Implicit Encoding Analysis v2

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Contents

Implicit Encoding

```
## Joining, by = c("Subject", "enterResponse.RESP", "nameItem", "freq", "studied", "Target.RT", "rt.tri
```

Z-Scored Response Times

Speeded Naming

```
## Joining, by = c("Subject", "recog", "type", "RT", "freq", "studied")
```

Study X Frequency

Table 1: Speeded Naming Mean zRTs

recog	type	age	N	RT	sd	se	ci
Block 1	notstudied_hf	OA	36	-0.48	0.31	0.05	0.11
Block 1	notstudied_hf	YA	36	-0.30	0.22	0.04	0.07
Block 1	notstudied_lf	OA	36	-0.30	0.35	0.06	0.12
Block 1	notstudied_lf	YA	36	-0.02	0.34	0.06	0.11
Block 1	studied_hf	OA	36	-0.54	0.26	0.04	0.09
Block 1	studied_hf	YA	36	-0.41	0.19	0.03	0.06
Block 1	studied_lf	OA	36	-0.42	0.33	0.06	0.11
Block 1	studied_lf	YA	36	-0.30	0.25	0.04	0.08
Block 2	notstudied_hf	OA	36	0.28	0.39	0.06	0.13
Block 2	notstudied_hf	YA	36	0.00	0.26	0.04	0.09
Block 2	notstudied_lf	OA	36	0.42	0.35	0.06	0.12
Block 2	notstudied_lf	YA	36	0.26	0.24	0.04	0.08
Block 2	studied_hf	OA	36	0.33	0.43	0.07	0.14
Block 2	studied_hf	YA	36	0.00	0.24	0.04	0.08
Block 2	studied_lf	OA	36	0.26	0.39	0.07	0.13
Block 2	studied_lf	YA	36	0.15	0.20	0.03	0.07

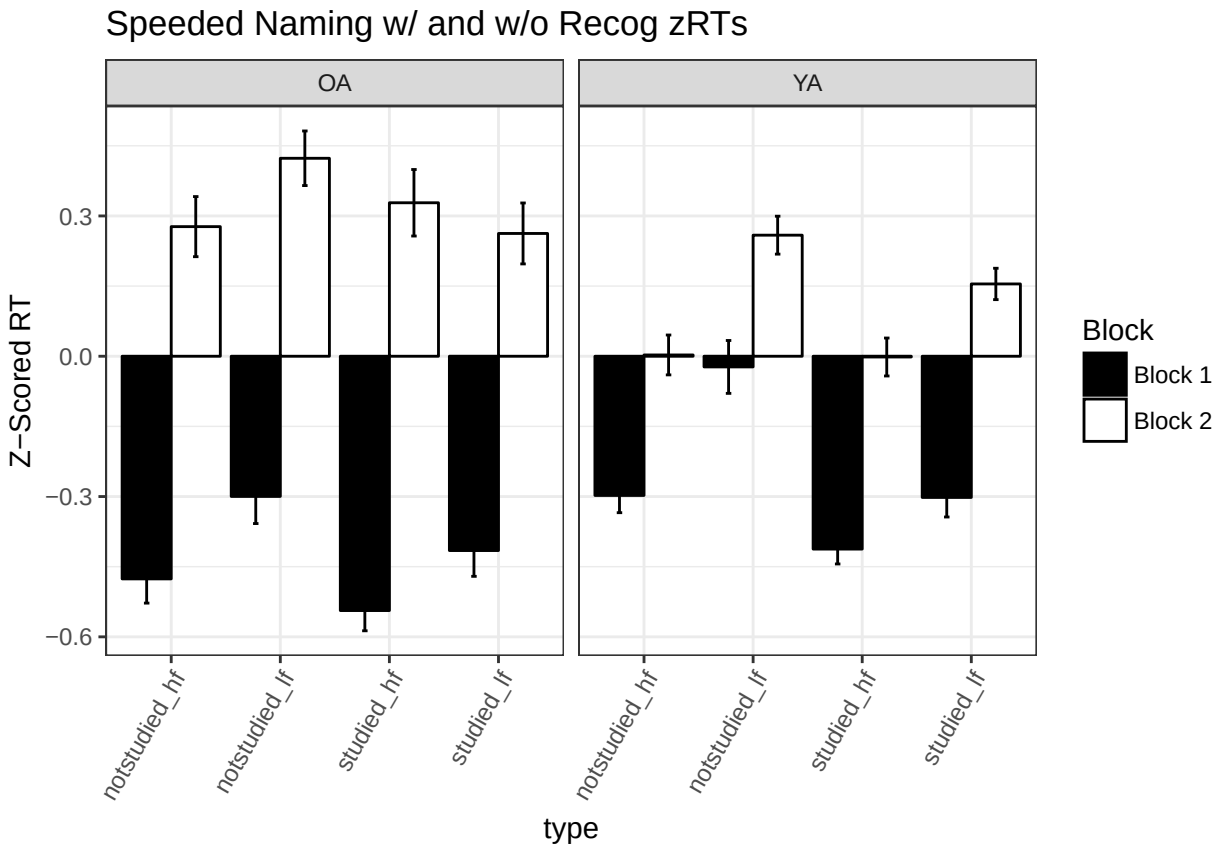
```
## Warning: Converting "Subject" to factor for ANOVA.
## Warning: Converting "studied" to factor for ANOVA.
## Warning: Converting "freq" to factor for ANOVA.
## Warning: Converting "recog" to factor for ANOVA.
## Warning: Converting "age" to factor for ANOVA.
```

