Parametric Table of Secret-Revealing Attack on the Function fh(X,Y)

```
wt(X) = 0 wt(Y) = 0
x0 x1 x2 x3 x4 x5 x6 x7
                                   X1
x8 x9 xa xb xc xd xe xf
                                  X2
                                    Y1
y0 y1 y2 y3 y4 y5 y6 y7
y8 y9 ya yb yc yd ye yf
                                  Y2
x0 x1 x2 x3 x4 x5 x6 x7
y0 y1 y2 y3 y4 y5 y6 y7
                                    X''
x8 x9 xa xb xc xd xe xf
                                  Y''
y8 y9 ya yb yc yd ye yf
x0 \oplus x8 \ x1 \oplus x9 \ x2 \oplus xa \ x3 \oplus xb \ x4 \oplus xc \ x5 \oplus xd \ x6 \oplus xe \ x7 \oplus xf
y0 \oplus y8 \ y1 \oplus y9 \ y2 \oplus ya \ y3 \oplus yb \ y4 \oplus yc \ y5 \oplus yd \ y6 \oplus ye \ y7 \oplus yf
                                                                                     Z
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Z

$$wt(X) = 0$$
 $wt(Y) = 2$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

ye yf y0 y1 y2 y3 y4 y5 Y1 y6 y7 y8 y9 ya yb yc yd Y2

x0 x1 x2 x3 x4 x5 x6 x7 ye yf y0 y1 y2 y3 y4 y5 X"

yc yd x8 x9 xa xb xc xd xe xf y6 y7 y8 y9 ya yb Y"

 $x0 \oplus yc \ x1 \oplus yd \ x2 \oplus x8 \ x3 \oplus x9 \ x4 \oplus xa \ x5 \oplus xb \ x6 \oplus xc \ x7 \oplus xd$ $ye \oplus xe \ yf \oplus xf \ y0 \oplus y6 \ y1 \oplus y7 \ y2 \oplus y8 \ y3 \oplus y9 \ y4 \oplus ya \ y5 \oplus yb$ Z

$$wt(X) = 0$$
 $wt(Y) = 3$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

yd ye yf y0 y1 y2 y3 y4 Y1 y5 y6 y7 y8 y9 ya yb yc Y2

x0 x1 x2 x3 x4 x5 x6 x7 yd ye yf y0 y1 y2 y3 y4 X"

ya yb yc x8 x9 xa xb xc xd xe xf y5 y6 y7 y8 y9 Y"

 $x0 \oplus ya \ x1 \oplus yb \ x2 \oplus yc \ x3 \oplus x8 \ x4 \oplus x9 \ x5 \oplus xa \ x6 \oplus xb \ x7 \oplus xc$ $yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus y5 \ y1 \oplus y6 \ y2 \oplus y7 \ y3 \oplus y8 \ y4 \oplus y9$ Z

$$wt(X) = 0$$
 $wt(Y) = 4$

x0 x1 x2 x3 x4 x5 x6 x7 X1

x8 x9 xa xb xc xd xe xf X2

yc yd ye yf y0 y1 y2 y3 Y1 y4 y5 y6 y7 y8 y9 ya yb Y2

x0 x1 x2 x3 x4 x5 x6 x7 yc yd ye yf y0 y1 y2 y3 X"

y8 y9 ya yb x8 x9 xa xb xc xd xe xf y4 y5 y6 y7 Y"

 $x0 \oplus y8 \ x1 \oplus y9 \ x2 \oplus ya \ x3 \oplus yb \ x4 \oplus x8 \ x5 \oplus x9 \ x6 \oplus xa \ x7 \oplus xb$ $yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus y4 \ y1 \oplus y5 \ y2 \oplus y6 \ y3 \oplus y7$

Z

$$wt(X) = 0$$
 $wt(Y) = 5$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

yb yc yd ye yf y0 y1 y2 Y1 y3 y4 y5 y6 y7 y8 y9 ya Y2

x0 x1 x2 x3 x4 x5 x6 x7 yb yc yd ye yf y0 y1 y2 X"

y6 y7 y8 y9 ya x8 x9 xa xb xc xd xe xf y3 y4 y5 Y"

 $x0 \oplus y6 \ x1 \oplus y7 \ x2 \oplus y8 \ x3 \oplus y9 \ x4 \oplus ya \ x5 \oplus x8 \ x6 \oplus x9 \ x7 \oplus xa$ $yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus y3 \ y1 \oplus y4 \ y2 \oplus y5$ Z

$$wt(X) = 0$$
 $wt(Y) = 6$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

ya yb yc yd ye yf y0 y1 Y1

y2 y3 y4 y5 y6 y7 y8 y9 Y2

x0 x1 x2 x3 x4 x5 x6 x7 ya yb yc yd ye yf y0 y1 X"

y4 y5 y6 y7 y8 y9 x8 x9 xa xb xc xd xe xf y2 y3 Y"

 $x0 \oplus y4 \times 1 \oplus y5 \times 2 \oplus y6 \times 3 \oplus y7 \times 4 \oplus y8 \times 5 \oplus y9 \times 6 \oplus x8 \times 7 \oplus x9$ $ya \oplus xa \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus y2 \ y1 \oplus y3$ Z

wt(X) = 0 wt(Y) = 7

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y9 ya yb yc yd ye yf y0 Y1 y1 y2 y3 y4 y5 y6 y7 y8 Y2

x0 x1 x2 x3 x4 x5 x6 x7 y9 ya yb yc yd ye yf y0 X"

y2 y3 y4 y5 y6 y7 y8 x8 x9 xa xb xc xd xe xf y1 Y"

 $x0 \oplus y2 \ x1 \oplus y3 \ x2 \oplus y4 \ x3 \oplus y5 \ x4 \oplus y6 \ x5 \oplus y7 \ x6 \oplus y8 \ x7 \oplus x8$ $y9 \oplus x9 \ ya \oplus xa \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus y1$ Z

wt(X) = 0 wt(Y) = 8

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y8 y9 ya yb yc yd ye yf Y1 y0 y1 y2 y3 y4 y5 y6 y7 Y2

x0 x1 x2 x3 x4 x5 x6 x7

y8 y9 ya yb yc yd ye yf X"

y0 y1 y2 y3 y4 y5 y6 y7 x8 x9 xa xb xc xd xe xf Y"

 $x0 \oplus y0 \ x1 \oplus y1 \ x2 \oplus y2 \ x3 \oplus y3 \ x4 \oplus y4 \ x5 \oplus y5 \ x6 \oplus y6 \ x7 \oplus y7$ $y8 \oplus x8 \ y9 \oplus x9 \ ya \oplus xa \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf$ Z

wt(X) = 0 wt(Y) = 9

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y7 y8 y9 ya yb yc yd ye Y1 yf y0 y1 y2 y3 y4 y5 y6 Y2

x0 x1 x2 x3 x4 x5 x6 x7 y7 y8 y9 ya yb yc yd ye X"

xf yf y0 y1 y2 y3 y4 y5 y6 x8 x9 xa xb xc xd xe Y"

 $x0 \oplus xf \times 1 \oplus yf \times 2 \oplus y0 \times 3 \oplus y1 \times 4 \oplus y2 \times 5 \oplus y3 \times 6 \oplus y4 \times 7 \oplus y5$ $y7 \oplus y6 y8 \oplus x8 y9 \oplus x9 ya \oplus xa yb \oplus xb yc \oplus xc yd \oplus xd ye \oplus xe$ Z

wt(X) = 0 wt(Y) = 10

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y6 y7 y8 y9 ya yb yc yd ye yf y0 y1 y2 y3 y4 y5 Y2

x0 x1 x2 x3 x4 x5 x6 x7 y6 y7 y8 y9 ya yb yc yd X"

xe xf ye yf y0 y1 y2 y3

 $x0 \oplus xe \ x1 \oplus xf \ x2 \oplus ye \ x3 \oplus yf \ x4 \oplus y0 \ x5 \oplus y1 \ x6 \oplus y2 \ x7 \oplus y3$ $y6 \oplus y4 \ y7 \oplus y5 \ y8 \oplus x8 \ y9 \oplus x9 \ ya \oplus xa \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd$ Z

$$wt(X) = 0$$
 $wt(Y) = 11$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y5 y6 y7 y8 y9 ya yb yc Y1 yd ye yf y0 y1 y2 y3 y4 Y2

x0 x1 x2 x3 x4 x5 x6 x7 y5 y6 y7 y8 y9 ya yb yc X"

xd xe xf yd ye yf y0 y1 y2 y3 y4 x8 x9 xa xb xc Y"

 $x0 \oplus xd \ x1 \oplus xe \ x2 \oplus xf \ x3 \oplus yd \ x4 \oplus ye \ x5 \oplus yf \ x6 \oplus y0 \ x7 \oplus y1$ $y5 \oplus y2 \ y6 \oplus y3 \ y7 \oplus y4 \ y8 \oplus x8 \ y9 \oplus x9 \ ya \oplus xa \ yb \oplus xb \ yc \oplus xc$ Z

$$wt(X) = 0$$
 $wt(Y) = 12$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y4 y5 y6 y7 y8 y9 ya yb Y1 yc yd ye yf y0 y1 y2 y3 Y2

x0 x1 x2 x3 x4 x5 x6 x7 y4 y5 y6 y7 y8 y9 ya yb X"

xc xd xe xf yc yd ye yf y0 y1 y2 y3 x8 x9 xa xb Y"

Z

Z

wt(X) = 0 wt(Y) = 13

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y3 y4 y5 y6 y7 y8 y9 ya Y1 yb yc yd ye yf y0 y1 y2 Y2

x0 x1 x2 x3 x4 x5 x6 x7 y3 y4 y5 y6 y7 y8 y9 ya X"

xb xc xd xe xf yb yc yd ye yf y0 y1 y2 x8 x9 xa Y"

 $x0 \oplus xb \ x1 \oplus xc \ x2 \oplus xd \ x3 \oplus xe \ x4 \oplus xf \ x5 \oplus yb \ x6 \oplus yc \ x7 \oplus yd$ $y3 \oplus ye \ y4 \oplus yf \ y5 \oplus y0 \ y6 \oplus y1 \ y7 \oplus y2 \ y8 \oplus x8 \ y9 \oplus x9 \ ya \oplus xa$ Z

wt(X) = 0 wt(Y) = 14

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y2 y3 y4 y5 y6 y7 y8 y9 Y1 ya yb yc yd ye yf y0 y1 Y2

x0 x1 x2 x3 x4 x5 x6 x7 y2 y3 y4 y5 y6 y7 y8 y9 X"

xa xb xc xd xe xf ya yb yc yd ye yf y0 y1 x8 x9 Y"

 $x0 \oplus xa \ x1 \oplus xb \ x2 \oplus xc \ x3 \oplus xd \ x4 \oplus xe \ x5 \oplus xf \ x6 \oplus ya \ x7 \oplus yb$ $y2 \oplus yc \ y3 \oplus yd \ y4 \oplus ye \ y5 \oplus yf \ y6 \oplus y0 \ y7 \oplus y1 \ y8 \oplus x8 \ y9 \oplus x9$ -----

$$wt(X) = 0$$
 $wt(Y) = 15$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y1 y2 y3 y4 y5 y6 y7 y8 Y1 y9 ya yb yc yd ye yf y0 Y2

x0 x1 x2 x3 x4 x5 x6 x7 y1 y2 y3 y4 y5 y6 y7 y8 X"

x9 xa xb xc xd xe xf y9 ya yb yc yd ye yf y0 x8 Y"

 $x0 \oplus x9 \ x1 \oplus xa \ x2 \oplus xb \ x3 \oplus xc \ x4 \oplus xd \ x5 \oplus xe \ x6 \oplus xf \ x7 \oplus y9$ $y1 \oplus ya \ y2 \oplus yb \ y3 \oplus yc \ y4 \oplus yd \ y5 \oplus ye \ y6 \oplus yf \ y7 \oplus y0 \ y8 \oplus x8$ Z

$$wt(X) = 0$$
 $wt(Y) = 16$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

x0 x1 x2 x3 x4 x5 x6 x7 y0 y1 y2 y3 y4 y5 y6 y7 X"

x8 x9 xa xb xc xd xe xf y8 y9 ya yb yc yd ye yf Y"

 $x0 \oplus x8 \ x1 \oplus x9 \ x2 \oplus xa \ x3 \oplus xb \ x4 \oplus xc \ x5 \oplus xd \ x6 \oplus xe \ x7 \oplus xf$ $y0 \oplus y8 \ y1 \oplus y9 \ y2 \oplus ya \ y3 \oplus yb \ y4 \oplus yc \ y5 \oplus yd \ y6 \oplus ye \ y7 \oplus yf$ Z

$$wt(X) = 1 \quad wt(Y) = 0$$

xf x0 x1 x2 x3 x4 x5 x6 X1 x7 x8 x9 xa xb xc xd xe X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

y7 xf x0 x1 x2 x3 x4 x5 x6 y0 y1 y2 y3 y4 y5 y6 X"

x7 x8 x9 xa xb xc xd xe y8 y9 ya yb yc yd ye yf Y"

 $y7 \oplus x7 xf \oplus x8 x0 \oplus x9 x1 \oplus xa x2 \oplus xb x3 \oplus xc x4 \oplus xd x5 \oplus xe$ $x6 \oplus y8 y0 \oplus y9 y1 \oplus ya y2 \oplus yb y3 \oplus yc y4 \oplus yd y5 \oplus ye y6 \oplus yf$ Z

$$wt(X) = 1$$
 $wt(Y) = 1$

xf x0 x1 x2 x3 x4 x5 x6 X1 x7 x8 x9 xa xb xc xd xe X2

yf y0 y1 y2 y3 y4 y5 y6 Y1 y7 y8 y9 ya yb yc yd ye Y2

y6 xf x0 x1 x2 x3 x4 x5 x6 yf y0 y1 y2 y3 y4 y5 X"

ye x7 x8 x9 xa xb xc xd xe y7 y8 y9 ya yb yc yd Y"

y6 \oplus ye xf \oplus x7 x0 \oplus x8 x1 \oplus x9 x2 \oplus xa x3 \oplus xb x4 \oplus xc x5 \oplus xd x6 \oplus xe yf \oplus y7 y0 \oplus y8 y1 \oplus y9 y2 \oplus ya y3 \oplus yb y4 \oplus yc y5 \oplus yd Z

$$wt(X) = 1$$
 $wt(Y) = 2$

xf x0 x1 x2 x3 x4 x5 x6 X1

x7 x8 x9 xa xb xc xd xe X2

ye yf y0 y1 y2 y3 y4 y5 Y1 y6 y7 y8 y9 ya yb yc yd Y2

y5 xf x0 x1 x2 x3 x4 x5 x6 ye yf y0 y1 y2 y3 y4 X"

yc yd x7 x8 x9 xa xb xc xd xe y6 y7 y8 y9 ya yb Y"

y5 \oplus yc xf \oplus yd x0 \oplus x7 x1 \oplus x8 x2 \oplus x9 x3 \oplus xa x4 \oplus xb x5 \oplus xc x6 \oplus xd ye \oplus xe yf \oplus y6 y0 \oplus y7 y1 \oplus y8 y2 \oplus y9 y3 \oplus ya y4 \oplus yb Z

$$wt(X) = 1$$
 $wt(Y) = 3$

xf x0 x1 x2 x3 x4 x5 x6 X1 x7 x8 x9 xa xb xc xd xe X2

yd ye yf y0 y1 y2 y3 y4 Y1 y5 y6 y7 y8 y9 ya yb yc Y2

y4 xf x0 x1 x2 x3 x4 x5 x6 yd ye yf y0 y1 y2 y3 X"

ya yb yc x7 x8 x9 xa xb xc xd xe y5 y6 y7 y8 y9 Y"

 $y4 \oplus ya xf \oplus yb x0 \oplus yc x1 \oplus x7 x2 \oplus x8 x3 \oplus x9 x4 \oplus xa x5 \oplus xb$ $x6 \oplus xc yd \oplus xd ye \oplus xe yf \oplus y5 y0 \oplus y6 y1 \oplus y7 y2 \oplus y8 y3 \oplus y9$ Z

$$wt(X) = 1$$
 $wt(Y) = 4$

xf x0 x1 x2 x3 x4 x5 x6 X1 x7 x8 x9 xa xb xc xd xe X2

yc yd ye yf y0 y1 y2 y3 Y1

y4 y5 y6 y7 y8 y9 ya yb Y2

y3 xf x0 x1 x2 x3 x4 x5 x6 yc yd ye yf y0 y1 y2 X"

y8 y9 ya yb x7 x8 x9 xa xb xc xd xe y4 y5 y6 y7 Y"

 $y3 \oplus y8 xf \oplus y9 x0 \oplus ya x1 \oplus yb x2 \oplus x7 x3 \oplus x8 x4 \oplus x9 x5 \oplus xa$ $x6 \oplus xb yc \oplus xc yd \oplus xd ye \oplus xe yf \oplus y4 y0 \oplus y5 y1 \oplus y6 y2 \oplus y7$

Z

wt(X) = 1 wt(Y) = 5

xf x0 x1 x2 x3 x4 x5 x6 X1 x7 x8 x9 xa xb xc xd xe X2

yb yc yd ye yf y0 y1 y2 Y1 y3 y4 y5 y6 y7 y8 y9 ya Y2

y2 xf x0 x1 x2 x3 x4 x5 x6 yb yc yd ye yf y0 y1 X"

y6 y7 y8 y9 ya x7 x8 x9 xa xb xc xd xe y3 y4 y5 Y"

 $y2 \oplus y6 xf \oplus y7 x0 \oplus y8 x1 \oplus y9 x2 \oplus ya x3 \oplus x7 x4 \oplus x8 x5 \oplus x9$ $x6 \oplus xa yb \oplus xb yc \oplus xc yd \oplus xd ye \oplus xe yf \oplus y3 y0 \oplus y4 y1 \oplus y5$ Z

wt(X) = 1 wt(Y) = 6

xf x0 x1 x2 x3 x4 x5 x6 X1 x7 x8 x9 xa xb xc xd xe X2

ya yb yc yd ye yf y0 y1 Y1 y2 y3 y4 y5 y6 y7 y8 y9 Y2

y1 xf x0 x1 x2 x3 x4 x5

x6 ya yb yc yd ye yf y0 X"

y4 y5 y6 y7 y8 y9 x7 x8 x9 xa xb xc xd xe y2 y3 Y"

 $y1 \oplus y4 \text{ xf} \oplus y5 \text{ x}0 \oplus y6 \text{ x}1 \oplus y7 \text{ x}2 \oplus y8 \text{ x}3 \oplus y9 \text{ x}4 \oplus x7 \text{ x}5 \oplus x8$ $x6 \oplus x9 \text{ y}a \oplus xa \text{ y}b \oplus xb \text{ y}c \oplus xc \text{ y}d \oplus xd \text{ y}e \oplus xe \text{ y}f \oplus y2 \text{ y}0 \oplus y3$

Z

wt(X) = 1 wt(Y) = 7

xf x0 x1 x2 x3 x4 x5 x6 X1 x7 x8 x9 xa xb xc xd xe X2

y9 ya yb yc yd ye yf y0 Y1 y1 y2 y3 y4 y5 y6 y7 y8 Y2

y0 xf x0 x1 x2 x3 x4 x5 x6 y9 ya yb yc yd ye yf X"

y2 y3 y4 y5 y6 y7 y8 x7 x8 x9 xa xb xc xd xe y1 Y"

 $y0 \oplus y2 \text{ xf} \oplus y3 \text{ x}0 \oplus y4 \text{ x}1 \oplus y5 \text{ x}2 \oplus y6 \text{ x}3 \oplus y7 \text{ x}4 \oplus y8 \text{ x}5 \oplus \text{x}7$ $x6 \oplus x8 \text{ } y9 \oplus x9 \text{ y}a \oplus xa \text{ y}b \oplus xb \text{ y}c \oplus xc \text{ y}d \oplus xd \text{ y}e \oplus xe \text{ y}f \oplus y1$ Z

.....

wt(X) = 1 wt(Y) = 8

xf x0 x1 x2 x3 x4 x5 x6 X1 x7 x8 x9 xa xb xc xd xe X2

y8 y9 ya yb yc yd ye yf Y1 y0 y1 y2 y3 y4 y5 y6 y7 Y2

yf xf x0 x1 x2 x3 x4 x5 x6 y8 y9 ya yb yc yd ye X"

y0 y1 y2 y3 y4 y5 y6 y7

yf \oplus y0 xf \oplus y1 x0 \oplus y2 x1 \oplus y3 x2 \oplus y4 x3 \oplus y5 x4 \oplus y6 x5 \oplus y7 x6 \oplus x7 y8 \oplus x8 y9 \oplus x9 ya \oplus xa yb \oplus xb yc \oplus xc yd \oplus xd ye \oplus xe

Z

Z

$$wt(X) = 1$$
 $wt(Y) = 9$

xf x0 x1 x2 x3 x4 x5 x6 X1 x7 x8 x9 xa xb xc xd xe X2

y7 y8 y9 ya yb yc yd ye Y1 yf y0 y1 y2 y3 y4 y5 y6 Y2

ye xf x0 x1 x2 x3 x4 x5 x6 y7 y8 y9 ya yb yc yd X"

xe yf y0 y1 y2 y3 y4 y5 y6 x7 x8 x9 xa xb xc xd Y"

ye \oplus xe xf \oplus yf x0 \oplus y0 x1 \oplus y1 x2 \oplus y2 x3 \oplus y3 x4 \oplus y4 x5 \oplus y5 x6 \oplus y6 y7 \oplus x7 y8 \oplus x8 y9 \oplus x9 ya \oplus xa yb \oplus xb yc \oplus xc yd \oplus xd

 $wt(X) = 1 \quad wt(Y) = 10$

xf x0 x1 x2 x3 x4 x5 x6 X1 x7 x8 x9 xa xb xc xd xe X2

y6 y7 y8 y9 ya yb yc yd Y1 ye yf y0 y1 y2 y3 y4 y5 Y2

yd xf x0 x1 x2 x3 x4 x5 x6 y6 y7 y8 y9 ya yb yc X"

xd xe ye yf y0 y1 y2 y3 y4 y5 x7 x8 x9 xa xb xc Y"

Z

wt(X) = 1 wt(Y) = 11

xf x0 x1 x2 x3 x4 x5 x6 X1 x7 x8 x9 xa xb xc xd xe X2

y5 y6 y7 y8 y9 ya yb yc Y1 yd ye yf y0 y1 y2 y3 y4 Y2

yc xf x0 x1 x2 x3 x4 x5 x6 y5 y6 y7 y8 y9 ya yb X"

xc xd xe yd ye yf y0 y1 y2 y3 y4 x7 x8 x9 xa xb Y"

 $yc \oplus xc xf \oplus xd x0 \oplus xe x1 \oplus yd x2 \oplus ye x3 \oplus yf x4 \oplus y0 x5 \oplus y1$ $x6 \oplus y2 y5 \oplus y3 y6 \oplus y4 y7 \oplus x7 y8 \oplus x8 y9 \oplus x9 ya \oplus xa yb \oplus xb$ Z

wt(X) = 1 wt(Y) = 12

xf x0 x1 x2 x3 x4 x5 x6 X1 x7 x8 x9 xa xb xc xd xe X2

y4 y5 y6 y7 y8 y9 ya yb Y1 yc yd ye yf y0 y1 y2 y3 Y2

yb xf x0 x1 x2 x3 x4 x5 x6 y4 y5 y6 y7 y8 y9 ya X"

xb xc xd xe yc yd ye yf y0 y1 y2 y3 x7 x8 x9 xa Y"

yb \oplus xb xf \oplus xc x0 \oplus xd x1 \oplus xe x2 \oplus yc x3 \oplus yd x4 \oplus ye x5 \oplus yf x6 \oplus y0 y4 \oplus y1 y5 \oplus y2 y6 \oplus y3 y7 \oplus x7 y8 \oplus x8 y9 \oplus x9 ya \oplus xa

$$wt(X) = 1 \quad wt(Y) = 13$$

xf x0 x1 x2 x3 x4 x5 x6 X1 x7 x8 x9 xa xb xc xd xe X2

y3 y4 y5 y6 y7 y8 y9 ya Y1 yb yc yd ye yf y0 y1 y2 Y2

ya xf x0 x1 x2 x3 x4 x5 x6 y3 y4 y5 y6 y7 y8 y9 X"

xa xb xc xd xe yb yc yd ye yf y0 y1 y2 x7 x8 x9 Y"

ya⊕xa xf⊕xb x0⊕xc x1⊕xd x2⊕xe x3⊕yb x4⊕yc x5⊕yd x6⊕ye y3⊕yf y4⊕y0 y5⊕y1 y6⊕y2 y7⊕x7 y8⊕x8 y9⊕x9 Z

$$wt(X) = 1 \quad wt(Y) = 14$$

xf x0 x1 x2 x3 x4 x5 x6 X1 x7 x8 x9 xa xb xc xd xe X2

y2 y3 y4 y5 y6 y7 y8 y9 Y1 ya yb yc yd ye yf y0 y1 Y2

y9 xf x0 x1 x2 x3 x4 x5 x6 y2 y3 y4 y5 y6 y7 y8 X"

x9 xa xb xc xd xe ya yb yc yd ye yf y0 y1 x7 x8 Y"

 $y9 \oplus x9 xf \oplus xa x0 \oplus xb x1 \oplus xc x2 \oplus xd x3 \oplus xe x4 \oplus ya x5 \oplus yb x6 \oplus yc y2 \oplus yd y3 \oplus ye y4 \oplus yf y5 \oplus y0 y6 \oplus y1 y7 \oplus x7 y8 \oplus x8$ Z

$$wt(X) = 1 \quad wt(Y) = 15$$

xf x0 x1 x2 x3 x4 x5 x6 X1 x7 x8 x9 xa xb xc xd xe X2

y1 y2 y3 y4 y5 y6 y7 y8 Y1 y9 ya yb yc yd ye yf y0 Y2

y8 xf x0 x1 x2 x3 x4 x5 x6 y1 y2 y3 y4 y5 y6 y7 X"

x8 x9 xa xb xc xd xe y9 ya yb yc yd ye yf y0 x7 Y"

 $y8 \oplus x8 xf \oplus x9 x0 \oplus xa x1 \oplus xb x2 \oplus xc x3 \oplus xd x4 \oplus xe x5 \oplus y9$ $x6 \oplus ya y1 \oplus yb y2 \oplus yc y3 \oplus yd y4 \oplus ye y5 \oplus yf y6 \oplus y0 y7 \oplus x7$ Z

$$wt(X) = 1 \quad wt(Y) = 16$$

xf x0 x1 x2 x3 x4 x5 x6 X1 x7 x8 x9 xa xb xc xd xe X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

y7 xf x0 x1 x2 x3 x4 x5 x6 y0 y1 y2 y3 y4 y5 y6 X"

x7 x8 x9 xa xb xc xd xe y8 y9 ya yb yc yd ye yf Y"

 $y7 \oplus x7 xf \oplus x8 x0 \oplus x9 x1 \oplus xa x2 \oplus xb x3 \oplus xc x4 \oplus xd x5 \oplus xe$ $x6 \oplus y8 y0 \oplus y9 y1 \oplus ya y2 \oplus yb y3 \oplus yc y4 \oplus yd y5 \oplus ye y6 \oplus yf$ Z

$$wt(X) = 2$$
 $wt(Y) = 0$

xe xf x0 x1 x2 x3 x4 x5 X1

x6 x7 x8 x9 xa xb xc xd X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

y6 y7 xe xf x0 x1 x2 x3 x4 x5 y0 y1 y2 y3 y4 y5 X"

x6 x7 x8 x9 xa xb xc xd y8 y9 ya yb yc yd ye yf Y"

