
Article:
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Figures

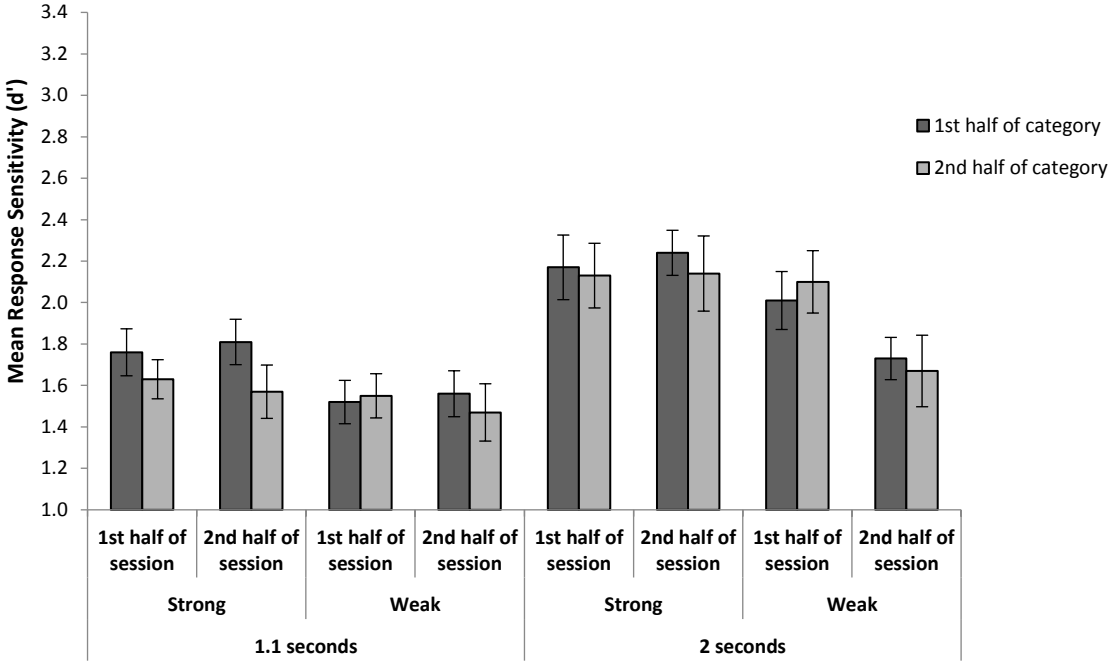

Figure 1: Mean response sensitivity (*d'*) in Experiment 1 (Thematic-matching), for the first and second half of each category (within-category fatigue) and across the testing session (across-category fatigue), split by strong and weak targets, at the two presentation speeds. Error bars show *SE* of the mean.

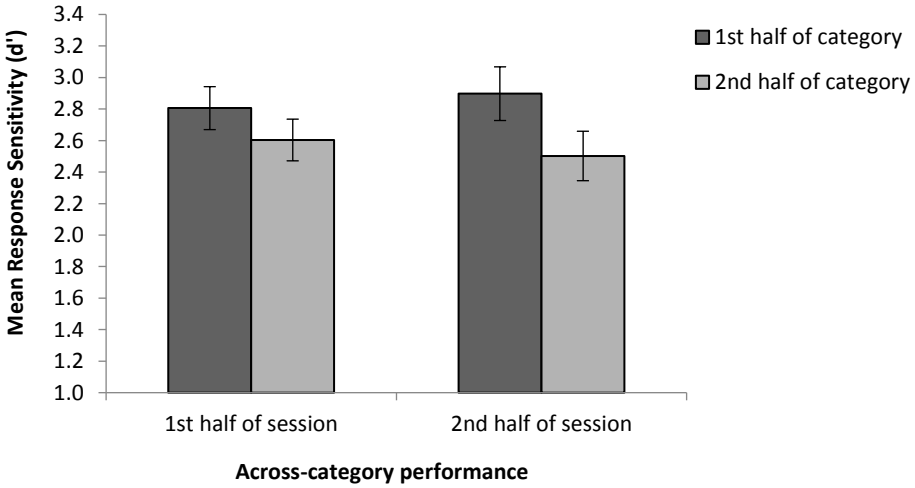

Figure 2: Mean response sensitivity (*d'*) in Experiment 2 (Taxonomic-matching), for the first and second half of each category (within-category fatigue) and across the testing session (across-category fatigue). Error bars show *SE* of the mean.