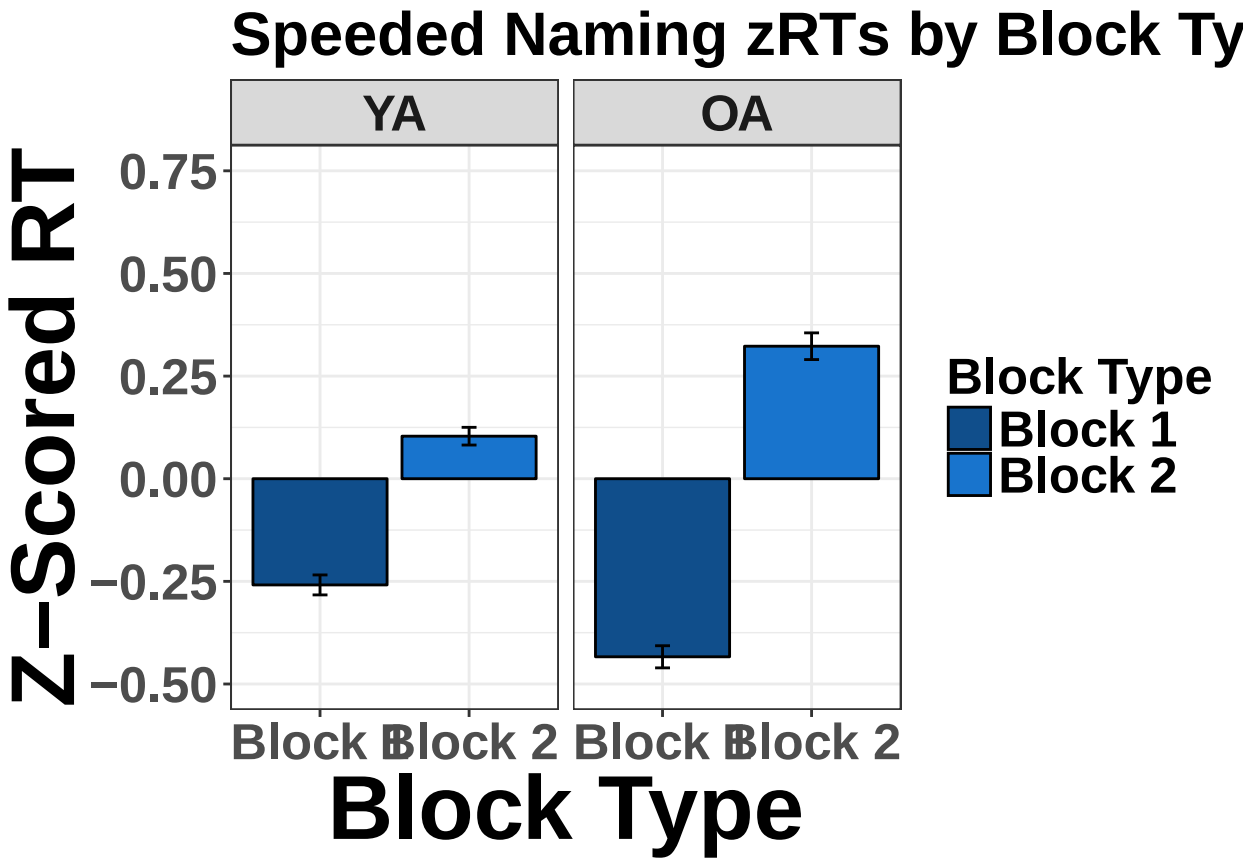
Table 2: Implict Encoding zRTs (continued below)

	Effect	DFn	DFd	F	p	p<.05
2	age	1	70	1.875	0.1753	
3	studied	1	70	23.98	6.022e-06	*
5	freq	1	70	41.24	1.391e-08	*
7	recog	1	70	113.1	2.931e-16	*
4	age:studied	1	70	1.66	0.2019	
6	age:freq	1	70	5.015	0.02831	*
8	age:recog	1	70	14.03	0.0003653	*
9	studied:freq	1	70	11.16	0.001342	*
11	studied:recog	1	70	6.642	0.01207	*
13	freq:recog	1	70	2.521	0.1168	

	Effect	DFn	DFd	F	p	p<.05
10	age:studied:freq	1	70	0.0008219	0.9772	
12	age:studied:recog	1	70	2.309	0.1331	
14	age:freq:recog	1	70	4.103	0.04661	*
15	studied:freq:recog	1	70	0.5696	0.4529	
16	age:studied:freq:recog	1	70	3.015	0.08691	

	ges
2	0.00134
3	0.02661
5	0.05698
7	0.4639
4	0.001889
6	0.007294
8	0.097
9	0.01173
11	0.005529
13	0.001672
10	8.74e-07
12	0.001929
14	0.002718
15	0.0004251
16	0.002246