 $y6 \oplus x6 \ y7 \oplus x7 \ xe \oplus x8 \ xf \oplus x9 \ x0 \oplus xa \ x1 \oplus xb \ x2 \oplus xc \ x3 \oplus xd$ $x4 \oplus y8 \ x5 \oplus y9 \ y0 \oplus ya \ y1 \oplus yb \ y2 \oplus yc \ y3 \oplus yd \ y4 \oplus ye \ y5 \oplus yf$ Z

$$wt(X) = 2$$
 $wt(Y) = 1$

xe xf x0 x1 x2 x3 x4 x5 X1 x6 x7 x8 x9 xa xb xc xd X2

yf y0 y1 y2 y3 y4 y5 y6 Y1 y7 y8 y9 ya yb yc yd ye Y2

y5 y6 xe xf x0 x1 x2 x3 x4 x5 yf y0 y1 y2 y3 y4 X"

ye x6 x7 x8 x9 xa xb xc xd y7 y8 y9 ya yb yc yd Y"

y5 \oplus ye y6 \oplus x6 xe \oplus x7 xf \oplus x8 x0 \oplus x9 x1 \oplus xa x2 \oplus xb x3 \oplus xc x4 \oplus xd x5 \oplus y7 yf \oplus y8 y0 \oplus y9 y1 \oplus ya y2 \oplus yb y3 \oplus yc y4 \oplus yd Z

$$wt(X) = 2$$
 $wt(Y) = 2$

xe xf x0 x1 x2 x3 x4 x5 X1 x6 x7 x8 x9 xa xb xc xd X2

ye yf y0 y1 y2 y3 y4 y5 Y1

y6 y7 y8 y9 ya yb yc yd Y2 y4 y5 xe xf x0 x1 x2 x3 $X^{\prime\prime}$ x4 x5 ye yf y0 y1 y2 y3 yc yd x6 x7 x8 x9 xa xb Y''xc xd y6 y7 y8 y9 ya yb y4 \oplus yc y5 \oplus yd xe \oplus x6 xf \oplus x7 x0 \oplus x8 x1 \oplus x9 x2 \oplus xa x3 \oplus xb $x4 \oplus xc \ x5 \oplus xd \ ye \oplus y6 \ yf \oplus y7 \ y0 \oplus y8 \ y1 \oplus y9 \ y2 \oplus ya \ y3 \oplus yb$

wt(X) = 2 wt(Y) = 3

xe xf x0 x1 x2 x3 x4 x5 X1 x6 x7 x8 x9 xa xb xc xd X2

yd ye yf y0 y1 y2 y3 y4 Y1 Y2 y5 y6 y7 y8 y9 ya yb yc

y3 y4 xe xf x0 x1 x2 x3 X''x4 x5 yd ye yf y0 y1 y2

ya yb yc x6 x7 x8 x9 xa Y" xb xc xd y5 y6 y7 y8 y9

y3 \oplus ya y4 \oplus yb xe \oplus yc xf \oplus x6 x0 \oplus x7 x1 \oplus x8 x2 \oplus x9 x3 \oplus xa $x4 \oplus xb \ x5 \oplus xc \ yd \oplus xd \ ye \oplus y5 \ yf \oplus y6 \ y0 \oplus y7 \ y1 \oplus y8 \ y2 \oplus y9$ Z

Z

wt(X) = 2 wt(Y) = 4

xe xf x0 x1 x2 x3 x4 x5 X1 x6 x7 x8 x9 xa xb xc xd X2

yc yd ye yf y0 y1 y2 y3 Y1 y4 y5 y6 y7 y8 y9 ya yb Y2

y2 y3 xe xf x0 x1 x2 x3

x4 x5 yc yd ye yf y0 y1 X"

y8 y9 ya yb x6 x7 x8 x9 xa xb xc xd y4 y5 y6 y7 Y"

 $y2 \oplus y8 \ y3 \oplus y9 \ xe \oplus ya \ xf \oplus yb \ x0 \oplus x6 \ x1 \oplus x7 \ x2 \oplus x8 \ x3 \oplus x9$ $x4 \oplus xa \ x5 \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus y4 \ yf \oplus y5 \ y0 \oplus y6 \ y1 \oplus y7$

Z

wt(X) = 2 wt(Y) = 5

xe xf x0 x1 x2 x3 x4 x5 X1 x6 x7 x8 x9 xa xb xc xd X2

yb yc yd ye yf y0 y1 y2 Y1 y3 y4 y5 y6 y7 y8 y9 ya Y2

y1 y2 xe xf x0 x1 x2 x3 x4 x5 yb yc yd ye yf y0 X"

y6 y7 y8 y9 ya x6 x7 x8 x9 xa xb xc xd y3 y4 y5 Y"

y1 \oplus y6 y2 \oplus y7 xe \oplus y8 xf \oplus y9 x0 \oplus ya x1 \oplus x6 x2 \oplus x7 x3 \oplus x8 x4 \oplus x9 x5 \oplus xa yb \oplus xb yc \oplus xc yd \oplus xd ye \oplus y3 yf \oplus y4 y0 \oplus y5 Z

wt(X) = 2 wt(Y) = 6

xe xf x0 x1 x2 x3 x4 x5 X1 x6 x7 x8 x9 xa xb xc xd X2

ya yb yc yd ye yf y0 y1 Y1 y2 y3 y4 y5 y6 y7 y8 y9 Y2

y0 y1 xe xf x0 x1 x2 x3 x4 x5 ya yb yc yd ye yf X"

y4 y5 y6 y7 y8 y9 x6 x7

 $y0 \oplus y4 \ y1 \oplus y5 \ xe \oplus y6 \ xf \oplus y7 \ x0 \oplus y8 \ x1 \oplus y9 \ x2 \oplus x6 \ x3 \oplus x7$ $x4 \oplus x8 \ x5 \oplus x9 \ ya \oplus xa \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus y2 \ yf \oplus y3$ Z

wt(X) = 2 wt(Y) = 7

xe xf x0 x1 x2 x3 x4 x5 X1 x6 x7 x8 x9 xa xb xc xd X2

y9 ya yb yc yd ye yf y0 Y1 y1 y2 y3 y4 y5 y6 y7 y8 Y2

yf y0 xe xf x0 x1 x2 x3 x4 x5 y9 ya yb yc yd ye X"

y2 y3 y4 y5 y6 y7 y8 x6 x7 x8 x9 xa xb xc xd y1 Y"

 $yf \oplus y2 \ y0 \oplus y3 \ xe \oplus y4 \ xf \oplus y5 \ x0 \oplus y6 \ x1 \oplus y7 \ x2 \oplus y8 \ x3 \oplus x6$ $x4 \oplus x7 \ x5 \oplus x8 \ y9 \oplus x9 \ ya \oplus xa \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus y1$

Z

wt(X) = 2 wt(Y) = 8

xe xf x0 x1 x2 x3 x4 x5 X1 x6 x7 x8 x9 xa xb xc xd X2

y8 y9 ya yb yc yd ye yf Y1 y0 y1 y2 y3 y4 y5 y6 y7 Y2

ye yf xe xf x0 x1 x2 x3 x4 x5 y8 y9 ya yb yc yd X"

y0 y1 y2 y3 y4 y5 y6 y7 x6 x7 x8 x9 xa xb xc xd Y"

Z

wt(X) = 2 wt(Y) = 9

xe xf x0 x1 x2 x3 x4 x5 X1 x6 x7 x8 x9 xa xb xc xd X2

y7 y8 y9 ya yb yc yd ye Y1 yf y0 y1 y2 y3 y4 y5 y6 Y2

yd ye xe xf x0 x1 x2 x3 x4 x5 y7 y8 y9 ya yb yc X"

xd yf y0 y1 y2 y3 y4 y5 y6 x6 x7 x8 x9 xa xb xc Y"

yd \oplus xd ye \oplus yf xe \oplus y0 xf \oplus y1 x0 \oplus y2 x1 \oplus y3 x2 \oplus y4 x3 \oplus y5 x4 \oplus y6 x5 \oplus x6 y7 \oplus x7 y8 \oplus x8 y9 \oplus x9 ya \oplus xa yb \oplus xb yc \oplus xc Z

wt(X) = 2 wt(Y) = 10

xe xf x0 x1 x2 x3 x4 x5 X1 x6 x7 x8 x9 xa xb xc xd X2

y6 y7 y8 y9 ya yb yc yd Y1 ye yf y0 y1 y2 y3 y4 y5 Y2

yc yd xe xf x0 x1 x2 x3 x4 x5 y6 y7 y8 y9 ya yb X"

xc xd ye yf y0 y1 y2 y3 y4 y5 x6 x7 x8 x9 xa xb Y"

yc \oplus xc yd \oplus xd xe \oplus ye xf \oplus yf x0 \oplus y0 x1 \oplus y1 x2 \oplus y2 x3 \oplus y3 x4 \oplus y4 x5 \oplus y5 y6 \oplus x6 y7 \oplus x7 y8 \oplus x8 y9 \oplus x9 ya \oplus xa yb \oplus xb

$$wt(X) = 2$$
 $wt(Y) = 11$

xe xf x0 x1 x2 x3 x4 x5 X1 x6 x7 x8 x9 xa xb xc xd X2

y5 y6 y7 y8 y9 ya yb yc Y1 yd ye yf y0 y1 y2 y3 y4 Y2

yb yc xe xf x0 x1 x2 x3 x4 x5 y5 y6 y7 y8 y9 ya X"

xb xc xd yd ye yf y0 y1 y2 y3 y4 x6 x7 x8 x9 xa Y"

yb \oplus xb yc \oplus xc xe \oplus xd xf \oplus yd x0 \oplus ye x1 \oplus yf x2 \oplus y0 x3 \oplus y1 x4 \oplus y2 x5 \oplus y3 y5 \oplus y4 y6 \oplus x6 y7 \oplus x7 y8 \oplus x8 y9 \oplus x9 ya \oplus xa Z

$$wt(X) = 2 \quad wt(Y) = 12$$

xe xf x0 x1 x2 x3 x4 x5 X1 x6 x7 x8 x9 xa xb xc xd X2

y4 y5 y6 y7 y8 y9 ya yb Y1 yc yd ye yf y0 y1 y2 y3 Y2

ya yb xe xf x0 x1 x2 x3 x4 x5 y4 y5 y6 y7 y8 y9 X"

xa xb xc xd yc yd ye yf y0 y1 y2 y3 x6 x7 x8 x9 Y"

ya \oplus xa yb \oplus xb xe \oplus xc xf \oplus xd x0 \oplus yc x1 \oplus yd x2 \oplus ye x3 \oplus yf x4 \oplus y0 x5 \oplus y1 y4 \oplus y2 y5 \oplus y3 y6 \oplus x6 y7 \oplus x7 y8 \oplus x8 y9 \oplus x9 Z

$$wt(X) = 2 \quad wt(Y) = 13$$

xe xf x0 x1 x2 x3 x4 x5 X1 x6 x7 x8 x9 xa xb xc xd X2

y3 y4 y5 y6 y7 y8 y9 ya Y1 yb yc yd ye yf y0 y1 y2 Y2

y9 ya xe xf x0 x1 x2 x3 x4 x5 y3 y4 y5 y6 y7 y8 X"

x9 xa xb xc xd yb yc yd ye yf y0 y1 y2 x6 x7 x8 Y"

 $y9 \oplus x9 \ ya \oplus xa \ xe \oplus xb \ xf \oplus xc \ x0 \oplus xd \ x1 \oplus yb \ x2 \oplus yc \ x3 \oplus yd$ $x4 \oplus ye \ x5 \oplus yf \ y3 \oplus y0 \ y4 \oplus y1 \ y5 \oplus y2 \ y6 \oplus x6 \ y7 \oplus x7 \ y8 \oplus x8$ Z

$$wt(X) = 2$$
 $wt(Y) = 14$

xe xf x0 x1 x2 x3 x4 x5 X1 x6 x7 x8 x9 xa xb xc xd X2

y2 y3 y4 y5 y6 y7 y8 y9 Y1 ya yb yc yd ye yf y0 y1 Y2

y8 y9 xe xf x0 x1 x2 x3 x4 x5 y2 y3 y4 y5 y6 y7 X"

x8 x9 xa xb xc xd ya yb yc yd ye yf y0 y1 x6 x7 Y"

 $y8 \oplus x8 \ y9 \oplus x9 \ xe \oplus xa \ xf \oplus xb \ x0 \oplus xc \ x1 \oplus xd \ x2 \oplus ya \ x3 \oplus yb$ $x4 \oplus yc \ x5 \oplus yd \ y2 \oplus ye \ y3 \oplus yf \ y4 \oplus y0 \ y5 \oplus y1 \ y6 \oplus x6 \ y7 \oplus x7$ Z

$$wt(X) = 2 \quad wt(Y) = 15$$

xe xf x0 x1 x2 x3 x4 x5 X1

x6 x7 x8 x9 xa xb xc xd X2

y1 y2 y3 y4 y5 y6 y7 y8 Y1 y9 ya yb yc yd ye yf y0 Y2

y7 y8 xe xf x0 x1 x2 x3 x4 x5 y1 y2 y3 y4 y5 y6 X"

x7 x8 x9 xa xb xc xd y9 ya yb yc yd ye yf y0 x6 Y"

 $y7 \oplus x7 \ y8 \oplus x8 \ xe \oplus x9 \ xf \oplus xa \ x0 \oplus xb \ x1 \oplus xc \ x2 \oplus xd \ x3 \oplus y9$ $x4 \oplus ya \ x5 \oplus yb \ y1 \oplus yc \ y2 \oplus yd \ y3 \oplus ye \ y4 \oplus yf \ y5 \oplus y0 \ y6 \oplus x6$ Z

$$wt(X) = 2 \quad wt(Y) = 16$$

xe xf x0 x1 x2 x3 x4 x5 X1 x6 x7 x8 x9 xa xb xc xd X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

y6 y7 xe xf x0 x1 x2 x3 x4 x5 y0 y1 y2 y3 y4 y5 X"

x6 x7 x8 x9 xa xb xc xd y8 y9 ya yb yc yd ye yf Y"

 $y6 \oplus x6 \ y7 \oplus x7 \ xe \oplus x8 \ xf \oplus x9 \ x0 \oplus xa \ x1 \oplus xb \ x2 \oplus xc \ x3 \oplus xd$ $x4 \oplus y8 \ x5 \oplus y9 \ y0 \oplus ya \ y1 \oplus yb \ y2 \oplus yc \ y3 \oplus yd \ y4 \oplus ye \ y5 \oplus yf$ Z

$$wt(X) = 3$$
 $wt(Y) = 0$

xd xe xf x0 x1 x2 x3 x4 X1 x5 x6 x7 x8 x9 xa xb xc X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1

y8 y9 ya yb yc yd ye yf Y2

y5 y6 y7 xd xe xf x0 x1 x2 x3 x4 y0 y1 y2 y3 y4 X"

x5 x6 x7 x8 x9 xa xb xc y8 y9 ya yb yc yd ye yf Y"

 $y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ xd \oplus x8 \ xe \oplus x9 \ xf \oplus xa \ x0 \oplus xb \ x1 \oplus xc$ $x2 \oplus y8 \ x3 \oplus y9 \ x4 \oplus ya \ y0 \oplus yb \ y1 \oplus yc \ y2 \oplus yd \ y3 \oplus ye \ y4 \oplus yf$ Z

wt(X) = 3 wt(Y) = 1

xd xe xf x0 x1 x2 x3 x4 X1 x5 x6 x7 x8 x9 xa xb xc X2

yf y0 y1 y2 y3 y4 y5 y6 Y1 y7 y8 y9 ya yb yc yd ye Y2

y4 y5 y6 xd xe xf x0 x1 x2 x3 x4 yf y0 y1 y2 y3 X"

ye x5 x6 x7 x8 x9 xa xb xc y7 y8 y9 ya yb yc yd Y"

y4 \oplus ye y5 \oplus x5 y6 \oplus x6 xd \oplus x7 xe \oplus x8 xf \oplus x9 x0 \oplus xa x1 \oplus xb x2 \oplus xc x3 \oplus y7 x4 \oplus y8 yf \oplus y9 y0 \oplus ya y1 \oplus yb y2 \oplus yc y3 \oplus yd Z

 $0, 0, 0 \oplus x6, xd \oplus x7$, $xe \oplus x8$, $xf \oplus x9$, $x0 \oplus xa$, $x1 \oplus xb$, $x2 \oplus xc$, $x3 \oplus 0$, $x4 \oplus 0$, 0,1,0,0,0

wt(X) = 3 wt(Y) = 2

xd xe xf x0 x1 x2 x3 x4 X1 x5 x6 x7 x8 x9 xa xb xc X2

ye yf y0 y1 y2 y3 y4 y5 Y1

y6 y7 y8 y9 ya yb yc yd Y2 y3 y4 y5 xd xe xf x0 x1 $X^{\prime\prime}$ x2 x3 x4 ye yf y0 y1 y2 yc yd x5 x6 x7 x8 x9 xa $Y^{\prime\prime}$

xb xc y6 y7 y8 y9 ya yb

 $y3 \oplus yc \ y4 \oplus yd \ y5 \oplus x5 \ xd \oplus x6 \ xe \oplus x7 \ xf \oplus x8 \ x0 \oplus x9 \ x1 \oplus xa$ $x2 \oplus xb \ x3 \oplus xc \ x4 \oplus y6 \ ye \oplus y7 \ yf \oplus y8 \ y0 \oplus y9 \ y1 \oplus ya \ y2 \oplus yb$ Z

wt(X) = 3 wt(Y) = 3

xd xe xf x0 x1 x2 x3 x4 X1 x5 x6 x7 x8 x9 xa xb xc X2

yd ye yf y0 y1 y2 y3 y4 Y1 Y2 y5 y6 y7 y8 y9 ya yb yc

y2 y3 y4 xd xe xf x0 x1 X''x2 x3 x4 yd ye yf y0 y1

ya yb yc x5 x6 x7 x8 x9 Y" xa xb xc y5 y6 y7 y8 y9

y2 \oplus ya y3 \oplus yb y4 \oplus yc xd \oplus x5 xe \oplus x6 xf \oplus x7 x0 \oplus x8 x1 \oplus x9 $x2 \oplus xa \ x3 \oplus xb \ x4 \oplus xc \ yd \oplus y5 \ ye \oplus y6 \ yf \oplus y7 \ y0 \oplus y8 \ y1 \oplus y9$ Z

wt(X) = 3 wt(Y) = 4

xd xe xf x0 x1 x2 x3 x4 X1 x5 x6 x7 x8 x9 xa xb xc X2

yc yd ye yf y0 y1 y2 y3 Y1 y4 y5 y6 y7 y8 y9 ya yb Y2

y1 y2 y3 xd xe xf x0 x1

x2 x3 x4 yc yd ye yf y0 X''

y8 y9 ya yb x5 x6 x7 x8 x9 xa xb xc y4 y5 y6 y7 Y"

 $y1 \oplus y8$ $y2 \oplus y9$ $y3 \oplus ya$ $xd \oplus yb$ $xe \oplus x5$ $xf \oplus x6$ $x0 \oplus x7$ $x1 \oplus x8$ $x2 \oplus x9$ $x3 \oplus xa$ $x4 \oplus xb$ $yc \oplus xc$ $yd \oplus y4$ $ye \oplus y5$ $yf \oplus y6$ $y0 \oplus y7$

Z

wt(X) = 3 wt(Y) = 5

xd xe xf x0 x1 x2 x3 x4 X1 x5 x6 x7 x8 x9 xa xb xc X2

yb yc yd ye yf y0 y1 y2 Y1 y3 y4 y5 y6 y7 y8 y9 ya Y2

y0 y1 y2 xd xe xf x0 x1 x2 x3 x4 yb yc yd ye yf X"

y6 y7 y8 y9 ya x5 x6 x7 x8 x9 xa xb xc y3 y4 y5 Y"

 $y0 \oplus y6 \ y1 \oplus y7 \ y2 \oplus y8 \ xd \oplus y9 \ xe \oplus ya \ xf \oplus x5 \ x0 \oplus x6 \ x1 \oplus x7$ $x2 \oplus x8 \ x3 \oplus x9 \ x4 \oplus xa \ yb \oplus xb \ yc \oplus xc \ yd \oplus y3 \ ye \oplus y4 \ yf \oplus y5$ Z

wt(X) = 3 wt(Y) = 6

xd xe xf x0 x1 x2 x3 x4 X1 x5 x6 x7 x8 x9 xa xb xc X2

ya yb yc yd ye yf y0 y1 Y1 y2 y3 y4 y5 y6 y7 y8 y9 Y2

yf y0 y1 xd xe xf x0 x1 x2 x3 x4 ya yb yc yd ye X''

y4 y5 y6 y7 y8 y9 x5 x6

yf \oplus y4 y0 \oplus y5 y1 \oplus y6 xd \oplus y7 xe \oplus y8 xf \oplus y9 x0 \oplus x5 x1 \oplus x6 x2 \oplus x7 x3 \oplus x8 x4 \oplus x9 ya \oplus xa yb \oplus xb yc \oplus xc yd \oplus y2 ye \oplus y3 Z

wt(X) = 3 wt(Y) = 7

xd xe xf x0 x1 x2 x3 x4 X1 x5 x6 x7 x8 x9 xa xb xc X2

y9 ya yb yc yd ye yf y0 Y1 y1 y2 y3 y4 y5 y6 y7 y8 Y2

ye yf y0 xd xe xf x0 x1 x2 x3 x4 y9 ya yb yc yd X"

y2 y3 y4 y5 y6 y7 y8 x5 x6 x7 x8 x9 xa xb xc y1 Y"

 $ye \oplus y2 yf \oplus y3 y0 \oplus y4 xd \oplus y5 xe \oplus y6 xf \oplus y7 x0 \oplus y8 x1 \oplus x5$ $x2 \oplus x6 x3 \oplus x7 x4 \oplus x8 y9 \oplus x9 ya \oplus xa yb \oplus xb yc \oplus xc yd \oplus y1$

Z

wt(X) = 3 wt(Y) = 8

xd xe xf x0 x1 x2 x3 x4 X1 x5 x6 x7 x8 x9 xa xb xc X2

y8 y9 ya yb yc yd ye yf Y1 y0 y1 y2 y3 y4 y5 y6 y7 Y2

yd ye yf xd xe xf x0 x1 x2 x3 x4 y8 y9 ya yb yc X"

y0 y1 y2 y3 y4 y5 y6 y7 x5 x6 x7 x8 x9 xa xb xc Y"

Z

wt(X) = 3 wt(Y) = 9

xd xe xf x0 x1 x2 x3 x4 X1 x5 x6 x7 x8 x9 xa xb xc X2

y7 y8 y9 ya yb yc yd ye Y1 yf y0 y1 y2 y3 y4 y5 y6 Y2

yc yd ye xd xe xf x0 x1 x2 x3 x4 y7 y8 y9 ya yb X"

xc yf y0 y1 y2 y3 y4 y5 y6 x5 x6 x7 x8 x9 xa xb Y"

yc \oplus xc yd \oplus yf ye \oplus y0 xd \oplus y1 xe \oplus y2 xf \oplus y3 x0 \oplus y4 x1 \oplus y5 x2 \oplus y6 x3 \oplus x5 x4 \oplus x6 y7 \oplus x7 y8 \oplus x8 y9 \oplus x9 ya \oplus xa yb \oplus xb Z

 $wt(X) = 3 \quad wt(Y) = 10$

xd xe xf x0 x1 x2 x3 x4 X1 x5 x6 x7 x8 x9 xa xb xc X2

y6 y7 y8 y9 ya yb yc yd Y1 ye yf y0 y1 y2 y3 y4 y5 Y2

yb yc yd xd xe xf x0 x1 x2 x3 x4 y6 y7 y8 y9 ya X"

xb xc ye yf y0 y1 y2 y3 y4 y5 x5 x6 x7 x8 x9 xa Y"

yb \oplus xb yc \oplus xc yd \oplus ye xd \oplus yf xe \oplus y0 xf \oplus y1 x0 \oplus y2 x1 \oplus y3 x2 \oplus y4 x3 \oplus y5 x4 \oplus x5 y6 \oplus x6 y7 \oplus x7 y8 \oplus x8 y9 \oplus x9 ya \oplus xa

$$wt(X) = 3$$
 $wt(Y) = 11$

xd xe xf x0 x1 x2 x3 x4 X1 x5 x6 x7 x8 x9 xa xb xc X2

y5 y6 y7 y8 y9 ya yb yc Y1 yd ye yf y0 y1 y2 y3 y4 Y2

ya yb yc xd xe xf x0 x1 x2 x3 x4 y5 y6 y7 y8 y9 X"

xa xb xc yd ye yf y0 y1 y2 y3 y4 x5 x6 x7 x8 x9 Y"

ya \oplus xa yb \oplus xb yc \oplus xc xd \oplus yd xe \oplus ye xf \oplus yf x0 \oplus y0 x1 \oplus y1 x2 \oplus y2 x3 \oplus y3 x4 \oplus y4 y5 \oplus x5 y6 \oplus x6 y7 \oplus x7 y8 \oplus x8 y9 \oplus x9 Z

$$wt(X) = 3 \quad wt(Y) = 12$$

xd xe xf x0 x1 x2 x3 x4 X1 x5 x6 x7 x8 x9 xa xb xc X2

y4 y5 y6 y7 y8 y9 ya yb Y1 yc yd ye yf y0 y1 y2 y3 Y2

y9 ya yb xd xe xf x0 x1 x2 x3 x4 y4 y5 y6 y7 y8 X"

x9 xa xb xc yc yd ye yf y0 y1 y2 y3 x5 x6 x7 x8 Y"

 $y9 \oplus x9 \ ya \oplus xa \ yb \oplus xb \ xd \oplus xc \ xe \oplus yc \ xf \oplus yd \ x0 \oplus ye \ x1 \oplus yf$ $x2 \oplus y0 \ x3 \oplus y1 \ x4 \oplus y2 \ y4 \oplus y3 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ y8 \oplus x8$ Z

$$wt(X) = 3 \quad wt(Y) = 13$$

xd xe xf x0 x1 x2 x3 x4 X1 x5 x6 x7 x8 x9 xa xb xc X2

y3 y4 y5 y6 y7 y8 y9 ya Y1 yb yc yd ye yf y0 y1 y2 Y2

y8 y9 ya xd xe xf x0 x1 x2 x3 x4 y3 y4 y5 y6 y7 X"

x8 x9 xa xb xc yb yc yd ye yf y0 y1 y2 x5 x6 x7 Y"

 $y8 \oplus x8 \ y9 \oplus x9 \ ya \oplus xa \ xd \oplus xb \ xe \oplus xc \ xf \oplus yb \ x0 \oplus yc \ x1 \oplus yd$ $x2 \oplus ye \ x3 \oplus yf \ x4 \oplus y0 \ y3 \oplus y1 \ y4 \oplus y2 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7$ Z

$$wt(X) = 3 \quad wt(Y) = 14$$

xd xe xf x0 x1 x2 x3 x4 X1 x5 x6 x7 x8 x9 xa xb xc X2

y2 y3 y4 y5 y6 y7 y8 y9 Y1 ya yb yc yd ye yf y0 y1 Y2

y7 y8 y9 xd xe xf x0 x1 x2 x3 x4 y2 y3 y4 y5 y6 X"

x7 x8 x9 xa xb xc ya yb yc yd ye yf y0 y1 x5 x6 Y"

 $y7 \oplus x7 \ y8 \oplus x8 \ y9 \oplus x9 \ xd \oplus xa \ xe \oplus xb \ xf \oplus xc \ x0 \oplus ya \ x1 \oplus yb$ $x2 \oplus yc \ x3 \oplus yd \ x4 \oplus ye \ y2 \oplus yf \ y3 \oplus y0 \ y4 \oplus y1 \ y5 \oplus x5 \ y6 \oplus x6$ Z

$$wt(X) = 3 \quad wt(Y) = 15$$

xd xe xf x0 x1 x2 x3 x4 X1

x5 x6 x7 x8 x9 xa xb xc X2

y1 y2 y3 y4 y5 y6 y7 y8 Y1 y9 ya yb yc yd ye yf y0 Y2

y6 y7 y8 xd xe xf x0 x1 x2 x3 x4 y1 y2 y3 y4 y5 X"

x6 x7 x8 x9 xa xb xc y9 ya yb yc yd ye yf y0 x5 Y"

 $y6 \oplus x6 \ y7 \oplus x7 \ y8 \oplus x8 \ xd \oplus x9 \ xe \oplus xa \ xf \oplus xb \ x0 \oplus xc \ x1 \oplus y9$ $x2 \oplus ya \ x3 \oplus yb \ x4 \oplus yc \ y1 \oplus yd \ y2 \oplus ye \ y3 \oplus yf \ y4 \oplus y0 \ y5 \oplus x5$ Z

$$wt(X) = 3 \quad wt(Y) = 16$$

xd xe xf x0 x1 x2 x3 x4 X1 x5 x6 x7 x8 x9 xa xb xc X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

y5 y6 y7 xd xe xf x0 x1 x2 x3 x4 y0 y1 y2 y3 y4 X"

x5 x6 x7 x8 x9 xa xb xc y8 y9 ya yb yc yd ye yf Y"

 $y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ xd \oplus x8 \ xe \oplus x9 \ xf \oplus xa \ x0 \oplus xb \ x1 \oplus xc$ $x2 \oplus y8 \ x3 \oplus y9 \ x4 \oplus ya \ y0 \oplus yb \ y1 \oplus yc \ y2 \oplus yd \ y3 \oplus ye \ y4 \oplus yf$ Z

$$wt(X) = 4$$
 $wt(Y) = 0$

xc xd xe xf x0 x1 x2 x3 X1 x4 x5 x6 x7 x8 x9 xa xb X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1

y8 y9 ya yb yc yd ye yf Y2

