

QSD E-codes

Phi-Generator matrices of the QSD codes and weight distributions

Odd lengths

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n=5 k1=1

[1 0 1 0 0]
[w 0 w 0 0]
[0 1 0 0 0]
[0 0 0 1 0]
[0 0 0 0 1],
[<0, 1>, <1, 1>, <2, 6>, <3, 6>, <4, 9>, <5, 9>],

[1 0 0 0 1]
[w 0 w w w]
[0 1 0 0 0]
[0 0 1 0 1]
[0 0 0 1 1]
[<0, 1>, <1, 3>, <2, 6>, <3, 10>, <4, 9>, <5, 3>]

n=5 k1=2

[1 0 1 0 0]
[w 0 w 0 0]
[0 1 0 0 1]
[0 w 0 0 w]
[0 0 0 1 0]
[<0, 1>, <1, 1>, <2, 6>, <3, 6>, <4, 9>, <5, 9>]

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n=7 k1=1

[1 0 1 0 0 0 0]
[w 0 w 0 0 0 0]
[0 1 0 0 1 0 0]
[0 w 0 0 w 0 0]
[0 0 0 1 0 0 1]
[0 0 0 w 0 0 w]
[0 0 0 0 0 1 0],
[<0, 1>, <1, 1>, <2, 9>, <3, 9>, <4, 27>, <5, 27>, <6,
27>, <7, 27>],

[1 0 0 0 1 1 1]
[w 0 0 0 w w w]
[0 1 0 0 1 0 1]
[0 w 0 w w w 0]
[0 0 1 0 1 1 0]
[0 0 w w w 0 w]
[0 0 0 1 0 1 1]
[<0, 1>, <3, 7>, <4, 21>, <5, 42>, <6, 42>, <7, 15>]

[1 0 1 0 0 0 0]
[w 0 w 0 0 0 0]
[0 1 0 0 0 0 0]
[0 0 0 1 0 0 0]
[0 0 0 0 1 0 0]
[0 0 0 0 0 1 0]
[0 0 0 0 0 0 1],
[<0, 1>, <1, 1>, <2, 15>, <3, 15>, <4, 15>, <5, 15>, <6,
33>, <7, 33>],

$$\begin{bmatrix}
1 & 0 & 0 & 0 & 1 & 0 & 0 \\
w & 0 & w & w & w & 0 & 0 \\
0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 0 & 1 & 0 & 0 \\
0 & 0 & 0 & 1 & 1 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1
\end{bmatrix},$$

$[\langle 0, 1 \rangle, \langle 1, 3 \rangle, \langle 2, 9 \rangle, \langle 3, 19 \rangle, \langle 4, 27 \rangle, \langle 5, 33 \rangle, \langle 6, 27 \rangle, \langle 7, 9 \rangle]$,

$$\begin{bmatrix}
1 & 0 & 0 & 0 & 0 & 0 & 1 \\
w & 0 & w & w & w & w & w \\
0 & 1 & 0 & 0 & 0 & 0 & 0 \\
0 & 0 & 1 & 0 & 0 & 0 & 1 \\
0 & 0 & 0 & 1 & 0 & 0 & 1 \\
0 & 0 & 0 & 0 & 1 & 0 & 1 \\
0 & 0 & 0 & 0 & 0 & 1 & 1
\end{bmatrix}$$

$[\langle 0, 1 \rangle, \langle 1, 5 \rangle, \langle 2, 13 \rangle, \langle 3, 25 \rangle, \langle 4, 35 \rangle, \langle 5, 31 \rangle, \langle 6, 15 \rangle, \langle 7, 3 \rangle]$

n=7 k1=2

$$\begin{bmatrix}
1 & 0 & 1 & 0 & 0 & 0 & 0 \\
w & 0 & w & 0 & 0 & 0 & 0 \\
0 & 1 & 0 & 0 & 1 & 0 & 0 \\
0 & w & 0 & 0 & w & 0 & 0 \\
0 & 0 & 0 & 1 & 0 & 0 & 0 \\
0 & 0 & 0 & 0 & 0 & 1 & 0 \\
0 & 0 & 0 & 0 & 0 & 0 & 1
\end{bmatrix},$$

