

Table S1. Item loadings, fit statistics, and item parameters for dichotomous WAIS-IV subtests.

I	FA	p-value $S-X^2$		2PLM		R*	I	FA	p-value $S-X^2$		2PLM		R*
		2PLM	3PLM	<i>a</i>	<i>b</i>				2PLM	3PLM	<i>a</i>	<i>b</i>	
Visual Puzzles							Matrix Reasoning						
5	.80	.78	.07	2.47	-3.43	5	4	.85	.71	.65	3.51	-3.23	7
6	.80	.80	.07	2.74	-3.31	6	5	.98	.493	.14	3.22	-2.8	8
7	.66	.236	.236	1.04	-3.18	7	6	-.13	.120	.464	.58	-3.84	4
8	.42	.249	.158	1	-1.37	8	7	.23	.354	.129	.99	-3.26	6
9	.68	.226	.110	1.27	-.41	10	8	.41	.563	.507	.57	-1.72	10
10	.70	.000*	.000*	1.66	-.63	9	9	.48	.416	.353	.97	-3.42	5
11	.76	.402	.196	1.39	-.19	11	10	.58	.130	.330	.58	-2.55	9
12	.60	.540	.297	1.91	.17	12	11	.29	.576	.443	.66	-1.17	11
13	.79	.791	.312	1.99	.2	13	12	.55	.387	.174	.85	-1.17	12
14	.43	.010	.030	1.65	1.08	17	13	.75	.512	.182	1.55	-.68	13
15	.81	.201	.180	2.36	.65	14	14	.66	.177	.053	.99	-.68	14
16	.82	.235	.118	2.47	.79	15	15	.65	.077	.016	1.24	-.11	15
17	.80	.003*	.002*	2.74	.82	16	16	.76	.039	.011	1.64	-.08	16
18	.88	.186	.081	3.13	1.1	18	17	.82	.598	.302	2.13	-.04	17
19	.85	.163	.206	3.35	1.17	19	18	.78	.517	.305	2.24	.48	19
20	.67	.057	.027	2.94	1.57	20	19	.81	.080	.039	2.82	.44	18
21	.83	.200	.443	1.65	.2	25	20	.78	.000*	.000*	2.56	.53	20
22	.79	.377	.328	1.91	1.9	22	21	.78	.025	.012	2.81	.69	22
23	.62	.042	.007*	2.76	1.97	24	22	.82	.011	.008*	3.51	.59	21
24	.69	.179	.151	2.36	1.93	23	23	.77	.009*	.008*	3.22	.69	23
25	.77	.327	.215	3.87	1.73	21	24	.79	.699	.381	3.37	.89	24
26	.62	.210	.009*	3.35	2.57	26	25	.63	.159	.077	2.56	1.34	25
							26	.58	.502	.087	1.79	1.99	26
Picture Completion							Figure Weights						
I	FA	p-value $S-X^2$		2PLM		R*	I	FA	p-value $S-X^2$		2PLM		R*
		2PLM	3PLM	<i>a</i>	<i>b</i>				2PLM	3PLM	<i>a</i>	<i>b</i>	
2	.58	.370	.11	2.89	-2.97	4	6	.38	.026	.091	.8	-2.8	7
3	.65	.510	.009*	1.90	-3.52	2	7	.86	.488	.072	1.37	-3.54	6
4	.68	.165	.126	1.16	-3.38	3	8	.56	.201	.011	.8	-2.31	8
5	.81	.195	.099	.66	-.62	6	9	.91	.028	.015	2.27	-1.82	10
6	.27	.014	.010	.76	-1.15	5	10	.46	.086	.084	1.28	-2.22	9
7	.73	.080	.039	.76	-.59	7	11	.78	.259	.093	1.82	-1.61	11
8	.20	.003*	.001*	1.00	.33	12	12	.45	.184	.219	.87	-1.57	12
9	.14	.015	.005*	1.97	.01	9	13	.71	.336	.156	1.23	-1.36	13
10	.83	.005*	.001*	2.89	-.18	8	14	.54	.259	.015	1.05	-.2	15
11	.33	.004*	.005*	2.06	.78	14	15	.74	.068	.029	1.9	-.3	14
12	.85	.007*	.008*	2.69	.26	11	16	.64	.055	.004*	1.44	.26	18
13	.41	.036	.009*	3.98	.15	10	17	.69	.000*	.004*	2.79	-.17	16
14	.76	.366	.115	3.94	.49	13	18	.80	.026	.148	2.42	.25	17
15	.44	.089	.150	2.28	1.82	19	19	.88	.128	.133	3.61	.42	19
16	.40	.006*	.003*	1.98	1.58	16	20	.82	.274	.005*	3.61	.97	21
17	.74	.177	.136	2.19	1.39	15	21	.79	.019	.001*	3.71	.72	20
18	.60	.135	.101	1.97	1.64	17	22	.74	.002*	.017	2.96	1.2	24
19	.61	.019	.001*	3.42	1.98	20	23	.82	.029	.123	3.28	1.11	23
20	.99	.345	.163	2.69	1.77	18	24	.83	.278	.176	3.71	.99	22
21	.99	.086	.028	2.06	2.48	23	25	.86	.236	.009*	2.79	1.28	25
22	.66	.128	.052	2.92	2.32	22	26	.75	.022	.000*	2.65	1.57	27
23	.99	.214	.124	2.28	2.05	21	27	.81	.138	.091	2.79	1.5	26
24	.66	.12	.066	1.98	3.32	24							