y4 y5 y6 y7 xc xd xe xf x0 x1 x2 x3 y0 y1 y2 y3 X"

x4 x5 x6 x7 x8 x9 xa xb y8 y9 ya yb yc yd ye yf Y"

 $y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ xc \oplus x8 \ xd \oplus x9 \ xe \oplus xa \ xf \oplus xb$ $x0 \oplus y8 \ x1 \oplus y9 \ x2 \oplus ya \ x3 \oplus yb \ y0 \oplus yc \ y1 \oplus yd \ y2 \oplus ye \ y3 \oplus yf$ Z

wt(X) = 4 wt(Y) = 1

xc xd xe xf x0 x1 x2 x3 X1 x4 x5 x6 x7 x8 x9 xa xb X2

yf y0 y1 y2 y3 y4 y5 y6 Y1 y7 y8 y9 ya yb yc yd ye Y2

y3 y4 y5 y6 xc xd xe xf x0 x1 x2 x3 yf y0 y1 y2 X"

ye x4 x5 x6 x7 x8 x9 xa xb y7 y8 y9 ya yb yc yd Y"

y3 \oplus ye y4 \oplus x4 y5 \oplus x5 y6 \oplus x6 xc \oplus x7 xd \oplus x8 xe \oplus x9 xf \oplus xa x0 \oplus xb x1 \oplus y7 x2 \oplus y8 x3 \oplus y9 yf \oplus ya y0 \oplus yb y1 \oplus yc y2 \oplus yd Z

wt(X) = 4 wt(Y) = 2

xc xd xe xf x0 x1 x2 x3 X1 x4 x5 x6 x7 x8 x9 xa xb X2

ye yf y0 y1 y2 y3 y4 y5 Y1 y6 y7 y8 y9 ya yb yc yd Y2

y2 y3 y4 y5 xc xd xe xf

x0 x1 x2 x3 ye yf y0 y1 X"

yc yd x4 x5 x6 x7 x8 x9 xa xb y6 y7 y8 y9 ya yb Y"

 $y2 \oplus yc \ y3 \oplus yd \ y4 \oplus x4 \ y5 \oplus x5 \ xc \oplus x6 \ xd \oplus x7 \ xe \oplus x8 \ xf \oplus x9$ $x0 \oplus xa \ x1 \oplus xb \ x2 \oplus y6 \ x3 \oplus y7 \ ye \oplus y8 \ yf \oplus y9 \ y0 \oplus ya \ y1 \oplus yb$ Z

wt(X) = 4 wt(Y) = 3

xc xd xe xf x0 x1 x2 x3 X1 x4 x5 x6 x7 x8 x9 xa xb X2

yd ye yf y0 y1 y2 y3 y4 Y1 y5 y6 y7 y8 y9 ya yb yc Y2

y1 y2 y3 y4 xc xd xe xf x0 x1 x2 x3 yd ye yf y0 X"

ya yb yc x4 x5 x6 x7 x8 x9 xa xb y5 y6 y7 y8 y9 Y"

 $y1 \oplus ya \ y2 \oplus yb \ y3 \oplus yc \ y4 \oplus x4 \ xc \oplus x5 \ xd \oplus x6 \ xe \oplus x7 \ xf \oplus x8$ $x0 \oplus x9 \ x1 \oplus xa \ x2 \oplus xb \ x3 \oplus y5 \ yd \oplus y6 \ ye \oplus y7 \ yf \oplus y8 \ y0 \oplus y9$ Z

wt(X) = 4 wt(Y) = 4

xc xd xe xf x0 x1 x2 x3 X1 x4 x5 x6 x7 x8 x9 xa xb X2

yc yd ye yf y0 y1 y2 y3 Y1 y4 y5 y6 y7 y8 y9 ya yb Y2

y0 y1 y2 y3 xc xd xe xf x0 x1 x2 x3 yc yd ye yf X"

y8 y9 ya yb x4 x5 x6 x7

x8 x9 xa xb y4 y5 y6 y7 Y"

 $y0 \oplus y8 \ y1 \oplus y9 \ y2 \oplus ya \ y3 \oplus yb \ xc \oplus x4 \ xd \oplus x5 \ xe \oplus x6 \ xf \oplus x7$ $x0 \oplus x8 \ x1 \oplus x9 \ x2 \oplus xa \ x3 \oplus xb \ yc \oplus y4 \ yd \oplus y5 \ ye \oplus y6 \ yf \oplus y7$ Z

wt(X) = 4 wt(Y) = 5

xc xd xe xf x0 x1 x2 x3 X1 x4 x5 x6 x7 x8 x9 xa xb X2

yb yc yd ye yf y0 y1 y2 Y1 y3 y4 y5 y6 y7 y8 y9 ya Y2

yf y0 y1 y2 xc xd xe xf x0 x1 x2 x3 yb yc yd ye X''

y6 y7 y8 y9 ya x4 x5 x6 x7 x8 x9 xa xb y3 y4 y5 Y"

yf \oplus y6 y0 \oplus y7 y1 \oplus y8 y2 \oplus y9 xc \oplus ya xd \oplus x4 xe \oplus x5 xf \oplus x6 x0 \oplus x7 x1 \oplus x8 x2 \oplus x9 x3 \oplus xa yb \oplus xb yc \oplus y3 yd \oplus y4 ye \oplus y5 Z

wt(X) = 4 wt(Y) = 6

xc xd xe xf x0 x1 x2 x3 X1 x4 x5 x6 x7 x8 x9 xa xb X2

ya yb yc yd ye yf y0 y1 Y1 y2 y3 y4 y5 y6 y7 y8 y9 Y2

ye yf y0 y1 xc xd xe xf x0 x1 x2 x3 ya yb yc yd X"

y4 y5 y6 y7 y8 y9 x4 x5 x6 x7 x8 x9 xa xb y2 y3 Y"

Z

Z

wt(X) = 4 wt(Y) = 7

xc xd xe xf x0 x1 x2 x3 X1 x4 x5 x6 x7 x8 x9 xa xb X2

y9 ya yb yc yd ye yf y0 Y1 y1 y2 y3 y4 y5 y6 y7 y8 Y2

yd ye yf y0 xc xd xe xf x0 x1 x2 x3 y9 ya yb yc X''

y2 y3 y4 y5 y6 y7 y8 x4 x5 x6 x7 x8 x9 xa xb y1 Y"

yd \oplus y2 ye \oplus y3 yf \oplus y4 y0 \oplus y5 xc \oplus y6 xd \oplus y7 xe \oplus y8 xf \oplus x4 x0 \oplus x5 x1 \oplus x6 x2 \oplus x7 x3 \oplus x8 y9 \oplus x9 ya \oplus xa yb \oplus xb yc \oplus y1 Z

wt(X) = 4 wt(Y) = 8

xc xd xe xf x0 x1 x2 x3 X1 x4 x5 x6 x7 x8 x9 xa xb X2

y8 y9 ya yb yc yd ye yf Y1 y0 y1 y2 y3 y4 y5 y6 y7 Y2

yc yd ye yf xc xd xe xf x0 x1 x2 x3 y8 y9 ya yb X"

y0 y1 y2 y3 y4 y5 y6 y7 x4 x5 x6 x7 x8 x9 xa xb Y"

 $yc \oplus y0 \ yd \oplus y1 \ ye \oplus y2 \ yf \oplus y3 \ xc \oplus y4 \ xd \oplus y5 \ xe \oplus y6 \ xf \oplus y7$ $x0 \oplus x4 \ x1 \oplus x5 \ x2 \oplus x6 \ x3 \oplus x7 \ y8 \oplus x8 \ y9 \oplus x9 \ ya \oplus xa \ yb \oplus xb$ -----

$$wt(X) = 4$$
 $wt(Y) = 9$

xc xd xe xf x0 x1 x2 x3 X1 x4 x5 x6 x7 x8 x9 xa xb X2

y7 y8 y9 ya yb yc yd ye Y1 yf y0 y1 y2 y3 y4 y5 y6 Y2

yb yc yd ye xc xd xe xf x0 x1 x2 x3 y7 y8 y9 ya X"

xb yf y0 y1 y2 y3 y4 y5 y6 x4 x5 x6 x7 x8 x9 xa Y"

yb \oplus xb yc \oplus yf yd \oplus y0 ye \oplus y1 xc \oplus y2 xd \oplus y3 xe \oplus y4 xf \oplus y5 x0 \oplus y6 x1 \oplus x4 x2 \oplus x5 x3 \oplus x6 y7 \oplus x7 y8 \oplus x8 y9 \oplus x9 ya \oplus xa Z

$$wt(X) = 4$$
 $wt(Y) = 10$

xc xd xe xf x0 x1 x2 x3 X1 x4 x5 x6 x7 x8 x9 xa xb X2

y6 y7 y8 y9 ya yb yc yd Y1 ye yf y0 y1 y2 y3 y4 y5 Y2

ya yb yc yd xc xd xe xf x0 x1 x2 x3 y6 y7 y8 y9 X"

xa xb ye yf y0 y1 y2 y3 y4 y5 x4 x5 x6 x7 x8 x9 Y"

ya \oplus xa yb \oplus xb yc \oplus ye yd \oplus yf xc \oplus y0 xd \oplus y1 xe \oplus y2 xf \oplus y3 x0 \oplus y4 x1 \oplus y5 x2 \oplus x4 x3 \oplus x5 y6 \oplus x6 y7 \oplus x7 y8 \oplus x8 y9 \oplus x9 Z

$$wt(X) = 4$$
 $wt(Y) = 11$

xc xd xe xf x0 x1 x2 x3 X1 x4 x5 x6 x7 x8 x9 xa xb X2

y5 y6 y7 y8 y9 ya yb yc Y1 yd ye yf y0 y1 y2 y3 y4 Y2

y9 ya yb yc xc xd xe xf x0 x1 x2 x3 y5 y6 y7 y8 X"

x9 xa xb yd ye yf y0 y1 y2 y3 y4 x4 x5 x6 x7 x8 Y"

 $y9 \oplus x9 \ ya \oplus xa \ yb \oplus xb \ yc \oplus yd \ xc \oplus ye \ xd \oplus yf \ xe \oplus y0 \ xf \oplus y1$ $x0 \oplus y2 \ x1 \oplus y3 \ x2 \oplus y4 \ x3 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ y8 \oplus x8$ Z

$$wt(X) = 4 \quad wt(Y) = 12$$

xc xd xe xf x0 x1 x2 x3 X1 x4 x5 x6 x7 x8 x9 xa xb X2

y4 y5 y6 y7 y8 y9 ya yb Y1 yc yd ye yf y0 y1 y2 y3 Y2

y8 y9 ya yb xc xd xe xf x0 x1 x2 x3 y4 y5 y6 y7 X"

x8 x9 xa xb yc yd ye yf y0 y1 y2 y3 x4 x5 x6 x7 Y"

 $y8 \oplus x8 \ y9 \oplus x9 \ ya \oplus xa \ yb \oplus xb \ xc \oplus yc \ xd \oplus yd \ xe \oplus ye \ xf \oplus yf$ $x0 \oplus y0 \ x1 \oplus y1 \ x2 \oplus y2 \ x3 \oplus y3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7$ Z

$$wt(X) = 4 \quad wt(Y) = 13$$

xc xd xe xf x0 x1 x2 x3 X1

x4 x5 x6 x7 x8 x9 xa xb X2

y3 y4 y5 y6 y7 y8 y9 ya Y1 yb yc yd ye yf y0 y1 y2 Y2

y7 y8 y9 ya xc xd xe xf x0 x1 x2 x3 y3 y4 y5 y6 X"

x7 x8 x9 xa xb yb yc yd ye yf y0 y1 y2 x4 x5 x6 Y"

 $y7 \oplus x7 \ y8 \oplus x8 \ y9 \oplus x9 \ ya \oplus xa \ xc \oplus xb \ xd \oplus yb \ xe \oplus yc \ xf \oplus yd$ $x0 \oplus ye \ x1 \oplus yf \ x2 \oplus y0 \ x3 \oplus y1 \ y3 \oplus y2 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6$ Z

$$wt(X) = 4 \quad wt(Y) = 14$$

xc xd xe xf x0 x1 x2 x3 X1 x4 x5 x6 x7 x8 x9 xa xb X2

y2 y3 y4 y5 y6 y7 y8 y9 Y1 ya yb yc yd ye yf y0 y1 Y2

y6 y7 y8 y9 xc xd xe xf x0 x1 x2 x3 y2 y3 y4 y5 X"

x6 x7 x8 x9 xa xb ya yb yc yd ye yf y0 y1 x4 x5 Y"

 $y6 \oplus x6 \ y7 \oplus x7 \ y8 \oplus x8 \ y9 \oplus x9 \ xc \oplus xa \ xd \oplus xb \ xe \oplus ya \ xf \oplus yb$ $x0 \oplus yc \ x1 \oplus yd \ x2 \oplus ye \ x3 \oplus yf \ y2 \oplus y0 \ y3 \oplus y1 \ y4 \oplus x4 \ y5 \oplus x5$ Z

$$wt(X) = 4 \quad wt(Y) = 15$$

xc xd xe xf x0 x1 x2 x3 X1 x4 x5 x6 x7 x8 x9 xa xb X2

y1 y2 y3 y4 y5 y6 y7 y8 Y1

y9 ya yb yc yd ye yf y0 Y2

y5 y6 y7 y8 xc xd xe xf x0 x1 x2 x3 y1 y2 y3 y4 X"

x5 x6 x7 x8 x9 xa xb y9 ya yb yc yd ye yf y0 x4 Y"

 $y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ y8 \oplus x8 \ xc \oplus x9 \ xd \oplus xa \ xe \oplus xb \ xf \oplus y9$ $x0 \oplus ya \ x1 \oplus yb \ x2 \oplus yc \ x3 \oplus yd \ y1 \oplus ye \ y2 \oplus yf \ y3 \oplus y0 \ y4 \oplus x4$ Z

 $wt(X) = 4 \quad wt(Y) = 16$

xc xd xe xf x0 x1 x2 x3 X1 x4 x5 x6 x7 x8 x9 xa xb X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

y4 y5 y6 y7 xc xd xe xf x0 x1 x2 x3 y0 y1 y2 y3 X"

x4 x5 x6 x7 x8 x9 xa xb y8 y9 ya yb yc yd ye yf Y"

 $y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ xc \oplus x8 \ xd \oplus x9 \ xe \oplus xa \ xf \oplus xb$ $x0 \oplus y8 \ x1 \oplus y9 \ x2 \oplus ya \ x3 \oplus yb \ y0 \oplus yc \ y1 \oplus yd \ y2 \oplus ye \ y3 \oplus yf$ Z

wt(X) = 5 wt(Y) = 0

xb xc xd xe xf x0 x1 x2 X1 x3 x4 x5 x6 x7 x8 x9 xa X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

y3 y4 y5 y6 y7 xb xc xd

xe xf x0 x1 x2 y0 y1 y2 X"

x3 x4 x5 x6 x7 x8 x9 xa y8 y9 ya yb yc yd ye yf Y"

 $y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ xb \oplus x8 \ xc \oplus x9 \ xd \oplus xa$ $xe \oplus y8 \ xf \oplus y9 \ x0 \oplus ya \ x1 \oplus yb \ x2 \oplus yc \ y0 \oplus yd \ y1 \oplus ye \ y2 \oplus yf$ Z

wt(X) = 5 wt(Y) = 1

xb xc xd xe xf x0 x1 x2 X1 x3 x4 x5 x6 x7 x8 x9 xa X2

yf y0 y1 y2 y3 y4 y5 y6 Y1 y7 y8 y9 ya yb yc yd ye Y2

y2 y3 y4 y5 y6 xb xc xd xe xf x0 x1 x2 yf y0 y1 X"

ye x3 x4 x5 x6 x7 x8 x9 xa y7 y8 y9 ya yb yc yd Y"

 $y2 \oplus ye \ y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ xb \oplus x7 \ xc \oplus x8 \ xd \oplus x9$ $xe \oplus xa \ xf \oplus y7 \ x0 \oplus y8 \ x1 \oplus y9 \ x2 \oplus ya \ yf \oplus yb \ y0 \oplus yc \ y1 \oplus yd$ Z

wt(X) = 5 wt(Y) = 2

xb xc xd xe xf x0 x1 x2 X1 x3 x4 x5 x6 x7 x8 x9 xa X2

ye yf y0 y1 y2 y3 y4 y5 Y1 y6 y7 y8 y9 ya yb yc yd Y2

y1 y2 y3 y4 y5 xb xc xd xe xf x0 x1 x2 ye yf y0 X"

yc yd x3 x4 x5 x6 x7 x8

 $y1 \oplus yc \ y2 \oplus yd \ y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ xb \oplus x6 \ xc \oplus x7 \ xd \oplus x8$ $xe \oplus x9 \ xf \oplus xa \ x0 \oplus y6 \ x1 \oplus y7 \ x2 \oplus y8 \ ye \oplus y9 \ yf \oplus ya \ y0 \oplus yb$ Z

wt(X) = 5 wt(Y) = 3

xb xc xd xe xf x0 x1 x2 X1 x3 x4 x5 x6 x7 x8 x9 xa X2

yd ye yf y0 y1 y2 y3 y4 Y1 y5 y6 y7 y8 y9 ya yb yc Y2

y0 y1 y2 y3 y4 xb xc xd xe xf x0 x1 x2 yd ye yf X"

ya yb yc x3 x4 x5 x6 x7 x8 x9 xa y5 y6 y7 y8 y9 Y"

 $y0 \oplus ya \ y1 \oplus yb \ y2 \oplus yc \ y3 \oplus x3 \ y4 \oplus x4 \ xb \oplus x5 \ xc \oplus x6 \ xd \oplus x7$ $xe \oplus x8 \ xf \oplus x9 \ x0 \oplus xa \ x1 \oplus y5 \ x2 \oplus y6 \ yd \oplus y7 \ ye \oplus y8 \ yf \oplus y9$ Z

wt(X) = 5 wt(Y) = 4

xb xc xd xe xf x0 x1 x2 X1 x3 x4 x5 x6 x7 x8 x9 xa X2

yc yd ye yf y0 y1 y2 y3 Y1 y4 y5 y6 y7 y8 y9 ya yb Y2

yf y0 y1 y2 y3 xb xc xd xe xf x0 x1 x2 yc yd ye X"

y8 y9 ya yb x3 x4 x5 x6 x7 x8 x9 xa y4 y5 y6 y7 Y"

Z

Z

wt(X) = 5 wt(Y) = 5

xb xc xd xe xf x0 x1 x2 X1 x3 x4 x5 x6 x7 x8 x9 xa X2

yb yc yd ye yf y0 y1 y2 Y1 y3 y4 y5 y6 y7 y8 y9 ya Y2

ye yf y0 y1 y2 xb xc xd xe xf x0 x1 x2 yb yc yd X''

y6 y7 y8 y9 ya x3 x4 x5 x6 x7 x8 x9 xa y3 y4 y5 Y"

ye \oplus y6 yf \oplus y7 y0 \oplus y8 y1 \oplus y9 y2 \oplus ya xb \oplus x3 xc \oplus x4 xd \oplus x5 xe \oplus x6 xf \oplus x7 x0 \oplus x8 x1 \oplus x9 x2 \oplus xa yb \oplus y3 yc \oplus y4 yd \oplus y5 Z

wt(X) = 5 wt(Y) = 6

xb xc xd xe xf x0 x1 x2 X1 x3 x4 x5 x6 x7 x8 x9 xa X2

ya yb yc yd ye yf y0 y1 Y1 y2 y3 y4 y5 y6 y7 y8 y9 Y2

yd ye yf y0 y1 xb xc xd xe xf x0 x1 x2 ya yb yc X''

y4 y5 y6 y7 y8 y9 x3 x4 x5 x6 x7 x8 x9 xa y2 y3 Y"

 $yd \oplus y4 ye \oplus y5 yf \oplus y6 y0 \oplus y7 y1 \oplus y8 xb \oplus y9 xc \oplus x3 xd \oplus x4$ $xe \oplus x5 xf \oplus x6 x0 \oplus x7 x1 \oplus x8 x2 \oplus x9 ya \oplus xa yb \oplus y2 yc \oplus y3$ -----

$$wt(X) = 5$$
 $wt(Y) = 7$

xb xc xd xe xf x0 x1 x2 X1 x3 x4 x5 x6 x7 x8 x9 xa X2

y9 ya yb yc yd ye yf y0 Y1 y1 y2 y3 y4 y5 y6 y7 y8 Y2

yc yd ye yf y0 xb xc xd xe xf x0 x1 x2 y9 ya yb X''

y2 y3 y4 y5 y6 y7 y8 x3 x4 x5 x6 x7 x8 x9 xa y1 Y"

yc \oplus y2 yd \oplus y3 ye \oplus y4 yf \oplus y5 y0 \oplus y6 xb \oplus y7 xc \oplus y8 xd \oplus x3 xe \oplus x4 xf \oplus x5 x0 \oplus x6 x1 \oplus x7 x2 \oplus x8 y9 \oplus x9 ya \oplus xa yb \oplus y1 Z

$$wt(X) = 5$$
 $wt(Y) = 8$

xb xc xd xe xf x0 x1 x2 X1 x3 x4 x5 x6 x7 x8 x9 xa X2

y8 y9 ya yb yc yd ye yf Y1 y0 y1 y2 y3 y4 y5 y6 y7 Y2

yb yc yd ye yf xb xc xd xe xf x0 x1 x2 y8 y9 ya X"

y0 y1 y2 y3 y4 y5 y6 y7 x3 x4 x5 x6 x7 x8 x9 xa Y"

yb \oplus y0 yc \oplus y1 yd \oplus y2 ye \oplus y3 yf \oplus y4 xb \oplus y5 xc \oplus y6 xd \oplus y7 xe \oplus x3 xf \oplus x4 x0 \oplus x5 x1 \oplus x6 x2 \oplus x7 y8 \oplus x8 y9 \oplus x9 ya \oplus xa Z

$$wt(X) = 5$$
 $wt(Y) = 9$

xb xc xd xe xf x0 x1 x2 X1 x3 x4 x5 x6 x7 x8 x9 xa X2

y7 y8 y9 ya yb yc yd ye Y1 yf y0 y1 y2 y3 y4 y5 y6 Y2

ya yb yc yd ye xb xc xd xe xf x0 x1 x2 y7 y8 y9 X"

xa yf y0 y1 y2 y3 y4 y5 y6 x3 x4 x5 x6 x7 x8 x9 Y"

ya \oplus xa yb \oplus yf yc \oplus y0 yd \oplus y1 ye \oplus y2 xb \oplus y3 xc \oplus y4 xd \oplus y5 xe \oplus y6 xf \oplus x3 x0 \oplus x4 x1 \oplus x5 x2 \oplus x6 y7 \oplus x7 y8 \oplus x8 y9 \oplus x9 Z

$$wt(X) = 5$$
 $wt(Y) = 10$

xb xc xd xe xf x0 x1 x2 X1 x3 x4 x5 x6 x7 x8 x9 xa X2

y6 y7 y8 y9 ya yb yc yd Y1 ye yf y0 y1 y2 y3 y4 y5 Y2

y9 ya yb yc yd xb xc xd xe xf x0 x1 x2 y6 y7 y8 X"

x9 xa ye yf y0 y1 y2 y3 y4 y5 x3 x4 x5 x6 x7 x8 Y"

y9 \oplus x9 ya \oplus xa yb \oplus ye yc \oplus yf yd \oplus y0 xb \oplus y1 xc \oplus y2 xd \oplus y3 xe \oplus y4 xf \oplus y5 x0 \oplus x3 x1 \oplus x4 x2 \oplus x5 y6 \oplus x6 y7 \oplus x7 y8 \oplus x8 Z

$$wt(X) = 5 \quad wt(Y) = 11$$

xb xc xd xe xf x0 x1 x2 X1

x3 x4 x5 x6 x7 x8 x9 xa X2

y5 y6 y7 y8 y9 ya yb yc Y1 yd ye yf y0 y1 y2 y3 y4 Y2

y8 y9 ya yb yc xb xc xd xe xf x0 x1 x2 y5 y6 y7 X"

x8 x9 xa yd ye yf y0 y1 y2 y3 y4 x3 x4 x5 x6 x7 Y"

 $y8 \oplus x8 \ y9 \oplus x9 \ ya \oplus xa \ yb \oplus yd \ yc \oplus ye \ xb \oplus yf \ xc \oplus y0 \ xd \oplus y1$ $xe \oplus y2 \ xf \oplus y3 \ x0 \oplus y4 \ x1 \oplus x3 \ x2 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7$ Z

$$wt(X) = 5 \quad wt(Y) = 12$$

xb xc xd xe xf x0 x1 x2 X1 x3 x4 x5 x6 x7 x8 x9 xa X2

y4 y5 y6 y7 y8 y9 ya yb Y1 yc yd ye yf y0 y1 y2 y3 Y2

y7 y8 y9 ya yb xb xc xd xe xf x0 x1 x2 y4 y5 y6 X"

x7 x8 x9 xa yc yd ye yf y0 y1 y2 y3 x3 x4 x5 x6 Y"

 $y7 \oplus x7 \ y8 \oplus x8 \ y9 \oplus x9 \ ya \oplus xa \ yb \oplus yc \ xb \oplus yd \ xc \oplus ye \ xd \oplus yf$ $xe \oplus y0 \ xf \oplus y1 \ x0 \oplus y2 \ x1 \oplus y3 \ x2 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6$ Z

$$wt(X) = 5 \quad wt(Y) = 13$$

xb xc xd xe xf x0 x1 x2 X1 x3 x4 x5 x6 x7 x8 x9 xa X2

y3 y4 y5 y6 y7 y8 y9 ya Y1

yb yc yd ye yf y0 y1 y2 Y2

y6 y7 y8 y9 ya xb xc xd xe xf x0 x1 x2 y3 y4 y5 X"

x6 x7 x8 x9 xa yb yc yd ye yf y0 y1 y2 x3 x4 x5 Y"

 $y6 \oplus x6 \ y7 \oplus x7 \ y8 \oplus x8 \ y9 \oplus x9 \ ya \oplus xa \ xb \oplus yb \ xc \oplus yc \ xd \oplus yd$ $xe \oplus ye \ xf \oplus yf \ x0 \oplus y0 \ x1 \oplus y1 \ x2 \oplus y2 \ y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5$

Z

Z

 $wt(X) = 5 \quad wt(Y) = 14$

xb xc xd xe xf x0 x1 x2 X1 x3 x4 x5 x6 x7 x8 x9 xa X2

y2 y3 y4 y5 y6 y7 y8 y9 Y1 ya yb yc yd ye yf y0 y1 Y2

y5 y6 y7 y8 y9 xb xc xd xe xf x0 x1 x2 y2 y3 y4 X"

x5 x6 x7 x8 x9 xa ya yb yc yd ye yf y0 y1 x3 x4 Y"

 $y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ y8 \oplus x8 \ y9 \oplus x9 \ xb \oplus xa \ xc \oplus ya \ xd \oplus yb$ $xe \oplus yc \ xf \oplus yd \ x0 \oplus ye \ x1 \oplus yf \ x2 \oplus y0 \ y2 \oplus y1 \ y3 \oplus x3 \ y4 \oplus x4$

 $wt(X) = 5 \quad wt(Y) = 15$

xb xc xd xe xf x0 x1 x2 X1 x3 x4 x5 x6 x7 x8 x9 xa X2

y1 y2 y3 y4 y5 y6 y7 y8 Y1 y9 ya yb yc yd ye yf y0 Y2

y4 y5 y6 y7 y8 xb xc xd

xe xf x0 x1 x2 y1 y2 y3 X"

x4 x5 x6 x7 x8 x9 xa y9 ya yb yc yd ye yf y0 x3 Y"

 $y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ y8 \oplus x8 \ xb \oplus x9 \ xc \oplus xa \ xd \oplus y9$ $xe \oplus ya \ xf \oplus yb \ x0 \oplus yc \ x1 \oplus yd \ x2 \oplus ye \ y1 \oplus yf \ y2 \oplus y0 \ y3 \oplus x3$

Z

Z

 $wt(X) = 5 \quad wt(Y) = 16$

xb xc xd xe xf x0 x1 x2 X1 x3 x4 x5 x6 x7 x8 x9 xa X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

y3 y4 y5 y6 y7 xb xc xd xe xf x0 x1 x2 y0 y1 y2 X"

x3 x4 x5 x6 x7 x8 x9 xa y8 y9 ya yb yc yd ye yf Y"

 $y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ xb \oplus x8 \ xc \oplus x9 \ xd \oplus xa$ $xe \oplus y8 \ xf \oplus y9 \ x0 \oplus ya \ x1 \oplus yb \ x2 \oplus yc \ y0 \oplus yd \ y1 \oplus ye \ y2 \oplus yf$

wt(X) = 6 wt(Y) = 0

xa xb xc xd xe xf x0 x1 X1 x2 x3 x4 x5 x6 x7 x8 x9 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

y2 y3 y4 y5 y6 y7 xa xb xc xd xe xf x0 x1 y0 y1 X"

x2 x3 x4 x5 x6 x7 x8 x9

