

Sussex Research

Inhibitory control and lexical alignment in children with an autism spectrum disorder

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Table 1: Participant characteristics: Mean (range) verbal age and chronological age (in years.months)

Experiment	Group	N	Chronological age	Verbal age
1	ASD	12	10.8	9.6
			(8.2–12.5)	(6.7–12.6)
	Chronological match	12	10.3	11.4
			(7.9–11.8)	(9.2–12.6)
	Verbal match	12	9.3	9.9
			(6.6–11.8)	(7.9–12.8)
2	ASD	14	12.6	7.4
			(10.3–15.8)	(2.6–12.4)
	Chronological match	14	12.6	13.1
			(10.0–15.5)	(11.4–13.6)
	Verbal match	14	5.7	7.5
			(3.1–13.7)	(2.9–12.3)

Figure 1: Example game trial (dispreferred-name condition; adapted from Branigan et al., 2016)

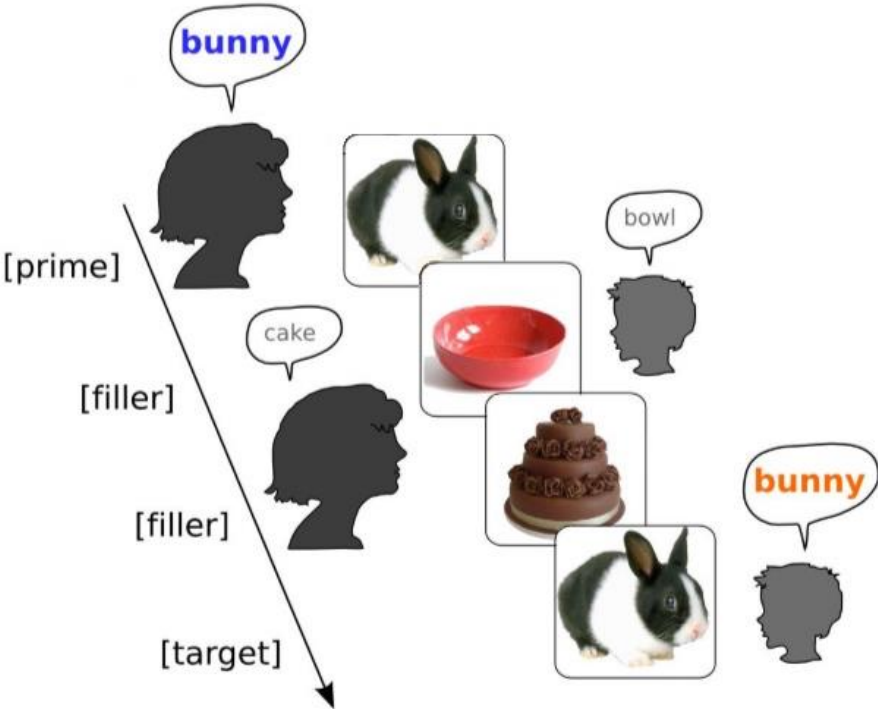


Table 2: Frequency (and percentage) of responses

Experiment	Group	Response	Prime name		Alignment effect [†]
			Preferred	Dispreferred	
1	ASD	Preferred	101 (84%)	28 (23%)	61%
		Dispreferred	9 (8%)	86 (72%)	64%
		Other	10 (8%)	6 (5%)	
	Chronological match	Preferred	110 (92%)	21 (18%)	74%
		Dispreferred	1 (1%)	96 (80%)	79%
		Other	9 (8%)	3 (3%)	
	Verbal match	Preferred	111 (93%)	25 (21%)	72%
		Dispreferred	3 (3%)	90 (75%)	73%
		Other	6 (5%)	5 (5%)	
2	ASD	Preferred	124 (89%)	42 (30%)	59%
		Dispreferred	4 (3%)	84 (60%)	57%
		Other	12 (9%)	14 (10%)	
	Chronological match	Preferred	125 (89%)	29 (21%)	69%
		Dispreferred	8 (6%)	105 (75%)	69%
		Other	7 (5%)	6 (4%)	
	Verbal match	Preferred	131 (94%)	42 (30%)	64%
		Dispreferred	5 (4%)	91 (65%)	61%
		Other	4 (3%)	7 (5%)	

[†] Increased probability (%) of producing an aligned name (i.e., dispreferred target after dispreferred prime compared with after preferred prime; and preferred target after preferred prime compared with after dispreferred prime).

