HW3

November 5, 2018

In [14]:
```
import numpy as np


X = [ 'A', 'B1', 'B2', 'C', 'D', 'E', 'F']

A = ['a', 'b', 'c']

Z = ['A', 'B', 'C', 'D', 'E', 'F']

# Preserving the order in X

Pa =np.array([[0, 0.5, 0.5, 0, 0, 0, 0],
     [0, 0, 0, 0, 0, 1, 0],
     [0, 0, 0, 0, 0, 0, 1],
     [0, 1, 0, 0, 0, 0, 0],
     [0, 0, 1, 0, 0, 0, 0],
     [1, 0, 0, 0, 0, 0, 0],
     [1, 0, 0, 0, 0, 0, 0]
    ])

Pb =np.array([[0, 0.5, 0.5, 0, 0, 0, 0],
     [0, 0, 0, 0, 0, 0, 1],
     [0, 0, 0, 0, 0, 1, 0],
     [0, 1, 0, 0, 0, 0, 0],
     [0, 0, 1, 0, 0, 0, 0],
     [1, 0, 0, 0, 0, 0, 0],
     [1, 0, 0, 0, 0, 0, 0]
    ])



Pc =np.array([[0, 0.5, 0.5, 0, 0, 0, 0],
     [0, 0, 0, 1, 0, 0, 0],
     [0, 0, 0, 0, 1, 0, 0],
     [0, 1, 0, 0, 0, 0, 0],
     [0, 0, 1, 0, 0, 0, 0],
     [1, 0, 0, 0, 0, 0, 0],
     [1, 0, 0, 0, 0, 0, 0]
```

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    ])

Za = np.array([
    [1, 0, 0, 0, 0, 0],
    [0, 1, 0, 0, 0, 0],
    [0, 1, 0, 0, 0, 0],
    [0, 0, 1, 0, 0, 0],
    [0, 0, 0, 1, 0, 0],
    [0, 0, 0, 0, 1, 0],
    [0, 0, 0, 0, 0, 1]
   ])

Zb = Zc = Za

C = np.array([
    [1, 1, 1],
    [1, 1, 1],
    [1, 1, 1],
    [1, 1, 1],
    [1, 1, 1],
    [1, 1, 1],
    [0, 0, 0]
])


bt = np.array([0, 0.5, 0.5, 0, 0, 0, 0])

ba = np.dot(bt,Pa)

bb = np.dot(ba,Pb)

bc = np.dot(bb,Pc)

print('final distribution = ')
print(bc)
```

```
final distribution =
[0.  0.5 0.5 0.  0.  0.  0. ]
```