```
y8 y9 ya yb yc yd ye yf Y"
```

 $y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ xa \oplus x8 \ xb \oplus x9$ $xc \oplus y8 \ xd \oplus y9 \ xe \oplus ya \ xf \oplus yb \ x0 \oplus yc \ x1 \oplus yd \ y0 \oplus ye \ y1 \oplus yf$ Z

wt(X) = 6 wt(Y) = 1

xa xb xc xd xe xf x0 x1 X1 x2 x3 x4 x5 x6 x7 x8 x9 X2

yf y0 y1 y2 y3 y4 y5 y6 Y1 y7 y8 y9 ya yb yc yd ye Y2

y1 y2 y3 y4 y5 y6 xa xb xc xd xe xf x0 x1 yf y0 X"

ye x2 x3 x4 x5 x6 x7 x8 x9 y7 y8 y9 ya yb yc yd Y"

 $y1 \oplus ye \ y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ xa \oplus x7 \ xb \oplus x8$ $xc \oplus x9 \ xd \oplus y7 \ xe \oplus y8 \ xf \oplus y9 \ x0 \oplus ya \ x1 \oplus yb \ yf \oplus yc \ y0 \oplus yd$ Z

wt(X) = 6 wt(Y) = 2

xa xb xc xd xe xf x0 x1 X1 x2 x3 x4 x5 x6 x7 x8 x9 X2

ye yf y0 y1 y2 y3 y4 y5 Y1 y6 y7 y8 y9 ya yb yc yd Y2

y0 y1 y2 y3 y4 y5 xa xb xc xd xe xf x0 x1 ye yf X"

yc yd x2 x3 x4 x5 x6 x7 x8 x9 y6 y7 y8 y9 ya yb Y"

Z

Z

wt(X) = 6 wt(Y) = 3

xa xb xc xd xe xf x0 x1 X1 x2 x3 x4 x5 x6 x7 x8 x9 X2

yd ye yf y0 y1 y2 y3 y4 Y1 y5 y6 y7 y8 y9 ya yb yc Y2

yf y0 y1 y2 y3 y4 xa xb xc xd xe xf x0 x1 yd ye X"

ya yb yc x2 x3 x4 x5 x6 x7 x8 x9 y5 y6 y7 y8 y9 Y"

yf \oplus ya y0 \oplus yb y1 \oplus yc y2 \oplus x2 y3 \oplus x3 y4 \oplus x4 xa \oplus x5 xb \oplus x6 xc \oplus x7 xd \oplus x8 xe \oplus x9 xf \oplus y5 x0 \oplus y6 x1 \oplus y7 yd \oplus y8 ye \oplus y9 Z

wt(X) = 6 wt(Y) = 4

xa xb xc xd xe xf x0 x1 X1 x2 x3 x4 x5 x6 x7 x8 x9 X2

yc yd ye yf y0 y1 y2 y3 Y1 y4 y5 y6 y7 y8 y9 ya yb Y2

ye yf y0 y1 y2 y3 xa xb xc xd xe xf x0 x1 yc yd X"

y8 y9 ya yb x2 x3 x4 x5 x6 x7 x8 x9 y4 y5 y6 y7 Y"

 $ye \oplus y8 yf \oplus y9 y0 \oplus ya y1 \oplus yb y2 \oplus x2 y3 \oplus x3 xa \oplus x4 xb \oplus x5$ $xc \oplus x6 xd \oplus x7 xe \oplus x8 xf \oplus x9 x0 \oplus y4 x1 \oplus y5 yc \oplus y6 yd \oplus y7$ -----

$$wt(X) = 6$$
 $wt(Y) = 5$

xa xb xc xd xe xf x0 x1 X1 x2 x3 x4 x5 x6 x7 x8 x9 X2

yb yc yd ye yf y0 y1 y2 Y1 y3 y4 y5 y6 y7 y8 y9 ya Y2

yd ye yf y0 y1 y2 xa xb xc xd xe xf x0 x1 yb yc X"

y6 y7 y8 y9 ya x2 x3 x4 x5 x6 x7 x8 x9 y3 y4 y5 Y"

 $yd \oplus y6 \ ye \oplus y7 \ yf \oplus y8 \ y0 \oplus y9 \ y1 \oplus ya \ y2 \oplus x2 \ xa \oplus x3 \ xb \oplus x4$ $xc \oplus x5 \ xd \oplus x6 \ xe \oplus x7 \ xf \oplus x8 \ x0 \oplus x9 \ x1 \oplus y3 \ yb \oplus y4 \ yc \oplus y5$

Z

$$wt(X) = 6$$
 $wt(Y) = 6$

xa xb xc xd xe xf x0 x1 X1 x2 x3 x4 x5 x6 x7 x8 x9 X2

ya yb yc yd ye yf y0 y1 Y1 y2 y3 y4 y5 y6 y7 y8 y9 Y2

yc yd ye yf y0 y1 xa xb xc xd xe xf x0 x1 ya yb X"

y4 y5 y6 y7 y8 y9 x2 x3 x4 x5 x6 x7 x8 x9 y2 y3 Y"

 $yc \oplus y4 \ yd \oplus y5 \ ye \oplus y6 \ yf \oplus y7 \ y0 \oplus y8 \ y1 \oplus y9 \ xa \oplus x2 \ xb \oplus x3$ $xc \oplus x4 \ xd \oplus x5 \ xe \oplus x6 \ xf \oplus x7 \ x0 \oplus x8 \ x1 \oplus x9 \ ya \oplus y2 \ yb \oplus y3$ Z

$$wt(X) = 6$$
 $wt(Y) = 7$

xa xb xc xd xe xf x0 x1 X1 x2 x3 x4 x5 x6 x7 x8 x9 X2

y9 ya yb yc yd ye yf y0 Y1 y1 y2 y3 y4 y5 y6 y7 y8 Y2

yb yc yd ye yf y0 xa xb xc xd xe xf x0 x1 y9 ya X"

y2 y3 y4 y5 y6 y7 y8 x2 x3 x4 x5 x6 x7 x8 x9 y1 Y"

yb \oplus y2 yc \oplus y3 yd \oplus y4 ye \oplus y5 yf \oplus y6 y0 \oplus y7 xa \oplus y8 xb \oplus x2 xc \oplus x3 xd \oplus x4 xe \oplus x5 xf \oplus x6 x0 \oplus x7 x1 \oplus x8 y9 \oplus x9 ya \oplus y1 Z

$$wt(X) = 6$$
 $wt(Y) = 8$

xa xb xc xd xe xf x0 x1 X1 x2 x3 x4 x5 x6 x7 x8 x9 X2

y8 y9 ya yb yc yd ye yf Y1 y0 y1 y2 y3 y4 y5 y6 y7 Y2

ya yb yc yd ye yf xa xb xc xd xe xf x0 x1 y8 y9 X"

y0 y1 y2 y3 y4 y5 y6 y7 x2 x3 x4 x5 x6 x7 x8 x9 Y"

ya \oplus y0 yb \oplus y1 yc \oplus y2 yd \oplus y3 ye \oplus y4 yf \oplus y5 xa \oplus y6 xb \oplus y7 xc \oplus x2 xd \oplus x3 xe \oplus x4 xf \oplus x5 x0 \oplus x6 x1 \oplus x7 y8 \oplus x8 y9 \oplus x9 Z

$$wt(X) = 6$$
 $wt(Y) = 9$

xa xb xc xd xe xf x0 x1 X1

x2 x3 x4 x5 x6 x7 x8 x9 X2

y7 y8 y9 ya yb yc yd ye Y1 yf y0 y1 y2 y3 y4 y5 y6 Y2

y9 ya yb yc yd ye xa xb xc xd xe xf x0 x1 y7 y8 X"

x9 yf y0 y1 y2 y3 y4 y5 y6 x2 x3 x4 x5 x6 x7 x8 Y"

 $y9 \oplus x9 \ ya \oplus yf \ yb \oplus y0 \ yc \oplus y1 \ yd \oplus y2 \ ye \oplus y3 \ xa \oplus y4 \ xb \oplus y5$ $xc \oplus y6 \ xd \oplus x2 \ xe \oplus x3 \ xf \oplus x4 \ x0 \oplus x5 \ x1 \oplus x6 \ y7 \oplus x7 \ y8 \oplus x8$ Z

$$wt(X) = 6$$
 $wt(Y) = 10$

xa xb xc xd xe xf x0 x1 X1 x2 x3 x4 x5 x6 x7 x8 x9 X2

y6 y7 y8 y9 ya yb yc yd Y1 ye yf y0 y1 y2 y3 y4 y5 Y2

y8 y9 ya yb yc yd xa xb xc xd xe xf x0 x1 y6 y7 X"

x8 x9 ye yf y0 y1 y2 y3 y4 y5 x2 x3 x4 x5 x6 x7 Y"

 $y8 \oplus x8 \ y9 \oplus x9 \ ya \oplus ye \ yb \oplus yf \ yc \oplus y0 \ yd \oplus y1 \ xa \oplus y2 \ xb \oplus y3$ $xc \oplus y4 \ xd \oplus y5 \ xe \oplus x2 \ xf \oplus x3 \ x0 \oplus x4 \ x1 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7$ Z

$$wt(X) = 6 \quad wt(Y) = 11$$

xa xb xc xd xe xf x0 x1 X1 x2 x3 x4 x5 x6 x7 x8 x9 X2

y5 y6 y7 y8 y9 ya yb yc Y1

yd ye yf y0 y1 y2 y3 y4 Y2

y7 y8 y9 ya yb yc xa xb xc xd xe xf x0 x1 y5 y6 X"

x7 x8 x9 yd ye yf y0 y1 y2 y3 y4 x2 x3 x4 x5 x6 Y"

 $y7 \oplus x7$ $y8 \oplus x8$ $y9 \oplus x9$ $ya \oplus yd$ $yb \oplus ye$ $yc \oplus yf$ $xa \oplus y0$ $xb \oplus y1$ $xc \oplus y2$ $xd \oplus y3$ $xe \oplus y4$ $xf \oplus x2$ $x0 \oplus x3$ $x1 \oplus x4$ $y5 \oplus x5$ $y6 \oplus x6$

Z

 $wt(X) = 6 \quad wt(Y) = 12$

xa xb xc xd xe xf x0 x1 X1 x2 x3 x4 x5 x6 x7 x8 x9 X2

y4 y5 y6 y7 y8 y9 ya yb Y1 yc yd ye yf y0 y1 y2 y3 Y2

y6 y7 y8 y9 ya yb xa xb xc xd xe xf x0 x1 y4 y5 X"

x6 x7 x8 x9 yc yd ye yf y0 y1 y2 y3 x2 x3 x4 x5 Y"

y6 \oplus x6 y7 \oplus x7 y8 \oplus x8 y9 \oplus x9 ya \oplus yc yb \oplus yd xa \oplus ye xb \oplus yf xc \oplus y0 xd \oplus y1 xe \oplus y2 xf \oplus y3 x0 \oplus x2 x1 \oplus x3 y4 \oplus x4 y5 \oplus x5 Z

 $wt(X) = 6 \quad wt(Y) = 13$

xa xb xc xd xe xf x0 x1 X1 x2 x3 x4 x5 x6 x7 x8 x9 X2

y3 y4 y5 y6 y7 y8 y9 ya Y1 yb yc yd ye yf y0 y1 y2 Y2

y5 y6 y7 y8 y9 ya xa xb

xc xd xe xf x0 x1 y3 y4 X''

x5 x6 x7 x8 x9 yb yc yd ye yf y0 y1 y2 x2 x3 x4 Y"

y5 \oplus x5 y6 \oplus x6 y7 \oplus x7 y8 \oplus x8 y9 \oplus x9 ya \oplus yb xa \oplus yc xb \oplus yd xc \oplus ye xd \oplus yf xe \oplus y0 xf \oplus y1 x0 \oplus y2 x1 \oplus x2 y3 \oplus x3 y4 \oplus x4 Z

 $wt(X) = 6 \quad wt(Y) = 14$

xa xb xc xd xe xf x0 x1 X1 x2 x3 x4 x5 x6 x7 x8 x9 X2

y2 y3 y4 y5 y6 y7 y8 y9 Y1 ya yb yc yd ye yf y0 y1 Y2

y4 y5 y6 y7 y8 y9 xa xb xc xd xe xf x0 x1 y2 y3 X"

x4 x5 x6 x7 x8 x9 ya yb yc yd ye yf y0 y1 x2 x3 Y"

 $y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ y8 \oplus x8 \ y9 \oplus x9 \ xa \oplus ya \ xb \oplus yb$ $xc \oplus yc \ xd \oplus yd \ xe \oplus ye \ xf \oplus yf \ x0 \oplus y0 \ x1 \oplus y1 \ y2 \oplus x2 \ y3 \oplus x3$ Z

 $wt(X) = 6 \quad wt(Y) = 15$

xa xb xc xd xe xf x0 x1 X1 x2 x3 x4 x5 x6 x7 x8 x9 X2

y1 y2 y3 y4 y5 y6 y7 y8 Y1 y9 ya yb yc yd ye yf y0 Y2

y3 y4 y5 y6 y7 y8 xa xb xc xd xe xf x0 x1 y1 y2 X"

x3 x4 x5 x6 x7 x8 x9 y9

 $y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ y8 \oplus x8 \ xa \oplus x9 \ xb \oplus y9$ $xc \oplus ya \ xd \oplus yb \ xe \oplus yc \ xf \oplus yd \ x0 \oplus ye \ x1 \oplus yf \ y1 \oplus y0 \ y2 \oplus x2$ Z

 $wt(X) = 6 \quad wt(Y) = 16$

xa xb xc xd xe xf x0 x1 X1 x2 x3 x4 x5 x6 x7 x8 x9 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

y2 y3 y4 y5 y6 y7 xa xb xc xd xe xf x0 x1 y0 y1 X"

x2 x3 x4 x5 x6 x7 x8 x9 y8 y9 ya yb yc yd ye yf Y"

 $y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ xa \oplus x8 \ xb \oplus x9$ $xc \oplus y8 \ xd \oplus y9 \ xe \oplus ya \ xf \oplus yb \ x0 \oplus yc \ x1 \oplus yd \ y0 \oplus ye \ y1 \oplus yf$ Z

wt(X) = 7 wt(Y) = 0

x9 xa xb xc xd xe xf x0 X1 x1 x2 x3 x4 x5 x6 x7 x8 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

y1 y2 y3 y4 y5 y6 y7 x9 xa xb xc xd xe xf x0 y0 X"

x1 x2 x3 x4 x5 x6 x7 x8 y8 y9 ya yb yc yd ye yf Y"

Z

Z

wt(X) = 7 wt(Y) = 1

x9 xa xb xc xd xe xf x0 X1 x1 x2 x3 x4 x5 x6 x7 x8 X2

yf y0 y1 y2 y3 y4 y5 y6 Y1 y7 y8 y9 ya yb yc yd ye Y2

y0 y1 y2 y3 y4 y5 y6 x9 xa xb xc xd xe xf x0 yf X"

ye x1 x2 x3 x4 x5 x6 x7 x8 y7 y8 y9 ya yb yc yd Y"

 $y0 \oplus ye \ y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ x9 \oplus x7$ $xa \oplus x8 \ xb \oplus y7 \ xc \oplus y8 \ xd \oplus y9 \ xe \oplus ya \ xf \oplus yb \ x0 \oplus yc \ yf \oplus yd$ Z

wt(X) = 7 wt(Y) = 2

x9 xa xb xc xd xe xf x0 X1 x1 x2 x3 x4 x5 x6 x7 x8 X2

ye yf y0 y1 y2 y3 y4 y5 Y1 y6 y7 y8 y9 ya yb yc yd Y2

yf y0 y1 y2 y3 y4 y5 x9 xa xb xc xd xe xf x0 ye X"

yc yd x1 x2 x3 x4 x5 x6 x7 x8 y6 y7 y8 y9 ya yb Y"

 $yf \oplus yc \ y0 \oplus yd \ y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ x9 \oplus x6$ $xa \oplus x7 \ xb \oplus x8 \ xc \oplus y6 \ xd \oplus y7 \ xe \oplus y8 \ xf \oplus y9 \ x0 \oplus ya \ ye \oplus yb$ -----

$$wt(X) = 7$$
 $wt(Y) = 3$

x9 xa xb xc xd xe xf x0 X1 x1 x2 x3 x4 x5 x6 x7 x8 X2

yd ye yf y0 y1 y2 y3 y4 Y1 y5 y6 y7 y8 y9 ya yb yc Y2

ye yf y0 y1 y2 y3 y4 x9 xa xb xc xd xe xf x0 yd X"

ya yb yc x1 x2 x3 x4 x5 x6 x7 x8 y5 y6 y7 y8 y9 Y"

ye \oplus ya yf \oplus yb y0 \oplus yc y1 \oplus x1 y2 \oplus x2 y3 \oplus x3 y4 \oplus x4 x9 \oplus x5 xa \oplus x6 xb \oplus x7 xc \oplus x8 xd \oplus y5 xe \oplus y6 xf \oplus y7 x0 \oplus y8 yd \oplus y9 Z

$$wt(X) = 7$$
 $wt(Y) = 4$

x9 xa xb xc xd xe xf x0 X1 x1 x2 x3 x4 x5 x6 x7 x8 X2

yc yd ye yf y0 y1 y2 y3 Y1 y4 y5 y6 y7 y8 y9 ya yb Y2

yd ye yf y0 y1 y2 y3 x9 xa xb xc xd xe xf x0 yc X"

y8 y9 ya yb x1 x2 x3 x4 x5 x6 x7 x8 y4 y5 y6 y7 Y"

 $yd \oplus y8 \ ye \oplus y9 \ yf \oplus ya \ y0 \oplus yb \ y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ x9 \oplus x4$ $xa \oplus x5 \ xb \oplus x6 \ xc \oplus x7 \ xd \oplus x8 \ xe \oplus y4 \ xf \oplus y5 \ x0 \oplus y6 \ yc \oplus y7$ Z

$$wt(X) = 7$$
 $wt(Y) = 5$

x9 xa xb xc xd xe xf x0 X1 x1 x2 x3 x4 x5 x6 x7 x8 X2

yb yc yd ye yf y0 y1 y2 Y1 y3 y4 y5 y6 y7 y8 y9 ya Y2

yc yd ye yf y0 y1 y2 x9 xa xb xc xd xe xf x0 yb X"

y6 y7 y8 y9 ya x1 x2 x3 x4 x5 x6 x7 x8 y3 y4 y5 Y"

yc \oplus y6 yd \oplus y7 ye \oplus y8 yf \oplus y9 y0 \oplus ya y1 \oplus x1 y2 \oplus x2 x9 \oplus x3 xa \oplus x4 xb \oplus x5 xc \oplus x6 xd \oplus x7 xe \oplus x8 xf \oplus y3 x0 \oplus y4 yb \oplus y5 Z

$$wt(X) = 7$$
 $wt(Y) = 6$

x9 xa xb xc xd xe xf x0 X1 x1 x2 x3 x4 x5 x6 x7 x8 X2

ya yb yc yd ye yf y0 y1 Y1 y2 y3 y4 y5 y6 y7 y8 y9 Y2

yb yc yd ye yf y0 y1 x9 xa xb xc xd xe xf x0 ya X"

y4 y5 y6 y7 y8 y9 x1 x2 x3 x4 x5 x6 x7 x8 y2 y3 Y"

yb \oplus y4 yc \oplus y5 yd \oplus y6 ye \oplus y7 yf \oplus y8 y0 \oplus y9 y1 \oplus x1 x9 \oplus x2 xa \oplus x3 xb \oplus x4 xc \oplus x5 xd \oplus x6 xe \oplus x7 xf \oplus x8 x0 \oplus y2 ya \oplus y3 Z

$$wt(X) = 7$$
 $wt(Y) = 7$

x9 xa xb xc xd xe xf x0 X1

x1 x2 x3 x4 x5 x6 x7 x8 X2

y9 ya yb yc yd ye yf y0 Y1 y1 y2 y3 y4 y5 y6 y7 y8 Y2

ya yb yc yd ye yf y0 x9 xa xb xc xd xe xf x0 y9 X"

y2 y3 y4 y5 y6 y7 y8 x1 x2 x3 x4 x5 x6 x7 x8 y1 Y"

 $ya \oplus y2 \ yb \oplus y3 \ yc \oplus y4 \ yd \oplus y5 \ ye \oplus y6 \ yf \oplus y7 \ y0 \oplus y8 \ x9 \oplus x1$ $xa \oplus x2 \ xb \oplus x3 \ xc \oplus x4 \ xd \oplus x5 \ xe \oplus x6 \ xf \oplus x7 \ x0 \oplus x8 \ y9 \oplus y1$ Z

$$wt(X) = 7 \quad wt(Y) = 8$$

x9 xa xb xc xd xe xf x0 X1 x1 x2 x3 x4 x5 x6 x7 x8 X2

y8 y9 ya yb yc yd ye yf Y1 y0 y1 y2 y3 y4 y5 y6 y7 Y2

y9 ya yb yc yd ye yf x9 xa xb xc xd xe xf x0 y8 X"

y0 y1 y2 y3 y4 y5 y6 y7 x1 x2 x3 x4 x5 x6 x7 x8 Y"

 $y9 \oplus y0 \ ya \oplus y1 \ yb \oplus y2 \ yc \oplus y3 \ yd \oplus y4 \ ye \oplus y5 \ yf \oplus y6 \ x9 \oplus y7$ $xa \oplus x1 \ xb \oplus x2 \ xc \oplus x3 \ xd \oplus x4 \ xe \oplus x5 \ xf \oplus x6 \ x0 \oplus x7 \ y8 \oplus x8$ Z

$$wt(X) = 7$$
 $wt(Y) = 9$

x9 xa xb xc xd xe xf x0 X1 x1 x2 x3 x4 x5 x6 x7 x8 X2

y7 y8 y9 ya yb yc yd ye Y1

yf y0 y1 y2 y3 y4 y5 y6 Y2

y8 y9 ya yb yc yd ye x9 xa xb xc xd xe xf x0 y7 X"

x8 yf y0 y1 y2 y3 y4 y5 y6 x1 x2 x3 x4 x5 x6 x7 Y"

 $y8 \oplus x8 \ y9 \oplus yf \ ya \oplus y0 \ yb \oplus y1 \ yc \oplus y2 \ yd \oplus y3 \ ye \oplus y4 \ x9 \oplus y5$ $xa \oplus y6 \ xb \oplus x1 \ xc \oplus x2 \ xd \oplus x3 \ xe \oplus x4 \ xf \oplus x5 \ x0 \oplus x6 \ y7 \oplus x7$ Z

wt(X) = 7 wt(Y) = 10

x9 xa xb xc xd xe xf x0 X1 x1 x2 x3 x4 x5 x6 x7 x8 X2

y6 y7 y8 y9 ya yb yc yd Y1 ye yf y0 y1 y2 y3 y4 y5 Y2

y7 y8 y9 ya yb yc yd x9 xa xb xc xd xe xf x0 y6 X"

x7 x8 ye yf y0 y1 y2 y3 y4 y5 x1 x2 x3 x4 x5 x6 Y"

 $y7 \oplus x7 \ y8 \oplus x8 \ y9 \oplus ye \ ya \oplus yf \ yb \oplus y0 \ yc \oplus y1 \ yd \oplus y2 \ x9 \oplus y3$ $xa \oplus y4 \ xb \oplus y5 \ xc \oplus x1 \ xd \oplus x2 \ xe \oplus x3 \ xf \oplus x4 \ x0 \oplus x5 \ y6 \oplus x6$ Z

 $wt(X) = 7 \quad wt(Y) = 11$

x9 xa xb xc xd xe xf x0 X1 x1 x2 x3 x4 x5 x6 x7 x8 X2

y5 y6 y7 y8 y9 ya yb yc Y1 yd ye yf y0 y1 y2 y3 y4 Y2

y6 y7 y8 y9 ya yb yc x9

xa xb xc xd xe xf x0 y5 X"

x6 x7 x8 yd ye yf y0 y1 y2 y3 y4 x1 x2 x3 x4 x5 Y"

 $y6 \oplus x6 \ y7 \oplus x7 \ y8 \oplus x8 \ y9 \oplus yd \ ya \oplus ye \ yb \oplus yf \ yc \oplus y0 \ x9 \oplus y1$ $xa \oplus y2 \ xb \oplus y3 \ xc \oplus y4 \ xd \oplus x1 \ xe \oplus x2 \ xf \oplus x3 \ x0 \oplus x4 \ y5 \oplus x5$

Z

 $wt(X) = 7 \quad wt(Y) = 12$

x9 xa xb xc xd xe xf x0 X1 x1 x2 x3 x4 x5 x6 x7 x8 X2

y4 y5 y6 y7 y8 y9 ya yb Y1 yc yd ye yf y0 y1 y2 y3 Y2

y5 y6 y7 y8 y9 ya yb x9 xa xb xc xd xe xf x0 y4 X"

x5 x6 x7 x8 yc yd ye yf y0 y1 y2 y3 x1 x2 x3 x4 Y"

 $y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ y8 \oplus x8 \ y9 \oplus yc \ ya \oplus yd \ yb \oplus ye \ x9 \oplus yf$ $xa \oplus y0 \ xb \oplus y1 \ xc \oplus y2 \ xd \oplus y3 \ xe \oplus x1 \ xf \oplus x2 \ x0 \oplus x3 \ y4 \oplus x4$ Z

 $wt(X) = 7 \quad wt(Y) = 13$

x9 xa xb xc xd xe xf x0 X1 x1 x2 x3 x4 x5 x6 x7 x8 X2

y3 y4 y5 y6 y7 y8 y9 ya Y1 yb yc yd ye yf y0 y1 y2 Y2

y4 y5 y6 y7 y8 y9 ya x9 xa xb xc xd xe xf x0 y3 X"

x4 x5 x6 x7 x8 yb yc yd

 $y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ y8 \oplus x8 \ y9 \oplus yb \ ya \oplus yc \ x9 \oplus yd$ $xa \oplus ye \ xb \oplus yf \ xc \oplus y0 \ xd \oplus y1 \ xe \oplus y2 \ xf \oplus x1 \ x0 \oplus x2 \ y3 \oplus x3$ Z

 $wt(X) = 7 \quad wt(Y) = 14$

x9 xa xb xc xd xe xf x0 X1 x1 x2 x3 x4 x5 x6 x7 x8 X2

y2 y3 y4 y5 y6 y7 y8 y9 Y1 ya yb yc yd ye yf y0 y1 Y2

y3 y4 y5 y6 y7 y8 y9 x9 xa xb xc xd xe xf x0 y2 X"

x3 x4 x5 x6 x7 x8 ya yb yc yd ye yf y0 y1 x1 x2 Y"

 $y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ y8 \oplus x8 \ y9 \oplus ya \ x9 \oplus yb$ $xa \oplus yc \ xb \oplus yd \ xc \oplus ye \ xd \oplus yf \ xe \oplus y0 \ xf \oplus y1 \ x0 \oplus x1 \ y2 \oplus x2$ Z

 $wt(X) = 7 \quad wt(Y) = 15$

x9 xa xb xc xd xe xf x0 X1 x1 x2 x3 x4 x5 x6 x7 x8 X2

y1 y2 y3 y4 y5 y6 y7 y8 Y1 y9 ya yb yc yd ye yf y0 Y2

y2 y3 y4 y5 y6 y7 y8 x9 xa xb xc xd xe xf x0 y1 X"

x2 x3 x4 x5 x6 x7 x8 y9 ya yb yc yd ye yf y0 x1 Y"

Z

 $wt(X) = 7 \quad wt(Y) = 16$

x9 xa xb xc xd xe xf x0 X1 x1 x2 x3 x4 x5 x6 x7 x8 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

y1 y2 y3 y4 y5 y6 y7 x9 xa xb xc xd xe xf x0 y0 X"

x1 x2 x3 x4 x5 x6 x7 x8 y8 y9 ya yb yc yd ye yf Y"

 $y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ x9 \oplus x8$ $xa \oplus y8 \ xb \oplus y9 \ xc \oplus ya \ xd \oplus yb \ xe \oplus yc \ xf \oplus yd \ x0 \oplus ye \ y0 \oplus yf$ Z

wt(X) = 8 wt(Y) = 0

x8 x9 xa xb xc xd xe xf X1 x0 x1 x2 x3 x4 x5 x6 x7 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

y0 y1 y2 y3 y4 y5 y6 y7 x8 x9 xa xb xc xd xe xf X"

x0 x1 x2 x3 x4 x5 x6 x7 y8 y9 ya yb yc yd ye yf Y"

 $y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7$ $x8 \oplus y8 \ x9 \oplus y9 \ xa \oplus ya \ xb \oplus yb \ xc \oplus yc \ xd \oplus yd \ xe \oplus ye \ xf \oplus yf$ -----

$$wt(X) = 8$$
 $wt(Y) = 1$

x8 x9 xa xb xc xd xe xf X1 x0 x1 x2 x3 x4 x5 x6 x7 X2

yf y0 y1 y2 y3 y4 y5 y6 Y1 y7 y8 y9 ya yb yc yd ye Y2

yf y0 y1 y2 y3 y4 y5 y6 x8 x9 xa xb xc xd xe xf X"

ye x0 x1 x2 x3 x4 x5 x6 x7 y7 y8 y9 ya yb yc yd Y"

yf \oplus ye y0 \oplus x0 y1 \oplus x1 y2 \oplus x2 y3 \oplus x3 y4 \oplus x4 y5 \oplus x5 y6 \oplus x6 x8 \oplus x7 x9 \oplus y7 xa \oplus y8 xb \oplus y9 xc \oplus ya xd \oplus yb xe \oplus yc xf \oplus yd Z

wt(X) = 8 wt(Y) = 2

x8 x9 xa xb xc xd xe xf X1 x0 x1 x2 x3 x4 x5 x6 x7 X2

ye yf y0 y1 y2 y3 y4 y5 Y1 y6 y7 y8 y9 ya yb yc yd Y2

ye yf y0 y1 y2 y3 y4 y5 x8 x9 xa xb xc xd xe xf X"

yc yd x0 x1 x2 x3 x4 x5 x6 x7 y6 y7 y8 y9 ya yb Y"

ye \oplus yc yf \oplus yd y0 \oplus x0 y1 \oplus x1 y2 \oplus x2 y3 \oplus x3 y4 \oplus x4 y5 \oplus x5 x8 \oplus x6 x9 \oplus x7 xa \oplus y6 xb \oplus y7 xc \oplus y8 xd \oplus y9 xe \oplus ya xf \oplus yb Z

$$wt(X) = 8$$
 $wt(Y) = 3$

x8 x9 xa xb xc xd xe xf X1 x0 x1 x2 x3 x4 x5 x6 x7 X2

yd ye yf y0 y1 y2 y3 y4 Y1 y5 y6 y7 y8 y9 ya yb yc Y2

yd ye yf y0 y1 y2 y3 y4 x8 x9 xa xb xc xd xe xf X"

ya yb yc x0 x1 x2 x3 x4 x5 x6 x7 y5 y6 y7 y8 y9 Y"

yd \oplus ya ye \oplus yb yf \oplus yc y0 \oplus x0 y1 \oplus x1 y2 \oplus x2 y3 \oplus x3 y4 \oplus x4 x8 \oplus x5 x9 \oplus x6 xa \oplus x7 xb \oplus y5 xc \oplus y6 xd \oplus y7 xe \oplus y8 xf \oplus y9 Z

$$wt(X) = 8$$
 $wt(Y) = 4$

x8 x9 xa xb xc xd xe xf X1 x0 x1 x2 x3 x4 x5 x6 x7 X2

yc yd ye yf y0 y1 y2 y3 Y1 y4 y5 y6 y7 y8 y9 ya yb Y2

yc yd ye yf y0 y1 y2 y3 x8 x9 xa xb xc xd xe xf X"

y8 y9 ya yb x0 x1 x2 x3 x4 x5 x6 x7 y4 y5 y6 y7 Y"

yc \oplus y8 yd \oplus y9 ye \oplus ya yf \oplus yb y0 \oplus x0 y1 \oplus x1 y2 \oplus x2 y3 \oplus x3 x8 \oplus x4 x9 \oplus x5 xa \oplus x6 xb \oplus x7 xc \oplus y4 xd \oplus y5 xe \oplus y6 xf \oplus y7 Z

$$wt(X) = 8$$
 $wt(Y) = 5$

x8 x9 xa xb xc xd xe xf X1

x0 x1 x2 x3 x4 x5 x6 x7 X2

yb yc yd ye yf y0 y1 y2 Y1 y3 y4 y5 y6 y7 y8 y9 ya Y2

yb yc yd ye yf y0 y1 y2 x8 x9 xa xb xc xd xe xf X"

y6 y7 y8 y9 ya x0 x1 x2 x3 x4 x5 x6 x7 y3 y4 y5 Y"

yb \oplus y6 yc \oplus y7 yd \oplus y8 ye \oplus y9 yf \oplus ya y0 \oplus x0 y1 \oplus x1 y2 \oplus x2 x8 \oplus x3 x9 \oplus x4 xa \oplus x5 xb \oplus x6 xc \oplus x7 xd \oplus y3 xe \oplus y4 xf \oplus y5 Z

$$wt(X) = 8$$
 $wt(Y) = 6$

x8 x9 xa xb xc xd xe xf X1 x0 x1 x2 x3 x4 x5 x6 x7 X2

ya yb yc yd ye yf y0 y1 Y1 y2 y3 y4 y5 y6 y7 y8 y9 Y2

ya yb yc yd ye yf y0 y1 x8 x9 xa xb xc xd xe xf X"

y4 y5 y6 y7 y8 y9 x0 x1 x2 x3 x4 x5 x6 x7 y2 y3 Y"

 $ya \oplus y4 \ yb \oplus y5 \ yc \oplus y6 \ yd \oplus y7 \ ye \oplus y8 \ yf \oplus y9 \ y0 \oplus x0 \ y1 \oplus x1$ $x8 \oplus x2 \ x9 \oplus x3 \ xa \oplus x4 \ xb \oplus x5 \ xc \oplus x6 \ xd \oplus x7 \ xe \oplus y2 \ xf \oplus y3$ Z

$$wt(X) = 8$$
 $wt(Y) = 7$

x8 x9 xa xb xc xd xe xf X1 x0 x1 x2 x3 x4 x5 x6 x7 X2

y9 ya yb yc yd ye yf y0 Y1

y1 y2 y3 y4 y5 y6 y7 y8 Y2

y9 ya yb yc yd ye yf y0 x8 x9 xa xb xc xd xe xf X"

y2 y3 y4 y5 y6 y7 y8 x0 x1 x2 x3 x4 x5 x6 x7 y1 Y"

 $y9 \oplus y2 \ ya \oplus y3 \ yb \oplus y4 \ yc \oplus y5 \ yd \oplus y6 \ ye \oplus y7 \ yf \oplus y8 \ y0 \oplus x0$ $x8 \oplus x1 \ x9 \oplus x2 \ xa \oplus x3 \ xb \oplus x4 \ xc \oplus x5 \ xd \oplus x6 \ xe \oplus x7 \ xf \oplus y1$ Z

wt(X) = 8 wt(Y) = 8

x8 x9 xa xb xc xd xe xf X1 x0 x1 x2 x3 x4 x5 x6 x7 X2

y8 y9 ya yb yc yd ye yf Y1 y0 y1 y2 y3 y4 y5 y6 y7 Y2

y8 y9 ya yb yc yd ye yf x8 x9 xa xb xc xd xe xf X"

y0 y1 y2 y3 y4 y5 y6 y7 x0 x1 x2 x3 x4 x5 x6 x7 Y"

y8 \oplus y0 y9 \oplus y1 ya \oplus y2 yb \oplus y3 yc \oplus y4 yd \oplus y5 ye \oplus y6 yf \oplus y7 x8 \oplus x0 x9 \oplus x1 xa \oplus x2 xb \oplus x3 xc \oplus x4 xd \oplus x5 xe \oplus x6 xf \oplus x7 Z

wt(X) = 8 wt(Y) = 9

x8 x9 xa xb xc xd xe xf X1 x0 x1 x2 x3 x4 x5 x6 x7 X2

y7 y8 y9 ya yb yc yd ye Y1 yf y0 y1 y2 y3 y4 y5 y6 Y2

y7 y8 y9 ya yb yc yd ye

x8 x9 xa xb xc xd xe xf X"

x7 yf y0 y1 y2 y3 y4 y5 y6 x0 x1 x2 x3 x4 x5 x6 Y"

 $y7 \oplus x7$ $y8 \oplus yf$ $y9 \oplus y0$ $ya \oplus y1$ $yb \oplus y2$ $yc \oplus y3$ $yd \oplus y4$ $ye \oplus y5$ $x8 \oplus y6$ $x9 \oplus x0$ $xa \oplus x1$ $xb \oplus x2$ $xc \oplus x3$ $xd \oplus x4$ $xe \oplus x5$ $xf \oplus x6$

Z

wt(X) = 8 wt(Y) = 10

x8 x9 xa xb xc xd xe xf X1 x0 x1 x2 x3 x4 x5 x6 x7 X2

y6 y7 y8 y9 ya yb yc yd Y1 ye yf y0 y1 y2 y3 y4 y5 Y2

y6 y7 y8 y9 ya yb yc yd x8 x9 xa xb xc xd xe xf X"

x6 x7 ye yf y0 y1 y2 y3 y4 y5 x0 x1 x2 x3 x4 x5 Y"

 $y6 \oplus x6 \ y7 \oplus x7 \ y8 \oplus ye \ y9 \oplus yf \ ya \oplus y0 \ yb \oplus y1 \ yc \oplus y2 \ yd \oplus y3$ $x8 \oplus y4 \ x9 \oplus y5 \ xa \oplus x0 \ xb \oplus x1 \ xc \oplus x2 \ xd \oplus x3 \ xe \oplus x4 \ xf \oplus x5$ Z

 $wt(X) = 8 \quad wt(Y) = 11$

x8 x9 xa xb xc xd xe xf X1 x0 x1 x2 x3 x4 x5 x6 x7 X2

y5 y6 y7 y8 y9 ya yb yc Y1 yd ye yf y0 y1 y2 y3 y4 Y2

y5 y6 y7 y8 y9 ya yb yc x8 x9 xa xb xc xd xe xf X"

x5 x6 x7 yd ye yf y0 y1

