Table B1

The optimized parameter values for simulations of average data and individual participant data from Kahana et al. (2002).

Parameter	Younger (average data)	Older (average data)	Younger (individual data)	Older (individual data)
ϕ_s	1.283	1.553	1.483	1.655
ϕ_d	0.960	1.145	0.884	1.034
s_{CF}	6.147	3.398	2.109	2.177
s_{FC}	0.006	0.005	0.004	0.001
γ_{CF}	0.984	0.969	0.918	0.898
γ_{FC}	0.540	0.583	0.411	0.403
β_{enc}	0.561	0.552	0.514	0.522
β_{rec}	0.375	0.266	0.421	0.329
κ	0.108	0.104	0.274	0.289
λ	0.178	0.275	0.187	0.263
η	0.427	0.492	0.431	0.496
c_{thresh}	0.000	0.000	0.052	0.009
α	0.617	0.591	0.810	0.809
ω	13.658	4.726	12.515	12.201
β_{post}^{recall}	0.961	0.922	0.924	0.905
τ	10.000	10.000	10.000	10.000
ϵ	0.000	0.000	0.000	0.000

Table B2
Pairwise correlations between parameters for the individual subject fits to the Kahana et al. (2002) data.

Variable	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1. ϕ_s	–														
2. ϕ_d	0.24	–													
3. s_{CF}	**0.26**	-0.05	–												
4. s_{FC}	-0.05	0.13	0.04	–											
5. γ_{CF}	-0.06	0.02	0.18	-0.04	–										
6. γ_{FC}	-0.11	0.16	-0.02	0.19	-0.02	–									
7. β_{enc}	0.20	-0.09	0.11	-0.01	-0.10	-0.05	–								
8. β_{rec}	-0.16	-0.14	0.09	0.08	-0.09	-0.11	-0.00	–							
9. κ	-0.08	0.17	-0.02	-0.11	-0.10	-0.22	0.15	0.11	–						
10. λ	0.19	-0.04	0.09	**-0.38**	-0.01	**-0.31**	0.01	**-0.30**	-0.05	–					
11. η	0.17	-0.01	-0.02	**-0.38**	-0.15	**-0.38**	0.02	-0.24	0.11	**0.93**	–				
12. c_{thresh}	**-0.30**	-0.08	-0.14	**0.39**	0.21	**0.28**	-0.13	0.07	**-0.30**	**-0.54**	**-0.63**	–			
13. α	0.02	-0.09	0.05	0.10	-0.03	-0.16	0.00	-0.02	-0.24	-0.21	-0.23	0.25	–		
14. ω	0.01	0.01	0.18	0.15	0.11	0.22	**0.34**	0.14	-0.02	-0.06	-0.10	0.07	-0.04	–	
15. β_{post}^{recall}	0.11	-0.08	**0.34**	**0.27**	0.01	0.06	-0.00	0.16	-0.25	-0.05	-0.17	0.25	0.20	0.10	–

Correlations in **bold** are significant at $\alpha = .05$

Table B3

The optimized parameter values for each verbal theory implementation's simulation of all data simultaneously and each effect independently.

Theory	Implementation	Parameter	All Data	SPC	PFR	Lag-CRP	Intrusions	PLI-Recency
ADH	Weak Associations	γ_{CF}	0.986	0.926	0.956	0.899	0.964	0.983
		γ_{FC}	0.436	0.510	0.614	0.477	0.966	0.874
		RMSD	0.065	0.038	0.023	0.025	0.044	0.007
	Noisy Associations	ϵ	0.001	0.061	0.186	0.052	0.000	0.000
		RMSD	0.082	0.058	0.026	0.023	0.091	0.074
	Weak & Noisy	γ_{CF}	0.977	0.943	0.961	0.895	0.982	0.982
		γ_{FC}	0.389	0.389	0.316	0.359	0.357	0.716
		ϵ	0.004	0.006	0.002	0.007	0.000	0.000
		RMSD	0.070	0.030	0.020	0.020	0.020	0.019
IDH	Drift Rate	β_{enc}	0.610	0.596	0.489	0.532	0.630	0.458
		β_{rec}	0.551	0.846	0.887	0.252	0.514	0.823
		RMSD	0.065	0.046	0.019	0.032	0.001	0.006
	List Isolation	β_{post}^{recall}	0.807	0.362	0.095	0.711	0.923	0.746
		RMSD	0.071	0.056	0.024	0.043	0.093	0.006
	Retrieval Editing	c_{thresh}	0.006	0.264	0.001	0.088	0.004	0.019
		RMSD	0.073	0.103	0.030	0.045	0.084	0.026
CSH	Slowed Encoding	γ_{CF}	0.986	0.926	0.956	0.899	0.964	0.983
		γ_{FC}	0.436	0.510	0.614	0.477	0.966	0.874
		RMSD	0.065	0.038	0.023	0.025	0.044	0.007
	Slowed Retrieval	τ	18.286	14.524	9.190	18.524	39.619	9.857
		RMSD	0.069	0.040	0.035	0.029	0.271	0.034
	Both Slowed	τ	17.818	14.545	53.182	37.727	9.182	11.818
		γ_{CF}	0.959	0.943	0.975	0.927	0.986	0.973
		γ_{FC}	0.877	0.552	0.318	0.761	0.320	0.789
		RMSD	0.049	0.026	0.020	0.022	0.003	0.008
All Theories Combined	—	γ_{CF}	0.962					
		γ_{FC}	0.595					
		ϵ	0.002					
		β_{enc}	0.519					
		β_{rec}	0.181					
		β_{post}^{recall}	0.749					
		c_{thresh}	0.006					
		τ	18.339					
		RMSD	0.028					
Four–Component Model	—	β_{rec}	0.251					
		ϕ_s	1.716					
		ϕ_d	1.011					
		c_{thresh}	0.009					
		λ	0.273					
		η	0.493					
		RMSD	0.028					

RMSD = Root Mean Square Deviation, which was minimized by the genetic algorithm.

Table B4
The optimized parameter values for simulations of data from the Penn Electrophysiology of Encoding and Retrieval Study.

Parameter	Full Model fit to younger data	Four–Component Model fit to older data	Combined Aging Theories fit to older data
ϕ_s	1.700	2.229	
ϕ_d	0.306	0.426	
s_{CF}	8.277		
s_{FC}	0.005		
γ_{CF}	0.925		0.928
γ_{FC}	0.480		0.313
β_{enc}	0.466		0.462
β_{rec}	0.443	0.265	0.450
κ	0.539		
λ	0.133	0.278	
η	0.360	0.475	
c_{thresh}	0.001	0.000	0.000
α	3.765		
ω	8.907		
β_{post}^{recall}	0.940		0.940
τ	10.000		20.000
ϵ	0.000		0.034