Table 3: Experiment 1: LME model summaries: likelihood of aligning on preferred names in the ASD and typically-developing groups

ASD group					Typically-developing group			
	Parameter estimates		Wald's test		Parameter estimates		Wald's test	
	β	S.E.	z	p($\beta=0$)	β	S.E.	z	p($\beta=0$)
Intercept	0.09	0.47	0.21		0.59	0.51	1.16	
Prime name	-4.23	0.92	-4.58	<.001	-6.56	1.02	-6.41	<.001
Junior Hayling score	-0.01	0.26	-0.03	>.1	-0.17	0.23	-0.71	>.1
Prime name;junior Hayling score	0.04	0.74	0.06	>.1	-1.35	0.91	-1.49	>.1

Table 4: Experiment 1: LME model summaries: likelihood of aligning on dispreferred names in the ASD and typically-developing groups

ASD group					Typically-developing group			
	Parameter estimates		Wald's test		Parameter estimates		Wald's test	
	β	S.E.	z	p($\beta=0$)	β	S.E.	z	p($\beta=0$)
Intercept	-0.80	0.49	-1.62		-2.23	1.50	-1.49	
Prime name	4.53	0.88	5.14	<.001	8.81	3.07	2.87	<.01
Junior Hayling score	-0.32	0.42	-0.76	>.1	0.34	0.48	0.71	>.1
Prime name;junior Hayling score	0.83	0.80	1.03	>.1	1.08	1.04	1.03	>.1

Table 5: Experiment 2: LME model summaries: likelihood of aligning on preferred names in the ASD and typically-developing groups

ASD group					Typically-developing group				
	Parameter estimates		Wald's test			Parameter estimates		Wald's test	
	β	S.E.	z	p($\beta=0$)		β	S.E.	z	p($\beta=0$)
Intercept	0.83	0.29	2.84			0.81	0.27	3.01	
Prime name	-3.62	0.67	-5.44	<.001		-4.31	0.50	-8.54	<.001
Day-night score	-0.17	0.30	-0.58	>.1		0.03	0.17	0.20	>.1
Prime name:day-night score	-0.01	0.70	-0.20	>.1		-0.24	0.43	-0.57	>.1

Table 6: Experiment 2: LME model summaries: likelihood of aligning on dispreferred names in the ASD and typically-developing groups

ASD group [†]					Typically-developing group [†]			
Parameter estimates		Wald's test			Parameter estimates		Wald's test	
β	S.E.	z	p(β=0)		β	S.E.	z	p(β=0)
Intercept	-1.67	0.33	-5.06		-1.40	0.29	-4.70	
Prime name	4.28	0.76	5.61	<.001	4.98	0.64	7.78	<.001
Day-night score	-0.03	0.29	-0.11	>.1	0.19	0.23	0.86	>.1
Prime name:day-night score	0.35	0.64	0.55	>.1	-0.10	0.58	-0.17	>.1

[†] Converged upon simplifying random effects.

Table 7: summary of LME models: likelihood of aligning on either name¹

Experiment	Predictors	Parameter estimates		Wald's test	
		β	S.E.	z	p($\beta=0$)
1	Intercept	1.66	0.41	4.07	
	Prime name	-0.90	0.35	-2.61	<.01
	ASD-chronological match	0.92	0.57	1.62	>.1
	ASD-verbal match	0.55	0.56	0.99	>.1
	Prime name:ASD-chronological match	-3.44	0.57	-0.61	>.1
	Prime name:ASD-verbal match	-0.75	0.55	-1.37	>.1
2 [†]	Intercept	1.53	0.31	4.93	
	Prime name	-1.94	0.47	-4.14	<.001
	ASD-chronological match	0.60	0.45	1.33	>.1
	ASD-verbal match	0.40	0.43	0.93	>.1
	Prime name:ASD-chronological match	0.36	0.79	0.84	>.1
	Prime name:ASD-verbal match	-0.45	0.56	-0.81	>.1

[†] Converged upon simplifying random effects.

