

IR HW6 R07922003 劉濬慶

```
In [1]: import numpy as np
#state = 1,2,3

transition_matrix = np.array([[0.1,0.1,0.3],
                              [0.6,0.25,0.5],
                              [0.3,0.65,0.2]])

for i in range(10):
    new_matrix = np.dot(transition_matrix,transition_matrix)
    transition_matrix = new_matrix
print(transition_matrix)

[[0.18092105 0.18092105 0.18092105]
 [0.41447368 0.41447368 0.41447368]
 [0.40460526 0.40460526 0.40460526]]
```

最後固定的 transition matrix 變化為

state	1	2	3
1	0.18092105	0.18092105	0.18092105
2	0.41447368	0.41447368	0.41447368
3	0.40460526	0.40460526	0.40460526

是 ergodic 的

程式算的 transition matrix 與算 $\ker(A-I)$ 的 span 結果一樣。