
Totally 43 solutions, dup count: 0.

$$
\begin{aligned}
a_{19} &= 0 \\
a_{13} &= 0 \\
a_{34} &= 0 \\
a_{27} &= 0 \\
a_9 &= 0 \\
a_{20} &= 0 \\
a_{21} &= 0 \\
a_{42} &= 0 \\
a_{23} &= 0 \\
a_{16} &= 0 \\
a_{48} &= 0 \\
a_{46} &= 0 \\
a_{14} &= 0 \\
a_{15} &= 0 \\
a_{43} &= 0 \\
a_{25} &= -qa_{43} \\
a_{24} &= a_{45} \\
a_{35} &= -a_{40} \\
a_{33} &= a_{40} \\
a_{44} &= -a_{45} \\
a_{47} &= 0 \\
a_7 &= -a_{40}
\end{aligned}
$$

$$
\begin{aligned}
a_{28} &= a_{45}\\
a_{26} &= a_{45}\\
a_{32} &= 0\\
a_{36} &= a_{40}\\
a_{3} &= 0\\
a_{41} &= 0\\
a_{10} &= a_{11}\\
a_{8} &= -a_{40}\\
a_{18} &= a_{45}\\
a_{30} &= a_{45}\\
a_{37} &= -a_{40}\\
a_{4} &= 0\\
a_{5} &= 0\\
a_{12} &= 0\\
a_{22} &= 0\\
a_{38} &= -a_{40}\\
a_{31} &= a_{45}\\
a_{29} &= 0\\
a_{39} &= 0\\
a_{2} &= -2a_{40} + 2qa_{40}\\
a_{6} &= a_{11} - qa_{11}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + a_{11}c_3 - qa_{11}c_3 - a_{40}T_1T_2 - a_{40}T_2T_1 + a_{11}T_2c_2\\
&+ a_{11}T_2c_3 + a_{17}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3\\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3\\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3\\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 8, Calculating $T_2T_1z = zT_2T_1$, We got 34 equations .
Totally 45 solutions, dup count: 0.

$$
\begin{aligned}
a_{19} &= 0\\
a_{13} &= 0\\
a_{34} &= 0\\
a_{27} &= 0\\
a_{9} &= 0\\
a_{20} &= 0\\
a_{21} &= 0\\
a_{42} &= 0
\end{aligned}
$$

$$a_{23} = 0$$
$$a_{16} = 0$$
$$a_{48} = 0$$
$$a_{46} = 0$$
$$a_{14} = 0$$
$$a_{15} = 0$$
$$a_{43} = 0$$
$$a_{25} = -qa_{43}$$
$$a_{24} = a_{45}$$
$$a_{35} = -a_{40}$$
$$a_{33} = a_{40}$$
$$a_{44} = -a_{45}$$
$$a_{47} = 0$$
$$a_{7} = -a_{40}$$
$$a_{28} = a_{45}$$
$$a_{26} = a_{45}$$
$$a_{32} = 0$$
$$a_{36} = a_{40}$$
$$a_{3} = 0$$
$$a_{41} = 0$$
$$a_{10} = 2a_{45} - 2qa_{45}$$
$$a_{8} = -a_{40}$$
$$a_{18} = a_{45}$$
$$a_{30} = a_{45}$$
$$a_{37} = -a_{40}$$
$$a_{4} = 0$$
$$a_{5} = 0$$
$$a_{12} = 0$$
$$a_{22} = 0$$
$$a_{38} = -a_{40}$$
$$a_{31} = a_{45}$$
$$a_{29} = 0$$
$$a_{39} = 0$$
$$a_{2} = -2a_{40} + 2qa_{40}$$
$$a_{6} = 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}$$
$$a_{11} = 2a_{45} - 2qa_{45}$$
$$a_{17} = 2a_{45} - 2qa_{45}$$

Center:

$$\begin{aligned} z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2 \\ &- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3 \\ &- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 \\ &+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\ &- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3 \\ &+ a_{45}T_1T_2c_1c_2c_3 \end{aligned}$$

Round 9, Calculating $T_2c_1z = zT_2c_1$, We got 29 equations .
Totally 45 solutions, dup count: 1.

$$\begin{aligned} a_{19} &= 0 \\ a_{13} &= 0 \\ a_{34} &= 0 \\ a_{27} &= 0 \\ a_9 &= 0 \\ a_{20} &= 0 \\ a_{21} &= 0 \\ a_{42} &= 0 \\ a_{23} &= 0 \\ a_{16} &= 0 \\ a_{48} &= 0 \\ a_{46} &= 0 \\ a_{14} &= 0 \\ a_{15} &= 0 \\ a_{43} &= 0 \\ a_{25} &= -qa_{43} \\ a_{24} &= a_{45} \\ a_{35} &= -a_{40} \\ a_{33} &= a_{40} \\ a_{44} &= -a_{45} \\ a_{47} &= 0 \\ a_7 &= -a_{40} \\ a_{28} &= a_{45} \\ a_{26} &= a_{45} \\ a_{32} &= 0 \\ a_{36} &= a_{40} \\ a_3 &= 0 \\ a_{41} &= 0 \\ a_{10} &= 2a_{45} - 2qa_{45} \end{aligned}$$

$$
\begin{aligned}
a_8 &= -a_{40} \\
a_{18} &= a_{45} \\
a_{30} &= a_{45} \\
a_{37} &= -a_{40} \\
a_4 &= 0 \\
a_5 &= 0 \\
a_{12} &= 0 \\
a_{22} &= 0 \\
a_{38} &= -a_{40} \\
a_{31} &= a_{45} \\
a_{29} &= 0 \\
a_{39} &= 0 \\
a_2 &= -2a_{40} + 2qa_{40} \\
a_6 &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45} \\
a_{11} &= 2a_{45} - 2qa_{45} \\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2 \\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3 \\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 \\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3 \\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 10, Calculating $T_2c_2z = zT_2c_2$, We got 29 equations .
Totally 45 solutions, dup count: 2.

$$
\begin{aligned}
a_{19} &= 0 \\
a_{13} &= 0 \\
a_{34} &= 0 \\
a_{27} &= 0 \\
a_9 &= 0 \\
a_{20} &= 0 \\
a_{21} &= 0 \\
a_{42} &= 0 \\
a_{23} &= 0 \\
a_{16} &= 0 \\
a_{48} &= 0
\end{aligned}
$$

$$
\begin{aligned}
a_{46} &= 0\\
a_{14} &= 0\\
a_{15} &= 0\\
a_{43} &= 0\\
a_{25} &= -qa_{43}\\
a_{24} &= a_{45}\\
a_{35} &= -a_{40}\\
a_{33} &= a_{40}\\
a_{44} &= -a_{45}\\
a_{47} &= 0\\
a_{7} &= -a_{40}\\
a_{28} &= a_{45}\\
a_{26} &= a_{45}\\
a_{32} &= 0\\
a_{36} &= a_{40}\\
a_{3} &= 0\\
a_{41} &= 0\\
a_{10} &= 2a_{45} - 2qa_{45}\\
a_{8} &= -a_{40}\\
a_{18} &= a_{45}\\
a_{30} &= a_{45}\\
a_{37} &= -a_{40}\\
a_{4} &= 0\\
a_{5} &= 0\\
a_{12} &= 0\\
a_{22} &= 0\\
a_{38} &= -a_{40}\\
a_{31} &= a_{45}\\
a_{29} &= 0\\
a_{39} &= 0\\
a_{2} &= -2a_{40} + 2qa_{40}\\
a_{6} &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}\\
a_{11} &= 2a_{45} - 2qa_{45}\\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2\\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3
\end{aligned}
$$

$$
\begin{aligned}
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 \\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3 \\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 11, Calculating $T_2c_3z = zT_2c_3$, We got 29 equations .
Totally 45 solutions, dup count: 3.