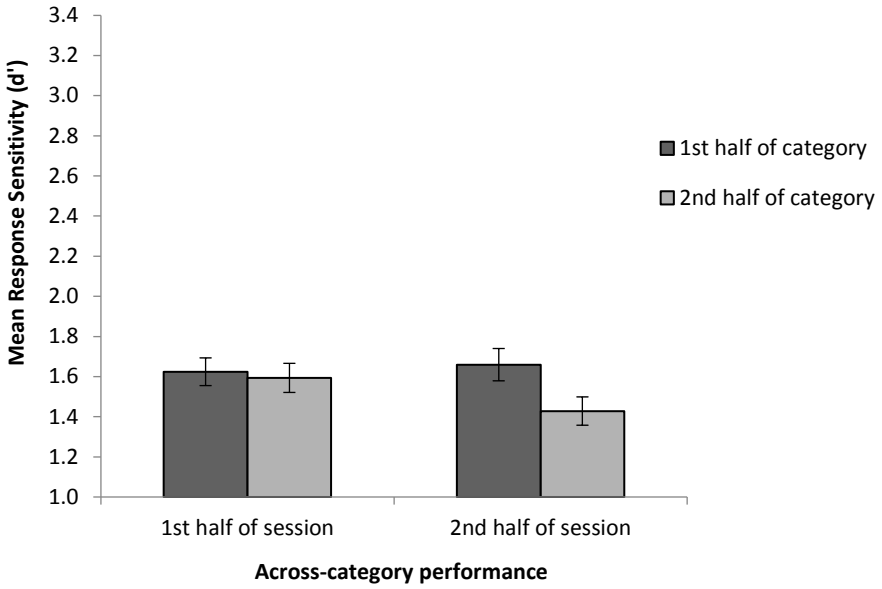

Figure 3: Mean response sensitivity (*d'*) in Experiment 3 (Feature-matching), for the first and second half of each category (within-category fatigue) and across the testing session (across-category fatigue). Error bars show *SE* of the mean.

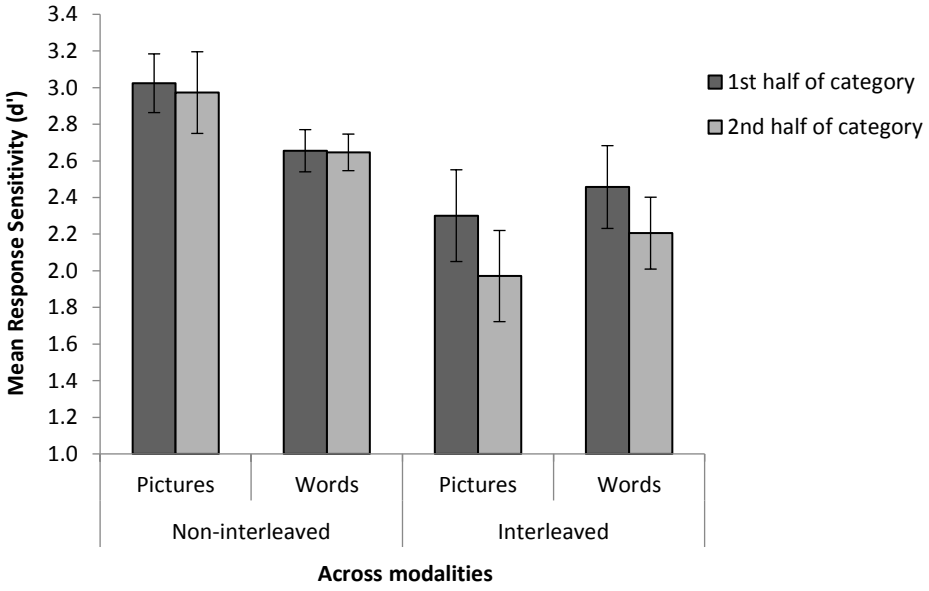

Figure 4: Mean response sensitivity (*d'*) in Experiment 4 (Effect across modalities), shown individually for the pictures and words modality in the interleaved and non-interleaved conditions, in the first and second half of each category (within-category decline), Error bars show *SE* of the mean.

