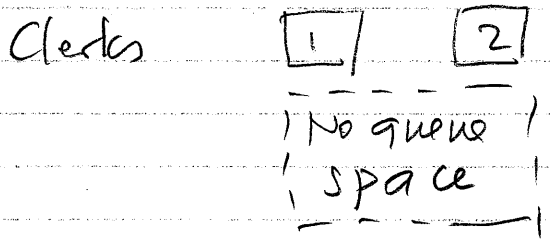
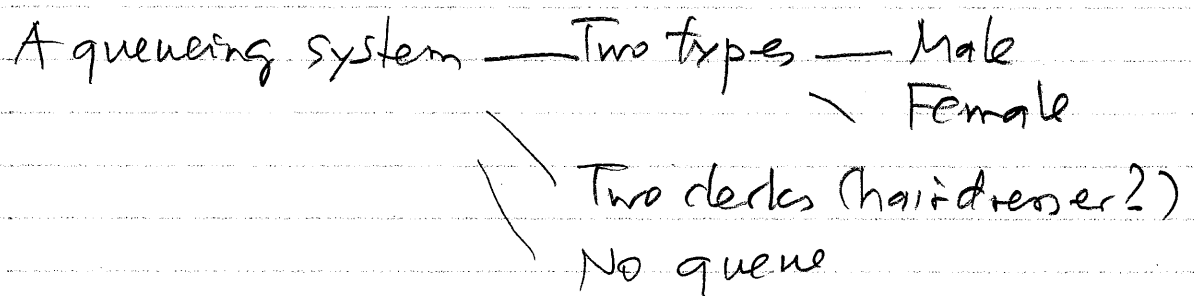


Ex. Pr. 17.5.13, p. 817



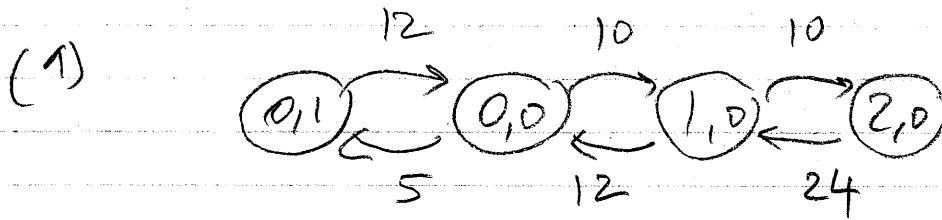
Customers	Type 1	Type 2	
	Male	Female	
Poisson	$\lambda = 10 \text{ cust/hr}$	$\lambda = 5 \text{ cust/hr}$	
	Either clerk who's free	Both clerks used simult	} $\frac{1}{\mu} = 5 \text{ min}$
Service	expon	expon	
	$\frac{1}{\mu} = 5 \text{ min/cust}$	$\frac{1}{\mu} = 5 \text{ min/cust}$	
	$\mu = 12 \text{ cust/hr}$	$\mu = 12 \text{ cust/hr}$	

	Status of Clerk		Action	
	1	2	Male	Female
busy	B	B	leave	leave
	B	I	Enter	leave
idle	I	B	"	"
	I	I	"	"

Possible states n_1 : # male customers in system
 n_2 : " female " "

Possibilities

	n_1	n_2	Clerk Status
	Male	Female	
	0	1	Both busy
	0	0	" idle
	1	0	either busy
	2	0	both busy



b) let P_{01} }
 c) P_{00} } Pr (in state (n_1, n_2))
 P_{10} }
 P_{20} }

Solving balance eqn's gives

$$P_{00} = \frac{72}{187}, \quad P_{10} = \frac{60}{187}, \quad P_{01} = \frac{30}{187}, \quad P_{20} = \frac{25}{187}$$

d) Male blocked $\rightarrow (2,0)$ or $(0,1)$: $Pr = \frac{55}{187}$
 Female " $\rightarrow (2,0), (1,0),$ or $(0,1)$: $Pr = \frac{115}{187}$