$$
\begin{aligned}
a_{19} &= 0 \\
a_{13} &= 0 \\
a_{34} &= 0 \\
a_{27} &= 0 \\
a_{9} &= 0 \\
a_{20} &= 0 \\
a_{21} &= 0 \\
a_{42} &= 0 \\
a_{23} &= 0 \\
a_{16} &= 0 \\
a_{48} &= 0 \\
a_{46} &= 0 \\
a_{14} &= 0 \\
a_{15} &= 0 \\
a_{43} &= 0 \\
a_{25} &= -qa_{43} \\
a_{24} &= a_{45} \\
a_{35} &= -a_{40} \\
a_{33} &= a_{40} \\
a_{44} &= -a_{45} \\
a_{47} &= 0 \\
a_{7} &= -a_{40} \\
a_{28} &= a_{45} \\
a_{26} &= a_{45} \\
a_{32} &= 0 \\
a_{36} &= a_{40} \\
a_{3} &= 0 \\
a_{41} &= 0 \\
a_{10} &= 2a_{45} - 2qa_{45} \\
a_{8} &= -a_{40} \\
a_{18} &= a_{45} \\
a_{30} &= a_{45}
\end{aligned}
$$

$$
\begin{aligned}
a_{37} &= -a_{40} \\
a_4 &= 0 \\
a_5 &= 0 \\
a_{12} &= 0 \\
a_{22} &= 0 \\
a_{38} &= -a_{40} \\
a_{31} &= a_{45} \\
a_{29} &= 0 \\
a_{39} &= 0 \\
a_2 &= -2a_{40} + 2qa_{40} \\
a_6 &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45} \\
a_{11} &= 2a_{45} - 2qa_{45} \\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2 \\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3 \\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 \\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3 \\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 12, Calculating $T_1c_1z = zT_1c_1$, We got 28 equations .
Totally 45 solutions, dup count: 4.

$$
\begin{aligned}
a_{19} &= 0 \\
a_{13} &= 0 \\
a_{34} &= 0 \\
a_{27} &= 0 \\
a_9 &= 0 \\
a_{20} &= 0 \\
a_{21} &= 0 \\
a_{42} &= 0 \\
a_{23} &= 0 \\
a_{16} &= 0 \\
a_{48} &= 0 \\
a_{46} &= 0 \\
a_{14} &= 0 \\
a_{15} &= 0
\end{aligned}
$$

$$
\begin{aligned}
a_{43} &= 0\\
a_{25} &= -qa_{43}\\
a_{24} &= a_{45}\\
a_{35} &= -a_{40}\\
a_{33} &= a_{40}\\
a_{44} &= -a_{45}\\
a_{47} &= 0\\
a_{7} &= -a_{40}\\
a_{28} &= a_{45}\\
a_{26} &= a_{45}\\
a_{32} &= 0\\
a_{36} &= a_{40}\\
a_{3} &= 0\\
a_{41} &= 0\\
a_{10} &= 2a_{45} - 2qa_{45}\\
a_{8} &= -a_{40}\\
a_{18} &= a_{45}\\
a_{30} &= a_{45}\\
a_{37} &= -a_{40}\\
a_{4} &= 0\\
a_{5} &= 0\\
a_{12} &= 0\\
a_{22} &= 0\\
a_{38} &= -a_{40}\\
a_{31} &= a_{45}\\
a_{29} &= 0\\
a_{39} &= 0\\
a_{2} &= -2a_{40} + 2qa_{40}\\
a_{6} &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}\\
a_{11} &= 2a_{45} - 2qa_{45}\\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2\\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3\\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3\\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3\\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3
\end{aligned}
$$

$$+ a_{45}T_1T_2c_1c_2c_3$$

Round 13, Calculating $c_1c_2z = zc_1c_2$, We got 22 equations .
Totally 45 solutions, dup count: 5.

$$a_{19} = 0$$
$$a_{13} = 0$$
$$a_{34} = 0$$
$$a_{27} = 0$$
$$a_9 = 0$$
$$a_{20} = 0$$
$$a_{21} = 0$$
$$a_{42} = 0$$
$$a_{23} = 0$$
$$a_{16} = 0$$
$$a_{48} = 0$$
$$a_{46} = 0$$
$$a_{14} = 0$$
$$a_{15} = 0$$
$$a_{43} = 0$$
$$a_{25} = -qa_{43}$$
$$a_{24} = a_{45}$$
$$a_{35} = -a_{40}$$
$$a_{33} = a_{40}$$
$$a_{44} = -a_{45}$$
$$a_{47} = 0$$
$$a_7 = -a_{40}$$
$$a_{28} = a_{45}$$
$$a_{26} = a_{45}$$
$$a_{32} = 0$$
$$a_{36} = a_{40}$$
$$a_3 = 0$$
$$a_{41} = 0$$
$$a_{10} = 2a_{45} - 2qa_{45}$$
$$a_8 = -a_{40}$$
$$a_{18} = a_{45}$$
$$a_{30} = a_{45}$$
$$a_{37} = -a_{40}$$
$$a_4 = 0$$
$$a_5 = 0$$

$$
\begin{aligned}
a_{12} &= 0\\
a_{22} &= 0\\
a_{38} &= -a_{40}\\
a_{31} &= a_{45}\\
a_{29} &= 0\\
a_{39} &= 0\\
a_{2} &= -2a_{40} + 2qa_{40}\\
a_{6} &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}\\
a_{11} &= 2a_{45} - 2qa_{45}\\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2\\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3\\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3\\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3\\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3\\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 14, Calculating $c_1c_3z = zc_1c_3$, We got 22 equations .
Totally 45 solutions, dup count: 6.

$$
\begin{aligned}
a_{19} &= 0\\
a_{13} &= 0\\
a_{34} &= 0\\
a_{27} &= 0\\
a_{9} &= 0\\
a_{20} &= 0\\
a_{21} &= 0\\
a_{42} &= 0\\
a_{23} &= 0\\
a_{16} &= 0\\
a_{48} &= 0\\
a_{46} &= 0\\
a_{14} &= 0\\
a_{15} &= 0\\
a_{43} &= 0\\
a_{25} &= -qa_{43}\\
a_{24} &= a_{45}
\end{aligned}
$$

$$
\begin{aligned}
a_{35} &= -a_{40} \\
a_{33} &= a_{40} \\
a_{44} &= -a_{45} \\
a_{47} &= 0 \\
a_{7} &= -a_{40} \\
a_{28} &= a_{45} \\
a_{26} &= a_{45} \\
a_{32} &= 0 \\
a_{36} &= a_{40} \\
a_{3} &= 0 \\
a_{41} &= 0 \\
a_{10} &= 2a_{45} - 2qa_{45} \\
a_{8} &= -a_{40} \\
a_{18} &= a_{45} \\
a_{30} &= a_{45} \\
a_{37} &= -a_{40} \\
a_{4} &= 0 \\
a_{5} &= 0 \\
a_{12} &= 0 \\
a_{22} &= 0 \\
a_{38} &= -a_{40} \\
a_{31} &= a_{45} \\
a_{29} &= 0 \\
a_{39} &= 0 \\
a_{2} &= -2a_{40} + 2qa_{40} \\
a_{6} &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45} \\
a_{11} &= 2a_{45} - 2qa_{45} \\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2 \\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3 \\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 \\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3 \\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 15, Calculating $T_1c_2z = zT_1c_2$, We got 28 equations .
Totally 45 solutions, dup count: 7.

$$a_{19} = 0$$
$$a_{13} = 0$$
$$a_{34} = 0$$
$$a_{27} = 0$$
$$a_{9} = 0$$
$$a_{20} = 0$$
$$a_{21} = 0$$
$$a_{42} = 0$$
$$a_{23} = 0$$
$$a_{16} = 0$$
$$a_{48} = 0$$
$$a_{46} = 0$$
$$a_{14} = 0$$
$$a_{15} = 0$$
$$a_{43} = 0$$
$$a_{25} = -qa_{43}$$
$$a_{24} = a_{45}$$
$$a_{35} = -a_{40}$$
$$a_{33} = a_{40}$$
$$a_{44} = -a_{45}$$
$$a_{47} = 0$$
$$a_{7} = -a_{40}$$
$$a_{28} = a_{45}$$
$$a_{26} = a_{45}$$
$$a_{32} = 0$$
$$a_{36} = a_{40}$$
$$a_{3} = 0$$
$$a_{41} = 0$$
$$a_{10} = 2a_{45} - 2qa_{45}$$
$$a_{8} = -a_{40}$$
$$a_{18} = a_{45}$$
$$a_{30} = a_{45}$$
$$a_{37} = -a_{40}$$
$$a_{4} = 0$$
$$a_{5} = 0$$
$$a_{12} = 0$$
$$a_{22} = 0$$
$$a_{38} = -a_{40}$$

$$
\begin{aligned}
a_{31} &= a_{45} \\
a_{29} &= 0 \\
a_{39} &= 0 \\
a_{2} &= -2a_{40} + 2qa_{40} \\
a_{6} &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45} \\
a_{11} &= 2a_{45} - 2qa_{45} \\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2 \\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3 \\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 \\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3 \\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 16, Calculating $c_2c_3z = zc_2c_3$, We got 22 equations .
Totally 45 solutions, dup count: 8.