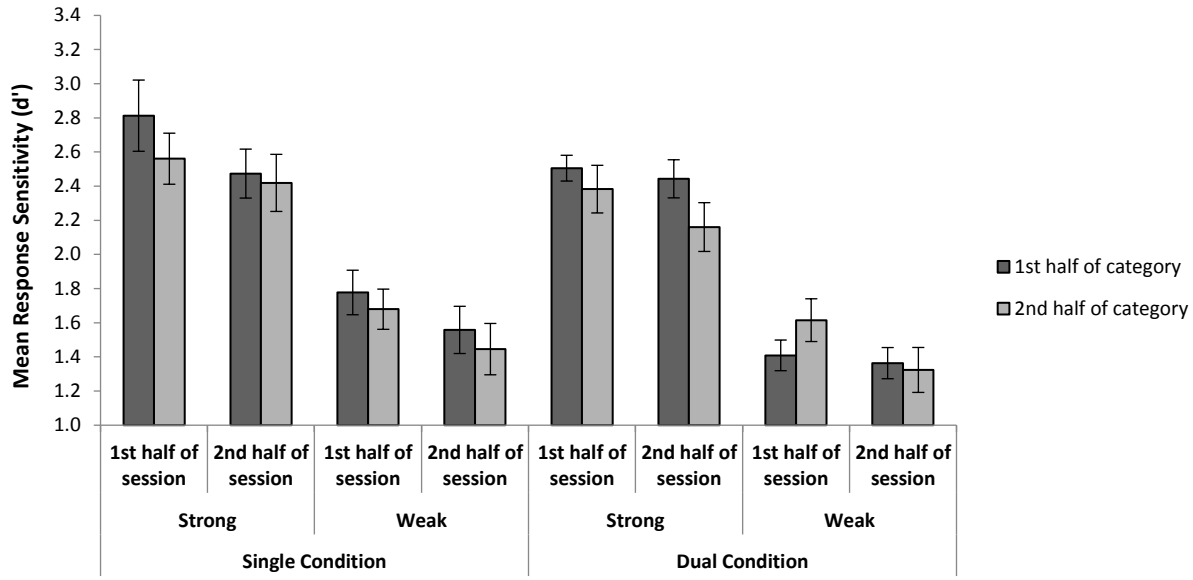

Figure 5: Mean response sensitivity (*d'*) in Experiment 5 (Effect of divided attention), shown individually for the strong/weak targets, in the two conditions (single/dual), and split by first and second half of each category (within-category fatigue) and across the testing session (across-category fatigue). Error bars show *SE* of the mean.