I	FA	p-value S- X^2		2PLM		R*	I	FA	p-value S- X^2		2PLM		R*
		2PLM	3PLM	<i>a</i>	<i>b</i>				2PLM	3PLM	<i>a</i>	<i>b</i>	
Information							Arithmetic						
I	FA	p-value S- X^2		2PLM		R*	I	FA	p-value S- X^2		2PLM		R*
		2PLM	3PLM	a	b				2PLM	3PLM	a	b	
4	.84	.181	.31	1.26	-3.99	4	6	.60	.39	.41	1.98	-3.78	6
5	.51	.388	.866	1.1	2.36	20	7	.73	.49	.39	2.00	-3.76	7
6	.45	.134	.198	.67	-2.77	5	8	.61	.606	.201	1.89	-2.75	8
7	.84	.388	.451	1.29	-2.14	8	9	.73	.381	.162	1.03	-1.76	10
8	.59	.203	.102	.67	.69	13	10	.84	.221	.116	1.07	-2.11	9
9	.70	.693	.418	1.17	-.47	9	11	.78	.301	.116	1.27	-.39	12
10	.90	.170	.146	1.26	-2.69	6	12	.85	.628	.735	1.39	-.72	11
11	.26	.161	.071	1.08	2.96	21	13	.89	.295	.066	1.50	-.11	13
12	.67	.241	.172	.78	-2.6	7	14	.95	.216	.098	2.02	.23	14
13	.55	.365	.144	1.47	-.02	10	15	.81	.200	.062	2.40	.41	15
14	.84	.173	.059	1.85	1.19	15	16	.78	.256	.107	2.13	.81	17
15	.44	.018	.004*	2	.73	14	17	.78	.705	.415	2.85	.89	19
16	.87	.018	.001*	3.91	.31	11	18	.89	.437	.230	3.20	.84	18
17	.96	.039	.002*	3.91	.33	12	19	.95	.732	.646	3.00	.76	16
18	.31	.025	.027	2.11	3.04	22	20	.81	.122	.100	2.80	1.63	20
19	.75	.025	.016	2.14	1.35	16	21	.78	.293	.239	2.64	1.73	21
20	.86	.422	.449	2.51	1.54	17	22	.78	.141	.210	2.61	2.00	22
21	.83	.352	.232	3.06	1.83	18							
22	.30	.205	.039	1.42	3.37	24							
23	.70	.334	.007*	3.59	2.31	19							
24	.72	.151	.025	1.47	3.5	25							
25	.77	.534	.022	2	3.13	23							
26	.78	.020	.017	1.85	3.67	26							

