

${}^3D_4(2).3 \pmod{7}$ 

|       | blocks          | defect | matrix                                 |
|-------|-----------------|--------|--|
| $G :$ | 1               | 2      | $27 \times 21$                         |
|       | 2               | 0      | $196_1 = \chi_{4,0}, \varphi_{4,0}$    |
|       | 3               | 0      | $196_2 = \chi_{4,1}, \varphi_{4,1}$    |
|       | $4 = \bar{3}$   | 0      | $196_3 = \chi_{4,2}, \varphi_{4,2}$    |
|       | 5               | 1      | $7 \times 6$                           |
|       | 6               | 0      | $637_1 = \chi_{11,0}, \varphi_{8,0}$   |
|       | 7               | 0      | $637_2 = \chi_{11,1}, \varphi_{8,1}$   |
|       | $8 = \bar{7}$   | 0      | $637_3 = \chi_{11,2}, \varphi_{8,2}$   |
|       | 9               | 0      | $1274_1 = \chi_{13,0}, \varphi_{11,0}$ |
|       | 10              | 0      | $1274_2 = \chi_{13,1}, \varphi_{11,1}$ |
|       | $11 = \bar{10}$ | 0      | $1274_3 = \chi_{13,2}, \varphi_{11,2}$ |
|       | 12              | 0      | $5733_1 = \chi_{15+}, \varphi_{12+}$   |
|       | 13              | 0      | $11466_1 = \chi_{28+}, \varphi_{16+}$  |
|       | 14              | 0      | $11907_1 = \chi_{31+}, \varphi_{19+}$  |
|       | 15              | 0      | $5096_1 = \chi_{35,0}, \varphi_{22,0}$ |
|       | 16              | 0      | $5096_2 = \chi_{35,1}, \varphi_{22,1}$ |
|       | $17 = \bar{16}$ | 0      | $5096_3 = \chi_{35,2}, \varphi_{22,2}$ |

| <b>Block 1:</b>        | $\varphi_{1,0}$ | $\varphi_{1,1}$ | $\varphi_{1,2}$ | $\varphi_{2,0}$ | $\varphi_{2,1}$ | $\varphi_{2,2}$ | $\varphi_{3,0}$ | $\varphi_{3,1}$ | $\varphi_{3,2}$ | $\varphi_{6,0}$ | $\varphi_{6,1}$ | $\varphi_{6,2}$ | $\varphi_{7,0}$ |
|------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| $1_1 = \chi_{1,0}$     | 1               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               |
| $1_2 = \chi_{1,1}$     | .               | 1               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               |
| $1_3 = \chi_{1,2}$     | .               | .               | 1               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               |
| $26_1 = \chi_{2,0}$    | .               | .               | .               | 1               | .               | .               | .               | .               | .               | .               | .               | .               | .               |
| $26_2 = \chi_{2,1}$    | .               | .               | .               | .               | 1               | .               | .               | .               | .               | .               | .               | .               | .               |
| $26_3 = \chi_{2,2}$    | .               | .               | .               | .               | .               | 1               | .               | .               | .               | .               | .               | .               | .               |
| $52_1 = \chi_{3,0}$    | .               | .               | .               | .               | .               | .               | 1               | .               | .               | .               | .               | .               | .               |
| $52_2 = \chi_{3,1}$    | .               | .               | .               | .               | .               | .               | .               | 1               | .               | .               | .               | .               | .               |
| $52_3 = \chi_{3,2}$    | .               | .               | .               | .               | .               | .               | .               | .               | 1               | .               | .               | .               | .               |
| $324_1 = \chi_{6,0}$   | .               | .               | .               | 1               | .               | .               | .               | .               | .               | 1               | .               | .               | .               |
| $324_2 = \chi_{6,1}$   | .               | .               | .               | .               | 1               | .               | .               | .               | .               | .               | 1               | .               | .               |
| $324_3 = \chi_{6,2}$   | .               | .               | .               | .               | .               | 1               | .               | .               | .               | .               | .               | 1               | .               |
| $1053_1 = \chi_{7+}$   | 1               | 1               | 1               | .               | .               | .               | 1               | 1               | 1               | 1               | 1               | 1               | .               |
| $468_1 = \chi_{10,0}$  | 1               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               | 1               |
| $468_2 = \chi_{10,1}$  | .               | 1               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               |
| $468_3 = \chi_{10,2}$  | .               | .               | 1               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               |
| $1053_2 = \chi_{12,0}$ | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               |
| $1053_3 = \chi_{12,1}$ | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               |
| $1053_4 = \chi_{12,2}$ | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               | .               |
| $1664_1 = \chi_{14,0}$ | .               | .               | .               | .               | .               | .               | .               | 1               | 1               | 1               | .               | .               | .               |
| $1664_2 = \chi_{14,1}$ | .               | .               | .               | .               | .               | .               | 1               | .               | 1               | .               | 1               | .               | .               |
| $1664_3 = \chi_{14,2}$ | .               | .               | .               | .               | .               | .               | 1               | 1               | .               | .               | .               | 1               | .               |
| $6318_1 = \chi_{18+}$  | 1               | 1               | 1               | 1               | 1               | 1               | 1               | 1               | 1               | 1               | 1               | 1               | 1               |
| $8424_1 = \chi_{25+}$  | .               | .               | .               | 1               | 1               | 1               | .               | .               | .               | .               | .               | .               | 1               |
| $4096_1 = \chi_{34,0}$ | .               | .               | .               | .               | .               | .               | 1               | .               | .               | .               | .               | .               | 1               |
| $4096_2 = \chi_{34,1}$ | .               | .               | .               | .               | .               | .               | .               | 1               | .               | .               | .               | .               | .               |
| $4096_3 = \chi_{34,2}$ | .               | .               | .               | .               | .               | .               | .               | .               | 1               | .               | .               | .               | .               |