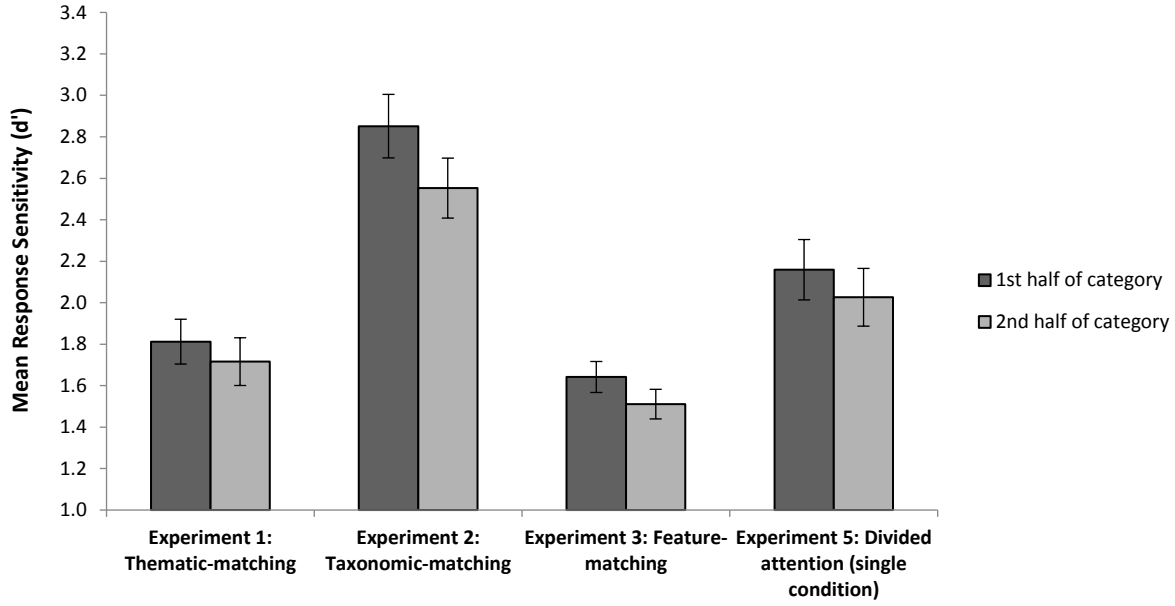

Figure 6: Mean response sensitivity (*d'*), shown individually for the first and second half of each category (within-category fatigue) and across the testing session (across-category fatigue), for Experiments 1, 2, 3 and 5 (single condition), at the presentation speed of 1.1 seconds. Error bars show SE of the mean.