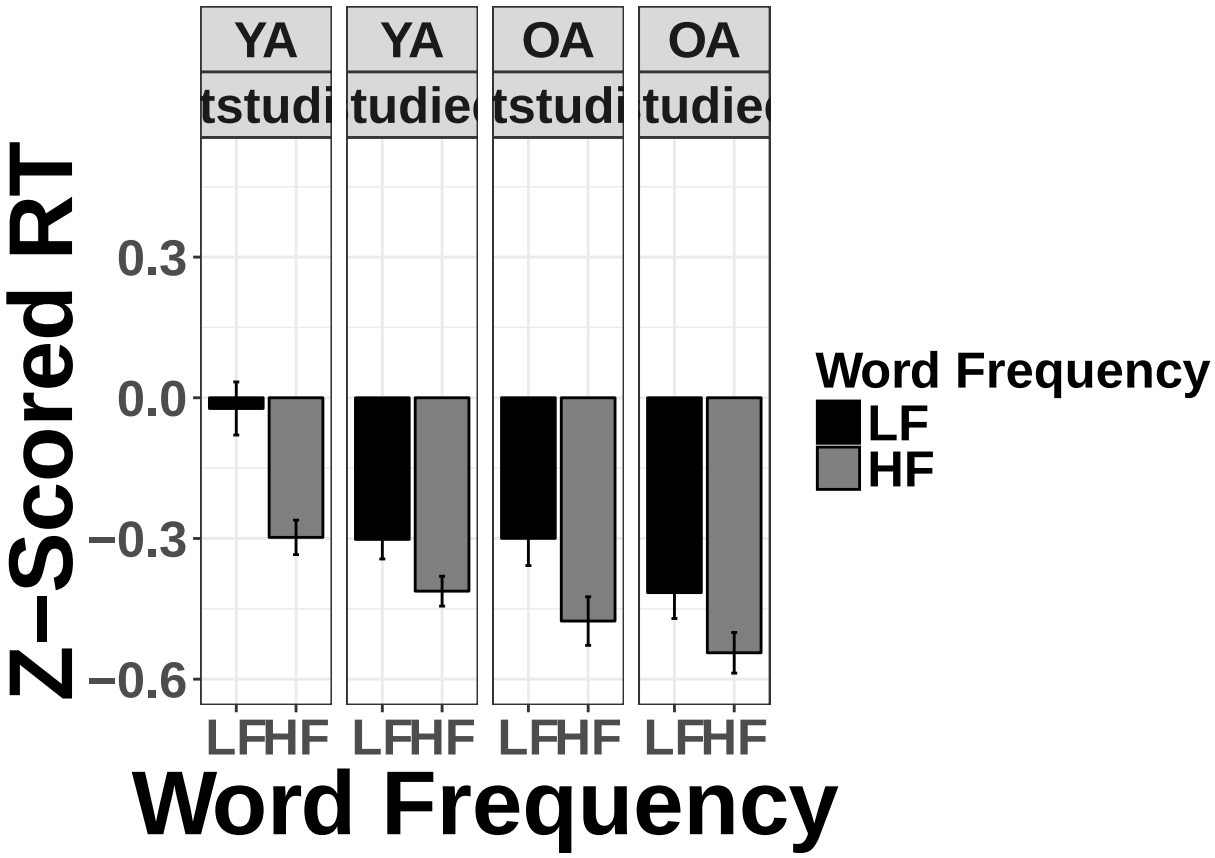




Block 1

Table 4: Speeded Naming Mean zRTs - Block 1 Only

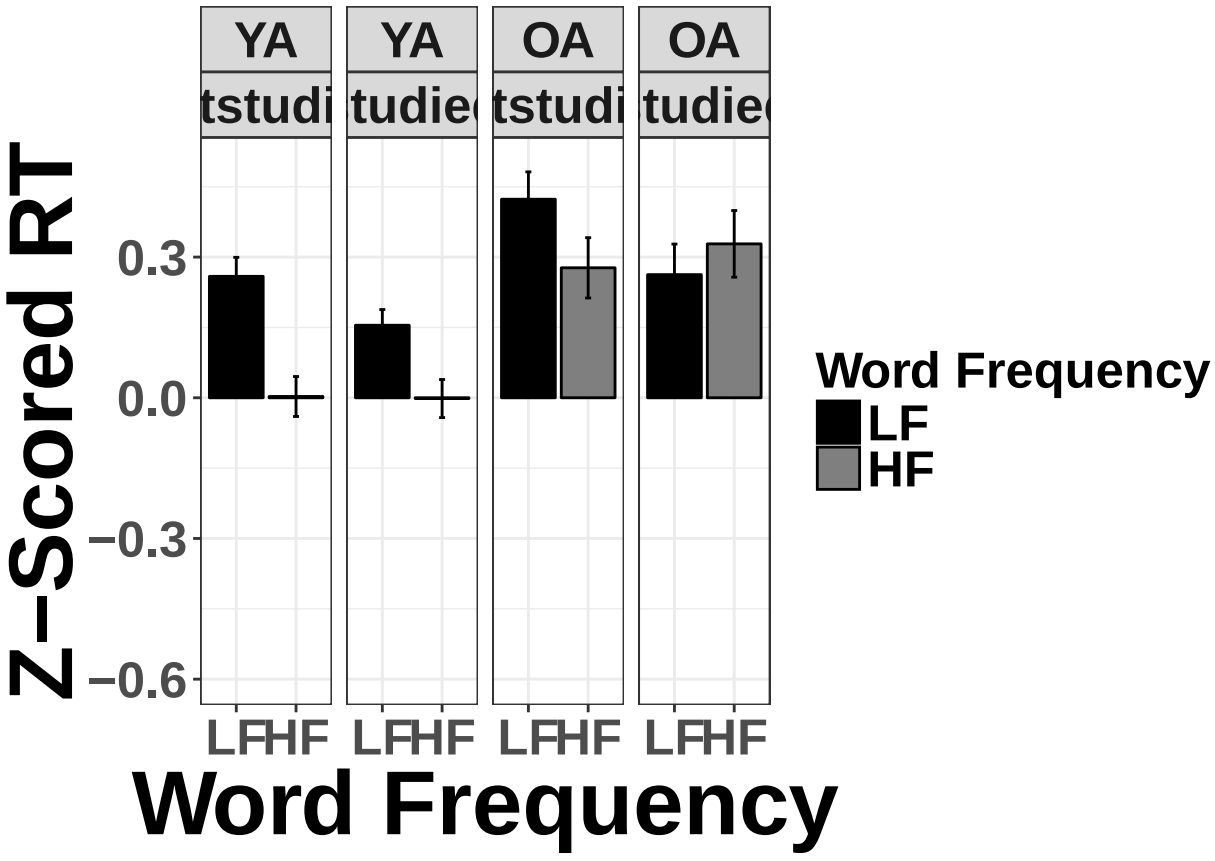
type	studied	freq	age	N	RT	sd	se	ci
notstudied_hf	notstudied	HF	OA	36	-0.48	0.31	0.05	0.11
notstudied_hf	notstudied	HF	YA	36	-0.30	0.22	0.04	0.07
notstudied_lf	notstudied	LF	OA	36	-0.30	0.35	0.06	0.12
notstudied_lf	notstudied	LF	YA	36	-0.02	0.34	0.06	0.11
studied_hf	studied	HF	OA	36	-0.54	0.26	0.04	0.09
studied_hf	studied	HF	YA	36	-0.41	0.19	0.03	0.06
studied_lf	studied	LF	OA	36	-0.42	0.33	0.06	0.11
studied_lf	studied	LF	YA	36	-0.30	0.25	0.04	0.08



Block 2

Table 5: Speeded Naming Mean zRTs - Block 2 Only

type	studied	freq	age	N	RT	sd	se	ci
notstudied_hf	notstudied	HF	OA	36	0.28	0.39	0.06	0.13
notstudied_hf	notstudied	HF	YA	36	0.00	0.26	0.04	0.09
notstudied_lf	notstudied	LF	OA	36	0.42	0.35	0.06	0.12
notstudied_lf	notstudied	LF	YA	36	0.26	0.24	0.04	0.08
studied_hf	studied	HF	OA	36	0.33	0.43	0.07	0.14
studied_hf	studied	HF	YA	36	0.00	0.24	0.04	0.08
studied_lf	studied	LF	OA	36	0.26	0.39	0.07	0.13
studied_lf	studied	LF	YA	36	0.15	0.20	0.03	0.07