$[\langle 0, 1 \rangle, \langle 1, 3 \rangle, \langle 2, 9 \rangle, \langle 3, 19 \rangle, \langle 4, 27 \rangle, \langle 5, 33 \rangle, \langle 6, 27 \rangle, \langle 7, 9 \rangle]$,

[1 0 0 0 1 1 0]
 [w 0 w w 0 w 0]
 [0 1 0 0 1 0 0]
 [0 w 0 w w w 0]
 [0 0 1 0 1 1 0]
 [0 0 0 1 0 1 0]
 [0 0 0 0 0 0 1],
 [<0, 1>, <1, 1>, <2, 3>, <3, 11>, <4, 23>, <5, 39>, <6,
 37>, <7, 13>],

[1 0 0 0 0 0 1]
 [w 0 0 w 0 w w]
 [0 1 0 0 0 0 0]
 [0 0 1 0 1 0 0]
 [0 0 w 0 w 0 0]
 [0 0 0 1 0 0 1]
 [0 0 0 0 0 1 1]
 [<0, 1>, <1, 1>, <2, 9>, <3, 9>, <4, 27>, <5, 27>, <6,
 27>, <7, 27>]

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n=9 k1=1

[1 0 1 0 0 0 0 0 0]
 [w 0 w 0 0 0 0 0 0]
 [0 1 0 0 0 0 0 0 0]
 [0 0 0 1 0 0 0 0 0]
 [0 0 0 0 1 0 0 0 0]
 [0 0 0 0 0 1 0 0 0]
 [0 0 0 0 0 0 1 0 0]
 [0 0 0 0 0 0 0 1 0]

[0 0 0 0 0 0 0 0 0 1],
 [<0, 1>, <1, 7>, <2, 24>, <3, 56>, <4, 98>, <5, 126>,
 <6, 112>, <7, 64>,
 <8, 21>, <9, 3>],

[1 0 0 0 1 0 0 0 0 0]
 [w 0 w w w 0 0 0 0 0]
 [0 1 0 0 0 0 0 0 0 0]
 [0 0 1 0 1 0 0 0 0 0]
 [0 0 0 1 1 0 0 0 0 0]
 [0 0 0 0 0 1 0 0 0 0]
 [0 0 0 0 0 0 1 0 0 0]
 [0 0 0 0 0 0 0 1 0 0]
 [0 0 0 0 0 0 0 0 1 0]
 [0 0 0 0 0 0 0 0 0 1],
 [<0, 1>, <1, 1>, <2, 28>, <3, 28>, <4, 70>, <5, 70>,
 <6, 28>, <7, 28>, <8,
 129>, <9, 129>],

[1 0 0 0 0 0 1 0 0 0]
 [w 0 w w w w w 0 0 0]
 [0 1 0 0 0 0 0 0 0 0]
 [0 0 1 0 0 0 1 0 0 0]
 [0 0 0 1 0 0 1 0 0 0]
 [0 0 0 0 1 0 1 0 0 0]
 [0 0 0 0 0 1 1 0 0 0]
 [0 0 0 0 0 0 0 1 0 0]
 [0 0 0 0 0 0 0 0 1 0]
 [0 0 0 0 0 0 0 0 0 1],
 [<0, 1>, <1, 3>, <2, 18>, <3, 46>, <4, 60>, <5, 60>, <6,
 78>, <7, 114>, <8,
 99>, <9, 33>],

[1 0 0 0 0 0 0 0 0 1]