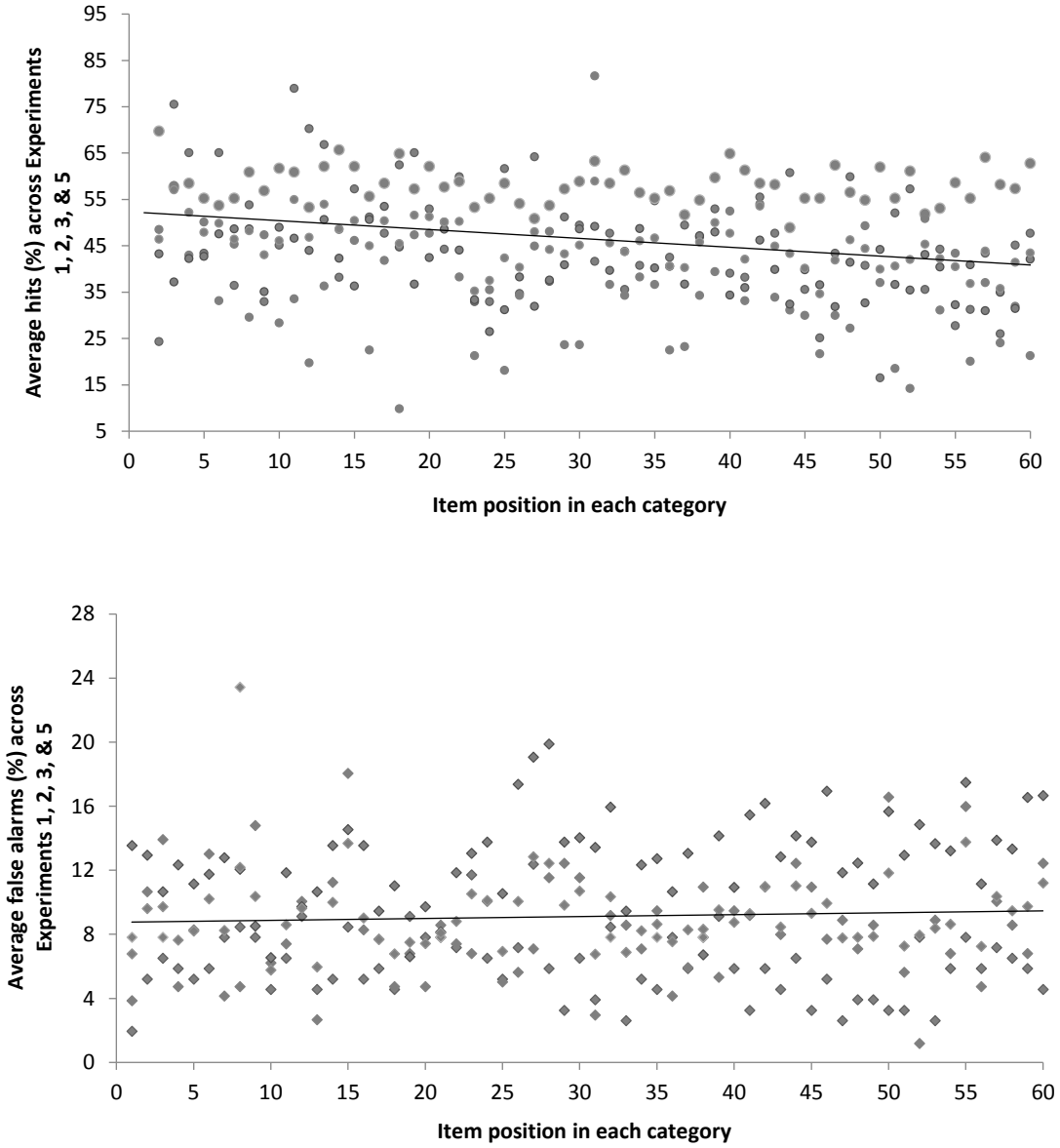

Figure 7: Average percentage of hits and false alarms for items within each category and across participants in Experiments 1 (Thematic-matching), 2 (Taxonomic-matching), 3 (Feature-matching) and 5 (Divided attention: single condition).

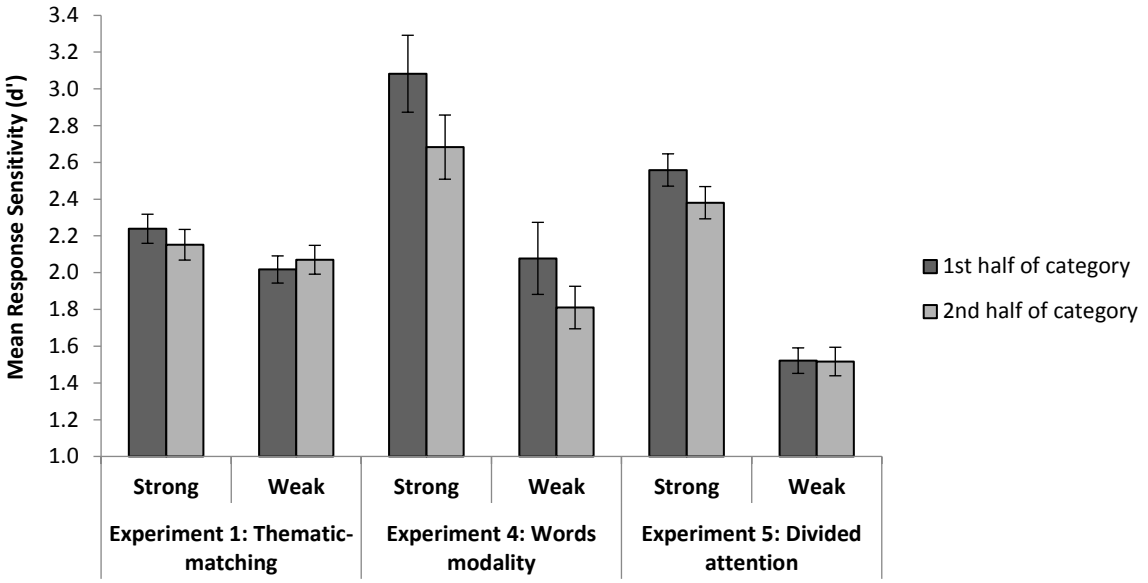

Figure 8: Mean response sensitivity (*d'*), shown individually for the first and second half of each category (within-category fatigue) and split by strong and weak trials, for Experiments 1, 4 and 5. Error bars show SE of the mean.