Recog Cost and Recog Acc

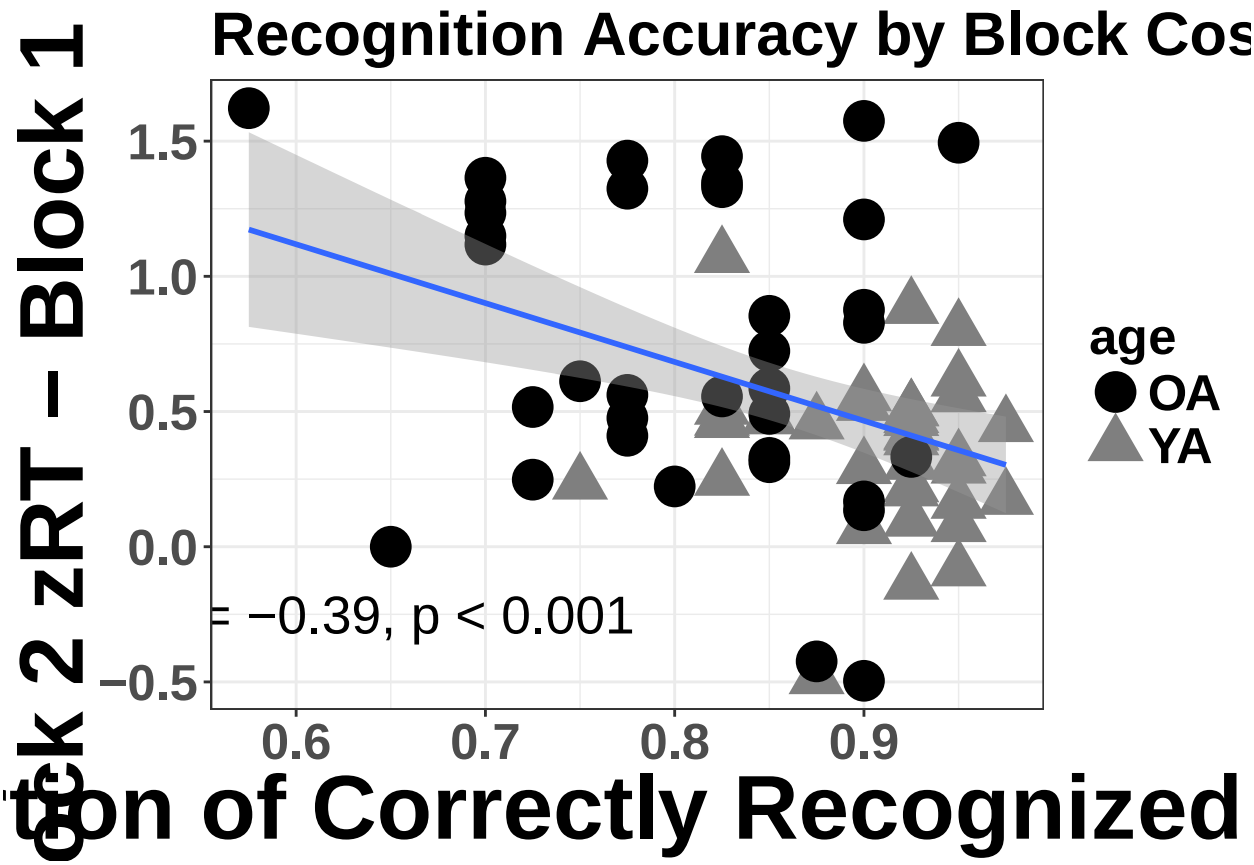
```
## Joining, by = c("Subject", "age")
```

Table 6: Analysis of Variance Model

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
age	1	2.797	2.797	14.32	0.0003276
recogAcc	1	0.6079	0.6079	3.113	0.08217
age:recogAcc	1	0.0649	0.0649	0.3323	0.5662
Residuals	68	13.28	0.1953	NA	NA

Table 7: Pearson's product-moment correlation: `switchCostwRecogAcc$recogCost` and `switchCostwRecogAcc$recogAcc`

Test statistic	df	P value	Alternative hypothesis	cor
-3.557	70	0.0006775 * * *	two.sided	-0.3913



Word Frequency Effect

Table 8: Word Frequency Effect (using zRTs

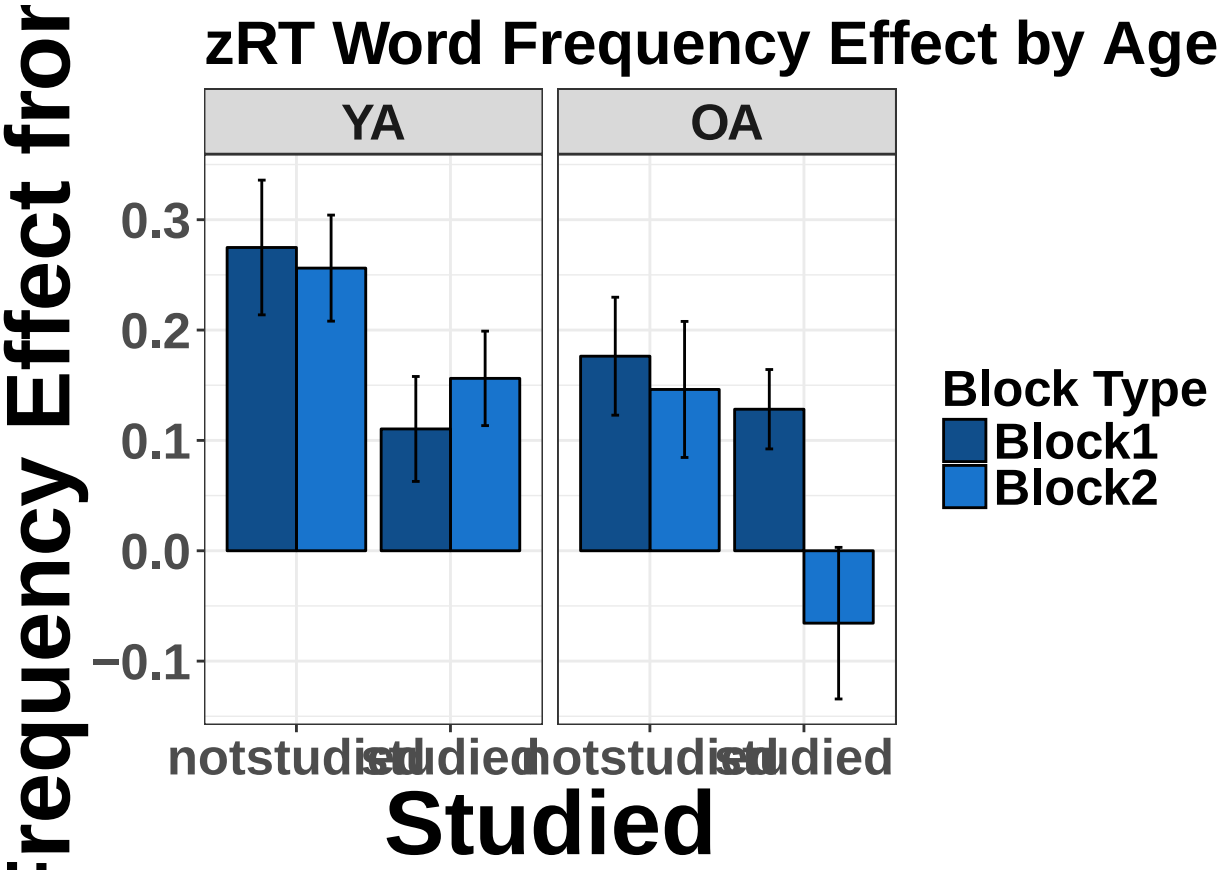
age	block	studied	N	WFeffect	sd	se	ci
OA	Block1	notstudied	36	0.18	0.32	0.05	0.11
OA	Block1	studied	36	0.13	0.22	0.04	0.07
OA	Block2	notstudied	36	0.15	0.37	0.06	0.13
OA	Block2	studied	36	-0.07	0.41	0.07	0.14
YA	Block1	notstudied	36	0.27	0.37	0.06	0.12
YA	Block1	studied	36	0.11	0.29	0.05	0.10
YA	Block2	notstudied	36	0.26	0.29	0.05	0.10
YA	Block2	studied	36	0.16	0.26	0.04	0.09

```
## Warning: Converting "Subject" to factor for ANOVA.
## Warning: Converting "studied" to factor for ANOVA.
## Warning: Converting "block" to factor for ANOVA.
## Warning: Converting "age" to factor for ANOVA.
```

Table 9: Word Frequency Effect (with zRTs)