[w 0 w w w w w w w]
 [0 1 0 0 0 0 0 0 0]
 [0 0 1 0 0 0 0 0 1]
 [0 0 0 1 0 0 0 0 1]
 [0 0 0 0 1 0 0 0 1]
 [0 0 0 0 0 1 0 0 1]
 [0 0 0 0 0 0 1 0 1]
 [0 0 0 0 0 0 0 1 1]
 [<0, 1>, <1, 5>, <2, 16>, <3, 40>, <4, 74>, <5, 106>,
 <6, 120>, <7, 96>,
 <8, 45>, <9, 9>]

n=9 k1=2

[1 0 1 0 0 0 0 0 0]
 [w 0 w 0 0 0 0 0 0]
 [0 1 0 0 1 0 0 0 0]
 [0 w 0 0 w 0 0 0 0]
 [0 0 0 1 0 0 0 0 0]
 [0 0 0 0 0 1 0 0 0]
 [0 0 0 0 0 0 1 0 0]
 [0 0 0 0 0 0 0 1 0]
 [0 0 0 0 0 0 0 0 1],
 [<0, 1>, <1, 5>, <2, 16>, <3, 40>, <4, 74>, <5, 106>,
 <6, 120>, <7, 96>,
 <8, 45>, <9, 9>],

[1 0 0 0 1 1 0 0 0]
 [w 0 w w 0 w 0 0 0]
 [0 1 0 0 1 0 0 0 0]
 [0 w 0 w w w 0 0 0]
 [0 0 1 0 1 1 0 0 0]

[0 0 0 1 0 1 0 0 0]
 [0 0 0 0 0 0 1 0 0]
 [0 0 0 0 0 0 0 1 0]
 [0 0 0 0 0 0 0 0 1],
 [<0, 1>, <1, 3>, <2, 6>, <3, 18>, <4, 48>, <5, 96>, <6,
 138>, <7, 126>, <8,
 63>, <9, 13>],

[1 0 0 0 0 0 1 0 0]
 [w 0 0 w 0 w w 0 0]
 [0 1 0 0 0 0 0 0 0]
 [0 0 1 0 1 0 0 0 0]
 [0 0 w 0 w 0 0 0 0]
 [0 0 0 1 0 0 1 0 0]
 [0 0 0 0 0 1 1 0 0]
 [0 0 0 0 0 0 0 1 0]
 [0 0 0 0 0 0 0 0 1],
 [<0, 1>, <1, 3>, <2, 12>, <3, 28>, <4, 54>, <5, 90>, <6,
 108>, <7, 108>,
 <8, 81>, <9, 27>],

[1 0 0 0 1 0 0 1 0]
 [w 0 w w 0 w w w 0]
 [0 1 0 0 1 0 0 0 0]
 [0 w 0 w w w w w 0]
 [0 0 1 0 1 0 0 1 0]
 [0 0 0 1 0 0 0 1 0]
 [0 0 0 0 0 1 0 1 0]
 [0 0 0 0 0 0 1 1 0]
 [0 0 0 0 0 0 0 0 1],
 [<0, 1>, <1, 1>, <2, 8>, <3, 24>, <4, 34>, <5, 50>, <6,
 96>, <7, 144>, <8,

117>, <9, 37>],

[1 0 0 0 0 0 0 0 1]
[w 0 0 w 0 w w w w]
[0 1 0 0 0 0 0 0 0]
[0 0 1 0 1 0 0 0 0]
[0 0 w 0 w 0 0 0 0]
[0 0 0 1 0 0 0 0 1]
[0 0 0 0 0 1 0 0 1]
[0 0 0 0 0 0 1 0 1]
[0 0 0 0 0 0 0 1 1],

[<0, 1>, <1, 1>, <2, 18>, <3, 18>, <4, 60>, <5, 60>, <6,
78>, <7, 78>, <8,
99>, <9, 99>],