y5 \oplus x5 y6 \oplus x6 y7 \oplus x7 y8 \oplus yd y9 \oplus ye ya \oplus yf yb \oplus y0 yc \oplus y1 x8 \oplus y2 x9 \oplus y3 xa \oplus y4 xb \oplus x0 xc \oplus x1 xd \oplus x2 xe \oplus x3 xf \oplus x4 Z

 $wt(X) = 8 \quad wt(Y) = 12$

x8 x9 xa xb xc xd xe xf X1 x0 x1 x2 x3 x4 x5 x6 x7 X2

y4 y5 y6 y7 y8 y9 ya yb Y1 yc yd ye yf y0 y1 y2 y3 Y2

y4 y5 y6 y7 y8 y9 ya yb x8 x9 xa xb xc xd xe xf X"

x4 x5 x6 x7 yc yd ye yf y0 y1 y2 y3 x0 x1 x2 x3 Y"

 $y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ y8 \oplus yc \ y9 \oplus yd \ ya \oplus ye \ yb \oplus yf$ $x8 \oplus y0 \ x9 \oplus y1 \ xa \oplus y2 \ xb \oplus y3 \ xc \oplus x0 \ xd \oplus x1 \ xe \oplus x2 \ xf \oplus x3$

Z

 $wt(X) = 8 \quad wt(Y) = 13$

x8 x9 xa xb xc xd xe xf X1 x0 x1 x2 x3 x4 x5 x6 x7 X2

y3 y4 y5 y6 y7 y8 y9 ya Y1 yb yc yd ye yf y0 y1 y2 Y2

y3 y4 y5 y6 y7 y8 y9 ya x8 x9 xa xb xc xd xe xf X"

x3 x4 x5 x6 x7 yb yc yd ye yf y0 y1 y2 x0 x1 x2 Y"

Z

 $wt(X) = 8 \quad wt(Y) = 14$

x8 x9 xa xb xc xd xe xf X1 x0 x1 x2 x3 x4 x5 x6 x7 X2

y2 y3 y4 y5 y6 y7 y8 y9 Y1 ya yb yc yd ye yf y0 y1 Y2

y2 y3 y4 y5 y6 y7 y8 y9 x8 x9 xa xb xc xd xe xf X"

x2 x3 x4 x5 x6 x7 ya yb yc yd ye yf y0 y1 x0 x1 Y"

 $y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ y8 \oplus ya \ y9 \oplus yb$ $x8 \oplus yc \ x9 \oplus yd \ xa \oplus ye \ xb \oplus yf \ xc \oplus y0 \ xd \oplus y1 \ xe \oplus x0 \ xf \oplus x1$ Z

 $wt(X) = 8 \quad wt(Y) = 15$

x8 x9 xa xb xc xd xe xf X1 x0 x1 x2 x3 x4 x5 x6 x7 X2

y1 y2 y3 y4 y5 y6 y7 y8 Y1 y9 ya yb yc yd ye yf y0 Y2

y1 y2 y3 y4 y5 y6 y7 y8 x8 x9 xa xb xc xd xe xf X"

x1 x2 x3 x4 x5 x6 x7 y9 ya yb yc yd ye yf y0 x0 Y"

 $y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7 \ y8 \oplus y9$ $x8 \oplus ya \ x9 \oplus yb \ xa \oplus yc \ xb \oplus yd \ xc \oplus ye \ xd \oplus yf \ xe \oplus y0 \ xf \oplus x0$ Z -----

$$wt(X) = 8 \quad wt(Y) = 16$$

x8 x9 xa xb xc xd xe xf X1 x0 x1 x2 x3 x4 x5 x6 x7 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

y0 y1 y2 y3 y4 y5 y6 y7 x8 x9 xa xb xc xd xe xf X"

x0 x1 x2 x3 x4 x5 x6 x7 y8 y9 ya yb yc yd ye yf Y"

 $y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus x7$ $x8 \oplus y8 \ x9 \oplus y9 \ xa \oplus ya \ xb \oplus yb \ xc \oplus yc \ xd \oplus yd \ xe \oplus ye \ xf \oplus yf$ Z

$$wt(X) = 9$$
 $wt(Y) = 0$

x7 x8 x9 xa xb xc xd xe X1 xf x0 x1 x2 x3 x4 x5 x6 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

xe y0 y1 y2 y3 y4 y5 y6 y7 x7 x8 x9 xa xb xc xd X"

xf x0 x1 x2 x3 x4 x5 x6 y8 y9 ya yb yc yd ye yf Y"

 $xe \oplus xf y0 \oplus x0 y1 \oplus x1 y2 \oplus x2 y3 \oplus x3 y4 \oplus x4 y5 \oplus x5 y6 \oplus x6$ $y7 \oplus y8 x7 \oplus y9 x8 \oplus ya x9 \oplus yb xa \oplus yc xb \oplus yd xc \oplus ye xd \oplus yf$ Z

$$wt(X) = 9$$
 $wt(Y) = 1$
x7 x8 x9 xa xb xc xd xe

$$xe \oplus ye yf \oplus xf y0 \oplus x0 y1 \oplus x1 y2 \oplus x2 y3 \oplus x3 y4 \oplus x4 y5 \oplus x5$$

 $y6 \oplus x6 x7 \oplus y7 x8 \oplus y8 x9 \oplus y9 xa \oplus ya xb \oplus yb xc \oplus yc xd \oplus yd$ Z

$$wt(X) = 9$$
 $wt(Y) = 2$

$$xe \oplus yc \ ye \oplus yd \ yf \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4$$
 $y5 \oplus x5 \ x7 \oplus x6 \ x8 \oplus y6 \ x9 \oplus y7 \ xa \oplus y8 \ xb \oplus y9 \ xc \oplus ya \ xd \oplus yb$ Z

$$wt(X) = 9$$
 $wt(Y) = 3$

xf x0 x1 x2 x3 x4 x5 x6 X2

yd ye yf y0 y1 y2 y3 y4 Y1 y5 y6 y7 y8 y9 ya yb yc Y2

xe yd ye yf y0 y1 y2 y3 y4 x7 x8 x9 xa xb xc xd X"

ya yb yc xf x0 x1 x2 x3 x4 x5 x6 y5 y6 y7 y8 y9 Y"

 $xe \oplus ya yd \oplus yb ye \oplus yc yf \oplus xf y0 \oplus x0 y1 \oplus x1 y2 \oplus x2 y3 \oplus x3$ $y4 \oplus x4 x7 \oplus x5 x8 \oplus x6 x9 \oplus y5 xa \oplus y6 xb \oplus y7 xc \oplus y8 xd \oplus y9$ Z

$$wt(X) = 9$$
 $wt(Y) = 4$

x7 x8 x9 xa xb xc xd xe X1 xf x0 x1 x2 x3 x4 x5 x6 X2

yc yd ye yf y0 y1 y2 y3 Y1 y4 y5 y6 y7 y8 y9 ya yb Y2

xe yc yd ye yf y0 y1 y2 y3 x7 x8 x9 xa xb xc xd X"

y8 y9 ya yb xf x0 x1 x2 x3 x4 x5 x6 y4 y5 y6 y7 Y"

 $xe \oplus y8 yc \oplus y9 yd \oplus ya ye \oplus yb yf \oplus xf y0 \oplus x0 y1 \oplus x1 y2 \oplus x2$ $y3 \oplus x3 x7 \oplus x4 x8 \oplus x5 x9 \oplus x6 xa \oplus y4 xb \oplus y5 xc \oplus y6 xd \oplus y7$ Z

$$wt(X) = 9$$
 $wt(Y) = 5$

x7 x8 x9 xa xb xc xd xe X1 xf x0 x1 x2 x3 x4 x5 x6 X2

yb yc yd ye yf y0 y1 y2 Y1

y3 y4 y5 y6 y7 y8 y9 ya Y2

xe yb yc yd ye yf y0 y1 y2 x7 x8 x9 xa xb xc xd X"

y6 y7 y8 y9 ya xf x0 x1 x2 x3 x4 x5 x6 y3 y4 y5 Y"

 $xe \oplus y6 yb \oplus y7 yc \oplus y8 yd \oplus y9 ye \oplus ya yf \oplus xf y0 \oplus x0 y1 \oplus x1$ $y2 \oplus x2 x7 \oplus x3 x8 \oplus x4 x9 \oplus x5 xa \oplus x6 xb \oplus y3 xc \oplus y4 xd \oplus y5$ Z

wt(X) = 9 wt(Y) = 6

x7 x8 x9 xa xb xc xd xe X1 xf x0 x1 x2 x3 x4 x5 x6 X2

ya yb yc yd ye yf y0 y1 Y1 y2 y3 y4 y5 y6 y7 y8 y9 Y2

xe ya yb yc yd ye yf y0 y1 x7 x8 x9 xa xb xc xd X"

y4 y5 y6 y7 y8 y9 xf x0 x1 x2 x3 x4 x5 x6 y2 y3 Y"

 $xe \oplus y4 \ ya \oplus y5 \ yb \oplus y6 \ yc \oplus y7 \ yd \oplus y8 \ ye \oplus y9 \ yf \oplus xf \ y0 \oplus x0$ $y1 \oplus x1 \ x7 \oplus x2 \ x8 \oplus x3 \ x9 \oplus x4 \ xa \oplus x5 \ xb \oplus x6 \ xc \oplus y2 \ xd \oplus y3$ Z

wt(X) = 9 wt(Y) = 7

x7 x8 x9 xa xb xc xd xe X1 xf x0 x1 x2 x3 x4 x5 x6 X2

y9 ya yb yc yd ye yf y0 Y1 y1 y2 y3 y4 y5 y6 y7 y8 Y2

xe y9 ya yb yc yd ye yf

y0 x7 x8 x9 xa xb xc xd X"

y2 y3 y4 y5 y6 y7 y8 xf x0 x1 x2 x3 x4 x5 x6 y1 Y"

 $xe \oplus y2 \ y9 \oplus y3 \ ya \oplus y4 \ yb \oplus y5 \ yc \oplus y6 \ yd \oplus y7 \ ye \oplus y8 \ yf \oplus xf$ $y0 \oplus x0 \ x7 \oplus x1 \ x8 \oplus x2 \ x9 \oplus x3 \ xa \oplus x4 \ xb \oplus x5 \ xc \oplus x6 \ xd \oplus y1$ Z

wt(X) = 9 wt(Y) = 8

x7 x8 x9 xa xb xc xd xe X1 xf x0 x1 x2 x3 x4 x5 x6 X2

y8 y9 ya yb yc yd ye yf Y1 y0 y1 y2 y3 y4 y5 y6 y7 Y2

xe y8 y9 ya yb yc yd ye yf x7 x8 x9 xa xb xc xd X"

y0 y1 y2 y3 y4 y5 y6 y7 xf x0 x1 x2 x3 x4 x5 x6 Y"

 $xe \oplus y0 \ y8 \oplus y1 \ y9 \oplus y2 \ ya \oplus y3 \ yb \oplus y4 \ yc \oplus y5 \ yd \oplus y6 \ ye \oplus y7$ $yf \oplus xf \ x7 \oplus x0 \ x8 \oplus x1 \ x9 \oplus x2 \ xa \oplus x3 \ xb \oplus x4 \ xc \oplus x5 \ xd \oplus x6$ Z

wt(X) = 9 wt(Y) = 9

x7 x8 x9 xa xb xc xd xe X1 xf x0 x1 x2 x3 x4 x5 x6 X2

y7 y8 y9 ya yb yc yd ye Y1 yf y0 y1 y2 y3 y4 y5 y6 Y2

xe y7 y8 y9 ya yb yc yd ye x7 x8 x9 xa xb xc xd X"

x6 yf y0 y1 y2 y3 y4 y5

 $xe \oplus x6 y7 \oplus yf y8 \oplus y0 y9 \oplus y1 ya \oplus y2 yb \oplus y3 yc \oplus y4 yd \oplus y5$ $ye \oplus y6 x7 \oplus xf x8 \oplus x0 x9 \oplus x1 xa \oplus x2 xb \oplus x3 xc \oplus x4 xd \oplus x5$

Z

Z

 $wt(X) = 9 \quad wt(Y) = 10$

x7 x8 x9 xa xb xc xd xe X1 xf x0 x1 x2 x3 x4 x5 x6 X2

y6 y7 y8 y9 ya yb yc yd Y1

ye yf y0 y1 y2 y3 y4 y5 Y2

xe y6 y7 y8 y9 ya yb yc yd x7 x8 x9 xa xb xc xd X"

x5 x6 ye yf y0 y1 y2 y3 y4 y5 xf x0 x1 x2 x3 x4 Y"

 $xe \oplus x5 y6 \oplus x6 y7 \oplus ye y8 \oplus yf y9 \oplus y0 ya \oplus y1 yb \oplus y2 yc \oplus y3$ $yd \oplus y4 x7 \oplus y5 x8 \oplus xf x9 \oplus x0 xa \oplus x1 xb \oplus x2 xc \oplus x3 xd \oplus x4$

 $wt(X) = 9 \quad wt(Y) = 11$

x7 x8 x9 xa xb xc xd xe X1

xf x0 x1 x2 x3 x4 x5 x6 X2

y5 y6 y7 y8 y9 ya yb yc Y1

 $yd\ ye\ yf\ y0\ y1\ y2\ y3\ y4\qquad Y2$

xe y5 y6 y7 y8 y9 ya yb

yc x7 x8 x9 xa xb xc xd X"

x4 x5 x6 yd ye yf y0 y1

y2 y3 y4 xf x0 x1 x2 x3 Y"

Z

Z

 $wt(X) = 9 \quad wt(Y) = 12$

x7 x8 x9 xa xb xc xd xe X1 xf x0 x1 x2 x3 x4 x5 x6 X2

y4 y5 y6 y7 y8 y9 ya yb Y1 yc yd ye yf y0 y1 y2 y3 Y2

xe y4 y5 y6 y7 y8 y9 ya yb x7 x8 x9 xa xb xc xd X"

x3 x4 x5 x6 yc yd ye yf y0 y1 y2 y3 xf x0 x1 x2 Y"

 $xe \oplus x3 y4 \oplus x4 y5 \oplus x5 y6 \oplus x6 y7 \oplus yc y8 \oplus yd y9 \oplus ye ya \oplus yf$ $yb \oplus y0 x7 \oplus y1 x8 \oplus y2 x9 \oplus y3 xa \oplus xf xb \oplus x0 xc \oplus x1 xd \oplus x2$ Z

 $wt(X) = 9 \quad wt(Y) = 13$

x7 x8 x9 xa xb xc xd xe X1 xf x0 x1 x2 x3 x4 x5 x6 X2

y3 y4 y5 y6 y7 y8 y9 ya Y1 yb yc yd ye yf y0 y1 y2 Y2

xe y3 y4 y5 y6 y7 y8 y9 ya x7 x8 x9 xa xb xc xd X"

x2 x3 x4 x5 x6 yb yc yd ye yf y0 y1 y2 xf x0 x1 Y"

 $xe \oplus x2 y3 \oplus x3 y4 \oplus x4 y5 \oplus x5 y6 \oplus x6 y7 \oplus yb y8 \oplus yc y9 \oplus yd$ $ya \oplus ye x7 \oplus yf x8 \oplus y0 x9 \oplus y1 xa \oplus y2 xb \oplus xf xc \oplus x0 xd \oplus x1$ -----

$$wt(X) = 9 \quad wt(Y) = 14$$

x7 x8 x9 xa xb xc xd xe X1 xf x0 x1 x2 x3 x4 x5 x6 X2

y2 y3 y4 y5 y6 y7 y8 y9 Y1 ya yb yc yd ye yf y0 y1 Y2

xe y2 y3 y4 y5 y6 y7 y8 y9 x7 x8 x9 xa xb xc xd X"

x1 x2 x3 x4 x5 x6 ya yb yc yd ye yf y0 y1 xf x0 Y"

 $xe \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus x6 \ y7 \oplus ya \ y8 \oplus yb$ $y9 \oplus yc \ x7 \oplus yd \ x8 \oplus ye \ x9 \oplus yf \ xa \oplus y0 \ xb \oplus y1 \ xc \oplus xf \ xd \oplus x0$ Z

$$wt(X) = 9 \quad wt(Y) = 15$$

x7 x8 x9 xa xb xc xd xe X1 xf x0 x1 x2 x3 x4 x5 x6 X2

y1 y2 y3 y4 y5 y6 y7 y8 Y1 y9 ya yb yc yd ye yf y0 Y2

xe y1 y2 y3 y4 y5 y6 y7 y8 x7 x8 x9 xa xb xc xd X"

x0 x1 x2 x3 x4 x5 x6 y9 ya yb yc yd ye yf y0 xf Y"

 $xe \oplus x0 y1 \oplus x1 y2 \oplus x2 y3 \oplus x3 y4 \oplus x4 y5 \oplus x5 y6 \oplus x6 y7 \oplus y9$ $y8 \oplus ya x7 \oplus yb x8 \oplus yc x9 \oplus yd xa \oplus ye xb \oplus yf xc \oplus y0 xd \oplus xf$ Z

$$wt(X) = 9 \quad wt(Y) = 16$$

x7 x8 x9 xa xb xc xd xe X1 xf x0 x1 x2 x3 x4 x5 x6 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

xe y0 y1 y2 y3 y4 y5 y6 y7 x7 x8 x9 xa xb xc xd X"

xf x0 x1 x2 x3 x4 x5 x6 y8 y9 ya yb yc yd ye yf Y"

 $xe \oplus xf y0 \oplus x0 y1 \oplus x1 y2 \oplus x2 y3 \oplus x3 y4 \oplus x4 y5 \oplus x5 y6 \oplus x6$ $y7 \oplus y8 x7 \oplus y9 x8 \oplus ya x9 \oplus yb xa \oplus yc xb \oplus yd xc \oplus ye xd \oplus yf$ Z

$$wt(X) = 10$$
 $wt(Y) = 0$

x6 x7 x8 x9 xa xb xc xd X1 xe xf x0 x1 x2 x3 x4 x5 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

xc xd y0 y1 y2 y3 y4 y5 y6 y7 x6 x7 x8 x9 xa xb X"

xe xf x0 x1 x2 x3 x4 x5 y8 y9 ya yb yc yd ye yf Y"

 $xc \oplus xe \ xd \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5$ $y6 \oplus y8 \ y7 \oplus y9 \ x6 \oplus ya \ x7 \oplus yb \ x8 \oplus yc \ x9 \oplus yd \ xa \oplus ye \ xb \oplus yf$ Z

$$wt(X) = 10 \quad wt(Y) = 1$$

x6 x7 x8 x9 xa xb xc xd X1

 $xe\ xf\ x0\ x1\ x2\ x3\ x4\ x5 \qquad X2$

yf y0 y1 y2 y3 y4 y5 y6 Y1 y7 y8 y9 ya yb yc yd ye Y2

xc xd yf y0 y1 y2 y3 y4 y5 y6 x6 x7 x8 x9 xa xb X"

ye xe xf x0 x1 x2 x3 x4 x5 y7 y8 y9 ya yb yc yd Y"

 $xc \oplus ye \ xd \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4$ $y5 \oplus x5 \ y6 \oplus y7 \ x6 \oplus y8 \ x7 \oplus y9 \ x8 \oplus ya \ x9 \oplus yb \ xa \oplus yc \ xb \oplus yd$ Z

$$wt(X) = 10 \quad wt(Y) = 2$$

x6 x7 x8 x9 xa xb xc xd X1 xe xf x0 x1 x2 x3 x4 x5 X2

ye yf y0 y1 y2 y3 y4 y5 Y1 y6 y7 y8 y9 ya yb yc yd Y2

xc xd ye yf y0 y1 y2 y3 y4 y5 x6 x7 x8 x9 xa xb X"

yc yd xe xf x0 x1 x2 x3 x4 x5 y6 y7 y8 y9 ya yb Y"

 $xc \oplus yc xd \oplus yd ye \oplus xe yf \oplus xf y0 \oplus x0 y1 \oplus x1 y2 \oplus x2 y3 \oplus x3$ $y4 \oplus x4 y5 \oplus x5 x6 \oplus y6 x7 \oplus y7 x8 \oplus y8 x9 \oplus y9 xa \oplus ya xb \oplus yb$ Z

$$wt(X) = 10 \quad wt(Y) = 3$$

x6 x7 x8 x9 xa xb xc xd X1 xe xf x0 x1 x2 x3 x4 x5 X2

yd ye yf y0 y1 y2 y3 y4 Y1

y5 y6 y7 y8 y9 ya yb yc Y2

xc xd yd ye yf y0 y1 y2 y3 y4 x6 x7 x8 x9 xa xb X"

ya yb yc xe xf x0 x1 x2 x3 x4 x5 y5 y6 y7 y8 y9 Y"

 $xc \oplus ya \ xd \oplus yb \ yd \oplus yc \ ye \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2$ $y3 \oplus x3 \ y4 \oplus x4 \ x6 \oplus x5 \ x7 \oplus y5 \ x8 \oplus y6 \ x9 \oplus y7 \ xa \oplus y8 \ xb \oplus y9$ Z

wt(X) = 10 wt(Y) = 4

x6 x7 x8 x9 xa xb xc xd X1 xe xf x0 x1 x2 x3 x4 x5 X2

yc yd ye yf y0 y1 y2 y3 Y1 y4 y5 y6 y7 y8 y9 ya yb Y2

xc xd yc yd ye yf y0 y1 y2 y3 x6 x7 x8 x9 xa xb X"

y8 y9 ya yb xe xf x0 x1 x2 x3 x4 x5 y4 y5 y6 y7 Y"

 $xc \oplus y8 \ xd \oplus y9 \ yc \oplus ya \ yd \oplus yb \ ye \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ y1 \oplus x1$ $y2 \oplus x2 \ y3 \oplus x3 \ x6 \oplus x4 \ x7 \oplus x5 \ x8 \oplus y4 \ x9 \oplus y5 \ xa \oplus y6 \ xb \oplus y7$ Z

wt(X) = 10 wt(Y) = 5

x6 x7 x8 x9 xa xb xc xd X1 xe xf x0 x1 x2 x3 x4 x5 X2

yb yc yd ye yf y0 y1 y2 Y1 y3 y4 y5 y6 y7 y8 y9 ya Y2

xc xd yb yc yd ye yf y0

y1 y2 x6 x7 x8 x9 xa xb X"

y6 y7 y8 y9 ya xe xf x0 x1 x2 x3 x4 x5 y3 y4 y5 Y"

 $xc \oplus y6 \ xd \oplus y7 \ yb \oplus y8 \ yc \oplus y9 \ yd \oplus ya \ ye \oplus xe \ yf \oplus xf \ y0 \oplus x0$ $y1 \oplus x1 \ y2 \oplus x2 \ x6 \oplus x3 \ x7 \oplus x4 \ x8 \oplus x5 \ x9 \oplus y3 \ xa \oplus y4 \ xb \oplus y5$ Z

 $wt(X) = 10 \quad wt(Y) = 6$

x6 x7 x8 x9 xa xb xc xd X1 xe xf x0 x1 x2 x3 x4 x5 X2

ya yb yc yd ye yf y0 y1 Y1 y2 y3 y4 y5 y6 y7 y8 y9 Y2

xc xd ya yb yc yd ye yf y0 y1 x6 x7 x8 x9 xa xb X"

y4 y5 y6 y7 y8 y9 xe xf x0 x1 x2 x3 x4 x5 y2 y3 Y"

 $xc \oplus y4 \times d \oplus y5 ya \oplus y6 yb \oplus y7 yc \oplus y8 yd \oplus y9 ye \oplus xe yf \oplus xf$ $y0 \oplus x0 y1 \oplus x1 x6 \oplus x2 x7 \oplus x3 x8 \oplus x4 x9 \oplus x5 xa \oplus y2 xb \oplus y3$ Z

 $wt(X) = 10 \quad wt(Y) = 7$

x6 x7 x8 x9 xa xb xc xd X1 xe xf x0 x1 x2 x3 x4 x5 X2

y9 ya yb yc yd ye yf y0 Y1 y1 y2 y3 y4 y5 y6 y7 y8 Y2

xc xd y9 ya yb yc yd ye yf y0 x6 x7 x8 x9 xa xb X"

y2 y3 y4 y5 y6 y7 y8 xe

 $xc \oplus y2 \times d \oplus y3 y9 \oplus y4 ya \oplus y5 yb \oplus y6 yc \oplus y7 yd \oplus y8 ye \oplus xe$ $yf \oplus xf y0 \oplus x0 x6 \oplus x1 x7 \oplus x2 x8 \oplus x3 x9 \oplus x4 xa \oplus x5 xb \oplus y1$

Z

 $wt(X) = 10 \quad wt(Y) = 8$

x6 x7 x8 x9 xa xb xc xd X1 xe xf x0 x1 x2 x3 x4 x5 X2

y8 y9 ya yb yc yd ye yf Y1 y0 y1 y2 y3 y4 y5 y6 y7 Y2

xc xd y8 y9 ya yb yc yd ye yf x6 x7 x8 x9 xa xb X"

y0 y1 y2 y3 y4 y5 y6 y7 xe xf x0 x1 x2 x3 x4 x5 Y"

 $xc \oplus y0 \ xd \oplus y1 \ y8 \oplus y2 \ y9 \oplus y3 \ ya \oplus y4 \ yb \oplus y5 \ yc \oplus y6 \ yd \oplus y7$ $ye \oplus xe \ yf \oplus xf \ x6 \oplus x0 \ x7 \oplus x1 \ x8 \oplus x2 \ x9 \oplus x3 \ xa \oplus x4 \ xb \oplus x5$ Z

 $wt(X) = 10 \quad wt(Y) = 9$

x6 x7 x8 x9 xa xb xc xd X1 xe xf x0 x1 x2 x3 x4 x5 X2

y7 y8 y9 ya yb yc yd ye Y1 yf y0 y1 y2 y3 y4 y5 y6 Y2

xc xd y7 y8 y9 ya yb yc yd ye x6 x7 x8 x9 xa xb X"

x5 yf y0 y1 y2 y3 y4 y5 y6 xe xf x0 x1 x2 x3 x4 Y"

Z

Z

Z

 $wt(X) = 10 \quad wt(Y) = 10$

x6 x7 x8 x9 xa xb xc xd X1 xe xf x0 x1 x2 x3 x4 x5 X2

y6 y7 y8 y9 ya yb yc yd Y1 ye yf y0 y1 y2 y3 y4 y5 Y2

xc xd y6 y7 y8 y9 ya yb yc yd x6 x7 x8 x9 xa xb X"

x4 x5 ye yf y0 y1 y2 y3 y4 y5 xe xf x0 x1 x2 x3 Y"

 $xc \oplus x4 \times d \oplus x5 \times y6 \oplus ye \times y7 \oplus yf \times y8 \oplus y0 \times y9 \oplus y1 \times ya \oplus y2 \times yb \oplus y3$ $yc \oplus y4 \times yd \oplus y5 \times x6 \oplus xe \times x7 \oplus xf \times x8 \oplus x0 \times y9 \oplus x1 \times xa \oplus x2 \times xb \oplus x3$

 $wt(X) = 10 \quad wt(Y) = 11$

x6 x7 x8 x9 xa xb xc xd X1 xe xf x0 x1 x2 x3 x4 x5 X2

y5 y6 y7 y8 y9 ya yb yc Y1 yd ye yf y0 y1 y2 y3 y4 Y2

xc xd y5 y6 y7 y8 y9 ya yb yc x6 x7 x8 x9 xa xb X"

x3 x4 x5 yd ye yf y0 y1 y2 y3 y4 xe xf x0 x1 x2 Y"

 $xc \oplus x3 xd \oplus x4 y5 \oplus x5 y6 \oplus yd y7 \oplus ye y8 \oplus yf y9 \oplus y0 ya \oplus y1$ $yb \oplus y2 yc \oplus y3 x6 \oplus y4 x7 \oplus xe x8 \oplus xf x9 \oplus x0 xa \oplus x1 xb \oplus x2$ -----

$$wt(X) = 10 \quad wt(Y) = 12$$

x6 x7 x8 x9 xa xb xc xd X1 xe xf x0 x1 x2 x3 x4 x5 X2

y4 y5 y6 y7 y8 y9 ya yb Y1 yc yd ye yf y0 y1 y2 y3 Y2

xc xd y4 y5 y6 y7 y8 y9 ya yb x6 x7 x8 x9 xa xb X"

x2 x3 x4 x5 yc yd ye yf y0 y1 y2 y3 xe xf x0 x1 Y"

 $xc \oplus x2 \ xd \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus yc \ y7 \oplus yd \ y8 \oplus ye \ y9 \oplus yf$ $ya \oplus y0 \ yb \oplus y1 \ x6 \oplus y2 \ x7 \oplus y3 \ x8 \oplus xe \ x9 \oplus xf \ xa \oplus x0 \ xb \oplus x1$ Z

$$wt(X) = 10 \quad wt(Y) = 13$$

x6 x7 x8 x9 xa xb xc xd X1 xe xf x0 x1 x2 x3 x4 x5 X2

y3 y4 y5 y6 y7 y8 y9 ya Y1 yb yc yd ye yf y0 y1 y2 Y2

xc xd y3 y4 y5 y6 y7 y8 y9 ya x6 x7 x8 x9 xa xb X"

x1 x2 x3 x4 x5 yb yc yd ye yf y0 y1 y2 xe xf x0 Y"

 $xc \oplus x1 \ xd \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus yb \ y7 \oplus yc \ y8 \oplus yd$ $y9 \oplus ye \ ya \oplus yf \ x6 \oplus y0 \ x7 \oplus y1 \ x8 \oplus y2 \ x9 \oplus xe \ xa \oplus xf \ xb \oplus x0$ Z

$$wt(X) = 10 \quad wt(Y) = 14$$

x6 x7 x8 x9 xa xb xc xd X1 xe xf x0 x1 x2 x3 x4 x5 X2

y2 y3 y4 y5 y6 y7 y8 y9 Y1 ya yb yc yd ye yf y0 y1 Y2

xc xd y2 y3 y4 y5 y6 y7 y8 y9 x6 x7 x8 x9 xa xb X"

x0 x1 x2 x3 x4 x5 ya yb yc yd ye yf y0 y1 xe xf Y"

 $xc \oplus x0 \ xd \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5 \ y6 \oplus ya \ y7 \oplus yb$ $y8 \oplus yc \ y9 \oplus yd \ x6 \oplus ye \ x7 \oplus yf \ x8 \oplus y0 \ x9 \oplus y1 \ xa \oplus xe \ xb \oplus xf$ Z

$$wt(X) = 10 \quad wt(Y) = 15$$

x6 x7 x8 x9 xa xb xc xd X1 xe xf x0 x1 x2 x3 x4 x5 X2

y1 y2 y3 y4 y5 y6 y7 y8 Y1 y9 ya yb yc yd ye yf y0 Y2

xc xd y1 y2 y3 y4 y5 y6 y7 y8 x6 x7 x8 x9 xa xb X"

xf x0 x1 x2 x3 x4 x5 y9 ya yb yc yd ye yf y0 xe Y"

 $xc \oplus xf \times d \oplus x0 y1 \oplus x1 y2 \oplus x2 y3 \oplus x3 y4 \oplus x4 y5 \oplus x5 y6 \oplus y9$ $y7 \oplus ya y8 \oplus yb x6 \oplus yc x7 \oplus yd x8 \oplus ye x9 \oplus yf xa \oplus y0 xb \oplus xe$ Z

$$wt(X) = 10 \quad wt(Y) = 16$$

x6 x7 x8 x9 xa xb xc xd X1

xe xf x0 x1 x2 x3 x4 x5 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

xc xd y0 y1 y2 y3 y4 y5 y6 y7 x6 x7 x8 x9 xa xb X"

xe xf x0 x1 x2 x3 x4 x5 y8 y9 ya yb yc yd ye yf Y"

 $xc \oplus xe \ xd \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus x5$ $y6 \oplus y8 \ y7 \oplus y9 \ x6 \oplus ya \ x7 \oplus yb \ x8 \oplus yc \ x9 \oplus yd \ xa \oplus ye \ xb \oplus yf$ Z

$$wt(X) = 11 \quad wt(Y) = 0$$

x5 x6 x7 x8 x9 xa xb xc X1 xd xe xf x0 x1 x2 x3 x4 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

xa xb xc y0 y1 y2 y3 y4 y5 y6 y7 x5 x6 x7 x8 x9 X"

xd xe xf x0 x1 x2 x3 x4 y8 y9 ya yb yc yd ye yf Y"

 $xa \oplus xd \ xb \oplus xe \ xc \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4$ $y5 \oplus y8 \ y6 \oplus y9 \ y7 \oplus ya \ x5 \oplus yb \ x6 \oplus yc \ x7 \oplus yd \ x8 \oplus ye \ x9 \oplus yf$ Z

$$wt(X) = 11 \quad wt(Y) = 1$$

x5 x6 x7 x8 x9 xa xb xc X1 xd xe xf x0 x1 x2 x3 x4 X2

yf y0 y1 y2 y3 y4 y5 y6 Y1

y7 y8 y9 ya yb yc yd ye Y2 xa xb xc yf y0 y1 y2 y3 X''y4 y5 y6 x5 x6 x7 x8 x9 ye xd xe xf x0 x1 x2 x3 $Y^{\prime\prime}$ x4 y7 y8 y9 ya yb yc yd $xa \oplus ye xb \oplus xd xc \oplus xe yf \oplus xf y0 \oplus x0 y1 \oplus x1 y2 \oplus x2 y3 \oplus x3$ y4⊕x4 y5⊕y7 y6⊕y8 x5⊕y9 x6⊕ya x7⊕yb x8⊕yc x9⊕yd wt(X) = 11 wt(Y) = 2x5 x6 x7 x8 x9 xa xb xc X1 xd xe xf x0 x1 x2 x3 x4 X2

Z

ye yf y0 y1 y2 y3 y4 y5 Y1 Y2 y6 y7 y8 y9 ya yb yc yd

xa xb xc ye yf y0 y1 y2 X''y3 y4 y5 x5 x6 x7 x8 x9

yc yd xd xe xf x0 x1 x2 Y" x3 x4 y6 y7 y8 y9 ya yb

 $xa \oplus yc xb \oplus yd xc \oplus xd ye \oplus xe yf \oplus xf y0 \oplus x0 y1 \oplus x1 y2 \oplus x2$ y3⊕x3 y4⊕x4 y5⊕y6 x5⊕y7 x6⊕y8 x7⊕y9 x8⊕ya x9⊕yb Z

 $wt(X) = 11 \quad wt(Y) = 3$

x5 x6 x7 x8 x9 xa xb xc X1 xd xe xf x0 x1 x2 x3 x4 X2

yd ye yf y0 y1 y2 y3 y4 Y1 y5 y6 y7 y8 y9 ya yb yc Y2

xa xb xc yd ye yf y0 y1

y2 y3 y4 x5 x6 x7 x8 x9 X"

ya yb yc xd xe xf x0 x1 x2 x3 x4 y5 y6 y7 y8 y9 Y"

 $xa \oplus ya \ xb \oplus yb \ xc \oplus yc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ y1 \oplus x1$ $y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4 \ x5 \oplus y5 \ x6 \oplus y6 \ x7 \oplus y7 \ x8 \oplus y8 \ x9 \oplus y9$ Z

wt(X) = 11 wt(Y) = 4

x5 x6 x7 x8 x9 xa xb xc X1 xd xe xf x0 x1 x2 x3 x4 X2

yc yd ye yf y0 y1 y2 y3 Y1 y4 y5 y6 y7 y8 y9 ya yb Y2

xa xb xc yc yd ye yf y0 y1 y2 y3 x5 x6 x7 x8 x9 X"

y8 y9 ya yb xd xe xf x0 x1 x2 x3 x4 y4 y5 y6 y7 Y"

 $xa \oplus y8 xb \oplus y9 xc \oplus ya yc \oplus yb yd \oplus xd ye \oplus xe yf \oplus xf y0 \oplus x0$ $y1 \oplus x1 y2 \oplus x2 y3 \oplus x3 x5 \oplus x4 x6 \oplus y4 x7 \oplus y5 x8 \oplus y6 x9 \oplus y7$ Z

 $wt(X) = 11 \quad wt(Y) = 5$

x5 x6 x7 x8 x9 xa xb xc X1 xd xe xf x0 x1 x2 x3 x4 X2

yb yc yd ye yf y0 y1 y2 Y1 y3 y4 y5 y6 y7 y8 y9 ya Y2

xa xb xc yb yc yd ye yf y0 y1 y2 x5 x6 x7 x8 x9 X"

y6 y7 y8 y9 ya xd xe xf

 $xa \oplus y6 \ xb \oplus y7 \ xc \oplus y8 \ yb \oplus y9 \ yc \oplus ya \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf$ $y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2 \ x5 \oplus x3 \ x6 \oplus x4 \ x7 \oplus y3 \ x8 \oplus y4 \ x9 \oplus y5$

Z

 $wt(X) = 11 \quad wt(Y) = 6$

x5 x6 x7 x8 x9 xa xb xc X1 xd xe xf x0 x1 x2 x3 x4 X2

ya yb yc yd ye yf y0 y1 Y1 y2 y3 y4 y5 y6 y7 y8 y9 Y2

xa xb xc ya yb yc yd ye yf y0 y1 x5 x6 x7 x8 x9 X"

y4 y5 y6 y7 y8 y9 xd xe xf x0 x1 x2 x3 x4 y2 y3 Y"

 $xa \oplus y4 \ xb \oplus y5 \ xc \oplus y6 \ ya \oplus y7 \ yb \oplus y8 \ yc \oplus y9 \ yd \oplus xd \ ye \oplus xe$ $yf \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ x5 \oplus x2 \ x6 \oplus x3 \ x7 \oplus x4 \ x8 \oplus y2 \ x9 \oplus y3$ Z