$$
\begin{aligned}
a_{19} &= 0 \\
a_{13} &= 0 \\
a_{34} &= 0 \\
a_{27} &= 0 \\
a_{9} &= 0 \\
a_{20} &= 0 \\
a_{21} &= 0 \\
a_{42} &= 0 \\
a_{23} &= 0 \\
a_{16} &= 0 \\
a_{48} &= 0 \\
a_{46} &= 0 \\
a_{14} &= 0 \\
a_{15} &= 0 \\
a_{43} &= 0 \\
a_{25} &= -qa_{43} \\
a_{24} &= a_{45} \\
a_{35} &= -a_{40} \\
a_{33} &= a_{40} \\
a_{44} &= -a_{45}
\end{aligned}
$$

$$
\begin{aligned}
a_{47} &= 0\\
a_{7} &= -a_{40}\\
a_{28} &= a_{45}\\
a_{26} &= a_{45}\\
a_{32} &= 0\\
a_{36} &= a_{40}\\
a_{3} &= 0\\
a_{41} &= 0\\
a_{10} &= 2a_{45} - 2qa_{45}\\
a_{8} &= -a_{40}\\
a_{18} &= a_{45}\\
a_{30} &= a_{45}\\
a_{37} &= -a_{40}\\
a_{4} &= 0\\
a_{5} &= 0\\
a_{12} &= 0\\
a_{22} &= 0\\
a_{38} &= -a_{40}\\
a_{31} &= a_{45}\\
a_{29} &= 0\\
a_{39} &= 0\\
a_{2} &= -2a_{40} + 2qa_{40}\\
a_{6} &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}\\
a_{11} &= 2a_{45} - 2qa_{45}\\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2\\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3\\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3\\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3\\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3\\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 17, Calculating $T_1c_3z = zT_1c_3$, We got 28 equations .
Totally 45 solutions, dup count: 9.

$$
\begin{aligned}
a_{19} &= 0\\
a_{13} &= 0
\end{aligned}
$$

$$a_{34} = 0$$
$$a_{27} = 0$$
$$a_9 = 0$$
$$a_{20} = 0$$
$$a_{21} = 0$$
$$a_{42} = 0$$
$$a_{23} = 0$$
$$a_{16} = 0$$
$$a_{48} = 0$$
$$a_{46} = 0$$
$$a_{14} = 0$$
$$a_{15} = 0$$
$$a_{43} = 0$$
$$a_{25} = -qa_{43}$$
$$a_{24} = a_{45}$$
$$a_{35} = -a_{40}$$
$$a_{33} = a_{40}$$
$$a_{44} = -a_{45}$$
$$a_{47} = 0$$
$$a_7 = -a_{40}$$
$$a_{28} = a_{45}$$
$$a_{26} = a_{45}$$
$$a_{32} = 0$$
$$a_{36} = a_{40}$$
$$a_3 = 0$$
$$a_{41} = 0$$
$$a_{10} = 2a_{45} - 2qa_{45}$$
$$a_8 = -a_{40}$$
$$a_{18} = a_{45}$$
$$a_{30} = a_{45}$$
$$a_{37} = -a_{40}$$
$$a_4 = 0$$
$$a_5 = 0$$
$$a_{12} = 0$$
$$a_{22} = 0$$
$$a_{38} = -a_{40}$$
$$a_{31} = a_{45}$$
$$a_{29} = 0$$
$$a_{39} = 0$$

$$
\begin{aligned}
a_2 &= -2a_{40} + 2qa_{40} \\
a_6 &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45} \\
a_{11} &= 2a_{45} - 2qa_{45} \\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2 \\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3 \\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 \\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3 \\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 18, Calculating $T_2T_1c_3z = zT_2T_1c_3$, We got 34 equations .
Totally 45 solutions, dup count: 10.

$$
\begin{aligned}
a_{19} &= 0 \\
a_{13} &= 0 \\
a_{34} &= 0 \\
a_{27} &= 0 \\
a_9 &= 0 \\
a_{20} &= 0 \\
a_{21} &= 0 \\
a_{42} &= 0 \\
a_{23} &= 0 \\
a_{16} &= 0 \\
a_{48} &= 0 \\
a_{46} &= 0 \\
a_{14} &= 0 \\
a_{15} &= 0 \\
a_{43} &= 0 \\
a_{25} &= -qa_{43} \\
a_{24} &= a_{45} \\
a_{35} &= -a_{40} \\
a_{33} &= a_{40} \\
a_{44} &= -a_{45} \\
a_{47} &= 0 \\
a_7 &= -a_{40} \\
a_{28} &= a_{45}
\end{aligned}
$$

$$
\begin{aligned}
a_{26} &= a_{45} \\
a_{32} &= 0 \\
a_{36} &= a_{40} \\
a_{3} &= 0 \\
a_{41} &= 0 \\
a_{10} &= 2a_{45} - 2qa_{45} \\
a_{8} &= -a_{40} \\
a_{18} &= a_{45} \\
a_{30} &= a_{45} \\
a_{37} &= -a_{40} \\
a_{4} &= 0 \\
a_{5} &= 0 \\
a_{12} &= 0 \\
a_{22} &= 0 \\
a_{38} &= -a_{40} \\
a_{31} &= a_{45} \\
a_{29} &= 0 \\
a_{39} &= 0 \\
a_{2} &= -2a_{40} + 2qa_{40} \\
a_{6} &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45} \\
a_{11} &= 2a_{45} - 2qa_{45} \\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2 \\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3 \\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 \\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3 \\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 19, Calculating $T_1c_1c_2z = zT_1c_1c_2$, We got 28 equations .
Totally 45 solutions, dup count: 11.

$$
\begin{aligned}
a_{19} &= 0 \\
a_{13} &= 0 \\
a_{34} &= 0 \\
a_{27} &= 0 \\
a_{9} &= 0
\end{aligned}
$$

$$a_{20} = 0$$
$$a_{21} = 0$$
$$a_{42} = 0$$
$$a_{23} = 0$$
$$a_{16} = 0$$
$$a_{48} = 0$$
$$a_{46} = 0$$
$$a_{14} = 0$$
$$a_{15} = 0$$
$$a_{43} = 0$$
$$a_{25} = -qa_{43}$$
$$a_{24} = a_{45}$$
$$a_{35} = -a_{40}$$
$$a_{33} = a_{40}$$
$$a_{44} = -a_{45}$$
$$a_{47} = 0$$
$$a_{7} = -a_{40}$$
$$a_{28} = a_{45}$$
$$a_{26} = a_{45}$$
$$a_{32} = 0$$
$$a_{36} = a_{40}$$
$$a_{3} = 0$$
$$a_{41} = 0$$
$$a_{10} = 2a_{45} - 2qa_{45}$$
$$a_{8} = -a_{40}$$
$$a_{18} = a_{45}$$
$$a_{30} = a_{45}$$
$$a_{37} = -a_{40}$$
$$a_{4} = 0$$
$$a_{5} = 0$$
$$a_{12} = 0$$
$$a_{22} = 0$$
$$a_{38} = -a_{40}$$
$$a_{31} = a_{45}$$
$$a_{29} = 0$$
$$a_{39} = 0$$
$$a_{2} = -2a_{40} + 2qa_{40}$$
$$a_{6} = 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}$$
$$a_{11} = 2a_{45} - 2qa_{45}$$

$$a_{17} = 2a_{45} - 2qa_{45}$$

Center:

$$\begin{aligned} z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2 \\ &- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3 \\ &- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 \\ &+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\ &- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3 \\ &+ a_{45}T_1T_2c_1c_2c_3 \end{aligned}$$