[1 0 0 0 0 0 0 0 1]
[w 0 0 w 0 0 0 w w]
[0 1 0 0 0 0 0 0 0]
[0 0 1 0 0 0 1 0 0]
[0 0 w 0 w w w 0 0]
[0 0 0 1 0 0 0 0 1]
[0 0 0 0 1 0 1 0 0]
[0 0 0 0 0 1 1 0 0]
[0 0 0 0 0 0 0 1 1]

[<0, 1>, <1, 1>, <2, 12>, <3, 12>, <4, 54>, <5, 54>, <6,
108>, <7, 108>,
<8, 81>, <9, 81>]

n=9 k1=3

[1 0 1 0 0 0 0 0 0]
[w 0 w 0 0 0 0 0 0]

[0 1 0 0 1 0 0 0 0]
 [0 w 0 0 w 0 0 0 0]
 [0 0 0 1 0 0 1 0 0]
 [0 0 0 w 0 0 w 0 0]
 [0 0 0 0 0 1 0 0 0]
 [0 0 0 0 0 0 0 1 0]
 [0 0 0 0 0 0 0 0 1],
 [<0, 1>, <1, 3>, <2, 12>, <3, 28>, <4, 54>, <5, 90>, <6,
 108>, <7, 108>,
 <8, 81>, <9, 27>],

[1 0 0 0 1 1 1 0 0]
 [w 0 0 0 w w w 0 0]
 [0 1 0 0 1 0 1 0 0]
 [0 w 0 w w w 0 0 0]
 [0 0 1 0 1 1 0 0 0]
 [0 0 w w w 0 w 0 0]
 [0 0 0 1 0 1 1 0 0]
 [0 0 0 0 0 0 0 1 0]
 [0 0 0 0 0 0 0 0 1],
 [<0, 1>, <1, 2>, <2, 1>, <3, 7>, <4, 35>, <5, 91>, <6,
 147>, <7, 141>, <8,
 72>, <9, 15>],

[1 0 0 0 1 0 0 1 0]
 [w 0 w 0 0 w 0 w 0]
 [0 1 0 0 1 0 0 0 0]
 [0 w 0 0 w w 0 w 0]
 [0 0 1 0 1 0 0 1 0]
 [0 0 0 1 0 0 1 0 0]
 [0 0 0 w 0 0 w 0 0]
 [0 0 0 0 0 1 0 1 0]

[0 0 0 0 0 0 0 0 1],
 [<0, 1>, <1, 1>, <2, 6>, <3, 14>, <4, 32>, <5, 72>, <6,
 106>, <7, 130>, <8,
 111>, <9, 39>],

[1 0 0 0 0 0 0 0 1]
 [w 0 0 0 0 w 0 w w]
 [0 1 0 0 0 0 0 0 0]
 [0 0 1 0 1 0 0 0 0]
 [0 0 w 0 w 0 0 0 0]
 [0 0 0 1 0 0 1 0 0]
 [0 0 0 w 0 0 w 0 0]
 [0 0 0 0 0 1 0 0 1]
 [0 0 0 0 0 0 0 1 1],
 [<0, 1>, <1, 1>, <2, 12>, <3, 12>, <4, 54>, <5, 54>, <6,
 108>, <7, 108>,
 <8, 81>, <9, 81>],

[1 0 0 0 1 0 1 0 1]
 [w 0 0 0 w w w w w]
 [0 1 0 0 1 0 1 0 0]
 [0 w 0 w w w 0 w w]
 [0 0 1 0 1 0 0 0 1]
 [0 0 w w w 0 w 0 0]
 [0 0 0 1 0 0 1 0 1]
 [0 0 0 0 0 1 0 0 1]
 [0 0 0 0 0 0 0 1 1],
 [<0, 1>, <2, 3>, <3, 13>, <4, 21>, <5, 45>, <6, 105>,
 <7, 159>, <8, 126>,
 <9, 39>],

[1 0 0 0 0 0 0 0 1]

