

$L_4(3).2_2 \pmod{3}$ 

|         | blocks | defect | matrix                                |
|---------|--------|--------|---------------------------------------|
| $G :$   | 1      | 6      | $47 \times 19$                        |
|         | 2      | 0      | $729_1 = \chi_{27,0}, \varphi_{15,0}$ |
|         | 3      | 0      | $729_2 = \chi_{27,1}, \varphi_{15,1}$ |
| $2.G :$ | 4      | 6      | $20 \times 6$                         |

| <b>Block 1:</b>       | $\varphi_{1,0}$ | $\varphi_{1,1}$ | $\varphi_{2,0}$ | $\varphi_{2,1}$ | $\varphi_{3+}$ | $\varphi_{5,0}$ | $\varphi_{5,1}$ | $\varphi_{6,0}$ | $\varphi_{6,1}$ | $\varphi_{7,0}$ | $\varphi_{7,1}$ | $\varphi_{8+}$ | $\varphi_{10,0}$ |
|-----------------------|-----------------|-----------------|-----------------|-----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|------------------|
| $1_1 = \chi_{1,0}$    | 1               | .               | .               | .               | .              | .               | .               | .               | .               | .               | .               | .              | .                |
| $1_2 = \chi_{1,1}$    | .               | 1               | .               | .               | .              | .               | .               | .               | .               | .               | .               | .              | .                |
| $26_1 = \chi_{2,0}$   | 1               | .               | 1               | .               | .              | .               | .               | 1               | .               | .               | .               | .              | .                |
| $26_2 = \chi_{2,1}$   | .               | 1               | .               | 1               | .              | .               | .               | .               | 1               | .               | .               | .              | .                |
| $26_3 = \chi_{3,0}$   | 1               | .               | .               | 1               | .              | .               | .               | 1               | .               | .               | .               | .              | .                |
| $26_4 = \chi_{3,1}$   | .               | 1               | 1               | .               | .              | .               | .               | .               | 1               | .               | .               | .              | .                |
| $39_1 = \chi_{4,0}$   | .               | .               | .               | .               | 1              | .               | .               | 1               | .               | .               | .               | .              | .                |
| $39_2 = \chi_{4,1}$   | .               | .               | .               | .               | 1              | .               | .               | .               | 1               | .               | .               | .              | .                |
| $52_1 = \chi_{5,0}$   | 1               | 1               | 1               | .               | .              | .               | .               | .               | .               | 1               | .               | .              | .                |
| $52_2 = \chi_{5,1}$   | 1               | 1               | .               | 1               | .              | .               | .               | .               | .               | .               | 1               | .              | .                |
| $65_1 = \chi_{6,0}$   | .               | .               | 1               | .               | .              | 1               | .               | .               | .               | 1               | .               | .              | .                |
| $65_2 = \chi_{6,1}$   | .               | .               | .               | 1               | .              | .               | 1               | .               | .               | .               | 1               | .              | .                |
| $65_3 = \chi_{7,0}$   | .               | .               | .               | 1               | .              | 1               | .               | .               | .               | .               | 1               | .              | .                |
| $65_4 = \chi_{7,1}$   | .               | .               | 1               | .               | .              | .               | 1               | .               | .               | 1               | .               | .              | .                |
| $90_1 = \chi_{8,0}$   | 2               | .               | .               | .               | .              | .               | .               | 1               | .               | .               | .               | .              | 1                |
| $90_2 = \chi_{8,1}$   | .               | 2               | .               | .               | .              | .               | .               | .               | 1               | .               | .               | .              | .                |
| $234_1 = \chi_{9,0}$  | 2               | .               | .               | 1               | 1              | 1               | 1               | 1               | .               | .               | 2               | .              | 1                |
| $234_2 = \chi_{9,1}$  | .               | 2               | 1               | .               | 1              | 1               | 1               | .               | 1               | 2               | .               | .              | .                |
| $234_3 = \chi_{10,0}$ | 2               | .               | 1               | .               | 1              | 1               | 1               | 1               | .               | 2               | .               | .              | 1                |
| $234_4 = \chi_{10,1}$ | .               | 2               | .               | 1               | 1              | 1               | 1               | .               | 1               | .               | 2               | .              | .                |
| $260_1 = \chi_{11,0}$ | .               | .               | .               | 1               | 1              | 1               | .               | 1               | .               | .               | 1               | .              | .                |
| $260_2 = \chi_{11,1}$ | .               | .               | 1               | .               | 1              | .               | 1               | .               | 1               | 1               | .               | .              | .                |
| $260_3 = \chi_{12,0}$ | .               | .               | 1               | .               | 1              | 1               | .               | 1               | .               | 1               | .               | .              | .                |
| $260_4 = \chi_{12,1}$ | .               | .               | .               | 1               | 1              | .               | 1               | .               | 1               | .               | 1               | .              | .                |
| $260_5 = \chi_{13,0}$ | 2               | 1               | 1               | 1               | 1              | 1               | 1               | 1               | 1               | 1               | 1               | .              | 1                |
| $260_6 = \chi_{13,1}$ | 1               | 2               | 1               | 1               | 1              | 1               | 1               | 1               | 1               | 1               | 1               | .              | .                |
| $351_1 = \chi_{14,0}$ | .               | .               | .               | .               | .              | .               | 2               | .               | .               | .               | .               | .              | 1                |
| $351_2 = \chi_{14,1}$ | .               | .               | .               | .               | .              | 2               | .               | .               | .               | .               | .               | .              | .                |
| $390_1 = \chi_{15,0}$ | 1               | .               | .               | .               | 2              | .               | 1               | .               | .               | 1               | 1               | 1              | .                |
| $390_2 = \chi_{15,1}$ | .               | 1               | .               | .               | 2              | 1               | .               | .               | .               | 1               | 1               | 1              | .                |
| $416_1 = \chi_{16,0}$ | 2               | 1               | 1               | 1               | 1              | 1               | 1               | 2               | .               | 1               | 1               | .              | 1                |
| $416_2 = \chi_{16,1}$ | 1               | 2               | 1               | 1               | 1              | 1               | 1               | .               | 2               | 1               | 1               | .              | .                |
| $416_3 = \chi_{17,0}$ | 1               | 1               | 2               | 1               | 1              | .               | .               | 1               | 1               | 1               | .               | .              | .                |
| $416_4 = \chi_{17,1}$ | 1               | 1               | 1               | 2               | 1              | .               | .               | 1               | 1               | .               | 1               | .              | .                |
| $832_1 = \chi_{18+}$  | .               | .               | .               | .               | 3              | 1               | 1               | .               | .               | 1               | 1               | 1              | .                |
| $468_1 = \chi_{20,0}$ | .               | .               | .               | .               | 2              | .               | .               | .               | .               | 1               | .               | 1              | .                |
| $468_2 = \chi_{20,1}$ | .               | .               | .               | .               | 2              | .               | .               | .               | .               | .               | 1               | 1              | .                |
| $585_1 = \chi_{21,0}$ | .               | 1               | 1               | 1               | 2              | .               | .               | .               | 2               | .               | 1               | .              | .                |
| $585_2 = \chi_{21,1}$ | 1               | .               | 1               | 1               | 2              | .               | .               | 2               | .               | 1               | .               | .              | .                |
| $585_3 = \chi_{22,0}$ | .               | 1               | 1               | 1               | 2              | .               | .               | .               | 2               | 1               | .               | .              | .                |