	Effect	DFn	DFd	F	p	p<.05	ges
2	age	1	70	5.015	0.02831	*	0.02595
3	studied	1	70	11.16	0.001342	*	0.04127

	Effect	DFn	DFd	F	p	p<.05	ges
5	block	1	70	2.521	0.1168		0.006035
4	age:studied	1	70	0.0008219	0.9772		3.17e-06
6	age:block	1	70	4.103	0.04661	*	0.009786
7	studied:block	1	70	0.5696	0.4529		0.00154
8	age:studied:block	1	70	3.015	0.08691		0.008096



Collapsed Across Study

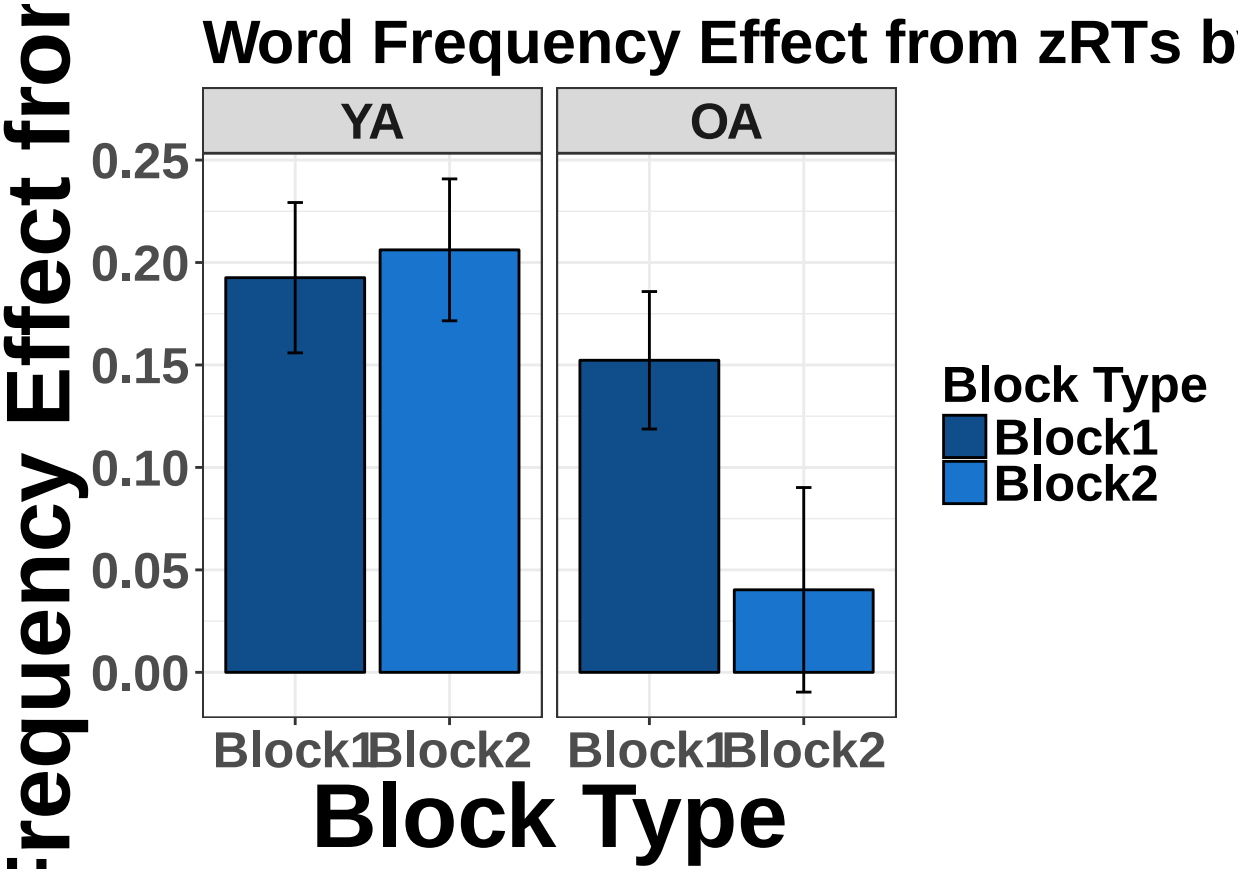
Table 10: Word Frequency Effect (using zRTs

age	block	N	WFeffect	sd	se	ci
OA	Block1	36	0.15	0.20	0.03	0.07
OA	Block2	36	0.04	0.30	0.05	0.10
YA	Block1	36	0.19	0.22	0.04	0.07
YA	Block2	36	0.21	0.21	0.03	0.07

```
## Warning: Converting "Subject" to factor for ANOVA.
## Warning: Converting "block" to factor for ANOVA.
## Warning: Converting "age" to factor for ANOVA.
```

Table 11: Word Frequency Effect (with zRTs)

	Effect	DFn	DFd	F	p	p<.05	ges
2	age	1	70	5.015	0.02831	*	0.04698
3	block	1	70	2.521	0.1168		0.01111
4	age:block	1	70	4.103	0.04661	*	0.01795



ANCOVA

```
##
## Error: Subject
##     Df  Sum Sq Mean Sq
## age  1 0.03349 0.03349
##
## Error: Within
##                Df Sum Sq Mean Sq F value   Pr(>F)
## age             1    0.0   0.005   0.005 0.942044
## studied         1    0.2   0.216   0.235 0.627646
## age:studied     1   10.7  10.746  11.691 0.000638 ***
## Residuals    2693 2475.3   0.919
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
```

Table 12: Analysis of Variance Model

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
age	1	0.03772	0.03772	0.04112	0.8393
studied	1	0.2163	0.2163	0.2358	0.6273
recog.ACC	1	7.079	7.079	7.717	0.005509
age:studied	1	8.65	8.65	9.43	0.002156
Residuals	2693	2470	0.9173	NA	NA