Table 8: ASD supergroup: LME model summaries: likelihood of aligning on preferred or dispreferred names

Production of preferred responses [†]					Production of dispreferred responses [†]				
Parameter estimates			Wald's test		Parameter estimates			Wald's test	
	β	S.E.	z	p(β=0)		β	S.E.	z	p(β=0)
Intercept	0.58	0.25	2.32			-2.33	0.50	-4.68	
Prime name	-3.05	0.59	-5.18	<.001		5.68	1.30	4.37	<.001
Theory of mind	-0.11	0.28	-0.41	>.1		0.02	0.47	0.05	>.1
Verbal age	0.13	0.25	0.52	>.1		0.54	0.51	1.06	>.1
Chronological age	0.14	0.19	0.74	>.1		0.42	0.39	1.06	>.1
SCQ	0.22	0.18	1.19	>.1		0.20	0.32	0.63	>.1
Prime name:theory of mind	-0.15	0.79	-0.19	>.1		-0.16	1.30	-0.12	>.1
Prime name:verbal age	-0.55	0.76	-0.73	>.1		0.30	1.35	0.22	>.1
Prime name:chronological age	-0.53	0.59	-0.91	>.1		-0.99	1.07	-0.92	>.1
Prime name: SCQ	-0.15	0.55	-0.26	>.1		-0.58	0.90	-0.64	>.1

[†] Converged upon simplifying random effects.

Table 9: Typically-developing supergroup: LME model summaries: likelihood of aligning on preferred name or dispreferred names

Production of preferred responses					Production of dispreferred responses [†]				
Parameter estimates			Wald's test		Parameter estimates			Wald's test	
	β	S.E.	z	p($\beta=0$)		β	S.E.	z	p($\beta=0$)
Intercept	0.87	0.32	2.68			-1.59	0.30	-5.35	
Prime name	-5.65	0.61	-9.31	<.001		6.07	0.63	9.62	<.001
Theory of mind	0.09	0.20	0.43	>.1		-0.13	0.28	-0.44	>.1
Verbal age	-0.60	0.31	-1.94	=.05		0.64	0.42	1.54	>.1
Chronological age	0.20	0.28	0.72	>.1		-0.13	0.37	-0.36	>.1
Prime name:theory of mind	0.62	0.62	1.01	>.1		-0.50	0.71	-0.70	>.1
Prime name:verbal age	-1.67	0.96	-1.73	=.08		1.56	1.08	1.44	>.1
Prime name:chronological age	1.34	0.96	1.40	>.1		-1.61	1.02	-1.57	>.1

[†] Converged upon simplifying random effects.

Table 10: All children supergroup: LME model summaries: likelihood of aligning on either name

Production of aligned responses				
	Parameter estimates		Wald's test	
	β	S.E.	z	p($\beta=0$)
Intercept	1.76	0.28	2.65	
Prime name	-1.28	0.46	-9.23	<.01
ASD-chronological match	1.19	0.75	0.52	>.1
ASD-verbal match	0.51	0.40	-2.03	>.1
Verbal age	0.30	0.24	1.23	>.1
Prime name:ASD-chronological match	-0.33	0.90	-0.37	>.1
Prime name:ASD-verbal match	-0.80	0.47	-1.70	>.1
Prime name:verbal age	0.29	0.27	1.08	>.1
ASD-chronological match:verbal age	-0.91	0.75	-1.20	>.1
ASD-verbal match:verbal age	-0.15	0.36	-0.41	>.1
Prime name:ASD-chronological match:verbal age	-0.26	0.92	-0.28	>.1
Prime name:ASD-verbal match:verbal age	0.12	0.43	0.27	>.1