| (Block 1:)            | $\varphi_{10,1}$ | $\varphi_{11+}$ | $\varphi_{13,0}$ | $\varphi_{13,1}$ | $\varphi_{14,0}$ | $\varphi_{14,1}$ |
|-----------------------|------------------|-----------------|------------------|------------------|------------------|------------------|
| $1_1 = \chi_{1,0}$    | .                | .               | .                | .                | .                | .                |
| $1_2 = \chi_{1,1}$    | .                | .               | .                | .                | .                | .                |
| $26_1 = \chi_{2,0}$   | .                | .               | .                | .                | .                | .                |
| $26_2 = \chi_{2,1}$   | .                | .               | .                | .                | .                | .                |
| $26_3 = \chi_{3,0}$   | .                | .               | .                | .                | .                | .                |
| $26_4 = \chi_{3,1}$   | .                | .               | .                | .                | .                | .                |
| $39_1 = \chi_{4,0}$   | .                | .               | .                | .                | .                | .                |
| $39_2 = \chi_{4,1}$   | .                | .               | .                | .                | .                | .                |
| $52_1 = \chi_{5,0}$   | .                | .               | .                | .                | .                | .                |
| $52_2 = \chi_{5,1}$   | .                | .               | .                | .                | .                | .                |
| $65_1 = \chi_{6,0}$   | .                | .               | .                | .                | .                | .                |
| $65_2 = \chi_{6,1}$   | .                | .               | .                | .                | .                | .                |
| $65_3 = \chi_{7,0}$   | .                | .               | .                | .                | .                | .                |
| $65_4 = \chi_{7,1}$   | .                | .               | .                | .                | .                | .                |
| $90_1 = \chi_{8,0}$   | .                | .               | .                | .                | .                | .                |
| $90_2 = \chi_{8,1}$   | 1                | .               | .                | .                | .                | .                |
| $234_1 = \chi_{9,0}$  | .                | .               | .                | .                | .                | .                |
| $234_2 = \chi_{9,1}$  | 1                | .               | .                | .                | .                | .                |
| $234_3 = \chi_{10,0}$ | .                | .               | .                | .                | .                | .                |
| $234_4 = \chi_{10,1}$ | 1                | .               | .                | .                | .                | .                |
| $260_1 = \chi_{11,0}$ | .                | .               | 1                | .                | .                | .                |
| $260_2 = \chi_{11,1}$ | .                | .               | .                | 1                | .                | .                |
| $260_3 = \chi_{12,0}$ | .                | .               | 1                | .                | .                | .                |
| $260_4 = \chi_{12,1}$ | .                | .               | .                | 1                | .                | .                |
| $260_5 = \chi_{13,0}$ | .                | .               | .                | .                | .                | .                |
| $260_6 = \chi_{13,1}$ | 1                | .               | .                | .                | .                | .                |
| $351_1 = \chi_{14,0}$ | .                | 1               | .                | .                | .                | .                |
| $351_2 = \chi_{14,1}$ | 1                | 1               | .                | .                | .                | .                |
| $390_1 = \chi_{15,0}$ | .                | .               | .                | 1                | .                | .                |
| $390_2 = \chi_{15,1}$ | .                | .               | 1                | .                | .                | .                |
| $416_1 = \chi_{16,0}$ | .                | .               | 1                | .                | .                | .                |
| $416_2 = \chi_{16,1}$ | 1                | .               | .                | 1                | .                | .                |
| $416_3 = \chi_{17,0}$ | .                | .               | .                | .                | 1                | .                |
| $416_4 = \chi_{17,1}$ | .                | .               | .                | .                | .                | 1                |
| $832_1 = \chi_{18+}$  | .                | 1               | 1                | 1                | .                | .                |
| $468_1 = \chi_{20,0}$ | .                | .               | .                | .                | 1                | .                |
| $468_2 = \chi_{20,1}$ | .                | .               | .                | .                | .                | 1                |
| $585_1 = \chi_{21,0}$ | .                | .               | .                | 1                | .                | 1                |
| $585_2 = \chi_{21,1}$ | .                | .               | 1                | .                | 1                | .                |
| $585_3 = \chi_{22,0}$ | .                | .               | .                | 1                | 1                | .                |