[w 0 0 0 0 w 0 w w]
 [0 1 0 0 0 0 0 0 0]
 [0 0 1 0 0 0 1 1 1]
 [0 0 w 0 w w 0 w 0]
 [0 0 0 1 0 0 1 0 0]
 [0 0 0 w 0 w w w 0]
 [0 0 0 0 1 0 1 1 1]
 [0 0 0 0 0 1 0 1 0]
 [<0, 1>, <1, 1>, <2, 4>, <3, 4>, <4, 46>, <5, 46>, <6,
 148>, <7, 148>, <8,
 57>, <9, 57>]

n=9 k1=4

[1 0 1 0 0 0 0 0 0]
 [w 0 w 0 0 0 0 0 0]
 [0 1 0 0 1 0 0 0 0]
 [0 w 0 0 w 0 0 0 0]
 [0 0 0 1 0 0 1 0 0]
 [0 0 0 w 0 0 w 0 0]
 [0 0 0 0 0 1 0 0 1]
 [0 0 0 0 0 w 0 0 w]
 [0 0 0 0 0 0 0 1 0],
 [<0, 1>, <1, 1>, <2, 12>, <3, 12>, <4, 54>, <5, 54>, <6,
 108>, <7, 108>, <8, 81>, <9, 81>],

[1 0 0 0 1 1 1 0 0]
 [w 0 0 0 w w w 0 0]
 [0 1 0 0 1 0 1 0 1]
 [0 w 0 0 w 0 w 0 w]
 [0 0 1 0 1 1 0 0 1]
 [0 0 w 0 w w 0 0 w]

[0 0 0 1 0 1 1 0 1]
 [0 0 0 w 0 w w 0 w]
 [0 0 0 0 0 0 0 0 1 0],
 [<0, 1>, <1, 1>, <4, 42>, <5, 42>, <6, 168>, <7, 168>,
 <8, 45>, <9, 45>],

[1 0 0 0 1 0 1 1 0]
 [w 0 0 0 w 0 w w 0]
 [0 1 0 0 1 0 1 0 0]
 [0 w 0 w w 0 0 w 0]
 [0 0 1 0 1 0 0 1 0]
 [0 0 w w w 0 w 0 0]
 [0 0 0 1 0 0 1 1 0]
 [0 0 0 0 0 1 0 0 1]
 [0 0 0 0 0 w 0 0 w]
 [<0, 1>, <2, 3>, <3, 7>, <4, 21>, <5, 63>, <6, 105>, <7,
 141>, <8, 126>, <9, 45>]

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 //////////////////////////////////

n=11 k1=1

[1 0 1 0 0 0 0 0 0 0 0]
 [w 0 w 0 0 0 0 0 0 0 0]
 [0 1 0 0 0 0 0 0 0 0 0]
 [0 0 0 1 0 0 0 0 0 0 0]
 [0 0 0 0 1 0 0 0 0 0 0]
 [0 0 0 0 0 1 0 0 0 0 0]
 [0 0 0 0 0 0 1 0 0 0 0]
 [0 0 0 0 0 0 0 1 0 0 0]
 [0 0 0 0 0 0 0 0 1 0 0]
 [0 0 0 0 0 0 0 0 0 1 0]

$[0 0 0 0 0 0 0 0 0 0 0 1],$
 $[\langle 0, 1 \rangle, \langle 1, 1 \rangle, \langle 2, 45 \rangle, \langle 3, 45 \rangle, \langle 4, 210 \rangle, \langle 5, 210 \rangle,$
 $\langle 6, 210 \rangle, \langle 7, 210 \rangle,$
 $\langle 8, 45 \rangle, \langle 9, 45 \rangle, \langle 10, 513 \rangle, \langle 11, 513 \rangle],$