Priming Scores

```
## Joining, by = c("Subject", "age")
```

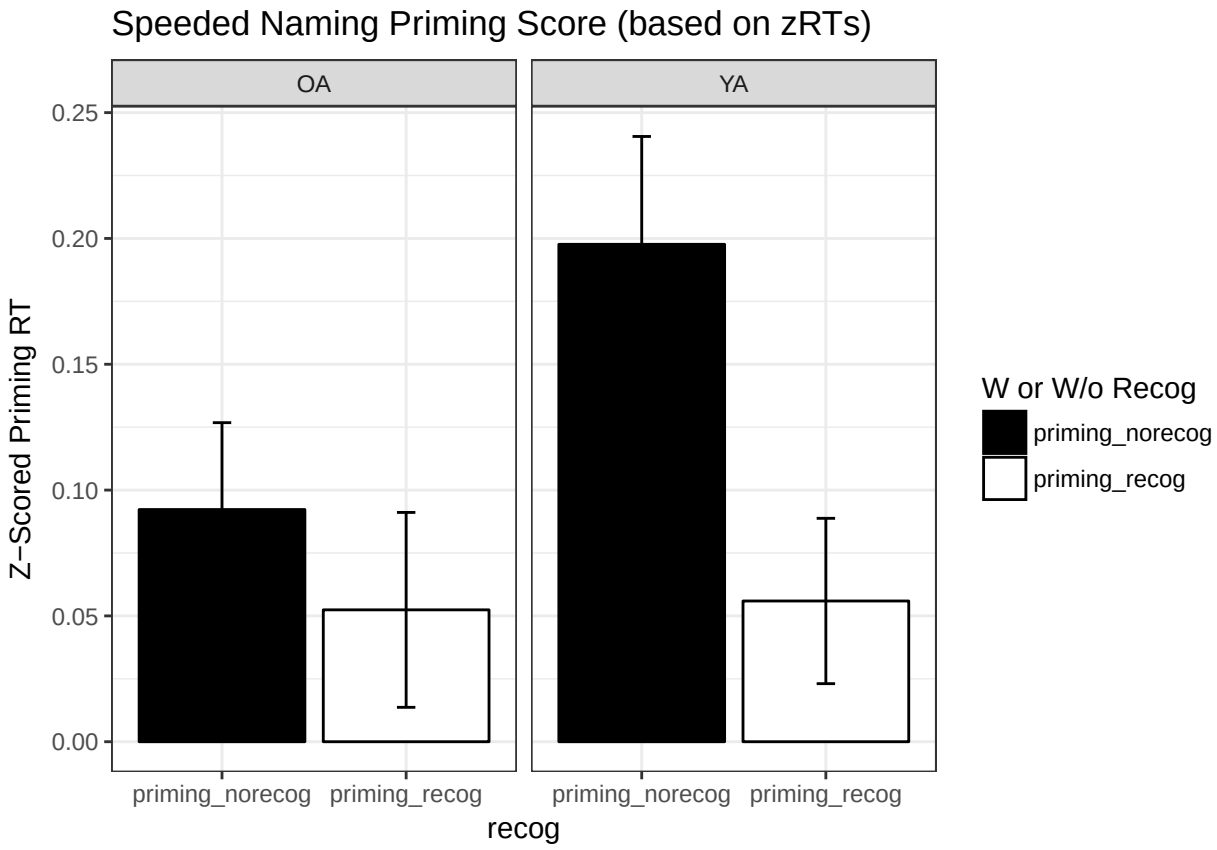
Table 13: Speeded Naming Mean Priming zRTs

age	recog	N	primingScore	sd	se	ci
OA	priming_norecog	36	0.09	0.21	0.03	0.07
OA	priming_recog	36	0.05	0.23	0.04	0.08
YA	priming_norecog	36	0.20	0.26	0.04	0.09
YA	priming_recog	36	0.06	0.20	0.03	0.07

```
## Warning: Converting "Subject" to factor for ANOVA.
```

Table 14: Priming Scores (using zRTs)

	Effect	DFn	DFd	F	p	p<.05	ges
2	age	1	70	1.83	0.1805		0.01488
3	recog	1	70	6.964	0.01025	*	0.0403
4	age:recog	1	70	2.192	0.1432		0.01304