| <b>(Block 1:)</b>      | $\varphi_{1,0}$ | $\varphi_{1,1}$ | $\varphi_{2,0}$ | $\varphi_{2,1}$ | $\varphi_{3+}$ | $\varphi_{5,0}$ | $\varphi_{5,1}$ | $\varphi_{6,0}$ | $\varphi_{6,1}$ | $\varphi_{7,0}$ | $\varphi_{7,1}$ | $\varphi_{8+}$ | $\varphi_{10,0}$ |
|------------------------|-----------------|-----------------|-----------------|-----------------|----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|------------------|
| $585_4 = \chi_{22,1}$  | 1               | .               | 1               | 1               | 2              | .               | .               | 2               | .               | .               | 1               | .              | .                |
| $1280_1 = \chi_{23+}$  | 1               | 1               | 2               | 2               | 5              | .               | .               | 2               | 2               | 1               | 1               | 1              | .                |
| $1280_2 = \chi_{25+}$  | 2               | 2               | 1               | 1               | 4              | 3               | 3               | 1               | 1               | 3               | 3               | 1              | 1                |
| $780_1 = \chi_{28,0}$  | 1               | .               | .               | .               | 3              | 2               | 1               | 1               | .               | 1               | 1               | 1              | 1                |
| $780_2 = \chi_{28,1}$  | .               | 1               | .               | .               | 3              | 1               | 2               | .               | 1               | 1               | 1               | 1              | .                |
| $1040_1 = \chi_{29,0}$ | 1               | 1               | 2               | 1               | 4              | 1               | 1               | 1               | 1               | 3               | 1               | 1              | .                |
| $1040_2 = \chi_{29,1}$ | 1               | 1               | 1               | 2               | 4              | 1               | 1               | 1               | 1               | 1               | 3               | 1              | .                |

