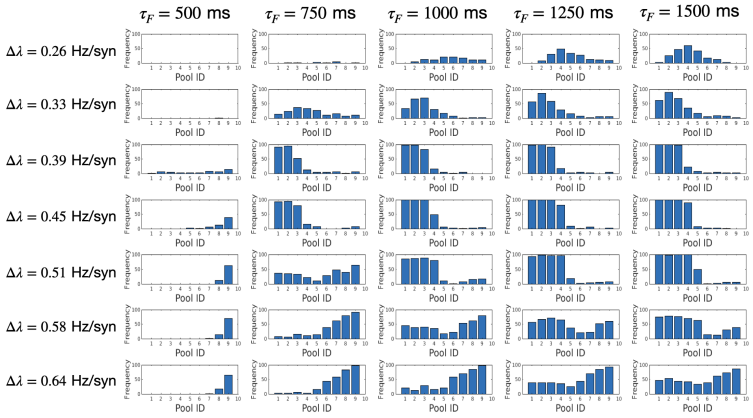
Supplementary Material

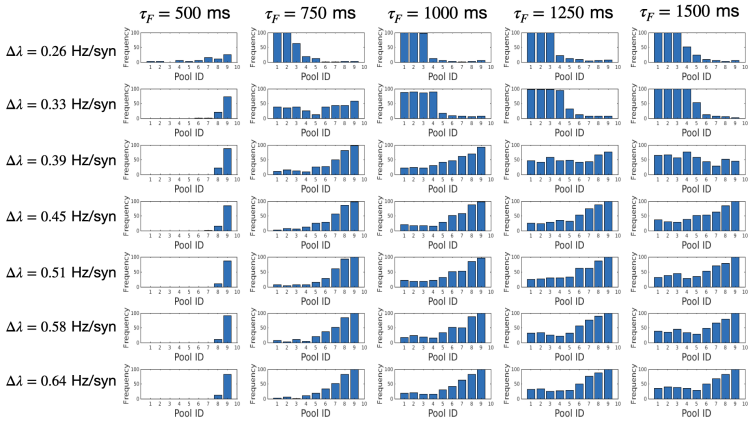
Table 1: Parameters of the integrate-and-fire simulations

PARAMETER	VALUE
Network parameters	
N: number of neurons in the network	1000
N_E: number of excitatory neurons	$0.8 \cdot N$
N_I: number of inhibitory neurons	$0.2 \cdot N$
N_{ext}: number of external neurons	800
p: number of selective populations	10
f: fraction of excitatory cells in each selective population	0.1
ω_+: relative strength of single potentiated synapses	2.3
ω_-: relative strength of single depressed synapses	$1 - \frac{f(\omega_+ - 1)}{1-f}$
ω_I: relative strength of inhibitory synapses	0.97
ν_{ext}: spike rate at external synapse	2.4 kHz
Neuronal parameters (excitatory and inhibitory)	
V_L: resting membrane potential	-70 mV
θ: firing threshold	-50 mV
H: reset potential	-55 mV
Neuronal parameters (excitatory)	
C_m: membrane capacitance	0.5 nF
g_L: membrane leak conductance	25 nS
V_E: reversal potencial	0 mV
τ_{rp}: refractory period	2 ms
Neuronal parameters (inhibitory)	
C_m: membrane capacitance	0.2 pF
g_L: membrane leak conductance	20 nS
V_I: reversal potencial	-70 mV
τ_{rp}: refractory period	1 ms
Synaptic parameters (excitatory and inhibitory)	
l: synaptic latency	0.5 ms
$[Mg^{2+}]$: extracellular magnesium	1 mM
τ_{AMPA}: decay time of AMPA currents	2 ms
τ_{GABA}: decay time of GABA currents	10 ms
$\tau_{\text{NMDA,rise}}$: rise time of NMDA currents	2 ms
$\tau_{\text{NMDA,decay}}$: decay time of NMDA currents	100 ms
α: normalisation factor for NMDA PSCS	0.5 ms^{-1}
β: gain factor in magnesium block	0.062 mV^{-1}
γ: modulatory factor of magnesium block	3.57 mM
Synaptic parameters (excitatory)	
$g_{\text{AMPA,ext}}$: external AMPA synaptic conductance	2.08 nS
$g_{\text{AMPA,rec}}$: recurrent AMPA synaptic conductance	104 nS/N
g_{NMDA}: recurrent NMDA synaptic conductance	327 nS/N
g_{GABA}: recurrent GABA synaptic conductance	1250 nS/N
Synaptic parameters (inhibitory)	
$g_{\text{AMPA,ext}}$: external AMPA synaptic conductance	1.62 nS
$g_{\text{AMPA,rec}}$: recurrent AMPA synaptic conductance	81 nS/N
g_{NMDA}: recurrent NMDA synaptic conductance	258 nS/N
g_{GABA}: recurrent GABA synaptic conductance	973 nS/N