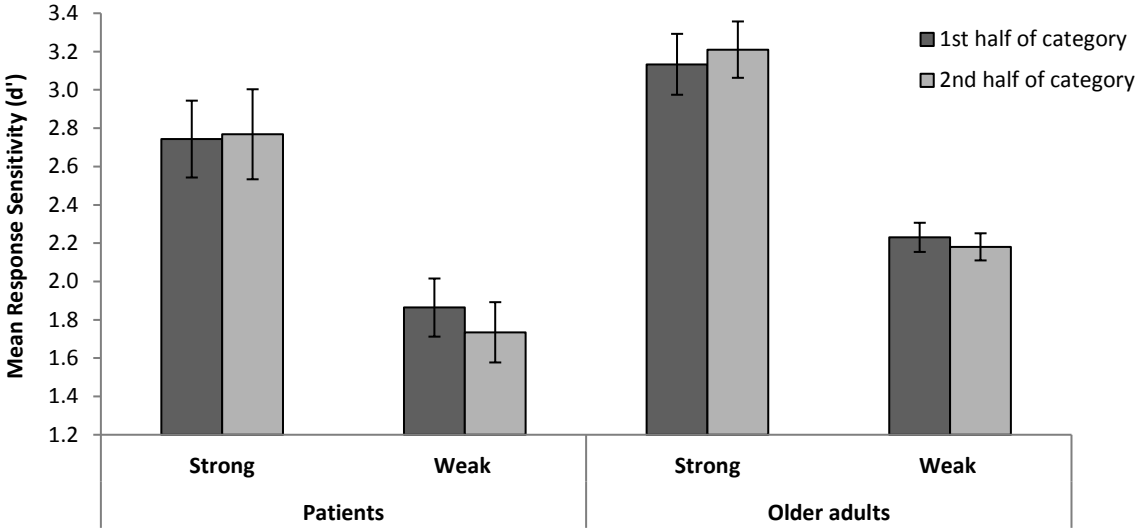

Figure 9: Mean response sensitivity (*d'*) for the first and second half of each category (within-category performance), split by strong and weak targets for patients and controls. Error bars show *SE* of the mean.

Tables

Table 1: Summary of significant results for response sensitivity from GLM and repeated-measures ANOVA analysis, examining effects of speed and relatedness, plus within-category and across-category changes in performance, in Experiment 1: Thematic-matching.

		Experiment 1: Thematic-matching	
		GLM (RT covariate)	*ANOVA*
Fixed effects:	***df***	***Wald χ2, p***	***F, p***
Across-category	(1, 23)	*p > .1*	*p > .1*
Within-category	(1, 23)	*p > .1*	*p > .1*
Relatedness	(1, 23)	***52.45, p < .001***	***50.26, p < .001***
Speed	(1, 23)	***40.25, p < .001***	***38.57, p < .001***
Interactions:			
Within-category x Relatedness	(1, 23)	***29.31, p < .001***	***28.09, p < .001***
Speed x Relatedness	(1, 23)	***17.62, p < .001***	***16.89, p < .001***
Speed x Within-category	(1, 23)	*p > .1*	*p > .1*
Across-category x Relatedness	(1, 23)	*3.24, p = .072*	*3.10, p = .091*

Footnote: Table presents two parallel analyses employing (i) mixed effects modelling (i.e., GLM preserving performance information for each category for each participant and treating participants as a random effect – this allowed RT per category to be included as a covariate of no interest) and (ii) analysis of variance. Other interaction terms were non-significant (p > .1).

Table 2: Summary of significant results for response sensitivity from GLM and repeated-measures ANOVA analysis, examining effects of across-category and within-category changes in performance, in Experiment 2: Taxonomic-matching.

		Experiment 2: Taxonomic-matching	
		GLM (RT covariate)	*ANOVA*
Fixed effects:	***df***	***Wald χ2, p***	***F, p***
Across-category	(1, 23)	*p > .1*	*p > .1*
Within-category	(1, 23)	***24.89, p < .001***	***23.85, p < .001***
Interactions:			
Across-category x Within-category	(1, 23)	*p > .1*	*p > .1*

Footnote: Table presents two parallel analyses employing (i) mixed effects modelling (i.e., GLM preserving performance information for each category for each participant and treating participants as a random effect – this allowed RT per category to be included as a covariate of no interest) and (ii) analysis of variance.

Table 3: Summary of significant results for response sensitivity from GLM and repeated-measures ANOVA analysis, examining effects of across-category and within-category changes in performance, in Experiment 3: Feature-matching.

		Experiment 3: Specific feature-matching	
		GLM (RT covariate)	*ANOVA*
Fixed effects:	***df***	***Wald χ2, p***	***F, p***
Across-category	(1, 23)	*p > .1*	*p > .1*
Within-category	(1, 23)	***13.43, p < .001***	***12.87, p = .001***
Interactions:			
Across-category x Within-category	(1, 23)	***6.18, p = .013***	***5.93, p = .025***

Footnote: Table presents two parallel analyses employing (i) mixed effects modelling (i.e., GLM preserving performance information for each category for each participant and treating participants as a random effect – this allowed RT per category to be included as a covariate of no interest) and (ii) analysis of variance.