 $wt(X) = 11 \quad wt(Y) = 7$

x5 x6 x7 x8 x9 xa xb xc X1 xd xe xf x0 x1 x2 x3 x4 X2

y9 ya yb yc yd ye yf y0 Y1 y1 y2 y3 y4 y5 y6 y7 y8 Y2

xa xb xc y9 ya yb yc yd ye yf y0 x5 x6 x7 x8 x9 X"

y2 y3 y4 y5 y6 y7 y8 xd xe xf x0 x1 x2 x3 x4 y1 Y"

Z

Z

 $wt(X) = 11 \quad wt(Y) = 8$

x5 x6 x7 x8 x9 xa xb xc X1 xd xe xf x0 x1 x2 x3 x4 X2

y8 y9 ya yb yc yd ye yf Y1 y0 y1 y2 y3 y4 y5 y6 y7 Y2

xa xb xc y8 y9 ya yb yc yd ye yf x5 x6 x7 x8 x9 X"

y0 y1 y2 y3 y4 y5 y6 y7 xd xe xf x0 x1 x2 x3 x4 Y"

 $xa \oplus y0 \ xb \oplus y1 \ xc \oplus y2 \ y8 \oplus y3 \ y9 \oplus y4 \ ya \oplus y5 \ yb \oplus y6 \ yc \oplus y7$ $yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ x5 \oplus x0 \ x6 \oplus x1 \ x7 \oplus x2 \ x8 \oplus x3 \ x9 \oplus x4$ Z

 $wt(X) = 11 \quad wt(Y) = 9$

x5 x6 x7 x8 x9 xa xb xc X1 xd xe xf x0 x1 x2 x3 x4 X2

y7 y8 y9 ya yb yc yd ye Y1 yf y0 y1 y2 y3 y4 y5 y6 Y2

xa xb xc y7 y8 y9 ya yb yc yd ye x5 x6 x7 x8 x9 X"

x4 yf y0 y1 y2 y3 y4 y5 y6 xd xe xf x0 x1 x2 x3 Y"

 $xa \oplus x4 xb \oplus yf xc \oplus y0 y7 \oplus y1 y8 \oplus y2 y9 \oplus y3 ya \oplus y4 yb \oplus y5$ $yc \oplus y6 yd \oplus xd ye \oplus xe x5 \oplus xf x6 \oplus x0 x7 \oplus x1 x8 \oplus x2 x9 \oplus x3$ -----

$$wt(X) = 11 \quad wt(Y) = 10$$

x5 x6 x7 x8 x9 xa xb xc X1 xd xe xf x0 x1 x2 x3 x4 X2

y6 y7 y8 y9 ya yb yc yd Y1 ye yf y0 y1 y2 y3 y4 y5 Y2

xa xb xc y6 y7 y8 y9 ya yb yc yd x5 x6 x7 x8 x9 X"

x3 x4 ye yf y0 y1 y2 y3 y4 y5 xd xe xf x0 x1 x2 Y"

 $xa \oplus x3 xb \oplus x4 xc \oplus ye y6 \oplus yf y7 \oplus y0 y8 \oplus y1 y9 \oplus y2 ya \oplus y3$ $yb \oplus y4 yc \oplus y5 yd \oplus xd x5 \oplus xe x6 \oplus xf x7 \oplus x0 x8 \oplus x1 x9 \oplus x2$ Z

$$wt(X) = 11 \quad wt(Y) = 11$$

x5 x6 x7 x8 x9 xa xb xc X1 xd xe xf x0 x1 x2 x3 x4 X2

y5 y6 y7 y8 y9 ya yb yc Y1 yd ye yf y0 y1 y2 y3 y4 Y2

xa xb xc y5 y6 y7 y8 y9 ya yb yc x5 x6 x7 x8 x9 X"

x2 x3 x4 yd ye yf y0 y1 y2 y3 y4 xd xe xf x0 x1 Y"

 $xa \oplus x2 xb \oplus x3 xc \oplus x4 y5 \oplus yd y6 \oplus ye y7 \oplus yf y8 \oplus y0 y9 \oplus y1$ $ya \oplus y2 yb \oplus y3 yc \oplus y4 x5 \oplus xd x6 \oplus xe x7 \oplus xf x8 \oplus x0 x9 \oplus x1$ Z

$$wt(X) = 11 \quad wt(Y) = 12$$

x5 x6 x7 x8 x9 xa xb xc X1 xd xe xf x0 x1 x2 x3 x4 X2

y4 y5 y6 y7 y8 y9 ya yb Y1 yc yd ye yf y0 y1 y2 y3 Y2

xa xb xc y4 y5 y6 y7 y8 y9 ya yb x5 x6 x7 x8 x9 X"

x1 x2 x3 x4 yc yd ye yf y0 y1 y2 y3 xd xe xf x0 Y"

 $xa \oplus x1 xb \oplus x2 xc \oplus x3 y4 \oplus x4 y5 \oplus yc y6 \oplus yd y7 \oplus ye y8 \oplus yf$ $y9 \oplus y0 ya \oplus y1 yb \oplus y2 x5 \oplus y3 x6 \oplus xd x7 \oplus xe x8 \oplus xf x9 \oplus x0$ Z

$$wt(X) = 11 \quad wt(Y) = 13$$

x5 x6 x7 x8 x9 xa xb xc X1 xd xe xf x0 x1 x2 x3 x4 X2

y3 y4 y5 y6 y7 y8 y9 ya Y1 yb yc yd ye yf y0 y1 y2 Y2

xa xb xc y3 y4 y5 y6 y7 y8 y9 ya x5 x6 x7 x8 x9 X"

x0 x1 x2 x3 x4 yb yc yd ye yf y0 y1 y2 xd xe xf Y"

 $xa \oplus x0 xb \oplus x1 xc \oplus x2 y3 \oplus x3 y4 \oplus x4 y5 \oplus yb y6 \oplus yc y7 \oplus yd$ $y8 \oplus ye y9 \oplus yf ya \oplus y0 x5 \oplus y1 x6 \oplus y2 x7 \oplus xd x8 \oplus xe x9 \oplus xf$ Z

$$wt(X) = 11 \quad wt(Y) = 14$$

x5 x6 x7 x8 x9 xa xb xc X1

xd xe xf x0 x1 x2 x3 x4 X2

y2 y3 y4 y5 y6 y7 y8 y9 Y1 ya yb yc yd ye yf y0 y1 Y2

xa xb xc y2 y3 y4 y5 y6 y7 y8 y9 x5 x6 x7 x8 x9 X"

xf x0 x1 x2 x3 x4 ya yb yc yd ye yf y0 y1 xd xe Y"

 $xa \oplus xf xb \oplus x0 xc \oplus x1 y2 \oplus x2 y3 \oplus x3 y4 \oplus x4 y5 \oplus ya y6 \oplus yb$ $y7 \oplus yc y8 \oplus yd y9 \oplus ye x5 \oplus yf x6 \oplus y0 x7 \oplus y1 x8 \oplus xd x9 \oplus xe$

Z

$$wt(X) = 11 \quad wt(Y) = 15$$

x5 x6 x7 x8 x9 xa xb xc X1 xd xe xf x0 x1 x2 x3 x4 X2

y1 y2 y3 y4 y5 y6 y7 y8 Y1 y9 ya yb yc yd ye yf y0 Y2

xa xb xc y1 y2 y3 y4 y5 y6 y7 y8 x5 x6 x7 x8 x9 X"

xe xf x0 x1 x2 x3 x4 y9 ya yb yc yd ye yf y0 xd Y"

 $xa \oplus xe \ xb \oplus xf \ xc \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4 \ y5 \oplus y9$ $y6 \oplus ya \ y7 \oplus yb \ y8 \oplus yc \ x5 \oplus yd \ x6 \oplus ye \ x7 \oplus yf \ x8 \oplus y0 \ x9 \oplus xd$ Z

$$wt(X) = 11 \quad wt(Y) = 16$$

x5 x6 x7 x8 x9 xa xb xc X1 xd xe xf x0 x1 x2 x3 x4 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1

y8 y9 ya yb yc yd ye yf Y2

xa xb xc y0 y1 y2 y3 y4 y5 y6 y7 x5 x6 x7 x8 x9 X"

xd xe xf x0 x1 x2 x3 x4 y8 y9 ya yb yc yd ye yf Y"

 $xa \oplus xd \ xb \oplus xe \ xc \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus x4$ $y5 \oplus y8 \ y6 \oplus y9 \ y7 \oplus ya \ x5 \oplus yb \ x6 \oplus yc \ x7 \oplus yd \ x8 \oplus ye \ x9 \oplus yf$ Z

$$wt(X) = 12$$
 $wt(Y) = 0$

x4 x5 x6 x7 x8 x9 xa xb X1 xc xd xe xf x0 x1 x2 x3 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

x8 x9 xa xb y0 y1 y2 y3 y4 y5 y6 y7 x4 x5 x6 x7 X"

xc xd xe xf x0 x1 x2 x3 y8 y9 ya yb yc yd ye yf Y"

 $x8 \oplus xc \ x9 \oplus xd \ xa \oplus xe \ xb \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3$ $y4 \oplus y8 \ y5 \oplus y9 \ y6 \oplus ya \ y7 \oplus yb \ x4 \oplus yc \ x5 \oplus yd \ x6 \oplus ye \ x7 \oplus yf$ Z

 $wt(X) = 12 \quad wt(Y) = 1$

x4 x5 x6 x7 x8 x9 xa xb X1 xc xd xe xf x0 x1 x2 x3 X2

yf y0 y1 y2 y3 y4 y5 y6 Y1 y7 y8 y9 ya yb yc yd ye Y2

x8 x9 xa xb yf y0 y1 y2

y3 y4 y5 y6 x4 x5 x6 x7 X"

ye xc xd xe xf x0 x1 x2 x3 y7 y8 y9 ya yb yc yd Y"

 $x8 \oplus ye \ x9 \oplus xc \ xa \oplus xd \ xb \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2$ $y3 \oplus x3 \ y4 \oplus y7 \ y5 \oplus y8 \ y6 \oplus y9 \ x4 \oplus ya \ x5 \oplus yb \ x6 \oplus yc \ x7 \oplus yd$ Z

.....

$$wt(X) = 12$$
 $wt(Y) = 2$

x4 x5 x6 x7 x8 x9 xa xb X1 xc xd xe xf x0 x1 x2 x3 X2

ye yf y0 y1 y2 y3 y4 y5 Y1 y6 y7 y8 y9 ya yb yc yd Y2

x8 x9 xa xb ye yf y0 y1 y2 y3 y4 y5 x4 x5 x6 x7 X"

yc yd xc xd xe xf x0 x1 x2 x3 y6 y7 y8 y9 ya yb Y"

 $x8 \oplus yc \ x9 \oplus yd \ xa \oplus xc \ xb \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ y1 \oplus x1$ $y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus y6 \ y5 \oplus y7 \ x4 \oplus y8 \ x5 \oplus y9 \ x6 \oplus ya \ x7 \oplus yb$ Z

$$wt(X) = 12 \quad wt(Y) = 3$$

x4 x5 x6 x7 x8 x9 xa xb X1 xc xd xe xf x0 x1 x2 x3 X2

yd ye yf y0 y1 y2 y3 y4 Y1 y5 y6 y7 y8 y9 ya yb yc Y2

x8 x9 xa xb yd ye yf y0 y1 y2 y3 y4 x4 x5 x6 x7 X"

ya yb yc xc xd xe xf x0

 $x8 \oplus ya \ x9 \oplus yb \ xa \oplus yc \ xb \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus x0$ $y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus y5 \ x4 \oplus y6 \ x5 \oplus y7 \ x6 \oplus y8 \ x7 \oplus y9$

Z

$$wt(X) = 12 \quad wt(Y) = 4$$

x4 x5 x6 x7 x8 x9 xa xb X1 xc xd xe xf x0 x1 x2 x3 X2

yc yd ye yf y0 y1 y2 y3 Y1 y4 y5 y6 y7 y8 y9 ya yb Y2

x8 x9 xa xb yc yd ye yf y0 y1 y2 y3 x4 x5 x6 x7 X"

y8 y9 ya yb xc xd xe xf x0 x1 x2 x3 y4 y5 y6 y7 Y"

 $x8 \oplus y8 \ x9 \oplus y9 \ xa \oplus ya \ xb \oplus yb \ yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf$ $y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ x4 \oplus y4 \ x5 \oplus y5 \ x6 \oplus y6 \ x7 \oplus y7$ Z

$$wt(X) = 12 \quad wt(Y) = 5$$

x4 x5 x6 x7 x8 x9 xa xb X1 xc xd xe xf x0 x1 x2 x3 X2

yb yc yd ye yf y0 y1 y2 Y1 y3 y4 y5 y6 y7 y8 y9 ya Y2

x8 x9 xa xb yb yc yd ye yf y0 y1 y2 x4 x5 x6 x7 X"

y6 y7 y8 y9 ya xc xd xe xf x0 x1 x2 x3 y3 y4 y5 Y"

Z

Z

$$wt(X) = 12 \quad wt(Y) = 6$$

x4 x5 x6 x7 x8 x9 xa xb X1 xc xd xe xf x0 x1 x2 x3 X2

ya yb yc yd ye yf y0 y1 Y1 y2 y3 y4 y5 y6 y7 y8 y9 Y2

x8 x9 xa xb ya yb yc yd ye yf y0 y1 x4 x5 x6 x7 X"

y4 y5 y6 y7 y8 y9 xc xd xe xf x0 x1 x2 x3 y2 y3 Y"

 $x8 \oplus y4 \ x9 \oplus y5 \ xa \oplus y6 \ xb \oplus y7 \ ya \oplus y8 \ yb \oplus y9 \ yc \oplus xc \ yd \oplus xd$ $ye \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ x4 \oplus x2 \ x5 \oplus x3 \ x6 \oplus y2 \ x7 \oplus y3$ Z

$$wt(X) = 12 \quad wt(Y) = 7$$

x4 x5 x6 x7 x8 x9 xa xb X1 xc xd xe xf x0 x1 x2 x3 X2

y9 ya yb yc yd ye yf y0 Y1 y1 y2 y3 y4 y5 y6 y7 y8 Y2

x8 x9 xa xb y9 ya yb yc yd ye yf y0 x4 x5 x6 x7 X"

y2 y3 y4 y5 y6 y7 y8 xc xd xe xf x0 x1 x2 x3 y1 Y"

 $x8 \oplus y2 \ x9 \oplus y3 \ xa \oplus y4 \ xb \oplus y5 \ y9 \oplus y6 \ ya \oplus y7 \ yb \oplus y8 \ yc \oplus xc$ $yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ x4 \oplus x1 \ x5 \oplus x2 \ x6 \oplus x3 \ x7 \oplus y1$

$$wt(X) = 12 \quad wt(Y) = 8$$

x4 x5 x6 x7 x8 x9 xa xb X1 xc xd xe xf x0 x1 x2 x3 X2

y8 y9 ya yb yc yd ye yf Y1 y0 y1 y2 y3 y4 y5 y6 y7 Y2

x8 x9 xa xb y8 y9 ya yb yc yd ye yf x4 x5 x6 x7 X"

y0 y1 y2 y3 y4 y5 y6 y7 xc xd xe xf x0 x1 x2 x3 Y"

 $x8 \oplus y0 \ x9 \oplus y1 \ xa \oplus y2 \ xb \oplus y3 \ y8 \oplus y4 \ y9 \oplus y5 \ ya \oplus y6 \ yb \oplus y7$ $yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ x4 \oplus x0 \ x5 \oplus x1 \ x6 \oplus x2 \ x7 \oplus x3$ Z

$$wt(X) = 12 \quad wt(Y) = 9$$

x4 x5 x6 x7 x8 x9 xa xb X1 xc xd xe xf x0 x1 x2 x3 X2

y7 y8 y9 ya yb yc yd ye Y1 yf y0 y1 y2 y3 y4 y5 y6 Y2

x8 x9 xa xb y7 y8 y9 ya yb yc yd ye x4 x5 x6 x7 X"

x3 yf y0 y1 y2 y3 y4 y5 y6 xc xd xe xf x0 x1 x2 Y"

 $x8 \oplus x3 \ x9 \oplus yf \ xa \oplus y0 \ xb \oplus y1 \ y7 \oplus y2 \ y8 \oplus y3 \ y9 \oplus y4 \ ya \oplus y5$ $yb \oplus y6 \ yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ x4 \oplus xf \ x5 \oplus x0 \ x6 \oplus x1 \ x7 \oplus x2$ Z

$$wt(X) = 12 \quad wt(Y) = 10$$

x4 x5 x6 x7 x8 x9 xa xb X1 xc xd xe xf x0 x1 x2 x3 X2

y6 y7 y8 y9 ya yb yc yd Y1 ye yf y0 y1 y2 y3 y4 y5 Y2

x8 x9 xa xb y6 y7 y8 y9 ya yb yc yd x4 x5 x6 x7 X"

x2 x3 ye yf y0 y1 y2 y3 y4 y5 xc xd xe xf x0 x1 Y"

 $x8 \oplus x2 \ x9 \oplus x3 \ xa \oplus ye \ xb \oplus yf \ y6 \oplus y0 \ y7 \oplus y1 \ y8 \oplus y2 \ y9 \oplus y3$ $ya \oplus y4 \ yb \oplus y5 \ yc \oplus xc \ yd \oplus xd \ x4 \oplus xe \ x5 \oplus xf \ x6 \oplus x0 \ x7 \oplus x1$ Z

$$wt(X) = 12 \quad wt(Y) = 11$$

x4 x5 x6 x7 x8 x9 xa xb X1 xc xd xe xf x0 x1 x2 x3 X2

y5 y6 y7 y8 y9 ya yb yc Y1 yd ye yf y0 y1 y2 y3 y4 Y2

x8 x9 xa xb y5 y6 y7 y8 y9 ya yb yc x4 x5 x6 x7 X"

x1 x2 x3 yd ye yf y0 y1 y2 y3 y4 xc xd xe xf x0 Y"

 $x8 \oplus x1 \ x9 \oplus x2 \ xa \oplus x3 \ xb \oplus yd \ y5 \oplus ye \ y6 \oplus yf \ y7 \oplus y0 \ y8 \oplus y1$ $y9 \oplus y2 \ ya \oplus y3 \ yb \oplus y4 \ yc \oplus xc \ x4 \oplus xd \ x5 \oplus xe \ x6 \oplus xf \ x7 \oplus x0$ Z

$$wt(X) = 12 \quad wt(Y) = 12$$

x4 x5 x6 x7 x8 x9 xa xb X1

xc xd xe xf x0 x1 x2 x3 X2

y4 y5 y6 y7 y8 y9 ya yb Y1 yc yd ye yf y0 y1 y2 y3 Y2

x8 x9 xa xb y4 y5 y6 y7 y8 y9 ya yb x4 x5 x6 x7 X"

x0 x1 x2 x3 yc yd ye yf y0 y1 y2 y3 xc xd xe xf Y"

 $x8 \oplus x0 \ x9 \oplus x1 \ xa \oplus x2 \ xb \oplus x3 \ y4 \oplus yc \ y5 \oplus yd \ y6 \oplus ye \ y7 \oplus yf$ $y8 \oplus y0 \ y9 \oplus y1 \ ya \oplus y2 \ yb \oplus y3 \ x4 \oplus xc \ x5 \oplus xd \ x6 \oplus xe \ x7 \oplus xf$ Z

$$wt(X) = 12 \quad wt(Y) = 13$$

x4 x5 x6 x7 x8 x9 xa xb X1 xc xd xe xf x0 x1 x2 x3 X2

y3 y4 y5 y6 y7 y8 y9 ya Y1 yb yc yd ye yf y0 y1 y2 Y2

x8 x9 xa xb y3 y4 y5 y6 y7 y8 y9 ya x4 x5 x6 x7 X"

xf x0 x1 x2 x3 yb yc yd ye yf y0 y1 y2 xc xd xe Y"

 $x8 \oplus xf \ x9 \oplus x0 \ xa \oplus x1 \ xb \oplus x2 \ y3 \oplus x3 \ y4 \oplus yb \ y5 \oplus yc \ y6 \oplus yd$ $y7 \oplus ye \ y8 \oplus yf \ y9 \oplus y0 \ ya \oplus y1 \ x4 \oplus y2 \ x5 \oplus xc \ x6 \oplus xd \ x7 \oplus xe$ Z

$$wt(X) = 12 \quad wt(Y) = 14$$

x4 x5 x6 x7 x8 x9 xa xb X1 xc xd xe xf x0 x1 x2 x3 X2

y2 y3 y4 y5 y6 y7 y8 y9 Y1

ya yb yc yd ye yf y0 y1 Y2

x8 x9 xa xb y2 y3 y4 y5 y6 y7 y8 y9 x4 x5 x6 x7 X"

xe xf x0 x1 x2 x3 ya yb yc yd ye yf y0 y1 xc xd Y"

 $x8 \oplus xe \ x9 \oplus xf \ xa \oplus x0 \ xb \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus ya \ y5 \oplus yb$ $y6 \oplus yc \ y7 \oplus yd \ y8 \oplus ye \ y9 \oplus yf \ x4 \oplus y0 \ x5 \oplus y1 \ x6 \oplus xc \ x7 \oplus xd$ Z

 $wt(X) = 12 \quad wt(Y) = 15$

x4 x5 x6 x7 x8 x9 xa xb X1 xc xd xe xf x0 x1 x2 x3 X2

y1 y2 y3 y4 y5 y6 y7 y8 Y1 y9 ya yb yc yd ye yf y0 Y2

x8 x9 xa xb y1 y2 y3 y4 y5 y6 y7 y8 x4 x5 x6 x7 X"

xd xe xf x0 x1 x2 x3 y9ya yb yc yd ye yf y0 xc Y''

 $x8 \oplus xd \ x9 \oplus xe \ xa \oplus xf \ xb \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3 \ y4 \oplus y9$ $y5 \oplus ya \ y6 \oplus yb \ y7 \oplus yc \ y8 \oplus yd \ x4 \oplus ye \ x5 \oplus yf \ x6 \oplus y0 \ x7 \oplus xc$ Z

 $wt(X) = 12 \quad wt(Y) = 16$

x4 x5 x6 x7 x8 x9 xa xb X1 xc xd xe xf x0 x1 x2 x3 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

x8 x9 xa xb y0 y1 y2 y3

y4 y5 y6 y7 x4 x5 x6 x7 X"

xc xd xe xf x0 x1 x2 x3 y8 y9 ya yb yc yd ye yf Y"

 $x8 \oplus xc \ x9 \oplus xd \ xa \oplus xe \ xb \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus x3$ $y4 \oplus y8 \ y5 \oplus y9 \ y6 \oplus ya \ y7 \oplus yb \ x4 \oplus yc \ x5 \oplus yd \ x6 \oplus ye \ x7 \oplus yf$ Z

wt(X) = 13 wt(Y) = 0

x3 x4 x5 x6 x7 x8 x9 xa X1 xb xc xd xe xf x0 x1 x2 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

x6 x7 x8 x9 xa y0 y1 y2 y3 y4 y5 y6 y7 x3 x4 x5 X"

xb xc xd xe xf x0 x1 x2 y8 y9 ya yb yc yd ye yf Y"

 $x6 \oplus xb \ x7 \oplus xc \ x8 \oplus xd \ x9 \oplus xe \ xa \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2$ $y3 \oplus y8 \ y4 \oplus y9 \ y5 \oplus ya \ y6 \oplus yb \ y7 \oplus yc \ x3 \oplus yd \ x4 \oplus ye \ x5 \oplus yf$ Z

 $wt(X) = 13 \quad wt(Y) = 1$

x3 x4 x5 x6 x7 x8 x9 xa X1 xb xc xd xe xf x0 x1 x2 X2

yf y0 y1 y2 y3 y4 y5 y6 Y1 y7 y8 y9 ya yb yc yd ye Y2

x6 x7 x8 x9 xa yf y0 y1 y2 y3 y4 y5 y6 x3 x4 x5 X"

ye xb xc xd xe xf x0 x1

 $x6 \oplus ye \ x7 \oplus xb \ x8 \oplus xc \ x9 \oplus xd \ xa \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ y1 \oplus x1$ $y2 \oplus x2 \ y3 \oplus y7 \ y4 \oplus y8 \ y5 \oplus y9 \ y6 \oplus ya \ x3 \oplus yb \ x4 \oplus yc \ x5 \oplus yd$

Z

 $wt(X) = 13 \quad wt(Y) = 2$

x3 x4 x5 x6 x7 x8 x9 xa X1 xb xc xd xe xf x0 x1 x2 X2

ye yf y0 y1 y2 y3 y4 y5 Y1 y6 y7 y8 y9 ya yb yc yd Y2

x6 x7 x8 x9 xa ye yf y0 y1 y2 y3 y4 y5 x3 x4 x5 X"

yc yd xb xc xd xe xf x0 x1 x2 y6 y7 y8 y9 ya yb Y"

 $x6 \oplus yc \ x7 \oplus yd \ x8 \oplus xb \ x9 \oplus xc \ xa \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus x0$ $y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus y6 \ y4 \oplus y7 \ y5 \oplus y8 \ x3 \oplus y9 \ x4 \oplus ya \ x5 \oplus yb$ Z

 $wt(X) = 13 \quad wt(Y) = 3$

x3 x4 x5 x6 x7 x8 x9 xa X1 xb xc xd xe xf x0 x1 x2 X2

yd ye yf y0 y1 y2 y3 y4 Y1 y5 y6 y7 y8 y9 ya yb yc Y2

x6 x7 x8 x9 xa yd ye yf y0 y1 y2 y3 y4 x3 x4 x5 X"

ya yb yc xb xc xd xe xf x0 x1 x2 y5 y6 y7 y8 y9 Y"

Z

Z

 $wt(X) = 13 \quad wt(Y) = 4$

x3 x4 x5 x6 x7 x8 x9 xa X1 xb xc xd xe xf x0 x1 x2 X2

yc yd ye yf y0 y1 y2 y3 Y1 y4 y5 y6 y7 y8 y9 ya yb Y2

x6 x7 x8 x9 xa yc yd ye yf y0 y1 y2 y3 x3 x4 x5 X"

y8 y9 ya yb xb xc xd xe xf x0 x1 x2 y4 y5 y6 y7 Y"

 $x6 \oplus y8 \ x7 \oplus y9 \ x8 \oplus ya \ x9 \oplus yb \ xa \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus xe$ $yf \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus y4 \ x3 \oplus y5 \ x4 \oplus y6 \ x5 \oplus y7$ Z

 $wt(X) = 13 \quad wt(Y) = 5$

x3 x4 x5 x6 x7 x8 x9 xa X1 xb xc xd xe xf x0 x1 x2 X2

yb yc yd ye yf y0 y1 y2 Y1 y3 y4 y5 y6 y7 y8 y9 ya Y2

x6 x7 x8 x9 xa yb yc yd ye yf y0 y1 y2 x3 x4 x5 X"

y6 y7 y8 y9 ya xb xc xd xe xf x0 x1 x2 y3 y4 y5 Y"

 $x6 \oplus y6 \ x7 \oplus y7 \ x8 \oplus y8 \ x9 \oplus y9 \ xa \oplus ya \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd$ $ye \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2 \ x3 \oplus y3 \ x4 \oplus y4 \ x5 \oplus y5$ -----

$$wt(X) = 13 \quad wt(Y) = 6$$

x3 x4 x5 x6 x7 x8 x9 xa X1 xb xc xd xe xf x0 x1 x2 X2

ya yb yc yd ye yf y0 y1 Y1 y2 y3 y4 y5 y6 y7 y8 y9 Y2

x6 x7 x8 x9 xa ya yb yc yd ye yf y0 y1 x3 x4 x5 X"

y4 y5 y6 y7 y8 y9 xb xc xd xe xf x0 x1 x2 y2 y3 Y"

 $x6 \oplus y4 \ x7 \oplus y5 \ x8 \oplus y6 \ x9 \oplus y7 \ xa \oplus y8 \ ya \oplus y9 \ yb \oplus xb \ yc \oplus xc$ $yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ x3 \oplus x2 \ x4 \oplus y2 \ x5 \oplus y3$ Z

$$wt(X) = 13 \quad wt(Y) = 7$$

x3 x4 x5 x6 x7 x8 x9 xa X1 xb xc xd xe xf x0 x1 x2 X2

y9 ya yb yc yd ye yf y0 Y1 y1 y2 y3 y4 y5 y6 y7 y8 Y2

x6 x7 x8 x9 xa y9 ya yb yc yd ye yf y0 x3 x4 x5 X"

y2 y3 y4 y5 y6 y7 y8 xb xc xd xe xf x0 x1 x2 y1 Y"

 $x6 \oplus y2 \ x7 \oplus y3 \ x8 \oplus y4 \ x9 \oplus y5 \ xa \oplus y6 \ y9 \oplus y7 \ ya \oplus y8 \ yb \oplus xb$ $yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ x3 \oplus x1 \ x4 \oplus x2 \ x5 \oplus y1$ Z

$$wt(X) = 13 \quad wt(Y) = 8$$

x3 x4 x5 x6 x7 x8 x9 xa X1 xb xc xd xe xf x0 x1 x2 X2

y8 y9 ya yb yc yd ye yf Y1 y0 y1 y2 y3 y4 y5 y6 y7 Y2

x6 x7 x8 x9 xa y8 y9 ya yb yc yd ye yf x3 x4 x5 X"

y0 y1 y2 y3 y4 y5 y6 y7 xb xc xd xe xf x0 x1 x2 Y"

 $x6 \oplus y0 \ x7 \oplus y1 \ x8 \oplus y2 \ x9 \oplus y3 \ xa \oplus y4 \ y8 \oplus y5 \ y9 \oplus y6 \ ya \oplus y7$ $yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ x3 \oplus x0 \ x4 \oplus x1 \ x5 \oplus x2$ Z

$$wt(X) = 13 \quad wt(Y) = 9$$

x3 x4 x5 x6 x7 x8 x9 xa X1 xb xc xd xe xf x0 x1 x2 X2

y7 y8 y9 ya yb yc yd ye Y1 yf y0 y1 y2 y3 y4 y5 y6 Y2

x6 x7 x8 x9 xa y7 y8 y9 ya yb yc yd ye x3 x4 x5 X"

x2 yf y0 y1 y2 y3 y4 y5 y6 xb xc xd xe xf x0 x1 Y"

 $x6 \oplus x2 \ x7 \oplus yf \ x8 \oplus y0 \ x9 \oplus y1 \ xa \oplus y2 \ y7 \oplus y3 \ y8 \oplus y4 \ y9 \oplus y5$ $ya \oplus y6 \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ x3 \oplus xf \ x4 \oplus x0 \ x5 \oplus x1$ Z

$$wt(X) = 13 \quad wt(Y) = 10$$

x3 x4 x5 x6 x7 x8 x9 xa X1

xb xc xd xe xf x0 x1 x2 X2

y6 y7 y8 y9 ya yb yc yd Y1 ye yf y0 y1 y2 y3 y4 y5 Y2

x6 x7 x8 x9 xa y6 y7 y8 y9 ya yb yc yd x3 x4 x5 X"

x1 x2 ye yf y0 y1 y2 y3 y4 y5 xb xc xd xe xf x0 Y"

 $x6 \oplus x1 \ x7 \oplus x2 \ x8 \oplus ye \ x9 \oplus yf \ xa \oplus y0 \ y6 \oplus y1 \ y7 \oplus y2 \ y8 \oplus y3$ $y9 \oplus y4 \ ya \oplus y5 \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ x3 \oplus xe \ x4 \oplus xf \ x5 \oplus x0$ Z

$$wt(X) = 13 \quad wt(Y) = 11$$

x3 x4 x5 x6 x7 x8 x9 xa X1 xb xc xd xe xf x0 x1 x2 X2

y5 y6 y7 y8 y9 ya yb yc Y1 yd ye yf y0 y1 y2 y3 y4 Y2

x6 x7 x8 x9 xa y5 y6 y7 y8 y9 ya yb yc x3 x4 x5 X"

x0 x1 x2 yd ye yf y0 y1 y2 y3 y4 xb xc xd xe xf Y"

 $x6 \oplus x0 \ x7 \oplus x1 \ x8 \oplus x2 \ x9 \oplus yd \ xa \oplus ye \ y5 \oplus yf \ y6 \oplus y0 \ y7 \oplus y1$ $y8 \oplus y2 \ y9 \oplus y3 \ ya \oplus y4 \ yb \oplus xb \ yc \oplus xc \ x3 \oplus xd \ x4 \oplus xe \ x5 \oplus xf$ Z

$$wt(X) = 13$$
 $wt(Y) = 12$

x3 x4 x5 x6 x7 x8 x9 xa X1 xb xc xd xe xf x0 x1 x2 X2

y4 y5 y6 y7 y8 y9 ya yb Y1

yc yd ye yf y0 y1 y2 y3 Y2

x6 x7 x8 x9 xa y4 y5 y6 y7 y8 y9 ya yb x3 x4 x5 X"

xf x0 x1 x2 yc yd ye yf y0 y1 y2 y3 xb xc xd xe Y"

 $x6 \oplus xf \times 7 \oplus x0 \times 8 \oplus x1 \times 9 \oplus x2 \times a \oplus yc y4 \oplus yd y5 \oplus ye y6 \oplus yf$ $y7 \oplus y0 y8 \oplus y1 y9 \oplus y2 ya \oplus y3 yb \oplus xb x3 \oplus xc x4 \oplus xd x5 \oplus xe$ Z

wt(X) = 13 wt(Y) = 13

x3 x4 x5 x6 x7 x8 x9 xa X1 xb xc xd xe xf x0 x1 x2 X2

y3 y4 y5 y6 y7 y8 y9 ya Y1 yb yc yd ye yf y0 y1 y2 Y2

x6 x7 x8 x9 xa y3 y4 y5 y6 y7 y8 y9 ya x3 x4 x5 X"

xe xf x0 x1 x2 yb yc yd ye yf y0 y1 y2 xb xc xd Y"

 $x6 \oplus xe \ x7 \oplus xf \ x8 \oplus x0 \ x9 \oplus x1 \ xa \oplus x2 \ y3 \oplus yb \ y4 \oplus yc \ y5 \oplus yd$ $y6 \oplus ye \ y7 \oplus yf \ y8 \oplus y0 \ y9 \oplus y1 \ ya \oplus y2 \ x3 \oplus xb \ x4 \oplus xc \ x5 \oplus xd$ Z

 $wt(X) = 13 \quad wt(Y) = 14$

x3 x4 x5 x6 x7 x8 x9 xa X1 xb xc xd xe xf x0 x1 x2 X2

y2 y3 y4 y5 y6 y7 y8 y9 Y1 ya yb yc yd ye yf y0 y1 Y2

x6 x7 x8 x9 xa y2 y3 y4

y5 y6 y7 y8 y9 x3 x4 x5 X"

xd xe xf x0 x1 x2 ya yb yc yd ye yf y0 y1 xb xc Y"

 $x6 \oplus xd \ x7 \oplus xe \ x8 \oplus xf \ x9 \oplus x0 \ xa \oplus x1 \ y2 \oplus x2 \ y3 \oplus ya \ y4 \oplus yb$ $y5 \oplus yc \ y6 \oplus yd \ y7 \oplus ye \ y8 \oplus yf \ y9 \oplus y0 \ x3 \oplus y1 \ x4 \oplus xb \ x5 \oplus xc$ Z

 $wt(X) = 13 \quad wt(Y) = 15$

x3 x4 x5 x6 x7 x8 x9 xa X1 xb xc xd xe xf x0 x1 x2 X2

y1 y2 y3 y4 y5 y6 y7 y8 Y1 y9 ya yb yc yd ye yf y0 Y2

x6 x7 x8 x9 xa y1 y2 y3 y4 y5 y6 y7 y8 x3 x4 x5 X"

xc xd xe xf x0 x1 x2 y9ya yb yc yd ye yf y0 xb Y''

 $x6 \oplus xc \ x7 \oplus xd \ x8 \oplus xe \ x9 \oplus xf \ xa \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2 \ y3 \oplus y9$ $y4 \oplus ya \ y5 \oplus yb \ y6 \oplus yc \ y7 \oplus yd \ y8 \oplus ye \ x3 \oplus yf \ x4 \oplus y0 \ x5 \oplus xb$ Z

 $wt(X) = 13 \quad wt(Y) = 16$

x3 x4 x5 x6 x7 x8 x9 xa X1 xb xc xd xe xf x0 x1 x2 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

x6 x7 x8 x9 xa y0 y1 y2 y3 y4 y5 y6 y7 x3 x4 x5 X"

xb xc xd xe xf x0 x1 x2

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y8 y9 ya yb yc yd ye yf Y"
```

