

GRAY CODING

- Desired: points close to each other in representation space also close to each other in problem space
- binary number $\vec{b} = (b_1, b_2, \dots, b_m)$
- Gray code number $\vec{g} = (g_1, g_2, \dots, g_m)$

binary	gray code
000	000
001	001
010	011
011	010
100	110
101	111
110	101
111	100

PROCEDURE Binary-To-Gray

```
g1 ← b1  
for k = 2 to m do  
    gk ← bk-1 XOR bk  
end for
```

PROCEDURE Gray-To-Binary

```
value ← g1  
b1 ← value  
for k = 2 to m do  
    if gk = 1 then  
        value ← NOT value  
    end if  
    bk ← value  
end for
```