Round 20, Calculating $T_2c_1c_2z = zT_2c_1c_2$, We got 29 equations .
Totally 45 solutions, dup count: 12.

$$\begin{aligned} a_{19} &= 0 \\ a_{13} &= 0 \\ a_{34} &= 0 \\ a_{27} &= 0 \\ a_9 &= 0 \\ a_{20} &= 0 \\ a_{21} &= 0 \\ a_{42} &= 0 \\ a_{23} &= 0 \\ a_{16} &= 0 \\ a_{48} &= 0 \\ a_{46} &= 0 \\ a_{14} &= 0 \\ a_{15} &= 0 \\ a_{43} &= 0 \\ a_{25} &= -qa_{43} \\ a_{24} &= a_{45} \\ a_{35} &= -a_{40} \\ a_{33} &= a_{40} \\ a_{44} &= -a_{45} \\ a_{47} &= 0 \\ a_7 &= -a_{40} \\ a_{28} &= a_{45} \\ a_{26} &= a_{45} \\ a_{32} &= 0 \\ a_{36} &= a_{40} \\ a_3 &= 0 \end{aligned}$$

$$
\begin{aligned}
&a_{41} = 0\\
&a_{10} = 2a_{45} - 2qa_{45}\\
&a_{8} = -a_{40}\\
&a_{18} = a_{45}\\
&a_{30} = a_{45}\\
&a_{37} = -a_{40}\\
&a_{4} = 0\\
&a_{5} = 0\\
&a_{12} = 0\\
&a_{22} = 0\\
&a_{38} = -a_{40}\\
&a_{31} = a_{45}\\
&a_{29} = 0\\
&a_{39} = 0\\
&a_{2} = -2a_{40} + 2qa_{40}\\
&a_{6} = 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}\\
&a_{11} = 2a_{45} - 2qa_{45}\\
&a_{17} = 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2\\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3\\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3\\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3\\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3\\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 21, Calculating $T_2c_1c_3z = zT_2c_1c_3$, We got 29 equations .
Totally 45 solutions, dup count: 13.

$$
\begin{aligned}
&a_{19} = 0\\
&a_{13} = 0\\
&a_{34} = 0\\
&a_{27} = 0\\
&a_{9} = 0\\
&a_{20} = 0\\
&a_{21} = 0\\
&a_{42} = 0\\
&a_{23} = 0
\end{aligned}
$$

$$a_{16} = 0$$
$$a_{48} = 0$$
$$a_{46} = 0$$
$$a_{14} = 0$$
$$a_{15} = 0$$
$$a_{43} = 0$$
$$a_{25} = -qa_{43}$$
$$a_{24} = a_{45}$$
$$a_{35} = -a_{40}$$
$$a_{33} = a_{40}$$
$$a_{44} = -a_{45}$$
$$a_{47} = 0$$
$$a_{7} = -a_{40}$$
$$a_{28} = a_{45}$$
$$a_{26} = a_{45}$$
$$a_{32} = 0$$
$$a_{36} = a_{40}$$
$$a_{3} = 0$$
$$a_{41} = 0$$
$$a_{10} = 2a_{45} - 2qa_{45}$$
$$a_{8} = -a_{40}$$
$$a_{18} = a_{45}$$
$$a_{30} = a_{45}$$
$$a_{37} = -a_{40}$$
$$a_{4} = 0$$
$$a_{5} = 0$$
$$a_{12} = 0$$
$$a_{22} = 0$$
$$a_{38} = -a_{40}$$
$$a_{31} = a_{45}$$
$$a_{29} = 0$$
$$a_{39} = 0$$
$$a_{2} = -2a_{40} + 2qa_{40}$$
$$a_{6} = 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}$$
$$a_{11} = 2a_{45} - 2qa_{45}$$
$$a_{17} = 2a_{45} - 2qa_{45}$$

Center:

$$\begin{aligned} z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2 \\ &- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3 \\ &- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 \\ &+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\ &- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3 \\ &+ a_{45}T_1T_2c_1c_2c_3 \end{aligned}$$

Round 22, Calculating $T_1c_1c_3z = zT_1c_1c_3$, We got 28 equations .
Totally 45 solutions, dup count: 14.

$$\begin{aligned} a_{19} &= 0 \\ a_{13} &= 0 \\ a_{34} &= 0 \\ a_{27} &= 0 \\ a_9 &= 0 \\ a_{20} &= 0 \\ a_{21} &= 0 \\ a_{42} &= 0 \\ a_{23} &= 0 \\ a_{16} &= 0 \\ a_{48} &= 0 \\ a_{46} &= 0 \\ a_{14} &= 0 \\ a_{15} &= 0 \\ a_{43} &= 0 \\ a_{25} &= -qa_{43} \\ a_{24} &= a_{45} \\ a_{35} &= -a_{40} \\ a_{33} &= a_{40} \\ a_{44} &= -a_{45} \\ a_{47} &= 0 \\ a_7 &= -a_{40} \\ a_{28} &= a_{45} \\ a_{26} &= a_{45} \\ a_{32} &= 0 \\ a_{36} &= a_{40} \\ a_3 &= 0 \\ a_{41} &= 0 \\ a_{10} &= 2a_{45} - 2qa_{45} \end{aligned}$$

$$
\begin{aligned}
a_8 &= -a_{40}\\
a_{18} &= a_{45}\\
a_{30} &= a_{45}\\
a_{37} &= -a_{40}\\
a_4 &= 0\\
a_5 &= 0\\
a_{12} &= 0\\
a_{22} &= 0\\
a_{38} &= -a_{40}\\
a_{31} &= a_{45}\\
a_{29} &= 0\\
a_{39} &= 0\\
a_2 &= -2a_{40} + 2qa_{40}\\
a_6 &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}\\
a_{11} &= 2a_{45} - 2qa_{45}\\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2\\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3\\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3\\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3\\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3\\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 23, Calculating $T_2c_2c_3z = zT_2c_2c_3$, We got 29 equations .
Totally 45 solutions, dup count: 15.

$$
\begin{aligned}
a_{19} &= 0\\
a_{13} &= 0\\
a_{34} &= 0\\
a_{27} &= 0\\
a_9 &= 0\\
a_{20} &= 0\\
a_{21} &= 0\\
a_{42} &= 0\\
a_{23} &= 0\\
a_{16} &= 0\\
a_{48} &= 0
\end{aligned}
$$

$$
\begin{aligned}
a_{46} &= 0\\
a_{14} &= 0\\
a_{15} &= 0\\
a_{43} &= 0\\
a_{25} &= -qa_{43}\\
a_{24} &= a_{45}\\
a_{35} &= -a_{40}\\
a_{33} &= a_{40}\\
a_{44} &= -a_{45}\\
a_{47} &= 0\\
a_{7} &= -a_{40}\\
a_{28} &= a_{45}\\
a_{26} &= a_{45}\\
a_{32} &= 0\\
a_{36} &= a_{40}\\
a_{3} &= 0\\
a_{41} &= 0\\
a_{10} &= 2a_{45} - 2qa_{45}\\
a_{8} &= -a_{40}\\
a_{18} &= a_{45}\\
a_{30} &= a_{45}\\
a_{37} &= -a_{40}\\
a_{4} &= 0\\
a_{5} &= 0\\
a_{12} &= 0\\
a_{22} &= 0\\
a_{38} &= -a_{40}\\
a_{31} &= a_{45}\\
a_{29} &= 0\\
a_{39} &= 0\\
a_{2} &= -2a_{40} + 2qa_{40}\\
a_{6} &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}\\
a_{11} &= 2a_{45} - 2qa_{45}\\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2\\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3
\end{aligned}
$$

$$
\begin{aligned}
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 \\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3 \\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 24, Calculating $T_1T_2c_1z = zT_1T_2c_1$, We got 40 equations .
Totally 45 solutions, dup count: 16.