(a) $\Delta t_{stim} = 250$ ms



(b) $\Delta t_{stim} = 500$ ms



(c) $\Delta t_{stim} = 1000$ ms

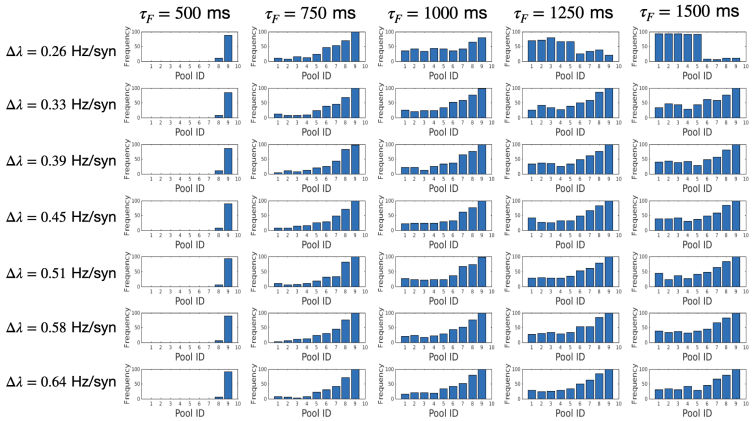


Figure S1: **Serial-order effects**: Analysis of the serial-order effects as a function of the concerted action of τ_F, $\Delta\lambda$ ($\Delta\lambda = \lambda_{stim} - \lambda_{ext}$), and Δt_{stim}. In all the simulations ($N = 100$), $\lambda_{ext} = 3.1$ Hz/synapse. Each bar indicates the frequency with which an item in a particular position in the sequential memory set (as characterised by its pool ID) is held in WM. (a) $\Delta t_{stim} = 250$ ms, (b) $\Delta t_{stim} = 500$ ms, and (c) $\Delta t_{stim} = 1000$ ms.

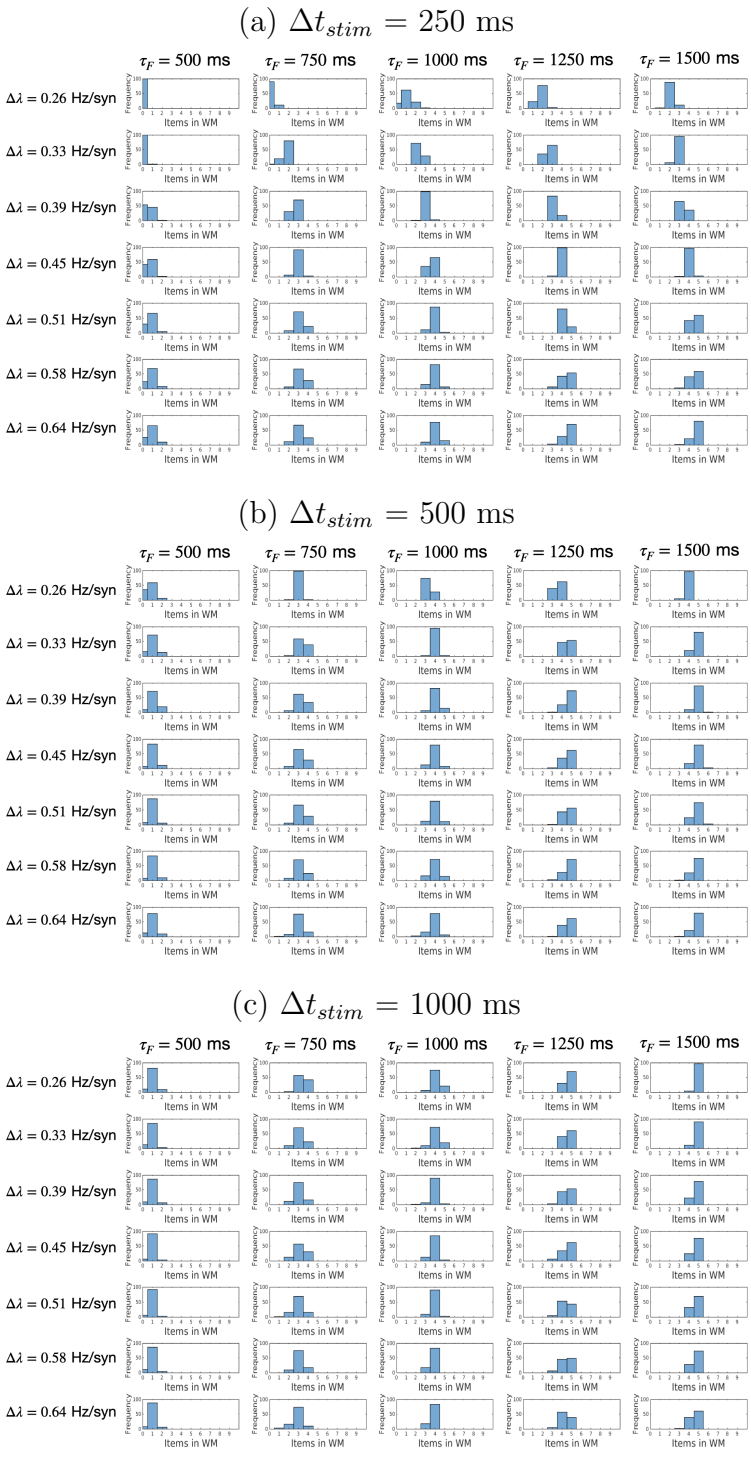


Figure S2: **WM capacity (K_e)**: Analysis of K_e as a function of the concerted action of τ_F, $\Delta\lambda$ ($\Delta\lambda = \lambda_{stim} - \lambda_{ext}$), and Δt_{stim}. In all the simulations ($N = 100$), $\lambda_{ext} = 3.1$ Hz/synapse. Each bar indicates the frequency with which a particular WM capacity (K_e) emerges in the simulations.(a) $\Delta t_{stim} = 250$ ms, (b) $\Delta t_{stim} = 500$ ms, and (c) $\Delta t_{stim} = 1000$ ms.