$[1 0 0 0 1 0 0 0 0 0 0 0]$
 $[w 0 w w w 0 0 0 0 0 0 0]$
 $[0 1 0 0 0 0 0 0 0 0 0 0]$
 $[0 0 1 0 1 0 0 0 0 0 0 0]$
 $[0 0 0 1 1 0 0 0 0 0 0 0]$
 $[0 0 0 0 0 1 0 0 0 0 0 0]$
 $[0 0 0 0 0 0 1 0 0 0 0 0]$
 $[0 0 0 0 0 0 0 1 0 0 0 0]$
 $[0 0 0 0 0 0 0 0 1 0 0 0]$
 $[0 0 0 0 0 0 0 0 0 1 0 0]$
 $[0 0 0 0 0 0 0 0 0 0 1 0],$
 $[\langle 0, 1 \rangle, \langle 1, 9 \rangle, \langle 2, 39 \rangle, \langle 3, 111 \rangle, \langle 4, 234 \rangle, \langle 5, 378 \rangle,$
 $\langle 6, 462 \rangle, \langle 7, 414 \rangle,$
 $\langle 8, 261 \rangle, \langle 9, 109 \rangle, \langle 10, 27 \rangle, \langle 11, 3 \rangle],$

$[1 0 0 0 0 0 1 0 0 0 0 0]$
 $[w 0 w w w w w 0 0 0 0 0]$
 $[0 1 0 0 0 0 0 0 0 0 0 0]$
 $[0 0 1 0 0 0 1 0 0 0 0 0]$
 $[0 0 0 1 0 0 1 0 0 0 0 0]$
 $[0 0 0 0 1 0 1 0 0 0 0 0]$
 $[0 0 0 0 0 1 1 0 0 0 0 0]$
 $[0 0 0 0 0 0 0 1 0 0 0 0]$
 $[0 0 0 0 0 0 0 0 1 0 0 0]$
 $[0 0 0 0 0 0 0 0 0 1 0 0]$
 $[0 0 0 0 0 0 0 0 0 0 1 0],$
 $[\langle 0, 1 \rangle, \langle 1, 7 \rangle, \langle 2, 27 \rangle, \langle 3, 77 \rangle, \langle 4, 170 \rangle, \langle 5, 294 \rangle,$

<6, 406>, <7, 442>, <8, 357>, <9, 195>, <10, 63>, <11, 9>],

[1 0 0 0 0 0 0 0 1 0 0]
[w 0 w w w w w w w 0 0]
[0 1 0 0 0 0 0 0 0 0 0]
[0 0 1 0 0 0 0 0 1 0 0]
[0 0 0 1 0 0 0 0 1 0 0]
[0 0 0 0 1 0 0 0 1 0 0]
[0 0 0 0 0 1 0 0 1 0 0]
[0 0 0 0 0 0 1 0 1 0 0]
[0 0 0 0 0 0 0 1 1 0 0]
[0 0 0 0 0 0 0 0 0 1 0]
[0 0 0 0 0 0 0 0 0 0 1],

[<0, 1>, <1, 3>, <2, 31>, <3, 85>, <4, 154>, <5, 238>, <6, 238>, <7, 154>, <8, 213>, <9, 415>, <10, 387>, <11, 129>],

[1 0 0 0 0 0 0 0 0 0 1]
[w 0 w w w w w w w w w]
[0 1 0 0 0 0 0 0 0 0 0]
[0 0 1 0 0 0 0 0 0 0 1]
[0 0 0 1 0 0 0 0 0 0 1]
[0 0 0 0 1 0 0 0 0 0 1]
[0 0 0 0 0 1 0 0 0 0 1]
[0 0 0 0 0 0 1 0 0 0 1]
[0 0 0 0 0 0 0 1 0 0 1]
[0 0 0 0 0 0 0 0 1 0 1]
[0 0 0 0 0 0 0 0 0 1 1]