Note. I= item, a = discrimination parameter; b = difficulty parameter; FA = item loading in factor analysis,

R* = rank; 2PLM = two-parameter logistic model; 3PLM = three-parameter logistic model

* $p < .01$

Table S2. Item loadings, fit statistics, and item parameters for polytomous WAIS-IV subtests.

I	FA	PCM -R	PCM- 1PL	GPCM	GRM	GRM					Mean threshold	Rank*
		p-value $S-X^2$				a	$b1$	$b2$	$b3$	$b4$		
Similarities												
6	.40	.274	.479	.061	.371	1.30	-3.32	-3.19			-3.26	6
7	.15	.021	.073	.573	.000*	1.15	-3.91	-.31			-2.11	7
8	.45	.000*	.000*	.006*	.006*	.65	-1.31	-.77			-1.04	8
9	.43	.117	.354	.584	.640	.75	-1.04	1.40			.18	10
10	.50	.009*	.093	.523	.446	.80	-.76	-.09			-.43	9
11	.62	.262	.315	.211	.609	1.30	.82	2.54			1.68	15
12	.64	.348	.381	.328	.372	1.30	1.12	1.35			1.24	12
13	.58	.001*	.002*	.005*	.0102	1.31	1.25	1.89			1.57	14
14	.83	.003*	.000*	.024	.028	3.18	.75	1.38			1.07	11
15	.88	.004*	.000*	.019	.001*	1.15	.88	1.60			1.24	13
16	.68	.019	.005*	.023	.005*	2.36	1.70	2.16			1.93	16
17	.84	.137	.041	.672	.428	3.18	1.55	3.01			2.28	17
18	.74	.154	.058	.183	.205	1.85	1.77	3.35			2.56	18
Vocabulary												
6	.16	.000*	.000*	.015	.026	.76	-2.98	-2.25			-2.62	10
7	.09	.001*	.000*	.025	.057	.86	-3.80	-2.24			-3.02	7
8	.33	.005*	.022	.647	.580	.65	-3.53	-2.78			-3.16	6
9	.26	.000*	.000*	.029	.062	.38	-2.69	1.54			-.58	14
10	.25	.000*	.000*	.014	.000*	.79	-3.29	-.83			-2.06	11
11	.26	.000*	.000*	.009*	.004*	.90	-2.81	-2.52			-2.67	9
12	.30	.011	.020	.235	.021	1.06	-3.02	-2.54			-2.78	8
13	.60	.000*	.014	.009*	.006*	1.04	-.59	-.47			-.53	19
14	.44	.000*	.053	.042	.042	.65	.96	1.21			1.09	27
15	.54	.000*	.004*	.000*	.005*	.97	-.96	-.16			-.56	15
16	.79	.136	.126	.116	.062	.86	-1.75	-.99			-1.37	12
17	.44	.000*	.000*	.000*	.002*	.91	1.09	1.53			1.31	29
18	.67	.009*	.000*	.005*	.009*	.79	-1.24	.16			-.54	17
19	.66	.257	.401	.301	.396	.90	-.49	-.20			-.35	21
20	.82	.148	.094	.079	.092	2.07	-.67	-.44			-.56	16
21	.96	.019	.000*	.188	.228	3.50	-.91	-.71			-.81	13
22	.77	.005*	.018	.000*	.001*	2.18	-.87	1.04			.09	24
23	.70	.294	.379	.273	.372	1.06	-.47	-.04			-.26	22
24	.67	.192	.212	.098	.186	.76	.25	.45			.35	26
25	.92	.082	.029	.065	.028	3.20	-.59	-.48			-.54	18
26	.86	.000*	.000*	.000*	.000*	2.35	-.79	-.21			-.50	20
27	.80	.002*	.003*	.011	.004*	2.37	-.50	.45			-.03	23
28	.59	.001*	.000*	.000*	.000*	1.26	-.31	2.77			1.23	28
29	.37	.022	.026	.015	.015	.77	2.97	3.04			3.01	30
30	.70	.162	.222	.104	.064	2.13	.13	.18			.16	25
Block Design												
9	.44	.006*	.0001*	.092	.157	1.05	-1.06	.72	1.94	4.01	1.40	9
10	.72	.120	.112	.103	.161	1.90	.06	1.37	1.87	3.21	1.63	11
11	.75	.029	.028	.058	.107	2.34	1.23	2.04	2.14	2.90	2.08	13
12	.91	.046	.184	.0101	.082	4.10	1.08	1.65	1.84		1.52	10
13	.91	.351	.390	.502	.418	4.98	1.43	1.80	2.03		1.75	12
14	.87	.020	.006*	.062	.051	4.54	1.78	2.23	2.56		2.19	14