Table 4: Summary of significant results for response sensitivity from GLM and repeated-measures ANOVA analysis, examining effects of modality and interleaving, plus within-category changes in performance, in Experiment 4: Cross-modality alternative-forced-choice decisions.

		Experiment 4: Across modalities	
		GLM (RT covariate)	*ANOVA*
Fixed effects:	***df***	***Wald χ2, p***	***F, p***
Within-category	(1, 21)	*p > .1*	*p > .1*
Modality	(1, 21)	*p > .1*	*p > .1*
Interleaved	(1, 21)	***15.72, p < .001***	***15.03, p = .001***
Interactions:			
Modality x Interleaved	(1, 21)	***7.39, p = .007***	***6.59, p = .018***
Interleaved x Within-category	(1, 21)	***4.85, p = .028***	***4.48, p = .046***
Modality x Within-category	(1, 21)	*p > .1*	*p > .1*
Modality x Interleaved x Within-category	(1, 21)	*p > .1*	*p > .1*

Footnote: Table presents two parallel analyses employing (i) mixed effects modelling (i.e., GLM preserving performance information for each category for each participant and treating participants as a random effect – this allowed RT per category to be included as a covariate of no interest) and (ii) analysis of variance.

Table 5: Summary of significant results for response sensitivity from GLM and repeated-measures ANOVA analysis, examining effects of condition (single/dual), relatedness, plus within-category changes in performance, in Experiment 5: Effect of divided attention.

		Experiment 5: Divided attention	
		GLM (RT covariate)	*ANOVA*
Fixed effects:	***df***	***Wald χ2, p***	***F, p***
Across-category	(1, 23)	*3.79, p = .052*	*2.52, p = .127*
Within-category	(1, 23)	*p > .1*	*p > .1*
Condition (single/dual)	(1, 23)	***6.81, p = .009***	***7.55, p = .012***
Relatedness	(1, 23)	***401.28, p < .001***	***327.25, p < .001***
Interactions:			
Relatedness x Within-category	(1, 23)	***6.60, p = .010***	***9.59, p = .005***
Condition x relatedness x within-category	(1, 23)	*3.55, p = .060*	*2.59, p = .123*

Footnote: Table presents two parallel analyses employing (i) mixed effects modelling (i.e., GLM preserving performance information for each category for each participant and treating participants as a random effect – this allowed RT per category to be included as a covariate of no interest) and (ii) analysis of variance. Other interaction terms were non-significant (p > .1).

Table 6: Summary of significant results from GLM and repeated-measures ANOVA analysis, examining across-category and within-category changes in performance across Experiments 1 (Thematic-matching), 2 (Taxonomic-matching), 3 (Feature-matching), and 5 (Effect of divided attention, single condition).

		Cross-Experiment comparison	
		GLM (RT covariate)	*ANOVA*
Fixed effects:	***df***	***Wald χ2, p***	***F, p***
Experiment	(1, 92)	***72.64, p < .001***	***27.79, p < .001***
Across-category	(1, 92)	*p > .1*	*p > .1*
Within-category	(1, 92)	***15.53, p < .001***	***14.83, p < .001***
Interactions (all n.s.):		*p > .1*	*p > .1*

Footnote: Table presents two parallel analyses employing (i) mixed effects modelling (i.e., GLM preserving performance information for each category for each participant and treating participants as a random effect – this allowed RT per category to be included as a covariate of no interest) and (ii) analysis of variance. Experiment was included as a between-subjects factor.

Table 7: Summary of significant results from GLM and repeated-measures ANOVA analysis, examining relatedness and within-category performance across Experiments 1 (Thematic-matching), 4 (Words modality), and 5 (Effect of divided attention).