Recognition

Study X Frequency

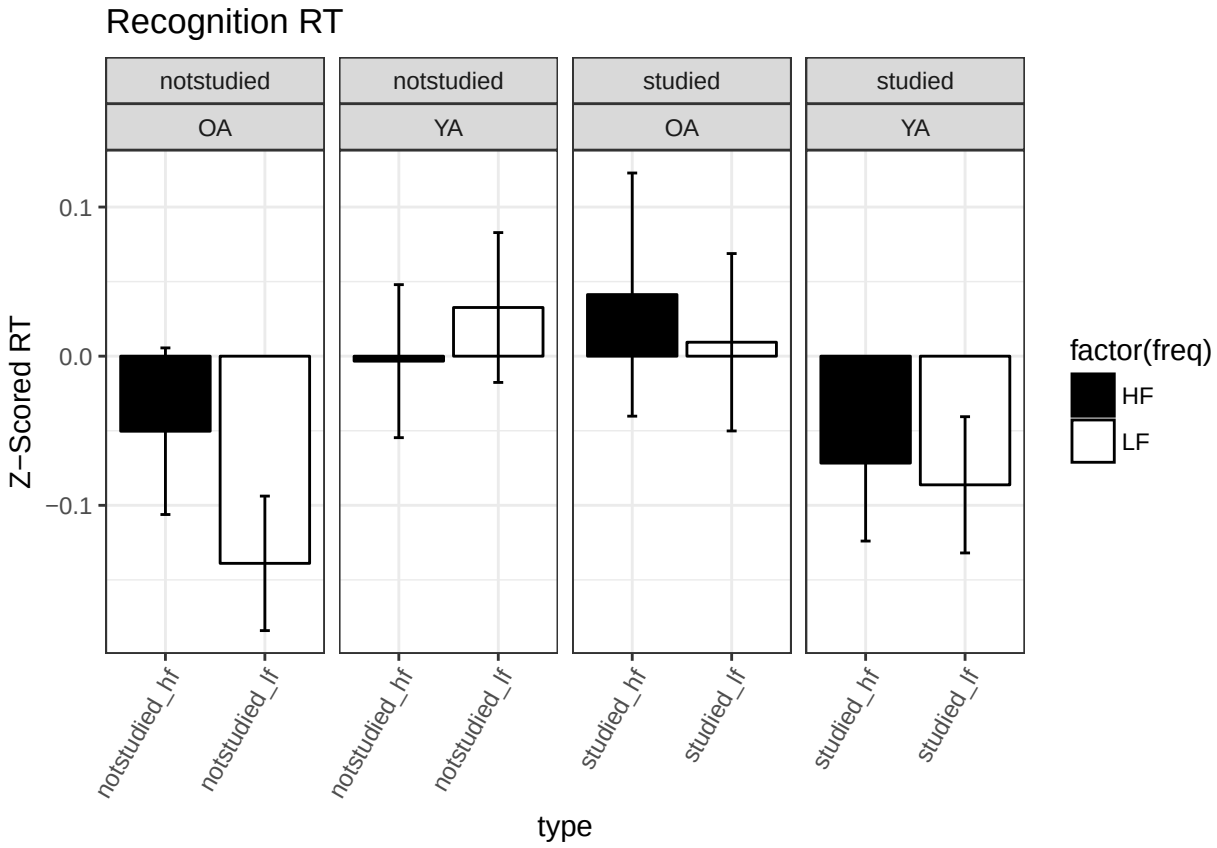
Table 15: Recognition Mean zRTs

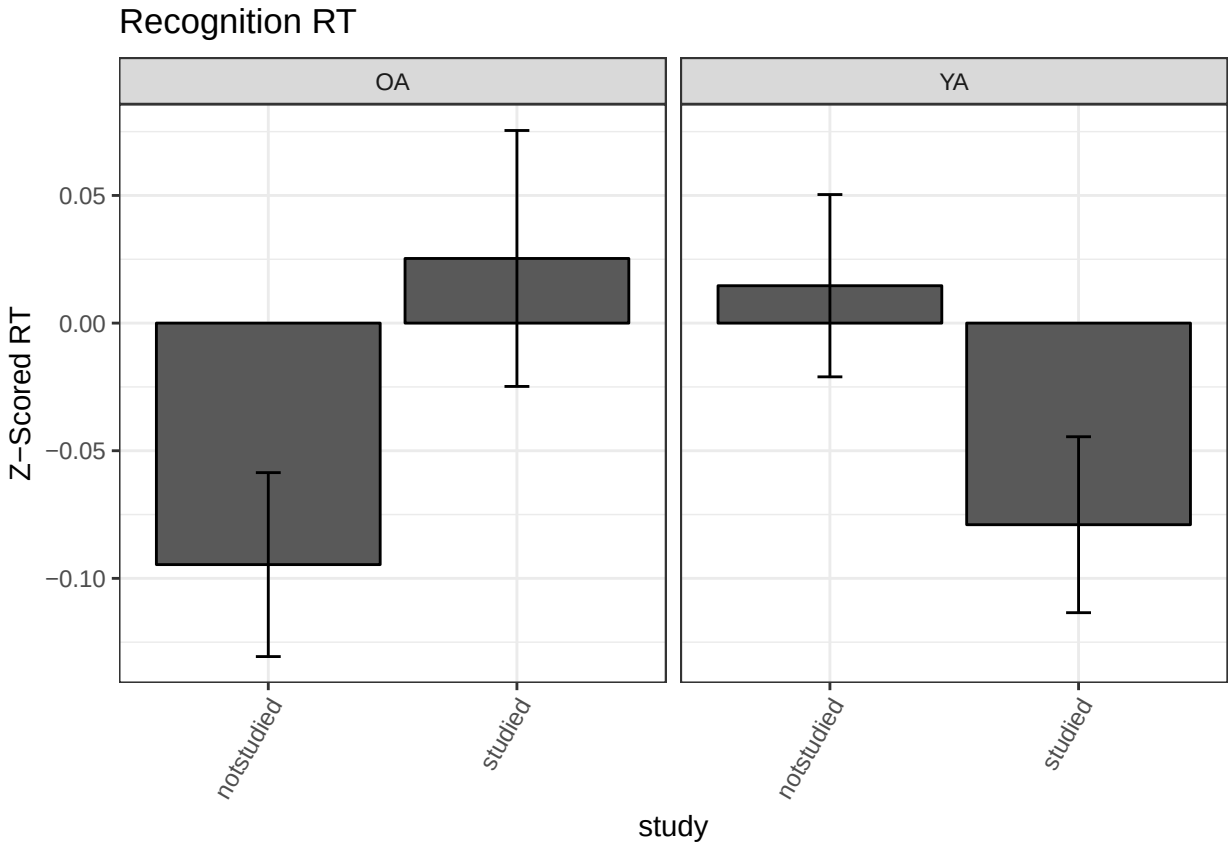
type	age	N	RT	sd	se	ci
notstudied_hf	OA	36	-0.05	0.34	0.06	0.11
notstudied_hf	YA	35	0.00	0.30	0.05	0.10
notstudied_lf	OA	36	-0.14	0.27	0.05	0.09
notstudied_lf	YA	35	0.03	0.30	0.05	0.10
studied_hf	OA	36	0.04	0.49	0.08	0.17
studied_hf	YA	35	-0.07	0.31	0.05	0.11
studied_lf	OA	36	0.01	0.36	0.06	0.12
studied_lf	YA	35	-0.09	0.27	0.05	0.09

```
## Warning: Converting "Subject" to factor for ANOVA.
## Warning: Converting "study" to factor for ANOVA.
## Warning: Converting "freq" to factor for ANOVA.
## Warning: Converting "age" to factor for ANOVA.
## Warning: Data is unbalanced (unequal N per group). Make sure you specified
## a well-considered value for the type argument to ezANOVA().
```

Table 16: Implict Encoding zRTs

	Effect	DFn	DFd	F	p	p<.05	ges
2	age	1	69	0.01425	0.9053		1.401e-05
3	study	1	69	0.09123	0.7635		0.0004885
5	freq	1	69	0.2996	0.5859		0.001453
4	age:study	1	69	4.844	0.03109	*	0.02529
6	age:freq	1	69	0.5901	0.445		0.002858
7	study:freq	1	69	0.00251	0.9602		8.271e-06
8	age:study:freq	1	69	0.4958	0.4837		0.001631