I	FA	PCM -R	PCM- 1PL	GPCM	GRM	GRM					Mean threshold	Rank*
		p-value $S-X^2$				a	$b1$	$b2$	$b3$	$b4$		
Digit Span												
F4	.33	.13	.15	.31	.23	.99	-4.83	-1.65			-3.24	F4
F5	.60	.94	.91	.95	.87	1.39	-1.37	-.07			-.72	F5
F6	.66	.29	.19	.43	.45	1.42	-.25	.95			.35	F6
F7	.71	.21	.18	.20	.08	1.61	.63	1.77			1.20	F7
F8	.70	.11	.03	.20	.18	2.06	1.49	2.18			1.84	F8
B3	.26	.15	.03	.73	.56	.57	-7.33	-1.36			-4.35	B3
B4	.61	.48	.31	.39	.40	1.36	-1.11	.36			-.38	B4
B5	.74	.15	.15	.08	.09	1.96	.10	1.13			.62	B5
B6	.77	.18	.15	.03	.14	2.65	.94	1.77			1.36	B6
B7	.75	.07	.047	.02	.054	3.96	1.35	1.96			1.66	B7
B8	.61	.16	.10	.02	.15	4.28	1.70	2.04			1.87	B8
S4	.44	.60	.50	.67	.52	1.06	-2.44	-.15			-1.30	S4
S5	.54	.09	.054	.18	.22	1.24	-.86	.69			-.09	S5
S6	.61	.91	.86	.88	.75	1.33	.97	2.23			1.60	S6
S7	.65	.68	.51	.63	.67	1.91	1.65	2.66			2.16	S7
S8	.61	.16	.10	.34	.33	2.20	1.91	3.24			2.58	S8
Letter-Number Sequencing												
4	.59	.945	.775	.128	.401	1.23	-3.75	-3.31			-3.53	4
5	.20	.332	.211	.312	.082	1.27	-2.93	-1.41			-2.17	5
6	.07	.244	.184	.938	.283	1.23	-2.30	-.53			-1.42	6
7	.86	.131	.129	.398	.102	1.27	-1.52	-.11	1.43		-.07	7
8	.74	.571	.372	.605	.097	1.23	.48	1.38	2.78		1.55	8
9	.93	.033	.039	.565	.312	3.25	1.22	2.31	2.67		2.07	9
10	.93	.038	.016	.557	.402	2.77	2.23	3.15			2.69	10

Note. *a* = discrimination parameter; *b1*- *b4* = location parameter for a specific category; Digit Span: F = Forward. B = Backward. S = Sequencing; FA = item loading in factor analysis; PCM-R = partial credit model-Rasch model; PCM-1PL = one-parameter partial credit model; GPCM = generalized partial credit model; GRM = graded response model.

**p* < .01