

Table S1. Conditional probability matrix $p(n_1, n_2|s)$ for a mixed ON-OFF system.

(n_1, n_2)	(0, 0)	(0, 1)	(1, 0)	(1, 1)
stimulus regime				
θ_1	q	0	$(1 - q)$	0
$\theta_2 - \theta_1$	1	0	0	0
$1 - \theta_2$	q	$(1 - q)$	0	0