Supplementary Online Materials

No clear support for differential influences of visuospatial and phonological resources on mental arithmetic: A Registered Report

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Appendix

Table S1. Planned ANOVA on arithmetic reaction time by model specification

Factor	Easy only				Hard only				First Under Load			
	F	df	p	η_p^2	F	df	p	η_p^2	F	df	p	η_p^2
PL vs VSSP × Multiplication	.39	(1, 96)	.54	.004	6.57*	(1, 96)	.01	.07	.00	(1, 96)	.98	.00
PL vs VSSP × Subtraction	.73	(1, 96)	.40	.01	.18	(1, 96)	.68	.002	.63	(1, 96)	.43	.01

Note. PL – Phonological/Verbal load, VSSP – Visuospatial load. Easy only – easier load conditions, Hard only – harder load conditions, First Under Load – first block with dual-task. * $p < 0.05$

Table S2. Planned ANOVA on arithmetic accuracy by model specification

Factor	Easy only				Hard only				First Under Load			
	F	df	p	η_p^2	F	df	p	η_p^2	F	df	p	η_p^2
PL vs VSSP × Multiplication	2.10	(1, 96)	.15	.02	.13	(1, 96)	.72	.001	.18	(1, 96)	.68	.002
PL vs VSSP × Subtraction	7.44**	(1, 96)	.01	.07	2.40	(1, 96)	.12	.02	5.77*	(1, 96)	.02	.06

Note. PL – Phonological/Verbal load, VSSP – Visuospatial load. Easy only – easier load conditions, Hard only – harder load conditions, First Under Load – first block with dual-task. * p < 0.05, ** p < 0.01

Table S3. Comparison of reaction time with no load arithmetic

Model			Mean difference	SE	t	df	p_{holm}
Multiplication	Easy	Verbal	118	17.48	6.77	96	< .001
		Visuospatial	129	17.48	7.41	96	< .001
	Hard	Verbal	184	17.83	10.33	96	< .001
		Visuospatial	145	17.83	8.12	96	< .001
	First	Verbal	163	18.39	8.89	96	< .001
		Visuospatial	164	18.39	8.91	96	< .001
Subtraction	Easy	Verbal	135	17.48	7.74	96	< .001
		Visuospatial	152	17.48	8.72	96	< .001
	Hard	Verbal	137	17.83	7.68	96	< .001
		Visuospatial	131	17.83	7.34	96	< .001
	First	Verbal	142	18.39	7.71	96	< .001
		Visuospatial	156	18.39	8.46	96	< .001

Note. Mean difference is reaction time in nearest ms. p_{holm} – p value after Holm-Bonferroni correction

Table S4. Comparison of accuracy with no load arithmetic

Model			Mean difference	SE	t	df	p_{holm}
Multiplication	Easy	Verbal	-3%	1	-3.05	96	0.027
		Visuospatial	-1%	1	-1.50	96	0.62
	Hard	Verbal	-4%	1	-3.88	96	0.001
		Visuospatial	-4%	1	-4.23	96	$< .001$
	First	Verbal	-3%	1	-3	96	0.03
		Visuospatial	-3%	1	-3.37	96	0.01
Subtraction	Easy	Verbal	-4%	1	-4.08	96	$< .001$
		Visuospatial	-1%	1	-1.63	96	0.62
	Hard	Verbal	-3%	1	-3.60	96	0.004
		Visuospatial	-2%	1	-2.27	96	0.21
	First	Verbal	-4%	1	-4.36	96	$< .001$
		Visuospatial	-2%	1	-2.14	96	0.23

Note. Mean difference is accuracy in nearest percentage. p_{holm} – p value after Holm-Bonferroni correction

Table S5. Bayesian model comparisons of 2 × 2 ANOVA on reaction time

Models	Easy		Hard		First	
	BF_{10}	error %	BF_{10}	error %	BF_{10}	error %
Arithmetic	527.75	1.42	3.70e +6	2.77	833.73	1.17
WM task + Arithmetic	92.76	1.96	1.22e +6	2.07	101.10	1.94
WM task + Arithmetic + WM task ✳ Arithmetic	14.76	4.25	3.71e +5	11.73	16.74	3.66
WM task	0.17	1.18	0.29	1.29	0.12	1.93

Note. All models include subject. Null model is used as reference.

Table S6. Bayesian model comparisons of 2 × 2 ANOVA on accuracy

Models	Easy		Hard		First	
	BF_{10}	error %	BF_{10}	error %	BF_{10}	error %
Arithmetic	47.24	2.16	4.47	0.94	3.08	0.92
WM task + Arithmetic	111.22	3.95	0.63	2.38	1.12	37.80
WM task + Arithmetic + WM task ✳ Arithmetic	19.85	5.19	0.18	6.24	0.45	4.85
WM task	2.03	0.74	0.13	0.94	0.23	4.31

Note. All models include subject. Null model is used as reference.

Table S7. Bayesian model comparisons of 3 × 2 ANOVA on reaction time

Models	Easy		Hard		First	
	BF_{10}	error %	BF_{10}	error %	BF_{10}	error %
WM task	7.7e +18	0.85	2.8e +20	0.65	1.8e +21	1.77
Arithmetic	9.86e +4	1.22	1.3e +6	0.81	1421.99	1.75
WM task + Arithmetic	2.0e +25	1.77	2.2e +28	1.92	2.8e +25	1.40
WM task + Arithmetic + WM task ✳ Arithmetic	1.0e +24	2.40	2.6e +27	2.60	1.3e +24	3.20

Note. All models include subject. Null model is used as reference.

Table S8. Bayesian model comparisons of 3 × 2 ANOVA on accuracy

Models	Easy		Hard		First	
	BF_{10}	error %	BF_{10}	error %	BF_{10}	error %
WM task	170.31	3.026	6535.62	0.64	960.53	0.69
Arithmetic	2446.62	2.002	2.88	2.32	8.52	1.26
WM task + Arithmetic	6.76e +5	0.681	2.23e +4	1.40	1.01e +4	2.04
WM task + Arithmetic + WM task ✳ Arithmetic	2.99e +4	0.887	2049.9	3.15	1352.67	3.64

Note. All models include subject. Null model is used as reference.