$$
\begin{aligned}
a_{19} &= 0 \\
a_{13} &= 0 \\
a_{34} &= 0 \\
a_{27} &= 0 \\
a_{9} &= 0 \\
a_{20} &= 0 \\
a_{21} &= 0 \\
a_{42} &= 0 \\
a_{23} &= 0 \\
a_{16} &= 0 \\
a_{48} &= 0 \\
a_{46} &= 0 \\
a_{14} &= 0 \\
a_{15} &= 0 \\
a_{43} &= 0 \\
a_{25} &= -qa_{43} \\
a_{24} &= a_{45} \\
a_{35} &= -a_{40} \\
a_{33} &= a_{40} \\
a_{44} &= -a_{45} \\
a_{47} &= 0 \\
a_{7} &= -a_{40} \\
a_{28} &= a_{45} \\
a_{26} &= a_{45} \\
a_{32} &= 0 \\
a_{36} &= a_{40} \\
a_{3} &= 0 \\
a_{41} &= 0 \\
a_{10} &= 2a_{45} - 2qa_{45} \\
a_{8} &= -a_{40} \\
a_{18} &= a_{45} \\
a_{30} &= a_{45}
\end{aligned}
$$

$$
\begin{aligned}
a_{37} &= -a_{40} \\
a_4 &= 0 \\
a_5 &= 0 \\
a_{12} &= 0 \\
a_{22} &= 0 \\
a_{38} &= -a_{40} \\
a_{31} &= a_{45} \\
a_{29} &= 0 \\
a_{39} &= 0 \\
a_2 &= -2a_{40} + 2qa_{40} \\
a_6 &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45} \\
a_{11} &= 2a_{45} - 2qa_{45} \\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2 \\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3 \\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 \\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3 \\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 25, Calculating $T_1c_2c_3z = zT_1c_2c_3$, We got 28 equations .
Totally 45 solutions, dup count: 17.

$$
\begin{aligned}
a_{19} &= 0 \\
a_{13} &= 0 \\
a_{34} &= 0 \\
a_{27} &= 0 \\
a_9 &= 0 \\
a_{20} &= 0 \\
a_{21} &= 0 \\
a_{42} &= 0 \\
a_{23} &= 0 \\
a_{16} &= 0 \\
a_{48} &= 0 \\
a_{46} &= 0 \\
a_{14} &= 0 \\
a_{15} &= 0
\end{aligned}
$$

$$
\begin{aligned}
a_{43} &= 0\\
a_{25} &= -qa_{43}\\
a_{24} &= a_{45}\\
a_{35} &= -a_{40}\\
a_{33} &= a_{40}\\
a_{44} &= -a_{45}\\
a_{47} &= 0\\
a_{7} &= -a_{40}\\
a_{28} &= a_{45}\\
a_{26} &= a_{45}\\
a_{32} &= 0\\
a_{36} &= a_{40}\\
a_{3} &= 0\\
a_{41} &= 0\\
a_{10} &= 2a_{45} - 2qa_{45}\\
a_{8} &= -a_{40}\\
a_{18} &= a_{45}\\
a_{30} &= a_{45}\\
a_{37} &= -a_{40}\\
a_{4} &= 0\\
a_{5} &= 0\\
a_{12} &= 0\\
a_{22} &= 0\\
a_{38} &= -a_{40}\\
a_{31} &= a_{45}\\
a_{29} &= 0\\
a_{39} &= 0\\
a_{2} &= -2a_{40} + 2qa_{40}\\
a_{6} &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}\\
a_{11} &= 2a_{45} - 2qa_{45}\\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2\\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3\\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3\\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3\\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3
\end{aligned}
$$

$$+ a_{45}T_1T_2c_1c_2c_3$$

Round 26, Calculating $T_1T_2c_2z = zT_1T_2c_2$, We got 35 equations .
Totally 45 solutions, dup count: 18.

$$a_{19} = 0$$
$$a_{13} = 0$$
$$a_{34} = 0$$
$$a_{27} = 0$$
$$a_{9} = 0$$
$$a_{20} = 0$$
$$a_{21} = 0$$
$$a_{42} = 0$$
$$a_{23} = 0$$
$$a_{16} = 0$$
$$a_{48} = 0$$
$$a_{46} = 0$$
$$a_{14} = 0$$
$$a_{15} = 0$$
$$a_{43} = 0$$
$$a_{25} = -qa_{43}$$
$$a_{24} = a_{45}$$
$$a_{35} = -a_{40}$$
$$a_{33} = a_{40}$$
$$a_{44} = -a_{45}$$
$$a_{47} = 0$$
$$a_{7} = -a_{40}$$
$$a_{28} = a_{45}$$
$$a_{26} = a_{45}$$
$$a_{32} = 0$$
$$a_{36} = a_{40}$$
$$a_{3} = 0$$
$$a_{41} = 0$$
$$a_{10} = 2a_{45} - 2qa_{45}$$
$$a_{8} = -a_{40}$$
$$a_{18} = a_{45}$$
$$a_{30} = a_{45}$$
$$a_{37} = -a_{40}$$
$$a_{4} = 0$$
$$a_{5} = 0$$

$$
\begin{aligned}
a_{12} &= 0\\
a_{22} &= 0\\
a_{38} &= -a_{40}\\
a_{31} &= a_{45}\\
a_{29} &= 0\\
a_{39} &= 0\\
a_{2} &= -2a_{40} + 2qa_{40}\\
a_{6} &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}\\
a_{11} &= 2a_{45} - 2qa_{45}\\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2\\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3\\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3\\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3\\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3\\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 27, Calculating $c_1c_2c_3z = zc_1c_2c_3$, We got 22 equations .
Totally 45 solutions, dup count: 19.

$$
\begin{aligned}
a_{19} &= 0\\
a_{13} &= 0\\
a_{34} &= 0\\
a_{27} &= 0\\
a_{9} &= 0\\
a_{20} &= 0\\
a_{21} &= 0\\
a_{42} &= 0\\
a_{23} &= 0\\
a_{16} &= 0\\
a_{48} &= 0\\
a_{46} &= 0\\
a_{14} &= 0\\
a_{15} &= 0\\
a_{43} &= 0\\
a_{25} &= -qa_{43}\\
a_{24} &= a_{45}
\end{aligned}
$$

$$
\begin{aligned}
a_{35} &= -a_{40}\\
a_{33} &= a_{40}\\
a_{44} &= -a_{45}\\
a_{47} &= 0\\
a_{7} &= -a_{40}\\
a_{28} &= a_{45}\\
a_{26} &= a_{45}\\
a_{32} &= 0\\
a_{36} &= a_{40}\\
a_{3} &= 0\\
a_{41} &= 0\\
a_{10} &= 2a_{45} - 2qa_{45}\\
a_{8} &= -a_{40}\\
a_{18} &= a_{45}\\
a_{30} &= a_{45}\\
a_{37} &= -a_{40}\\
a_{4} &= 0\\
a_{5} &= 0\\
a_{12} &= 0\\
a_{22} &= 0\\
a_{38} &= -a_{40}\\
a_{31} &= a_{45}\\
a_{29} &= 0\\
a_{39} &= 0\\
a_{2} &= -2a_{40} + 2qa_{40}\\
a_{6} &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}\\
a_{11} &= 2a_{45} - 2qa_{45}\\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2\\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3\\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3\\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3\\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3\\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 28, Calculating $T_1T_2c_3z = zT_1T_2c_3$, We got 35 equations .
Totally 45 solutions, dup count: 20.