 $x6 \oplus xb \ x7 \oplus xc \ x8 \oplus xd \ x9 \oplus xe \ xa \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus x2$ $y3 \oplus y8 \ y4 \oplus y9 \ y5 \oplus ya \ y6 \oplus yb \ y7 \oplus yc \ x3 \oplus yd \ x4 \oplus ye \ x5 \oplus yf$ Z

$$wt(X) = 14 \quad wt(Y) = 0$$

x2 x3 x4 x5 x6 x7 x8 x9 X1 xa xb xc xd xe xf x0 x1 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

x4 x5 x6 x7 x8 x9 y0 y1 y2 y3 y4 y5 y6 y7 x2 x3 X"

xa xb xc xd xe xf x0 x1 y8 y9 ya yb yc yd ye yf Y"

 $x4 \oplus xa \ x5 \oplus xb \ x6 \oplus xc \ x7 \oplus xd \ x8 \oplus xe \ x9 \oplus xf \ y0 \oplus x0 \ y1 \oplus x1$ $y2 \oplus y8 \ y3 \oplus y9 \ y4 \oplus ya \ y5 \oplus yb \ y6 \oplus yc \ y7 \oplus yd \ x2 \oplus ye \ x3 \oplus yf$ Z

$$wt(X) = 14 \quad wt(Y) = 1$$

x2 x3 x4 x5 x6 x7 x8 x9 X1 xa xb xc xd xe xf x0 x1 X2

yf y0 y1 y2 y3 y4 y5 y6 Y1 y7 y8 y9 ya yb yc yd ye Y2

x4 x5 x6 x7 x8 x9 yf y0 y1 y2 y3 y4 y5 y6 x2 x3 X"

ye xa xb xc xd xe xf x0 x1 y7 y8 y9 ya yb yc yd Y"

Z

Z

 $wt(X) = 14 \quad wt(Y) = 2$

x2 x3 x4 x5 x6 x7 x8 x9 X1 xa xb xc xd xe xf x0 x1 X2

ye yf y0 y1 y2 y3 y4 y5 Y1 y6 y7 y8 y9 ya yb yc yd Y2

x4 x5 x6 x7 x8 x9 ye yf y0 y1 y2 y3 y4 y5 x2 x3 X"

yc yd xa xb xc xd xe xf x0 x1 y6 y7 y8 y9 ya yb Y"

 $x4 \oplus yc \ x5 \oplus yd \ x6 \oplus xa \ x7 \oplus xb \ x8 \oplus xc \ x9 \oplus xd \ ye \oplus xe \ yf \oplus xf$ $y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus y6 \ y3 \oplus y7 \ y4 \oplus y8 \ y5 \oplus y9 \ x2 \oplus ya \ x3 \oplus yb$ Z

 $wt(X) = 14 \quad wt(Y) = 3$

x2 x3 x4 x5 x6 x7 x8 x9 X1 xa xb xc xd xe xf x0 x1 X2

yd ye yf y0 y1 y2 y3 y4 Y1 y5 y6 y7 y8 y9 ya yb yc Y2

x4 x5 x6 x7 x8 x9 yd ye yf y0 y1 y2 y3 y4 x2 x3 X"

ya yb yc xa xb xc xd xe xf x0 x1 y5 y6 y7 y8 y9 Y"

 $x4 \oplus ya \ x5 \oplus yb \ x6 \oplus yc \ x7 \oplus xa \ x8 \oplus xb \ x9 \oplus xc \ yd \oplus xd \ ye \oplus xe$ $yf \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus y5 \ y3 \oplus y6 \ y4 \oplus y7 \ x2 \oplus y8 \ x3 \oplus y9$

$$wt(X) = 14 \quad wt(Y) = 4$$

x2 x3 x4 x5 x6 x7 x8 x9 X1 xa xb xc xd xe xf x0 x1 X2

yc yd ye yf y0 y1 y2 y3 Y1 y4 y5 y6 y7 y8 y9 ya yb Y2

x4 x5 x6 x7 x8 x9 yc yd ye yf y0 y1 y2 y3 x2 x3 X"

y8 y9 ya yb xa xb xc xd xe xf x0 x1 y4 y5 y6 y7 Y"

 $x4 \oplus y8 \ x5 \oplus y9 \ x6 \oplus ya \ x7 \oplus yb \ x8 \oplus xa \ x9 \oplus xb \ yc \oplus xc \ yd \oplus xd$ $ye \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus y4 \ y3 \oplus y5 \ x2 \oplus y6 \ x3 \oplus y7$ Z

$$wt(X) = 14 \quad wt(Y) = 5$$

x2 x3 x4 x5 x6 x7 x8 x9 X1 xa xb xc xd xe xf x0 x1 X2

yb yc yd ye yf y0 y1 y2 Y1 y3 y4 y5 y6 y7 y8 y9 ya Y2

x4 x5 x6 x7 x8 x9 yb yc yd ye yf y0 y1 y2 x2 x3 X"

y6 y7 y8 y9 ya xa xb xc xd xe xf x0 x1 y3 y4 y5 Y"

 $x4 \oplus y6 \ x5 \oplus y7 \ x6 \oplus y8 \ x7 \oplus y9 \ x8 \oplus ya \ x9 \oplus xa \ yb \oplus xb \ yc \oplus xc$ $yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ y2 \oplus y3 \ x2 \oplus y4 \ x3 \oplus y5$ Z

$$wt(X) = 14 \quad wt(Y) = 6$$

x2 x3 x4 x5 x6 x7 x8 x9 X1 xa xb xc xd xe xf x0 x1 X2

ya yb yc yd ye yf y0 y1 Y1 y2 y3 y4 y5 y6 y7 y8 y9 Y2

x4 x5 x6 x7 x8 x9 ya yb yc yd ye yf y0 y1 x2 x3 X"

y4 y5 y6 y7 y8 y9 xa xb xc xd xe xf x0 x1 y2 y3 Y"

 $x4 \oplus y4 \ x5 \oplus y5 \ x6 \oplus y6 \ x7 \oplus y7 \ x8 \oplus y8 \ x9 \oplus y9 \ ya \oplus xa \ yb \oplus xb$ $yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ y1 \oplus x1 \ x2 \oplus y2 \ x3 \oplus y3$ Z

$$wt(X) = 14 \quad wt(Y) = 7$$

x2 x3 x4 x5 x6 x7 x8 x9 X1 xa xb xc xd xe xf x0 x1 X2

y9 ya yb yc yd ye yf y0 Y1 y1 y2 y3 y4 y5 y6 y7 y8 Y2

x4 x5 x6 x7 x8 x9 y9 ya yb yc yd ye yf y0 x2 x3 X"

y2 y3 y4 y5 y6 y7 y8 xa xb xc xd xe xf x0 x1 y1 Y"

 $x4 \oplus y2 \ x5 \oplus y3 \ x6 \oplus y4 \ x7 \oplus y5 \ x8 \oplus y6 \ x9 \oplus y7 \ y9 \oplus y8 \ ya \oplus xa$ $yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ x2 \oplus x1 \ x3 \oplus y1$ Z

$$wt(X) = 14 \quad wt(Y) = 8$$

x2 x3 x4 x5 x6 x7 x8 x9 X1

xa xb xc xd xe xf x0 x1 X2

y8 y9 ya yb yc yd ye yf Y1 y0 y1 y2 y3 y4 y5 y6 y7 Y2

x4 x5 x6 x7 x8 x9 y8 y9 ya yb yc yd ye yf x2 x3 X"

y0 y1 y2 y3 y4 y5 y6 y7 xa xb xc xd xe xf x0 x1 Y"

 $x4 \oplus y0 \ x5 \oplus y1 \ x6 \oplus y2 \ x7 \oplus y3 \ x8 \oplus y4 \ x9 \oplus y5 \ y8 \oplus y6 \ y9 \oplus y7$ $ya \oplus xa \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ x2 \oplus x0 \ x3 \oplus x1$ Z

$$wt(X) = 14 \quad wt(Y) = 9$$

x2 x3 x4 x5 x6 x7 x8 x9 X1 xa xb xc xd xe xf x0 x1 X2

y7 y8 y9 ya yb yc yd ye Y1 yf y0 y1 y2 y3 y4 y5 y6 Y2

x4 x5 x6 x7 x8 x9 y7 y8 y9 ya yb yc yd ye x2 x3 X"

x1 yf y0 y1 y2 y3 y4 y5 y6 xa xb xc xd xe xf x0 Y"

 $x4 \oplus x1 \ x5 \oplus yf \ x6 \oplus y0 \ x7 \oplus y1 \ x8 \oplus y2 \ x9 \oplus y3 \ y7 \oplus y4 \ y8 \oplus y5$ $y9 \oplus y6 \ ya \oplus xa \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ x2 \oplus xf \ x3 \oplus x0$ Z

$$wt(X) = 14 \quad wt(Y) = 10$$

x2 x3 x4 x5 x6 x7 x8 x9 X1 xa xb xc xd xe xf x0 x1 X2

y6 y7 y8 y9 ya yb yc yd Y1

ye yf y0 y1 y2 y3 y4 y5 Y2

x4 x5 x6 x7 x8 x9 y6 y7 y8 y9 ya yb yc yd x2 x3 X"

x0 x1 ye yf y0 y1 y2 y3 y4 y5 xa xb xc xd xe xf Y"

 $x4 \oplus x0 \ x5 \oplus x1 \ x6 \oplus ye \ x7 \oplus yf \ x8 \oplus y0 \ x9 \oplus y1 \ y6 \oplus y2 \ y7 \oplus y3$ $y8 \oplus y4 \ y9 \oplus y5 \ ya \oplus xa \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ x2 \oplus xe \ x3 \oplus xf$ Z

 $wt(X) = 14 \quad wt(Y) = 11$

x2 x3 x4 x5 x6 x7 x8 x9 X1 xa xb xc xd xe xf x0 x1 X2

y5 y6 y7 y8 y9 ya yb yc Y1 yd ye yf y0 y1 y2 y3 y4 Y2

x4 x5 x6 x7 x8 x9 y5 y6 y7 y8 y9 ya yb yc x2 x3 X"

xf x0 x1 yd ye yf y0 y1 y2 y3 y4 xa xb xc xd xe Y"

 $x4 \oplus xf x5 \oplus x0 x6 \oplus x1 x7 \oplus yd x8 \oplus ye x9 \oplus yf y5 \oplus y0 y6 \oplus y1$ $y7 \oplus y2 y8 \oplus y3 y9 \oplus y4 ya \oplus xa yb \oplus xb yc \oplus xc x2 \oplus xd x3 \oplus xe$ Z

wt(X) = 14 wt(Y) = 12

x2 x3 x4 x5 x6 x7 x8 x9 X1 xa xb xc xd xe xf x0 x1 X2

y4 y5 y6 y7 y8 y9 ya yb Y1 yc yd ye yf y0 y1 y2 y3 Y2

x4 x5 x6 x7 x8 x9 y4 y5

y6 y7 y8 y9 ya yb x2 x3 X"

xe xf x0 x1 yc yd ye yf y0 y1 y2 y3 xa xb xc xd Y"

 $x4 \oplus xe \ x5 \oplus xf \ x6 \oplus x0 \ x7 \oplus x1 \ x8 \oplus yc \ x9 \oplus yd \ y4 \oplus ye \ y5 \oplus yf$ $y6 \oplus y0 \ y7 \oplus y1 \ y8 \oplus y2 \ y9 \oplus y3 \ ya \oplus xa \ yb \oplus xb \ x2 \oplus xc \ x3 \oplus xd$ Z

 $wt(X) = 14 \quad wt(Y) = 13$

x2 x3 x4 x5 x6 x7 x8 x9 X1 xa xb xc xd xe xf x0 x1 X2

y3 y4 y5 y6 y7 y8 y9 ya Y1 yb yc yd ye yf y0 y1 y2 Y2

x4 x5 x6 x7 x8 x9 y3 y4 y5 y6 y7 y8 y9 ya x2 x3 X"

xd xe xf x0 x1 yb yc yd ye yf y0 y1 y2 xa xb xc Y"

 $x4 \oplus xd \ x5 \oplus xe \ x6 \oplus xf \ x7 \oplus x0 \ x8 \oplus x1 \ x9 \oplus yb \ y3 \oplus yc \ y4 \oplus yd$ $y5 \oplus ye \ y6 \oplus yf \ y7 \oplus y0 \ y8 \oplus y1 \ y9 \oplus y2 \ ya \oplus xa \ x2 \oplus xb \ x3 \oplus xc$

Z

wt(X) = 14 wt(Y) = 14

x2 x3 x4 x5 x6 x7 x8 x9 X1 xa xb xc xd xe xf x0 x1 X2

y2 y3 y4 y5 y6 y7 y8 y9 Y1 ya yb yc yd ye yf y0 y1 Y2

x4 x5 x6 x7 x8 x9 y2 y3 y4 y5 y6 y7 y8 y9 x2 x3 X"

xc xd xe xf x0 x1 ya yb

yc yd ye yf y0 y1 xa xb Y"