| <b>(Block 1):</b>      | $\varphi_{7,1}$ | $\varphi_{7,2}$ | $\varphi_{9,0}$ | $\varphi_{9,1}$ | $\varphi_{9,2}$ | $\varphi_{10,0}$ | $\varphi_{10,1}$ | $\varphi_{10,2}$ |                           |
|------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|---------------------------|
| $1_1 = \chi_{1,0}$     | .               | .               | .               | .               | .               | .                | .                | .                | $\varphi_{1,0} = 1_1$     |
| $1_2 = \chi_{1,1}$     | .               | .               | .               | .               | .               | .                | .                | .                | $\varphi_{1,1} = 1_2$     |
| $1_3 = \chi_{1,2}$     | .               | .               | .               | .               | .               | .                | .                | .                | $\varphi_{1,2} = 1_3$     |
| $26_1 = \chi_{2,0}$    | .               | .               | .               | .               | .               | .                | .                | .                | $\varphi_{2,0} = 26_1$    |
| $26_2 = \chi_{2,1}$    | .               | .               | .               | .               | .               | .                | .                | .                | $\varphi_{2,1} = 26_2$    |
| $26_3 = \chi_{2,2}$    | .               | .               | .               | .               | .               | .                | .                | .                | $\varphi_{2,2} = 26_3$    |
| $52_1 = \chi_{3,0}$    | .               | .               | .               | .               | .               | .                | .                | .                | $\varphi_{3,0} = 52_1$    |
| $52_2 = \chi_{3,1}$    | .               | .               | .               | .               | .               | .                | .                | .                | $\varphi_{3,1} = 52_2$    |
| $52_3 = \chi_{3,2}$    | .               | .               | .               | .               | .               | .                | .                | .                | $\varphi_{3,2} = 52_3$    |
| $324_1 = \chi_{6,0}$   | .               | .               | .               | .               | .               | .                | .                | .                | $\varphi_{6,0} = 298_1$   |
| $324_2 = \chi_{6,1}$   | .               | .               | .               | .               | .               | .                | .                | .                | $\varphi_{6,1} = 298_2$   |
| $324_3 = \chi_{6,2}$   | .               | .               | .               | .               | .               | .                | .                | .                | $\varphi_{6,2} = 298_3$   |
| $1053_1 = \chi_{7+}$   | .               | .               | .               | .               | .               | .                | .                | .                | $\varphi_{7,0} = 467_1$   |
| $468_1 = \chi_{10,0}$  | .               | .               | .               | .               | .               | .                | .                | .                | $\varphi_{7,1} = 467_2$   |
| $468_2 = \chi_{10,1}$  | 1               | .               | .               | .               | .               | .                | .                | .                | $\varphi_{7,2} = 467_3$   |
| $468_3 = \chi_{10,2}$  | .               | 1               | .               | .               | .               | .                | .                | .                | $\varphi_{9,0} = 1053_1$  |
| $1053_2 = \chi_{12,0}$ | .               | .               | 1               | .               | .               | .                | .                | .                | $\varphi_{9,1} = 1053_2$  |
| $1053_3 = \chi_{12,1}$ | .               | .               | .               | 1               | .               | .                | .                | .                | $\varphi_{9,2} = 1053_3$  |
| $1053_4 = \chi_{12,2}$ | .               | .               | .               | .               | 1               | .                | .                | .                | $\varphi_{10,0} = 1262_1$ |
| $1664_1 = \chi_{14,0}$ | .               | .               | .               | .               | .               | 1                | .                | .                | $\varphi_{10,1} = 1262_2$ |
| $1664_2 = \chi_{14,1}$ | .               | .               | .               | .               | .               | .                | 1                | .                | $\varphi_{10,2} = 1262_3$ |
| $1664_3 = \chi_{14,2}$ | .               | .               | .               | .               | .               | .                | .                | 1                |                           |
| $6318_1 = \chi_{18+}$  | 1               | 1               | .               | .               | .               | 1                | 1                | 1                |                           |
| $8424_1 = \chi_{25+}$  | 1               | 1               | 1               | 1               | 1               | 1                | 1                | 1                |                           |
| $4096_1 = \chi_{34,0}$ | .               | .               | 1               | .               | .               | .                | 1                | 1                |                           |
| $4096_2 = \chi_{34,1}$ | 1               | .               | .               | 1               | .               | 1                | .                | 1                |                           |
| $4096_3 = \chi_{34,2}$ | .               | 1               | .               | .               | 1               | 1                | 1                | .                |                           |