$$a_{19} = 0$$
$$a_{13} = 0$$
$$a_{34} = 0$$
$$a_{27} = 0$$
$$a_{9} = 0$$
$$a_{20} = 0$$
$$a_{21} = 0$$
$$a_{42} = 0$$
$$a_{23} = 0$$
$$a_{16} = 0$$
$$a_{48} = 0$$
$$a_{46} = 0$$
$$a_{14} = 0$$
$$a_{15} = 0$$
$$a_{43} = 0$$
$$a_{25} = -qa_{43}$$
$$a_{24} = a_{45}$$
$$a_{35} = -a_{40}$$
$$a_{33} = a_{40}$$
$$a_{44} = -a_{45}$$
$$a_{47} = 0$$
$$a_{7} = -a_{40}$$
$$a_{28} = a_{45}$$
$$a_{26} = a_{45}$$
$$a_{32} = 0$$
$$a_{36} = a_{40}$$
$$a_{3} = 0$$
$$a_{41} = 0$$
$$a_{10} = 2a_{45} - 2qa_{45}$$
$$a_{8} = -a_{40}$$
$$a_{18} = a_{45}$$
$$a_{30} = a_{45}$$
$$a_{37} = -a_{40}$$
$$a_{4} = 0$$
$$a_{5} = 0$$
$$a_{12} = 0$$
$$a_{22} = 0$$
$$a_{38} = -a_{40}$$

$$
\begin{aligned}
a_{31} &= a_{45} \\
a_{29} &= 0 \\
a_{39} &= 0 \\
a_{2} &= -2a_{40} + 2qa_{40} \\
a_{6} &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45} \\
a_{11} &= 2a_{45} - 2qa_{45} \\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2 \\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3 \\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 \\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3 \\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 29, Calculating $T_1T_2T_1z = zT_1T_2T_1$, We got 40 equations .
Totally 45 solutions, dup count: 21.

$$
\begin{aligned}
a_{19} &= 0 \\
a_{13} &= 0 \\
a_{34} &= 0 \\
a_{27} &= 0 \\
a_{9} &= 0 \\
a_{20} &= 0 \\
a_{21} &= 0 \\
a_{42} &= 0 \\
a_{23} &= 0 \\
a_{16} &= 0 \\
a_{48} &= 0 \\
a_{46} &= 0 \\
a_{14} &= 0 \\
a_{15} &= 0 \\
a_{43} &= 0 \\
a_{25} &= -qa_{43} \\
a_{24} &= a_{45} \\
a_{35} &= -a_{40} \\
a_{33} &= a_{40} \\
a_{44} &= -a_{45}
\end{aligned}
$$

$$
\begin{aligned}
a_{47} &= 0\\
a_7 &= -a_{40}\\
a_{28} &= a_{45}\\
a_{26} &= a_{45}\\
a_{32} &= 0\\
a_{36} &= a_{40}\\
a_3 &= 0\\
a_{41} &= 0\\
a_{10} &= 2a_{45} - 2qa_{45}\\
a_8 &= -a_{40}\\
a_{18} &= a_{45}\\
a_{30} &= a_{45}\\
a_{37} &= -a_{40}\\
a_4 &= 0\\
a_5 &= 0\\
a_{12} &= 0\\
a_{22} &= 0\\
a_{38} &= -a_{40}\\
a_{31} &= a_{45}\\
a_{29} &= 0\\
a_{39} &= 0\\
a_2 &= -2a_{40} + 2qa_{40}\\
a_6 &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}\\
a_{11} &= 2a_{45} - 2qa_{45}\\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2\\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3\\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3\\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3\\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3\\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 30, Calculating $T_2T_1c_1z = zT_2T_1c_1$, We got 40 equations .
Totally 45 solutions, dup count: 22.

$$
\begin{aligned}
a_{19} &= 0\\
a_{13} &= 0
\end{aligned}
$$

$$a_{34} = 0$$
$$a_{27} = 0$$
$$a_{9} = 0$$
$$a_{20} = 0$$
$$a_{21} = 0$$
$$a_{42} = 0$$
$$a_{23} = 0$$
$$a_{16} = 0$$
$$a_{48} = 0$$
$$a_{46} = 0$$
$$a_{14} = 0$$
$$a_{15} = 0$$
$$a_{43} = 0$$
$$a_{25} = -qa_{43}$$
$$a_{24} = a_{45}$$
$$a_{35} = -a_{40}$$
$$a_{33} = a_{40}$$
$$a_{44} = -a_{45}$$
$$a_{47} = 0$$
$$a_{7} = -a_{40}$$
$$a_{28} = a_{45}$$
$$a_{26} = a_{45}$$
$$a_{32} = 0$$
$$a_{36} = a_{40}$$
$$a_{3} = 0$$
$$a_{41} = 0$$
$$a_{10} = 2a_{45} - 2qa_{45}$$
$$a_{8} = -a_{40}$$
$$a_{18} = a_{45}$$
$$a_{30} = a_{45}$$
$$a_{37} = -a_{40}$$
$$a_{4} = 0$$
$$a_{5} = 0$$
$$a_{12} = 0$$
$$a_{22} = 0$$
$$a_{38} = -a_{40}$$
$$a_{31} = a_{45}$$
$$a_{29} = 0$$
$$a_{39} = 0$$

$$
\begin{aligned}
a_2 &= -2a_{40} + 2qa_{40} \\
a_6 &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45} \\
a_{11} &= 2a_{45} - 2qa_{45} \\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2 \\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3 \\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 \\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3 \\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 31, Calculating $T_2T_1c_2z = zT_2T_1c_2$, We got 40 equations .
Totally 45 solutions, dup count: 23.

$$
\begin{aligned}
a_{19} &= 0 \\
a_{13} &= 0 \\
a_{34} &= 0 \\
a_{27} &= 0 \\
a_9 &= 0 \\
a_{20} &= 0 \\
a_{21} &= 0 \\
a_{42} &= 0 \\
a_{23} &= 0 \\
a_{16} &= 0 \\
a_{48} &= 0 \\
a_{46} &= 0 \\
a_{14} &= 0 \\
a_{15} &= 0 \\
a_{43} &= 0 \\
a_{25} &= -qa_{43} \\
a_{24} &= a_{45} \\
a_{35} &= -a_{40} \\
a_{33} &= a_{40} \\
a_{44} &= -a_{45} \\
a_{47} &= 0 \\
a_7 &= -a_{40} \\
a_{28} &= a_{45}
\end{aligned}
$$

$$
\begin{aligned}
a_{26} &= a_{45}\\
a_{32} &= 0\\
a_{36} &= a_{40}\\
a_{3} &= 0\\
a_{41} &= 0\\
a_{10} &= 2a_{45} - 2qa_{45}\\
a_{8} &= -a_{40}\\
a_{18} &= a_{45}\\
a_{30} &= a_{45}\\
a_{37} &= -a_{40}\\
a_{4} &= 0\\
a_{5} &= 0\\
a_{12} &= 0\\
a_{22} &= 0\\
a_{38} &= -a_{40}\\
a_{31} &= a_{45}\\
a_{29} &= 0\\
a_{39} &= 0\\
a_{2} &= -2a_{40} + 2qa_{40}\\
a_{6} &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}\\
a_{11} &= 2a_{45} - 2qa_{45}\\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2\\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3\\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3\\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3\\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3\\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 32, Calculating $T_1T_2T_1c_1z = zT_1T_2T_1c_1$, We got 40 equations .
Totally 45 solutions, dup count: 24.

$$
\begin{aligned}
a_{19} &= 0\\
a_{13} &= 0\\
a_{34} &= 0\\
a_{27} &= 0\\
a_{9} &= 0
\end{aligned}
$$

$$a_{20} = 0$$
$$a_{21} = 0$$
$$a_{42} = 0$$
$$a_{23} = 0$$
$$a_{16} = 0$$
$$a_{48} = 0$$
$$a_{46} = 0$$
$$a_{14} = 0$$
$$a_{15} = 0$$
$$a_{43} = 0$$
$$a_{25} = -qa_{43}$$
$$a_{24} = a_{45}$$
$$a_{35} = -a_{40}$$
$$a_{33} = a_{40}$$
$$a_{44} = -a_{45}$$
$$a_{47} = 0$$
$$a_{7} = -a_{40}$$
$$a_{28} = a_{45}$$
$$a_{26} = a_{45}$$
$$a_{32} = 0$$
$$a_{36} = a_{40}$$
$$a_{3} = 0$$
$$a_{41} = 0$$
$$a_{10} = 2a_{45} - 2qa_{45}$$
$$a_{8} = -a_{40}$$
$$a_{18} = a_{45}$$
$$a_{30} = a_{45}$$
$$a_{37} = -a_{40}$$
$$a_{4} = 0$$
$$a_{5} = 0$$
$$a_{12} = 0$$
$$a_{22} = 0$$
$$a_{38} = -a_{40}$$
$$a_{31} = a_{45}$$
$$a_{29} = 0$$
$$a_{39} = 0$$
$$a_{2} = -2a_{40} + 2qa_{40}$$
$$a_{6} = 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}$$
$$a_{11} = 2a_{45} - 2qa_{45}$$

$$a_{17} = 2a_{45} - 2qa_{45}$$

Center:

$$\begin{aligned} z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2 \\ &- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3 \\ &- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 \\ &+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\ &- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3 \\ &+ a_{45}T_1T_2c_1c_2c_3 \end{aligned}$$