 $x4 \oplus xc \ x5 \oplus xd \ x6 \oplus xe \ x7 \oplus xf \ x8 \oplus x0 \ x9 \oplus x1 \ y2 \oplus ya \ y3 \oplus yb$ $y4 \oplus yc \ y5 \oplus yd \ y6 \oplus ye \ y7 \oplus yf \ y8 \oplus y0 \ y9 \oplus y1 \ x2 \oplus xa \ x3 \oplus xb$ Z

wt(X) = 14 wt(Y) = 15

x2 x3 x4 x5 x6 x7 x8 x9 X1 xa xb xc xd xe xf x0 x1 X2

y1 y2 y3 y4 y5 y6 y7 y8 Y1 y9 ya yb yc yd ye yf y0 Y2

x4 x5 x6 x7 x8 x9 y1 y2 y3 y4 y5 y6 y7 y8 x2 x3 X"

xb xc xd xe xf x0 x1 y9 ya yb yc yd ye yf y0 xa Y"

 $x4 \oplus xb \ x5 \oplus xc \ x6 \oplus xd \ x7 \oplus xe \ x8 \oplus xf \ x9 \oplus x0 \ y1 \oplus x1 \ y2 \oplus y9$ $y3 \oplus ya \ y4 \oplus yb \ y5 \oplus yc \ y6 \oplus yd \ y7 \oplus ye \ y8 \oplus yf \ x2 \oplus y0 \ x3 \oplus xa$

Z

 $wt(X) = 14 \quad wt(Y) = 16$

x2 x3 x4 x5 x6 x7 x8 x9 X1 xa xb xc xd xe xf x0 x1 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

x4 x5 x6 x7 x8 x9 y0 y1 y2 y3 y4 y5 y6 y7 x2 x3 X"

xa xb xc xd xe xf x0 x1 y8 y9 ya yb yc yd ye yf Y"

Z

Z

 $wt(X) = 15 \quad wt(Y) = 0$

x1 x2 x3 x4 x5 x6 x7 x8 X1 x9 xa xb xc xd xe xf x0 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

x2 x3 x4 x5 x6 x7 x8 y0 y1 y2 y3 y4 y5 y6 y7 x1 X"

x9 xa xb xc xd xe xf x0 y8 y9 ya yb yc yd ye yf Y"

 $x2 \oplus x9 \ x3 \oplus xa \ x4 \oplus xb \ x5 \oplus xc \ x6 \oplus xd \ x7 \oplus xe \ x8 \oplus xf \ y0 \oplus x0$ $y1 \oplus y8 \ y2 \oplus y9 \ y3 \oplus ya \ y4 \oplus yb \ y5 \oplus yc \ y6 \oplus yd \ y7 \oplus ye \ x1 \oplus yf$ Z

 $wt(X) = 15 \quad wt(Y) = 1$

x1 x2 x3 x4 x5 x6 x7 x8 X1 x9 xa xb xc xd xe xf x0 X2

yf y0 y1 y2 y3 y4 y5 y6 Y1 y7 y8 y9 ya yb yc yd ye Y2

x2 x3 x4 x5 x6 x7 x8 yf y0 y1 y2 y3 y4 y5 y6 x1 X"

ye x9 xa xb xc xd xe xf x0 y7 y8 y9 ya yb yc yd Y"

 $x2 \oplus ye \ x3 \oplus x9 \ x4 \oplus xa \ x5 \oplus xb \ x6 \oplus xc \ x7 \oplus xd \ x8 \oplus xe \ yf \oplus xf$ $y0 \oplus x0 \ y1 \oplus y7 \ y2 \oplus y8 \ y3 \oplus y9 \ y4 \oplus ya \ y5 \oplus yb \ y6 \oplus yc \ x1 \oplus yd$ -----

$$wt(X) = 15 \quad wt(Y) = 2$$

x1 x2 x3 x4 x5 x6 x7 x8 X1 x9 xa xb xc xd xe xf x0 X2

ye yf y0 y1 y2 y3 y4 y5 Y1 y6 y7 y8 y9 ya yb yc yd Y2

x2 x3 x4 x5 x6 x7 x8 ye yf y0 y1 y2 y3 y4 y5 x1 X"

yc yd x9 xa xb xc xd xe xf x0 y6 y7 y8 y9 ya yb Y"

 $x2 \oplus yc \ x3 \oplus yd \ x4 \oplus x9 \ x5 \oplus xa \ x6 \oplus xb \ x7 \oplus xc \ x8 \oplus xd \ ye \oplus xe$ $yf \oplus xf \ y0 \oplus x0 \ y1 \oplus y6 \ y2 \oplus y7 \ y3 \oplus y8 \ y4 \oplus y9 \ y5 \oplus ya \ x1 \oplus yb$ Z

$$wt(X) = 15 \quad wt(Y) = 3$$

x1 x2 x3 x4 x5 x6 x7 x8 X1 x9 xa xb xc xd xe xf x0 X2

yd ye yf y0 y1 y2 y3 y4 Y1 y5 y6 y7 y8 y9 ya yb yc Y2

x2 x3 x4 x5 x6 x7 x8 yd ye yf y0 y1 y2 y3 y4 x1 X"

ya yb yc x9 xa xb xc xd xe xf x0 y5 y6 y7 y8 y9 Y"

 $x2 \oplus ya \ x3 \oplus yb \ x4 \oplus yc \ x5 \oplus x9 \ x6 \oplus xa \ x7 \oplus xb \ x8 \oplus xc \ yd \oplus xd$ $ye \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ y1 \oplus y5 \ y2 \oplus y6 \ y3 \oplus y7 \ y4 \oplus y8 \ x1 \oplus y9$ Z

$$wt(X) = 15 \quad wt(Y) = 4$$

x1 x2 x3 x4 x5 x6 x7 x8 X1 x9 xa xb xc xd xe xf x0 X2

yc yd ye yf y0 y1 y2 y3 Y1 y4 y5 y6 y7 y8 y9 ya yb Y2

x2 x3 x4 x5 x6 x7 x8 yc yd ye yf y0 y1 y2 y3 x1 X"

y8 y9 ya yb x9 xa xb xc xd xe xf x0 y4 y5 y6 y7 Y"

 $x2 \oplus y8 \ x3 \oplus y9 \ x4 \oplus ya \ x5 \oplus yb \ x6 \oplus x9 \ x7 \oplus xa \ x8 \oplus xb \ yc \oplus xc$ $yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ y1 \oplus y4 \ y2 \oplus y5 \ y3 \oplus y6 \ x1 \oplus y7$ Z

$$wt(X) = 15 \quad wt(Y) = 5$$

x1 x2 x3 x4 x5 x6 x7 x8 X1 x9 xa xb xc xd xe xf x0 X2

yb yc yd ye yf y0 y1 y2 Y1 y3 y4 y5 y6 y7 y8 y9 ya Y2

x2 x3 x4 x5 x6 x7 x8 yb yc yd ye yf y0 y1 y2 x1 X"

y6 y7 y8 y9 ya x9 xa xb xc xd xe xf x0 y3 y4 y5 Y"

 $x2 \oplus y6 \ x3 \oplus y7 \ x4 \oplus y8 \ x5 \oplus y9 \ x6 \oplus ya \ x7 \oplus x9 \ x8 \oplus xa \ yb \oplus xb$ $yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ y1 \oplus y3 \ y2 \oplus y4 \ x1 \oplus y5$ Z

$$wt(X) = 15 \quad wt(Y) = 6$$

x1 x2 x3 x4 x5 x6 x7 x8 X1

x9 xa xb xc xd xe xf x0 X2

ya yb yc yd ye yf y0 y1 Y1 y2 y3 y4 y5 y6 y7 y8 y9 Y2

x2 x3 x4 x5 x6 x7 x8 ya yb yc yd ye yf y0 y1 x1 X"

y4 y5 y6 y7 y8 y9 x9 xa xb xc xd xe xf x0 y2 y3 Y"

 $x2 \oplus y4 \times 3 \oplus y5 \times 4 \oplus y6 \times 5 \oplus y7 \times 6 \oplus y8 \times 7 \oplus y9 \times 8 \oplus x9 ya \oplus xa$ $yb \oplus xb yc \oplus xc yd \oplus xd ye \oplus xe yf \oplus xf y0 \oplus x0 y1 \oplus y2 x1 \oplus y3$ Z

$$wt(X) = 15 \quad wt(Y) = 7$$

x1 x2 x3 x4 x5 x6 x7 x8 X1 x9 xa xb xc xd xe xf x0 X2

y9 ya yb yc yd ye yf y0 Y1 y1 y2 y3 y4 y5 y6 y7 y8 Y2

x2 x3 x4 x5 x6 x7 x8 y9 ya yb yc yd ye yf y0 x1 X"

y2 y3 y4 y5 y6 y7 y8 x9 xa xb xc xd xe xf x0 y1 Y"

 $x2 \oplus y2 \ x3 \oplus y3 \ x4 \oplus y4 \ x5 \oplus y5 \ x6 \oplus y6 \ x7 \oplus y7 \ x8 \oplus y8 \ y9 \oplus x9$ $ya \oplus xa \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus x0 \ x1 \oplus y1$ Z

$$wt(X) = 15 wt(Y) = 8$$

x1 x2 x3 x4 x5 x6 x7 x8 X1 x9 xa xb xc xd xe xf x0 X2

y8 y9 ya yb yc yd ye yf Y1

y0 y1 y2 y3 y4 y5 y6 y7 Y2

x2 x3 x4 x5 x6 x7 x8 y8 y9 ya yb yc yd ye yf x1 X"

y0 y1 y2 y3 y4 y5 y6 y7 x9 xa xb xc xd xe xf x0 Y"

 $x2 \oplus y0 \ x3 \oplus y1 \ x4 \oplus y2 \ x5 \oplus y3 \ x6 \oplus y4 \ x7 \oplus y5 \ x8 \oplus y6 \ y8 \oplus y7$ $y9 \oplus x9 \ ya \oplus xa \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ x1 \oplus x0$ Z

wt(X) = 15 wt(Y) = 9

x1 x2 x3 x4 x5 x6 x7 x8 X1 x9 xa xb xc xd xe xf x0 X2

y7 y8 y9 ya yb yc yd ye Y1 yf y0 y1 y2 y3 y4 y5 y6 Y2

x2 x3 x4 x5 x6 x7 x8 y7 y8 y9 ya yb yc yd ye x1 X"

x0 yf y0 y1 y2 y3 y4 y5 y6 x9 xa xb xc xd xe xf Y"

 $x2 \oplus x0 \ x3 \oplus yf \ x4 \oplus y0 \ x5 \oplus y1 \ x6 \oplus y2 \ x7 \oplus y3 \ x8 \oplus y4 \ y7 \oplus y5$ $y8 \oplus y6 \ y9 \oplus x9 \ ya \oplus xa \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ x1 \oplus xf$ Z

.....

wt(X) = 15 wt(Y) = 10

x1 x2 x3 x4 x5 x6 x7 x8 X1 x9 xa xb xc xd xe xf x0 X2

y6 y7 y8 y9 ya yb yc yd Y1 ye yf y0 y1 y2 y3 y4 y5 Y2

x2 x3 x4 x5 x6 x7 x8 y6

y7 y8 y9 ya yb yc yd x1 X"

xf x0 ye yf y0 y1 y2 y3 y4 y5 x9 xa xb xc xd xe Y"

 $x2 \oplus xf \ x3 \oplus x0 \ x4 \oplus ye \ x5 \oplus yf \ x6 \oplus y0 \ x7 \oplus y1 \ x8 \oplus y2 \ y6 \oplus y3$ $y7 \oplus y4 \ y8 \oplus y5 \ y9 \oplus x9 \ ya \oplus xa \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ x1 \oplus xe$

Z

wt(X) = 15 wt(Y) = 11

x1 x2 x3 x4 x5 x6 x7 x8 X1 x9 xa xb xc xd xe xf x0 X2

y5 y6 y7 y8 y9 ya yb yc Y1 yd ye yf y0 y1 y2 y3 y4 Y2

x2 x3 x4 x5 x6 x7 x8 y5 y6 y7 y8 y9 ya yb yc x1 X"

xe xf x0 yd ye yf y0 y1 y2 y3 y4 x9 xa xb xc xd Y"

 $x2 \oplus xe \ x3 \oplus xf \ x4 \oplus x0 \ x5 \oplus yd \ x6 \oplus ye \ x7 \oplus yf \ x8 \oplus y0 \ y5 \oplus y1$ $y6 \oplus y2 \ y7 \oplus y3 \ y8 \oplus y4 \ y9 \oplus x9 \ ya \oplus xa \ yb \oplus xb \ yc \oplus xc \ x1 \oplus xd$ Z

wt(X) = 15 wt(Y) = 12

x1 x2 x3 x4 x5 x6 x7 x8 X1 x9 xa xb xc xd xe xf x0 X2

y4 y5 y6 y7 y8 y9 ya yb Y1 yc yd ye yf y0 y1 y2 y3 Y2

x2 x3 x4 x5 x6 x7 x8 y4 y5 y6 y7 y8 y9 ya yb x1 X"

xd xe xf x0 yc yd ye yf

 $x2 \oplus xd \ x3 \oplus xe \ x4 \oplus xf \ x5 \oplus x0 \ x6 \oplus yc \ x7 \oplus yd \ x8 \oplus ye \ y4 \oplus yf$ $y5 \oplus y0 \ y6 \oplus y1 \ y7 \oplus y2 \ y8 \oplus y3 \ y9 \oplus x9 \ ya \oplus xa \ yb \oplus xb \ x1 \oplus xc$ Z

wt(X) = 15 wt(Y) = 13

x1 x2 x3 x4 x5 x6 x7 x8 X1 x9 xa xb xc xd xe xf x0 X2

y3 y4 y5 y6 y7 y8 y9 ya Y1 yb yc yd ye yf y0 y1 y2 Y2

x2 x3 x4 x5 x6 x7 x8 y3 y4 y5 y6 y7 y8 y9 ya x1 X"

xc xd xe xf x0 yb yc yd ye yf y0 y1 y2 x9 xa xb Y"

 $x2 \oplus xc \ x3 \oplus xd \ x4 \oplus xe \ x5 \oplus xf \ x6 \oplus x0 \ x7 \oplus yb \ x8 \oplus yc \ y3 \oplus yd$ $y4 \oplus ye \ y5 \oplus yf \ y6 \oplus y0 \ y7 \oplus y1 \ y8 \oplus y2 \ y9 \oplus x9 \ ya \oplus xa \ x1 \oplus xb$ Z

wt(X) = 15 wt(Y) = 14

x1 x2 x3 x4 x5 x6 x7 x8 X1 x9 xa xb xc xd xe xf x0 X2

y2 y3 y4 y5 y6 y7 y8 y9 Y1 ya yb yc yd ye yf y0 y1 Y2

x2 x3 x4 x5 x6 x7 x8 y2 y3 y4 y5 y6 y7 y8 y9 x1 X"

xb xc xd xe xf x0 ya yb yc yd ye yf y0 y1 x9 xa Y" -----

wt(X) = 15 wt(Y) = 15

x1 x2 x3 x4 x5 x6 x7 x8 X1 x9 xa xb xc xd xe xf x0 X2

y1 y2 y3 y4 y5 y6 y7 y8 Y1 y9 ya yb yc yd ye yf y0 Y2

x2 x3 x4 x5 x6 x7 x8 y1 y2 y3 y4 y5 y6 y7 y8 x1 X"

xa xb xc xd xe xf x0 y9 ya yb yc yd ye yf y0 x9 Y"

 $x2 \oplus xa \ x3 \oplus xb \ x4 \oplus xc \ x5 \oplus xd \ x6 \oplus xe \ x7 \oplus xf \ x8 \oplus x0 \ y1 \oplus y9$ $y2 \oplus ya \ y3 \oplus yb \ y4 \oplus yc \ y5 \oplus yd \ y6 \oplus ye \ y7 \oplus yf \ y8 \oplus y0 \ x1 \oplus x9$ Z

wt(X) = 15 wt(Y) = 16

x1 x2 x3 x4 x5 x6 x7 x8 X1 x9 xa xb xc xd xe xf x0 X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

x2 x3 x4 x5 x6 x7 x8 y0 y1 y2 y3 y4 y5 y6 y7 x1 X"

x9 xa xb xc xd xe xf x0 y8 y9 ya yb yc yd ye yf Y"

 $x2 \oplus x9 \ x3 \oplus xa \ x4 \oplus xb \ x5 \oplus xc \ x6 \oplus xd \ x7 \oplus xe \ x8 \oplus xf \ y0 \oplus x0$ $y1 \oplus y8 \ y2 \oplus y9 \ y3 \oplus ya \ y4 \oplus yb \ y5 \oplus yc \ y6 \oplus yd \ y7 \oplus ye \ x1 \oplus yf$ Z -----

$$wt(X) = 16 \quad wt(Y) = 0$$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

x0 x1 x2 x3 x4 x5 x6 x7 y0 y1 y2 y3 y4 y5 y6 y7 X"

x8 x9 xa xb xc xd xe xf y8 y9 ya yb yc yd ye yf Y"

 $x0 \oplus x8 \ x1 \oplus x9 \ x2 \oplus xa \ x3 \oplus xb \ x4 \oplus xc \ x5 \oplus xd \ x6 \oplus xe \ x7 \oplus xf$ $y0 \oplus y8 \ y1 \oplus y9 \ y2 \oplus ya \ y3 \oplus yb \ y4 \oplus yc \ y5 \oplus yd \ y6 \oplus ye \ y7 \oplus yf$ Z

$$wt(X) = 16 \quad wt(Y) = 1$$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

yf y0 y1 y2 y3 y4 y5 y6 Y1 y7 y8 y9 ya yb yc yd ye Y2

x0 x1 x2 x3 x4 x5 x6 x7 yf y0 y1 y2 y3 y4 y5 y6 X"

ye x8 x9 xa xb xc xd xe xf y7 y8 y9 ya yb yc yd Y"

 $x0 \oplus ye \ x1 \oplus x8 \ x2 \oplus x9 \ x3 \oplus xa \ x4 \oplus xb \ x5 \oplus xc \ x6 \oplus xd \ x7 \oplus xe$ $yf \oplus xf \ y0 \oplus y7 \ y1 \oplus y8 \ y2 \oplus y9 \ y3 \oplus ya \ y4 \oplus yb \ y5 \oplus yc \ y6 \oplus yd$ Z

$$wt(X) = 16 \quad wt(Y) = 2$$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

ye yf y0 y1 y2 y3 y4 y5 Y1 y6 y7 y8 y9 ya yb yc yd Y2

x0 x1 x2 x3 x4 x5 x6 x7 ye yf y0 y1 y2 y3 y4 y5 X"

yc yd x8 x9 xa xb xc xd xe xf y6 y7 y8 y9 ya yb Y"

 $x0 \oplus yc \ x1 \oplus yd \ x2 \oplus x8 \ x3 \oplus x9 \ x4 \oplus xa \ x5 \oplus xb \ x6 \oplus xc \ x7 \oplus xd$ $ye \oplus xe \ yf \oplus xf \ y0 \oplus y6 \ y1 \oplus y7 \ y2 \oplus y8 \ y3 \oplus y9 \ y4 \oplus ya \ y5 \oplus yb$ Z

$$wt(X) = 16 \quad wt(Y) = 3$$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

yd ye yf y0 y1 y2 y3 y4 Y1 y5 y6 y7 y8 y9 ya yb yc Y2

x0 x1 x2 x3 x4 x5 x6 x7 yd ye yf y0 y1 y2 y3 y4 X"

ya yb yc x8 x9 xa xb xc xd xe xf y5 y6 y7 y8 y9 Y"

 $x0 \oplus ya \ x1 \oplus yb \ x2 \oplus yc \ x3 \oplus x8 \ x4 \oplus x9 \ x5 \oplus xa \ x6 \oplus xb \ x7 \oplus xc$ $yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus y5 \ y1 \oplus y6 \ y2 \oplus y7 \ y3 \oplus y8 \ y4 \oplus y9$ Z

$$wt(X) = 16 \quad wt(Y) = 4$$

x0 x1 x2 x3 x4 x5 x6 x7 X1

x8 x9 xa xb xc xd xe xf X2

yc yd ye yf y0 y1 y2 y3 Y1 y4 y5 y6 y7 y8 y9 ya yb Y2

x0 x1 x2 x3 x4 x5 x6 x7 yc yd ye yf y0 y1 y2 y3 X"

y8 y9 ya yb x8 x9 xa xb xc xd xe xf y4 y5 y6 y7 Y"

 $x0 \oplus y8 \ x1 \oplus y9 \ x2 \oplus ya \ x3 \oplus yb \ x4 \oplus x8 \ x5 \oplus x9 \ x6 \oplus xa \ x7 \oplus xb$ $yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus y4 \ y1 \oplus y5 \ y2 \oplus y6 \ y3 \oplus y7$ Z

$$wt(X) = 16 \quad wt(Y) = 5$$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

yb yc yd ye yf y0 y1 y2 Y1 y3 y4 y5 y6 y7 y8 y9 ya Y2

x0 x1 x2 x3 x4 x5 x6 x7 yb yc yd ye yf y0 y1 y2 X"

y6 y7 y8 y9 ya x8 x9 xa xb xc xd xe xf y3 y4 y5 Y"

 $x0 \oplus y6 \ x1 \oplus y7 \ x2 \oplus y8 \ x3 \oplus y9 \ x4 \oplus ya \ x5 \oplus x8 \ x6 \oplus x9 \ x7 \oplus xa$ $yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus y3 \ y1 \oplus y4 \ y2 \oplus y5$ Z

$$wt(X) = 16 \quad wt(Y) = 6$$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

ya yb yc yd ye yf y0 y1 Y1

y2 y3 y4 y5 y6 y7 y8 y9 Y2

x0 x1 x2 x3 x4 x5 x6 x7 ya yb yc yd ye yf y0 y1 X"

y4 y5 y6 y7 y8 y9 x8 x9 xa xb xc xd xe xf y2 y3 Y"

 $x0 \oplus y4 \ x1 \oplus y5 \ x2 \oplus y6 \ x3 \oplus y7 \ x4 \oplus y8 \ x5 \oplus y9 \ x6 \oplus x8 \ x7 \oplus x9$ $ya \oplus xa \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus y2 \ y1 \oplus y3$ Z

 $wt(X) = 16 \quad wt(Y) = 7$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y9 ya yb yc yd ye yf y0 Y1 y1 y2 y3 y4 y5 y6 y7 y8 Y2

x0 x1 x2 x3 x4 x5 x6 x7 y9 ya yb yc yd ye yf y0 X"

y2 y3 y4 y5 y6 y7 y8 x8 x9 xa xb xc xd xe xf y1 Y"

 $x0 \oplus y2 \ x1 \oplus y3 \ x2 \oplus y4 \ x3 \oplus y5 \ x4 \oplus y6 \ x5 \oplus y7 \ x6 \oplus y8 \ x7 \oplus x8$ $y9 \oplus x9 \ ya \oplus xa \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf \ y0 \oplus y1$ Z

 $wt(X) = 16 \quad wt(Y) = 8$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y8 y9 ya yb yc yd ye yf Y1 y0 y1 y2 y3 y4 y5 y6 y7 Y2

x0 x1 x2 x3 x4 x5 x6 x7

y8 y9 ya yb yc yd ye yf X"

y0 y1 y2 y3 y4 y5 y6 y7 x8 x9 xa xb xc xd xe xf Y"

 $x0 \oplus y0 \ x1 \oplus y1 \ x2 \oplus y2 \ x3 \oplus y3 \ x4 \oplus y4 \ x5 \oplus y5 \ x6 \oplus y6 \ x7 \oplus y7$ $y8 \oplus x8 \ y9 \oplus x9 \ ya \oplus xa \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd \ ye \oplus xe \ yf \oplus xf$ Z

$$wt(X) = 16 \quad wt(Y) = 9$$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y7 y8 y9 ya yb yc yd ye Y1 yf y0 y1 y2 y3 y4 y5 y6 Y2

x0 x1 x2 x3 x4 x5 x6 x7 y7 y8 y9 ya yb yc yd ye X"

xf yf y0 y1 y2 y3 y4 y5 y6 x8 x9 xa xb xc xd xe Y"

 $x0 \oplus xf \times 1 \oplus yf \times 2 \oplus y0 \times 3 \oplus y1 \times 4 \oplus y2 \times 5 \oplus y3 \times 6 \oplus y4 \times 7 \oplus y5$ $y7 \oplus y6 \otimes y8 \oplus x8 \otimes y9 \oplus x9 \otimes ya \oplus xa \otimes yb \oplus xb \otimes yc \oplus xc \otimes yd \oplus xd \otimes ye \oplus xe$ Z

wt(X) = 16 wt(Y) = 10

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y6 y7 y8 y9 ya yb yc yd Y1 ye yf y0 y1 y2 y3 y4 y5 Y2

x0 x1 x2 x3 x4 x5 x6 x7 y6 y7 y8 y9 ya yb yc yd X"

xe xf ye yf y0 y1 y2 y3

 $x0 \oplus xe \ x1 \oplus xf \ x2 \oplus ye \ x3 \oplus yf \ x4 \oplus y0 \ x5 \oplus y1 \ x6 \oplus y2 \ x7 \oplus y3$ $y6 \oplus y4 \ y7 \oplus y5 \ y8 \oplus x8 \ y9 \oplus x9 \ ya \oplus xa \ yb \oplus xb \ yc \oplus xc \ yd \oplus xd$ Z

 $wt(X) = 16 \quad wt(Y) = 11$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y5 y6 y7 y8 y9 ya yb yc Y1 yd ye yf y0 y1 y2 y3 y4 Y2

x0 x1 x2 x3 x4 x5 x6 x7 y5 y6 y7 y8 y9 ya yb yc X"

xd xe xf yd ye yf y0 y1 y2 y3 y4 x8 x9 xa xb xc Y"

 $x0 \oplus xd \ x1 \oplus xe \ x2 \oplus xf \ x3 \oplus yd \ x4 \oplus ye \ x5 \oplus yf \ x6 \oplus y0 \ x7 \oplus y1$ $y5 \oplus y2 \ y6 \oplus y3 \ y7 \oplus y4 \ y8 \oplus x8 \ y9 \oplus x9 \ ya \oplus xa \ yb \oplus xb \ yc \oplus xc$ Z

wt(X) = 16 wt(Y) = 12

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y4 y5 y6 y7 y8 y9 ya yb Y1 yc yd ye yf y0 y1 y2 y3 Y2

x0 x1 x2 x3 x4 x5 x6 x7 y4 y5 y6 y7 y8 y9 ya yb X"

xc xd xe xf yc yd ye yf y0 y1 y2 y3 x8 x9 xa xb Y"

Z

 $wt(X) = 16 \quad wt(Y) = 13$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y3 y4 y5 y6 y7 y8 y9 ya Y1 yb yc yd ye yf y0 y1 y2 Y2

x0 x1 x2 x3 x4 x5 x6 x7 y3 y4 y5 y6 y7 y8 y9 ya X"

xb xc xd xe xf yb yc yd ye yf y0 y1 y2 x8 x9 xa Y"

 $x0 \oplus xb \ x1 \oplus xc \ x2 \oplus xd \ x3 \oplus xe \ x4 \oplus xf \ x5 \oplus yb \ x6 \oplus yc \ x7 \oplus yd$ $y3 \oplus ye \ y4 \oplus yf \ y5 \oplus y0 \ y6 \oplus y1 \ y7 \oplus y2 \ y8 \oplus x8 \ y9 \oplus x9 \ ya \oplus xa$ Z

wt(X) = 16 wt(Y) = 14

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y2 y3 y4 y5 y6 y7 y8 y9 Y1 ya yb yc yd ye yf y0 y1 Y2

x0 x1 x2 x3 x4 x5 x6 x7 y2 y3 y4 y5 y6 y7 y8 y9 X"

xa xb xc xd xe xf ya yb yc yd ye yf y0 y1 x8 x9 Y"

 $x0 \oplus xa \ x1 \oplus xb \ x2 \oplus xc \ x3 \oplus xd \ x4 \oplus xe \ x5 \oplus xf \ x6 \oplus ya \ x7 \oplus yb$ $y2 \oplus yc \ y3 \oplus yd \ y4 \oplus ye \ y5 \oplus yf \ y6 \oplus y0 \ y7 \oplus y1 \ y8 \oplus x8 \ y9 \oplus x9$ Z -----

$$wt(X) = 16$$
 $wt(Y) = 15$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y1 y2 y3 y4 y5 y6 y7 y8 Y1 y9 ya yb yc yd ye yf y0 Y2

x0 x1 x2 x3 x4 x5 x6 x7 y1 y2 y3 y4 y5 y6 y7 y8 X"

x9 xa xb xc xd xe xf y9 ya yb yc yd ye yf y0 x8 Y"

 $x0 \oplus x9 \ x1 \oplus xa \ x2 \oplus xb \ x3 \oplus xc \ x4 \oplus xd \ x5 \oplus xe \ x6 \oplus xf \ x7 \oplus y9$ $y1 \oplus ya \ y2 \oplus yb \ y3 \oplus yc \ y4 \oplus yd \ y5 \oplus ye \ y6 \oplus yf \ y7 \oplus y0 \ y8 \oplus x8$ Z

$$wt(X) = 16$$
 $wt(Y) = 16$

x0 x1 x2 x3 x4 x5 x6 x7 X1 x8 x9 xa xb xc xd xe xf X2

y0 y1 y2 y3 y4 y5 y6 y7 Y1 y8 y9 ya yb yc yd ye yf Y2

x0 x1 x2 x3 x4 x5 x6 x7 y0 y1 y2 y3 y4 y5 y6 y7 X"

x8 x9 xa xb xc xd xe xf y8 y9 ya yb yc yd ye yf Y"

 $x0 \oplus x8 \ x1 \oplus x9 \ x2 \oplus xa \ x3 \oplus xb \ x4 \oplus xc \ x5 \oplus xd \ x6 \oplus xe \ x7 \oplus xf$ $y0 \oplus y8 \ y1 \oplus y9 \ y2 \oplus ya \ y3 \oplus yb \ y4 \oplus yc \ y5 \oplus yd \ y6 \oplus ye \ y7 \oplus yf$ Z