[<0, 1>, <1, 5>, <2, 25>, <3, 85>, <4, 170>, <5, 226>, <6, 258>, <7, 330>, <8, 405>, <9, 345>, <10, 165>, <11, 33>]

n=11 k1=2

[1 0 1 0 0 0 0 0 0 0 0]
[w 0 w 0 0 0 0 0 0 0 0]
[0 1 0 0 1 0 0 0 0 0 0]
[0 w 0 0 w 0 0 0 0 0 0]
[0 0 0 1 0 0 0 0 0 0 0]
[0 0 0 0 0 1 0 0 0 0 0]
[0 0 0 0 0 0 1 0 0 0 0]
[0 0 0 0 0 0 0 1 0 0 0]
[0 0 0 0 0 0 0 0 1 0 0]
[0 0 0 0 0 0 0 0 0 1 0]
[0 0 0 0 0 0 0 0 0 0 1],
[<0, 1>, <1, 7>, <2, 27>, <3, 77>, <4, 170>, <5, 294>,
<6, 406>, <7, 442>,
<8, 357>, <9, 195>, <10, 63>, <11, 9>],

[1 0 0 0 1 1 0 0 0 0 0]
[w 0 w w 0 w 0 0 0 0 0]
[0 1 0 0 1 0 0 0 0 0 0]
[0 w 0 w w w 0 0 0 0 0]
[0 0 1 0 1 1 0 0 0 0 0]
[0 0 0 1 0 1 0 0 0 0 0]
[0 0 0 0 0 0 1 0 0 0 0]
[0 0 0 0 0 0 0 1 0 0 0]
[0 0 0 0 0 0 0 0 1 0 0]
[0 0 0 0 0 0 0 0 0 1 0]
[0 0 0 0 0 0 0 0 0 0 1],
[<0, 1>, <1, 5>, <2, 13>, <3, 33>, <4, 90>, <5, 210>,
<6, 378>, <7, 498>],

<8, 453>, <9, 265>, <10, 89>, <11, 13>],

[1 0 0 0 0 0 1 0 0 0 0]
[w 0 0 w 0 w w 0 0 0 0]
[0 1 0 0 0 0 0 0 0 0 0]
[0 0 1 0 1 0 0 0 0 0 0]
[0 0 w 0 w 0 0 0 0 0 0]
[0 0 0 1 0 0 1 0 0 0 0]
[0 0 0 0 0 1 1 0 0 0 0]
[0 0 0 0 0 0 0 1 0 0 0]
[0 0 0 0 0 0 0 0 1 0 0]
[0 0 0 0 0 0 0 0 0 1 0]
[0 0 0 0 0 0 0 0 0 0 1],

[<0, 1>, <1, 5>, <2, 19>, <3, 55>, <4, 122>, <5, 226>,
<6, 342>, <7, 414>,
<8, 405>, <9, 297>, <10, 135>, <11, 27>],

[1 0 0 0 1 0 0 1 0 0 0]
[w 0 w w 0 w w w 0 0 0]
[0 1 0 0 1 0 0 0 0 0 0]
[0 w 0 w w w w w 0 0 0]
[0 0 1 0 1 0 0 1 0 0 0]
[0 0 0 1 0 0 0 1 0 0 0]
[0 0 0 0 0 1 0 1 0 0 0]
[0 0 0 0 0 0 1 1 0 0 0]
[0 0 0 0 0 0 0 0 1 0 0]
[0 0 0 0 0 0 0 0 0 1 0]
[0 0 0 0 0 0 0 0 0 0 1],

[<0, 1>, <1, 3>, <2, 11>, <3, 41>, <4, 90>, <5, 142>,
<6, 230>, <7, 386>,
<8, 501>, <9, 415>, <10, 191>, <11, 37>],