Round 33, Calculating $T_1T_2c_1c_2z = zT_1T_2c_1c_2$, We got 40 equations .
Totally 45 solutions, dup count: 25.

$$\begin{aligned} a_{19} &= 0 \\ a_{13} &= 0 \\ a_{34} &= 0 \\ a_{27} &= 0 \\ a_9 &= 0 \\ a_{20} &= 0 \\ a_{21} &= 0 \\ a_{42} &= 0 \\ a_{23} &= 0 \\ a_{16} &= 0 \\ a_{48} &= 0 \\ a_{46} &= 0 \\ a_{14} &= 0 \\ a_{15} &= 0 \\ a_{43} &= 0 \\ a_{25} &= -qa_{43} \\ a_{24} &= a_{45} \\ a_{35} &= -a_{40} \\ a_{33} &= a_{40} \\ a_{44} &= -a_{45} \\ a_{47} &= 0 \\ a_7 &= -a_{40} \\ a_{28} &= a_{45} \\ a_{26} &= a_{45} \\ a_{32} &= 0 \\ a_{36} &= a_{40} \\ a_3 &= 0 \end{aligned}$$

$$
\begin{aligned}
a_{41} &= 0\\
a_{10} &= 2a_{45} - 2qa_{45}\\
a_{8} &= -a_{40}\\
a_{18} &= a_{45}\\
a_{30} &= a_{45}\\
a_{37} &= -a_{40}\\
a_{4} &= 0\\
a_{5} &= 0\\
a_{12} &= 0\\
a_{22} &= 0\\
a_{38} &= -a_{40}\\
a_{31} &= a_{45}\\
a_{29} &= 0\\
a_{39} &= 0\\
a_{2} &= -2a_{40} + 2qa_{40}\\
a_{6} &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}\\
a_{11} &= 2a_{45} - 2qa_{45}\\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2\\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3\\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3\\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3\\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3\\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 34, Calculating $T_1c_1c_2c_3z = zT_1c_1c_2c_3$, We got 28 equations .
Totally 45 solutions, dup count: 26.

$$
\begin{aligned}
a_{19} &= 0\\
a_{13} &= 0\\
a_{34} &= 0\\
a_{27} &= 0\\
a_{9} &= 0\\
a_{20} &= 0\\
a_{21} &= 0\\
a_{42} &= 0\\
a_{23} &= 0
\end{aligned}
$$

$$a_{16} = 0$$
$$a_{48} = 0$$
$$a_{46} = 0$$
$$a_{14} = 0$$
$$a_{15} = 0$$
$$a_{43} = 0$$
$$a_{25} = -qa_{43}$$
$$a_{24} = a_{45}$$
$$a_{35} = -a_{40}$$
$$a_{33} = a_{40}$$
$$a_{44} = -a_{45}$$
$$a_{47} = 0$$
$$a_{7} = -a_{40}$$
$$a_{28} = a_{45}$$
$$a_{26} = a_{45}$$
$$a_{32} = 0$$
$$a_{36} = a_{40}$$
$$a_{3} = 0$$
$$a_{41} = 0$$
$$a_{10} = 2a_{45} - 2qa_{45}$$
$$a_{8} = -a_{40}$$
$$a_{18} = a_{45}$$
$$a_{30} = a_{45}$$
$$a_{37} = -a_{40}$$
$$a_{4} = 0$$
$$a_{5} = 0$$
$$a_{12} = 0$$
$$a_{22} = 0$$
$$a_{38} = -a_{40}$$
$$a_{31} = a_{45}$$
$$a_{29} = 0$$
$$a_{39} = 0$$
$$a_{2} = -2a_{40} + 2qa_{40}$$
$$a_{6} = 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}$$
$$a_{11} = 2a_{45} - 2qa_{45}$$
$$a_{17} = 2a_{45} - 2qa_{45}$$

Center:

$$\begin{aligned}z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2 \\ &- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3 \\ &- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 \\ &+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\ &- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3 \\ &+ a_{45}T_1T_2c_1c_2c_3\end{aligned}$$

Round 35, Calculating $T_2T_1c_1c_2z = zT_2T_1c_1c_2$, We got 40 equations .
Totally 45 solutions, dup count: 27.

$$\begin{aligned}a_{19} &= 0 \\ a_{13} &= 0 \\ a_{34} &= 0 \\ a_{27} &= 0 \\ a_9 &= 0 \\ a_{20} &= 0 \\ a_{21} &= 0 \\ a_{42} &= 0 \\ a_{23} &= 0 \\ a_{16} &= 0 \\ a_{48} &= 0 \\ a_{46} &= 0 \\ a_{14} &= 0 \\ a_{15} &= 0 \\ a_{43} &= 0 \\ a_{25} &= -qa_{43} \\ a_{24} &= a_{45} \\ a_{35} &= -a_{40} \\ a_{33} &= a_{40} \\ a_{44} &= -a_{45} \\ a_{47} &= 0 \\ a_7 &= -a_{40} \\ a_{28} &= a_{45} \\ a_{26} &= a_{45} \\ a_{32} &= 0 \\ a_{36} &= a_{40} \\ a_3 &= 0 \\ a_{41} &= 0 \\ a_{10} &= 2a_{45} - 2qa_{45}\end{aligned}$$

$$
\begin{aligned}
a_8 &= -a_{40} \\
a_{18} &= a_{45} \\
a_{30} &= a_{45} \\
a_{37} &= -a_{40} \\
a_4 &= 0 \\
a_5 &= 0 \\
a_{12} &= 0 \\
a_{22} &= 0 \\
a_{38} &= -a_{40} \\
a_{31} &= a_{45} \\
a_{29} &= 0 \\
a_{39} &= 0 \\
a_2 &= -2a_{40} + 2qa_{40} \\
a_6 &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45} \\
a_{11} &= 2a_{45} - 2qa_{45} \\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2 \\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3 \\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 \\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3 \\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 36, Calculating $T_2T_1c_1c_3z = zT_2T_1c_1c_3$, We got 40 equations .
Totally 45 solutions, dup count: 28.

$$
\begin{aligned}
a_{19} &= 0 \\
a_{13} &= 0 \\
a_{34} &= 0 \\
a_{27} &= 0 \\
a_9 &= 0 \\
a_{20} &= 0 \\
a_{21} &= 0 \\
a_{42} &= 0 \\
a_{23} &= 0 \\
a_{16} &= 0 \\
a_{48} &= 0
\end{aligned}
$$

$$
\begin{aligned}
a_{46} &= 0\\
a_{14} &= 0\\
a_{15} &= 0\\
a_{43} &= 0\\
a_{25} &= -qa_{43}\\
a_{24} &= a_{45}\\
a_{35} &= -a_{40}\\
a_{33} &= a_{40}\\
a_{44} &= -a_{45}\\
a_{47} &= 0\\
a_{7} &= -a_{40}\\
a_{28} &= a_{45}\\
a_{26} &= a_{45}\\
a_{32} &= 0\\
a_{36} &= a_{40}\\
a_{3} &= 0\\
a_{41} &= 0\\
a_{10} &= 2a_{45} - 2qa_{45}\\
a_{8} &= -a_{40}\\
a_{18} &= a_{45}\\
a_{30} &= a_{45}\\
a_{37} &= -a_{40}\\
a_{4} &= 0\\
a_{5} &= 0\\
a_{12} &= 0\\
a_{22} &= 0\\
a_{38} &= -a_{40}\\
a_{31} &= a_{45}\\
a_{29} &= 0\\
a_{39} &= 0\\
a_{2} &= -2a_{40} + 2qa_{40}\\
a_{6} &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}\\
a_{11} &= 2a_{45} - 2qa_{45}\\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2\\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3
\end{aligned}
$$

$$
\begin{aligned}
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 \\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3 \\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 37, Calculating $T_1T_2c_1c_3z = zT_1T_2c_1c_3$, We got 40 equations .
Totally 45 solutions, dup count: 29.