| <b>Block 5:</b>        | $\varphi_{5,0}$ | $\varphi_{5,1}$ | $\varphi_{5,2}$ | $\varphi_{15,0}$ | $\varphi_{15,1}$ | $\varphi_{15,2}$ |                           |
|------------------------|-----------------|-----------------|-----------------|------------------|------------------|------------------|---------------------------|
| $273_1 = \chi_{5,0}$   | 1               | .               | .               | .                | .                | .                | $\varphi_{5,0} = 273_1$   |
| $273_2 = \chi_{5,1}$   | .               | 1               | .               | .                | .                | .                | $\varphi_{5,1} = 273_2$   |
| $273_3 = \chi_{5,2}$   | .               | .               | 1               | .                | .                | .                | $\varphi_{5,2} = 273_3$   |
| $2184_1 = \chi_{21,0}$ | .               | .               | .               | 1                | .                | .                | $\varphi_{15,0} = 2184_1$ |
| $2184_2 = \chi_{21,1}$ | .               | .               | .               | .                | 1                | .                | $\varphi_{15,1} = 2184_2$ |
| $2184_3 = \chi_{21,2}$ | .               | .               | .               | .                | .                | 1                | $\varphi_{15,2} = 2184_3$ |
| $7371_1 = \chi_{22+}$  | 1               | 1               | 1               | 1                | 1                | 1                |                           |