[1 0 0 0 0 0 0 0 1 0 0]
 [w 0 0 w 0 w w w w 0 0]
 [0 1 0 0 0 0 0 0 0 0 0]
 [0 0 1 0 1 0 0 0 0 0 0]
 [0 0 w 0 w 0 0 0 0 0 0]
 [0 0 0 1 0 0 0 0 1 0 0]
 [0 0 0 0 0 1 0 0 1 0 0]
 [0 0 0 0 0 0 1 0 1 0 0]
 [0 0 0 0 0 0 0 1 1 0 0]
 [0 0 0 0 0 0 0 0 0 1 0]
 [0 0 0 0 0 0 0 0 0 0 1],
 [<0, 1>, <1, 3>, <2, 21>, <3, 55>, <4, 114>, <5, 198>,
 <6, 258>, <7, 294>,
 <8, 333>, <9, 375>, <10, 297>, <11, 99>],

[1 0 0 0 1 0 0 0 0 1 0]
 [w 0 w w 0 w w w w w 0]
 [0 1 0 0 1 0 0 0 0 0 0]
 [0 w 0 w w w w w w w 0]
 [0 0 1 0 1 0 0 0 0 1 0]
 [0 0 0 1 0 0 0 0 0 1 0]
 [0 0 0 0 0 1 0 0 0 1 0]
 [0 0 0 0 0 0 1 0 0 1 0]
 [0 0 0 0 0 0 0 1 0 1 0]
 [0 0 0 0 0 0 0 0 1 1 0]
 [0 0 0 0 0 0 0 0 0 0 1],
 [<0, 1>, <1, 1>, <2, 17>, <3, 41>, <4, 74>, <5, 154>,
 <6, 210>, <7, 210>,
 <8, 309>, <9, 485>, <10, 413>, <11, 133>],

[1 0 0 0 0 0 0 0 0 0 1]
 [w 0 0 w 0 w w w w w w]

[0 1 0 0 0 0 0 0 0 0 0]
 [0 0 1 0 1 0 0 0 0 0 0]
 [0 0 w 0 w 0 0 0 0 0 0]
 [0 0 0 1 0 0 0 0 0 0 1]
 [0 0 0 0 0 1 0 0 0 0 1]
 [0 0 0 0 0 0 1 0 0 0 1]
 [0 0 0 0 0 0 0 1 0 0 1]
 [0 0 0 0 0 0 0 0 1 0 1]
 [0 0 0 0 0 0 0 0 0 1 1],
 [<0, 1>, <1, 1>, <2, 31>, <3, 31>, <4, 154>, <5, 154>,
 <6, 238>, <7, 238>,
 <8, 213>, <9, 213>, <10, 387>, <11, 387>],

[1 0 0 0 0 0 0 0 1 0 0]
 [w 0 0 w 0 0 0 w w 0 0]
 [0 1 0 0 0 0 0 0 0 0 0]
 [0 0 1 0 0 0 1 0 0 0 0]
 [0 0 w 0 w w w 0 0 0 0]
 [0 0 0 1 0 0 0 0 1 0 0]
 [0 0 0 0 1 0 1 0 0 0 0]
 [0 0 0 0 0 1 1 0 0 0 0]
 [0 0 0 0 0 0 0 1 1 0 0]
 [0 0 0 0 0 0 0 0 0 1 0]
 [0 0 0 0 0 0 0 0 0 0 1],
 [<0, 1>, <1, 3>, <2, 15>, <3, 37>, <4, 90>, <5, 174>,
 <6, 270>, <7, 378>,
 <8, 405>, <9, 351>, <10, 243>, <11, 81>],

[1 0 0 0 0 0 1 0 0 1 0]
 [w 0 w w 0 0 0 w w w 0]
 [0 1 0 0 0 0 1 0 0 0 0]
 [0 w 0 w w w w w w w 0]

[0 0 1 0 0 0 1 0 0 1 0]
 [0 0 0 1 0 0 0 0 0 1 0]
 [0 0 0 0 1 0 1 0 0 0 0]
 [0 0 0 0 0 1 1 0 0 0 0]
 [0 0 0 0 0 0 0 1 0 1 0]
 [0 0 0 0 0 0 0 0 1 1 0]
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