$$
\begin{aligned}
a_{19} &= 0 \\
a_{13} &= 0 \\
a_{34} &= 0 \\
a_{27} &= 0 \\
a_{9} &= 0 \\
a_{20} &= 0 \\
a_{21} &= 0 \\
a_{42} &= 0 \\
a_{23} &= 0 \\
a_{16} &= 0 \\
a_{48} &= 0 \\
a_{46} &= 0 \\
a_{14} &= 0 \\
a_{15} &= 0 \\
a_{43} &= 0 \\
a_{25} &= -qa_{43} \\
a_{24} &= a_{45} \\
a_{35} &= -a_{40} \\
a_{33} &= a_{40} \\
a_{44} &= -a_{45} \\
a_{47} &= 0 \\
a_{7} &= -a_{40} \\
a_{28} &= a_{45} \\
a_{26} &= a_{45} \\
a_{32} &= 0 \\
a_{36} &= a_{40} \\
a_{3} &= 0 \\
a_{41} &= 0 \\
a_{10} &= 2a_{45} - 2qa_{45} \\
a_{8} &= -a_{40} \\
a_{18} &= a_{45} \\
a_{30} &= a_{45}
\end{aligned}
$$

$$
\begin{aligned}
a_{37} &= -a_{40} \\
a_4 &= 0 \\
a_5 &= 0 \\
a_{12} &= 0 \\
a_{22} &= 0 \\
a_{38} &= -a_{40} \\
a_{31} &= a_{45} \\
a_{29} &= 0 \\
a_{39} &= 0 \\
a_2 &= -2a_{40} + 2qa_{40} \\
a_6 &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45} \\
a_{11} &= 2a_{45} - 2qa_{45} \\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2 \\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3 \\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3 \\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3 \\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3 \\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Round 38, Calculating $T_2T_1c_2c_3z = zT_2T_1c_2c_3$, We got 40 equations .
Totally 45 solutions, dup count: 30.

$$
\begin{aligned}
a_{19} &= 0 \\
a_{13} &= 0 \\
a_{34} &= 0 \\
a_{27} &= 0 \\
a_9 &= 0 \\
a_{20} &= 0 \\
a_{21} &= 0 \\
a_{42} &= 0 \\
a_{23} &= 0 \\
a_{16} &= 0 \\
a_{48} &= 0 \\
a_{46} &= 0 \\
a_{14} &= 0 \\
a_{15} &= 0
\end{aligned}
$$

$$
\begin{aligned}
a_{43} &= 0\\
a_{25} &= -qa_{43}\\
a_{24} &= a_{45}\\
a_{35} &= -a_{40}\\
a_{33} &= a_{40}\\
a_{44} &= -a_{45}\\
a_{47} &= 0\\
a_{7} &= -a_{40}\\
a_{28} &= a_{45}\\
a_{26} &= a_{45}\\
a_{32} &= 0\\
a_{36} &= a_{40}\\
a_{3} &= 0\\
a_{41} &= 0\\
a_{10} &= 2a_{45} - 2qa_{45}\\
a_{8} &= -a_{40}\\
a_{18} &= a_{45}\\
a_{30} &= a_{45}\\
a_{37} &= -a_{40}\\
a_{4} &= 0\\
a_{5} &= 0\\
a_{12} &= 0\\
a_{22} &= 0\\
a_{38} &= -a_{40}\\
a_{31} &= a_{45}\\
a_{29} &= 0\\
a_{39} &= 0\\
a_{2} &= -2a_{40} + 2qa_{40}\\
a_{6} &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}\\
a_{11} &= 2a_{45} - 2qa_{45}\\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2\\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3\\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3\\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3\\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3
\end{aligned}
$$

$$+ a_{45}T_1T_2c_1c_2c_3$$

Solved, Totally 45 solutions.

$$a_{19} = 0$$
$$a_{13} = 0$$
$$a_{34} = 0$$
$$a_{27} = 0$$
$$a_9 = 0$$
$$a_{20} = 0$$
$$a_{21} = 0$$
$$a_{42} = 0$$
$$a_{23} = 0$$
$$a_{16} = 0$$
$$a_{48} = 0$$
$$a_{46} = 0$$
$$a_{14} = 0$$
$$a_{15} = 0$$
$$a_{43} = 0$$
$$a_{25} = -qa_{43}$$
$$a_{24} = a_{45}$$
$$a_{35} = -a_{40}$$
$$a_{33} = a_{40}$$
$$a_{44} = -a_{45}$$
$$a_{47} = 0$$
$$a_7 = -a_{40}$$
$$a_{28} = a_{45}$$
$$a_{26} = a_{45}$$
$$a_{32} = 0$$
$$a_{36} = a_{40}$$
$$a_3 = 0$$
$$a_{41} = 0$$
$$a_{10} = 2a_{45} - 2qa_{45}$$
$$a_8 = -a_{40}$$
$$a_{18} = a_{45}$$
$$a_{30} = a_{45}$$
$$a_{37} = -a_{40}$$
$$a_4 = 0$$
$$a_5 = 0$$

$$
\begin{aligned}
a_{12} &= 0\\
a_{22} &= 0\\
a_{38} &= -a_{40}\\
a_{31} &= a_{45}\\
a_{29} &= 0\\
a_{39} &= 0\\
a_2 &= -2a_{40} + 2qa_{40}\\
a_6 &= 2a_{45} - 2qa_{45} - 2qa_{45} + 2q^2a_{45}\\
a_{11} &= 2a_{45} - 2qa_{45}\\
a_{17} &= 2a_{45} - 2qa_{45}
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = a_1 &- 2a_{40}T_1 + 2qa_{40}T_1 + 2a_{45}c_3 - 2qa_{45}c_3 - 2qa_{45}c_3 + 2q^2a_{45}c_3 - a_{40}T_1T_2\\
&- a_{40}T_2T_1 + 2a_{45}T_2c_2 - 2qa_{45}T_2c_2 + 2a_{45}T_2c_3 - 2qa_{45}T_2c_3 + 2a_{45}T_1c_3\\
&- 2qa_{45}T_1c_3 + a_{45}T_2T_1c_3 + a_{45}T_1T_2c_1 + a_{45}T_1T_2c_2 + a_{45}T_1T_2c_3\\
&+ a_{45}T_2T_1c_1 + a_{45}T_2T_1c_2 + a_{40}T_1T_2c_1c_2 - a_{40}T_2T_1c_1c_2 + a_{40}T_2T_1c_1c_3\\
&- a_{40}T_1T_2c_1c_3 - a_{40}T_2T_1c_2c_3 + a_{40}T_1T_2c_2c_3 - a_{45}T_2T_1c_1c_2c_3\\
&+ a_{45}T_1T_2c_1c_2c_3
\end{aligned}
$$

Center:

$$
\begin{aligned}
z = 1 \cdot a_1&\\
&+ (-2T_1 - T_1T_2 + T_1T_2c_1c_2 - T_1T_2c_1c_3 + T_1T_2c_2c_3 - T_2T_1 - T_2T_1c_1c_2\\
&\quad + T_2T_1c_1c_3 - T_2T_1c_2c_3 + 2qT_1) \cdot a_{40}\\
&+ (T_1T_2c_1 + T_1T_2c_1c_2c_3 + T_1T_2c_2 + T_1T_2c_3 + 2T_1c_3 + T_2T_1c_1 - T_2T_1c_1c_2c_3\\
&\quad + T_2T_1c_2 + T_2T_1c_3 + 2T_2c_2 + 2T_2c_3 + 2c_3 - 2qT_1c_3 - 2qT_2c_2 - 2qT_2c_3 - 4qc_3\\
&\quad + 2q^2c_3) \cdot a_{45}
\end{aligned}
$$