		Cross-experiment relatedness comparison	
		GLM (RT covariate)	*ANOVA*
Fixed effects:	***df***	***Wald χ2, p***	***F, p***
Experiment	(1, 67)	***6.83, p = .033***	***4.38, p = .016***
Within-category	(1, 67)	***7.16, p = .007***	***7.09, p = .010***
Relatedness	(1, 67)	***289.14, p < .001***	***299.72, p < .001***
Interactions:			
Relatedness x Experiment	(1, 67)	***265.26, p < .001***	***45.72, p < .001***
Relatedness x Within-category	(1, 67)	***10.83, p = .001***	***11.12, p = .001***
Within-category x Experiment	(1, 67)	*p > .1*	*2.84, p = .066*

Footnote: Table presents two parallel analyses employing (i) mixed effects modelling (i.e., GLM preserving performance information for each category for each participant and treating participants as a random effect – this allowed RT per category to be included as a covariate of no interest) and (ii) analysis of variance. Experiment was included as a between-subjects factor. Other interaction terms were non-significant (p > .1).

***Table 8*:** Background neuropsychological data for each patient

	Max score	Control mean	Cut-off	EKD	ONY	YHE	SSR	RTJ	NNZ	NHY	NGW	ESU	NNF	LHN	HNA
Semantic tasks:															
WPM	64	64	63	64	63	62*	52*	63	64	62*	64	62*	60*	62*	63
CCT pictures	64	59	53	58	60	61	54	61	53	57	56	45*	45*	44*	31*
CCT words	64	61	57	63	58	60	57	56*	61	52*	53*	59	29*	43*	39*
Synonym Judgement	96	95	91	90*	87*	81*	87*	81*	78*	76*	74*	66*	71*	59*	57*
Object use: canonical	37	36	34	NA	36	37	33*	37	37	35	35	37	29*	31*	32*
Object use: non-canonical	37	34	29	NA	32	29	22*	32	26*	22*	21*	34	14*	13*	14*
Ambiguity: cues	60	60	59	NA	52*	54*	47*	57*	50*	51*	40*	43*	39*	35*	46*
Ambiguity: miscues	60	59	57	NA	50*	45*	39*	54*	42*	34*	22*	30*	27*	23*	19*
Executive tasks:															
Trail making	23	23	17	23	23	22	23	21	19	5*	12*	1*	16*	23	2*
RCPM	36	33	28	32	29	33	34	33	21*	30	24*	19*	31	29	31
BSRA	54	33	28	39	45	30	31	39	31	23*	26*	24*	18*	7*	21*
Phonological deficits:															
Cookie theft WPM		NA		NA	58	37	0*	38	54	37	12	60	9	18	0*
PALPA - repetition	80	NA	73	NA	NA	77	1*	7*	74	79	75	78	42*	71	0*

* Denotes impaired performance. NA = not available. Patients are arranged according to composite semantic severity scores; this is a single factor extracted from WPM = word picture matching, CCT = Camel and Cactus Task (both from Bozeat et al., 2000), and synonym judgement. RCPM = Raven's Coloured Progressive Matrices (Raven, 1962). BSRA = Brixton Spatial Attainment Task (Burgess & Shallice, 1997). PALPA = Psycholinguistic Assessments of Language Processing in Aphasia (Kay, Lesser, & Coltheart, 1992). Cookie theft description assesses fluency (words-per-minute; Goodglass & Kaplan, 1983)

Table 9: Summary of significant results from the GLM analysis for SA patients and age-matched controls – looking at the effects of group, relatedness, set and within-category performance, for our key dependent measures- response sensitivity, response accuracy and response times.

		SA patients vs. age-matched controls	
		GLM (RT covariate)	*ANOVA*
Fixed effects:	***df***	***Wald χ2, p***	***F, p***
Group	(1,23)	*3.19, p = .074*	***5.51, p = .027***
Relatedness	(1,23)	***126.95, p < .001***	***287.58, p < .001***
Set	(1,23)	*p > .1*	*p > .1*
Within-category	(1,23)	*p > .1*	*p > .1*
Interactions:			
Group x Relatedness	(1,23)	***8.08, p = .004***	*p > .1*
Group x Set	(1,23)	*3.42, p = .064*	*p > .1*
Relatedness x Within-category	(1,23)	***4.77, p = .029***	*p > .1*

Footnote: Table presents analyses employing (i) mixed effects modelling for response sensitivity (i.e., GLM preserving performance information for each category for each participant and treating participants as a random effect – this allowed RT per category to be included as a covariate of no interest).