| <b>(Block 1:)</b>      | $\varphi_{10,1}$ | $\varphi_{11+}$ | $\varphi_{13,0}$ | $\varphi_{13,1}$ | $\varphi_{14,0}$ | $\varphi_{14,1}$ |
|------------------------|------------------|-----------------|------------------|------------------|------------------|------------------|
| $585_4 = \chi_{22,1}$  | .                | .               | 1                | .                | .                | 1                |
| $1280_1 = \chi_{23+}$  | .                | .               | 1                | 1                | 1                | 1                |
| $1280_2 = \chi_{25+}$  | 1                | 1               | 1                | 1                | .                | .                |
| $780_1 = \chi_{28,0}$  | .                | 1               | 1                | .                | .                | .                |
| $780_2 = \chi_{28,1}$  | 1                | 1               | .                | 1                | .                | .                |
| $1040_1 = \chi_{29,0}$ | .                | .               | 1                | 1                | 1                | .                |
| $1040_2 = \chi_{29,1}$ | .                | .               | 1                | 1                | .                | 1                |

- $\varphi_{1,0} = 1_1$
- $\varphi_{1,1} = 1_2$
- $\varphi_{2,0} = 6_1$
- $\varphi_{2,1} = 6_2$
- $\varphi_{3+} = 20_1$
- $\varphi_{5,0} = 15_1$
- $\varphi_{5,1} = 15_2$
- $\varphi_{6,0} = 19_1$
- $\varphi_{6,1} = 19_2$
- $\varphi_{7,0} = 44_1$
- $\varphi_{7,1} = 44_2$
- $\varphi_{8+} = 90_1$
- $\varphi_{10,0} = 69_1$
- $\varphi_{10,1} = 69_2$
- $\varphi_{11+} = 252_1$
- $\varphi_{13,0} = 156_1$
- $\varphi_{13,1} = 156_2$
- $\varphi_{14,0} = 294_1$
- $\varphi_{14,1} = 294_2$

| <b>Block 4:</b>        | $\varphi_{16+}$ | $\varphi_{18+}$ | $\varphi_{20+}$ | $\varphi_{22+}$ | $\varphi_{24+}$ | $\varphi_{26+}$ |                         |
|------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-------------------------|
| $40_1 = \chi_{30,0}$   | 1               | 1               | .               | .               | .               | .               |                         |
| $40_2 = \chi_{30,1}$   | 1               | 1               | .               | .               | .               | .               |                         |
| $416_5 = \chi_{31+}$   | 4               | 1               | .               | 1               | 1               | .               |                         |
| $416_6 = \chi_{33+}$   | 4               | 1               | .               | 1               | 1               | .               |                         |
| $520_1 = \chi_{35+}$   | 4               | 2               | 1               | 1               | 1               | .               |                         |
| $832_2 = \chi_{37+}$   | 5               | 2               | 2               | 1               | 2               | .               |                         |
| $832_3 = \chi_{39+}$   | 2               | 3               | .               | .               | .               | 1               | $\varphi_{16+} = 8_1$   |
| $480_1 = \chi_{41,0}$  | 3               | 1               | 1               | 1               | 1               | .               | $\varphi_{18+} = 32_1$  |
| $480_2 = \chi_{41,1}$  | 3               | 1               | 1               | 1               | 1               | .               | $\varphi_{20+} = 72_1$  |
| $520_2 = \chi_{42,0}$  | 4               | 2               | 1               | 1               | 1               | .               | $\varphi_{22+} = 120_1$ |
| $520_3 = \chi_{42,1}$  | 4               | 2               | 1               | 1               | 1               | .               | $\varphi_{24+} = 232_1$ |
| $520_4 = \chi_{43,0}$  | 4               | 2               | 1               | 1               | 1               | .               | $\varphi_{26+} = 720_1$ |
| $520_5 = \chi_{43,1}$  | 4               | 2               | 1               | 1               | 1               | .               |                         |
| $520_6 = \chi_{44,0}$  | 4               | 2               | 1               | 1               | 1               | .               |                         |
| $520_7 = \chi_{44,1}$  | 4               | 2               | 1               | 1               | 1               | .               |                         |
| $1280_3 = \chi_{45+}$  | 5               | 3               | 1               | 1               | 1               | 1               |                         |
| $1280_4 = \chi_{47+}$  | 9               | 4               | 2               | 2               | 3               | .               |                         |
| $1560_1 = \chi_{49+}$  | 7               | 4               | 1               | 1               | 2               | 1               |                         |
| $1080_1 = \chi_{51,0}$ | 4               | 3               | .               | .               | 1               | 1               |                         |
| $1080_2 = \chi_{51,1}$ | 4               | 3               | .               | .               | 1               | 1               |                         |