Study

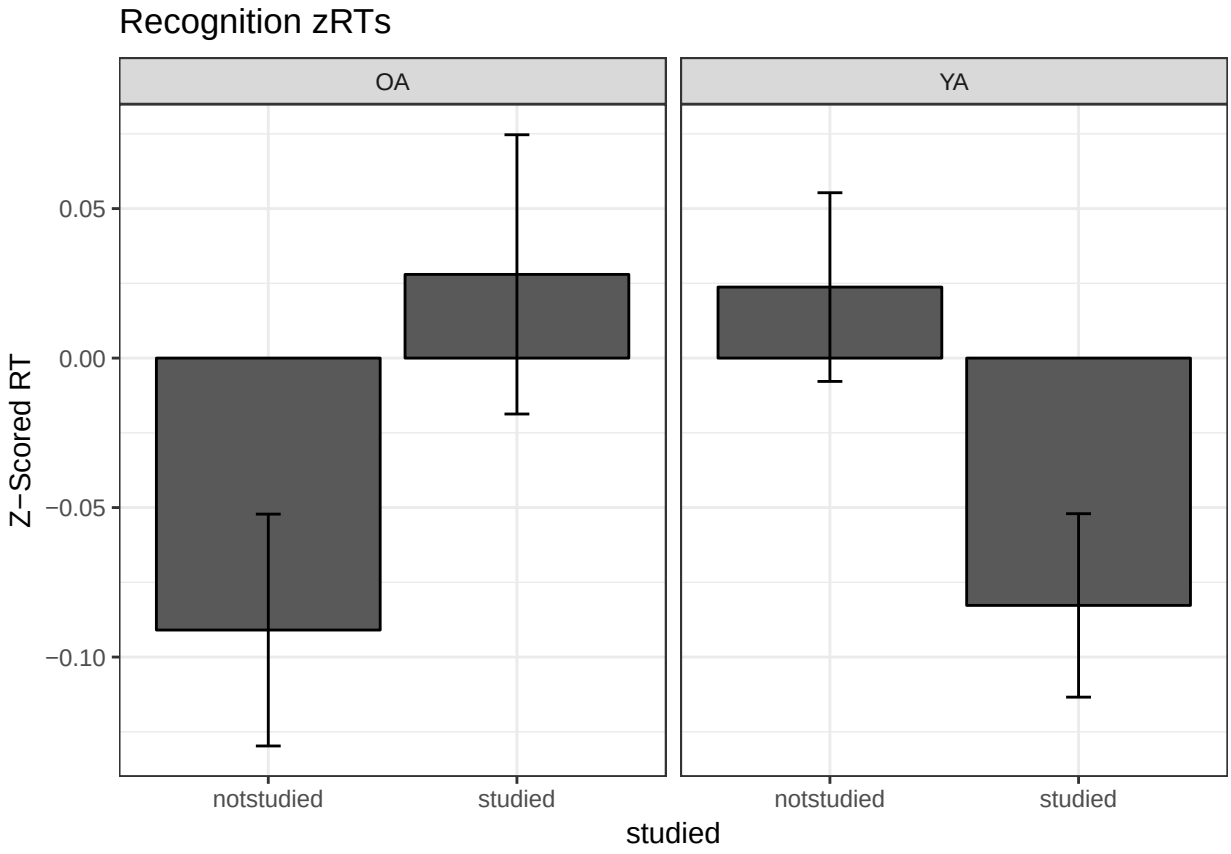
Table 17: Recognition Mean zRTs

studied	age	N	RT	sd	se	ci
notstudied	OA	36	-0.09	0.23	0.04	0.08
notstudied	YA	35	0.02	0.19	0.03	0.06
studied	OA	36	0.03	0.28	0.05	0.09
studied	YA	35	-0.08	0.18	0.03	0.06

```
## Warning: Converting "Subject" to factor for ANOVA.
## Warning: Converting "studied" to factor for ANOVA.
## Warning: Converting "age" to factor for ANOVA.
## Warning: Data is unbalanced (unequal N per group). Make sure you specified
## a well-considered value for the type argument to ezANOVA().
```

Table 18: Implict Encoding zRTs

	Effect	DFn	DFd	F	p	p<.05	ges
2	age	1	69	0.009703	0.9218		2.038e-05
3	studied	1	69	0.02527	0.8742		0.0003131
4	age:studied	1	69	5.237	0.02518	*	0.06094



Raw, Trimmed Response Times

Speeded Naming

```
## Joining, by = c("Subject", "block", "type", "RT", "freq", "studied")
```

Study X Frequency

Table 19: Speeded Naming Mean Raw, Trimmed RTs

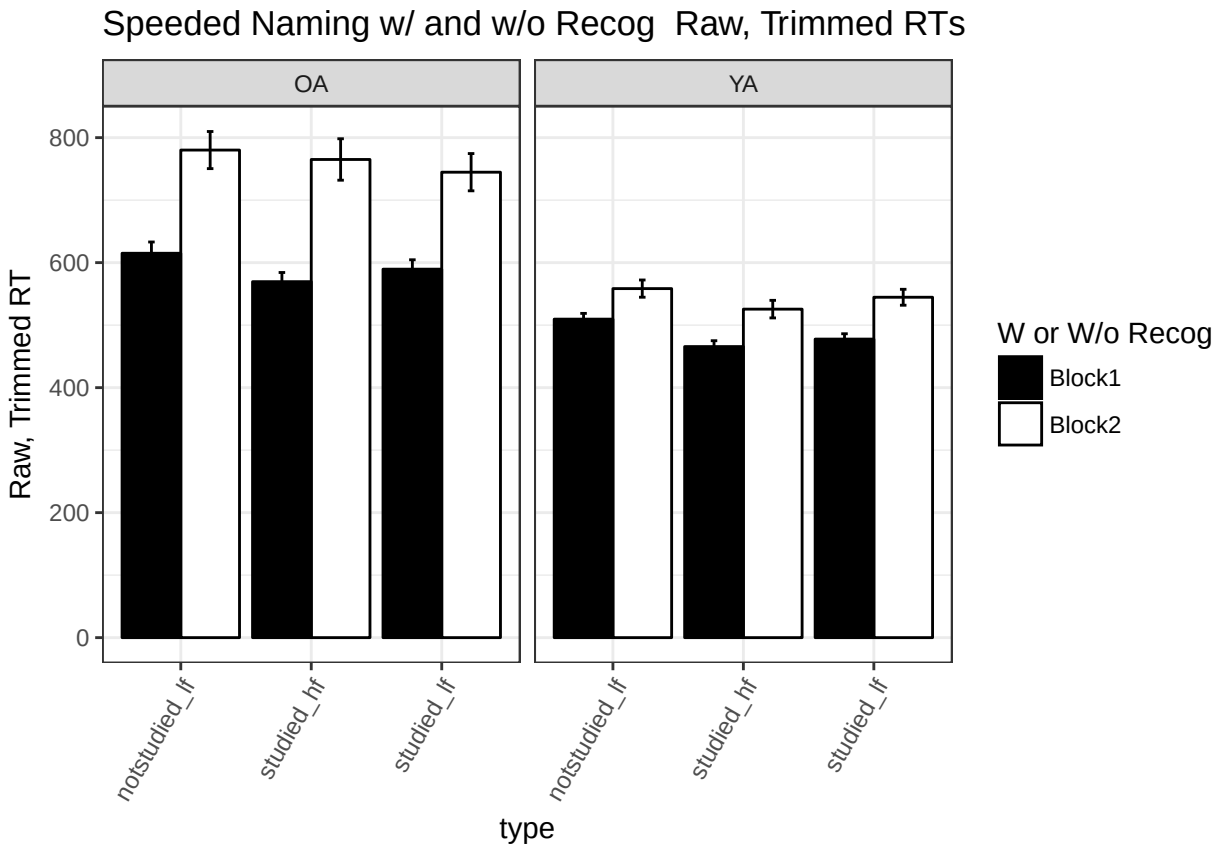
block	type	age	N	RT	sd	se	ci
Block1	notstudied_lf	OA	36	615.00	108.41	18.07	36.68
Block1	notstudied_lf	YA	36	509.62	55.30	9.22	18.71
Block1	studied_hf	OA	36	569.57	87.87	14.65	29.73
Block1	studied_hf	YA	36	465.68	56.48	9.41	19.11
Block1	studied_lf	OA	36	589.59	90.03	15.01	30.46
Block1	studied_lf	YA	36	477.69	51.26	8.54	17.34
Block2	notstudied_lf	OA	36	780.12	178.26	29.71	60.31
Block2	notstudied_lf	YA	36	558.47	82.64	13.77	27.96
Block2	studied_hf	OA	36	765.06	198.95	33.16	67.31
Block2	studied_hf	YA	36	525.62	84.36	14.06	28.54
Block2	studied_lf	OA	36	744.73	178.75	29.79	60.48
Block2	studied_lf	YA	36	544.62	76.45	12.74	25.87

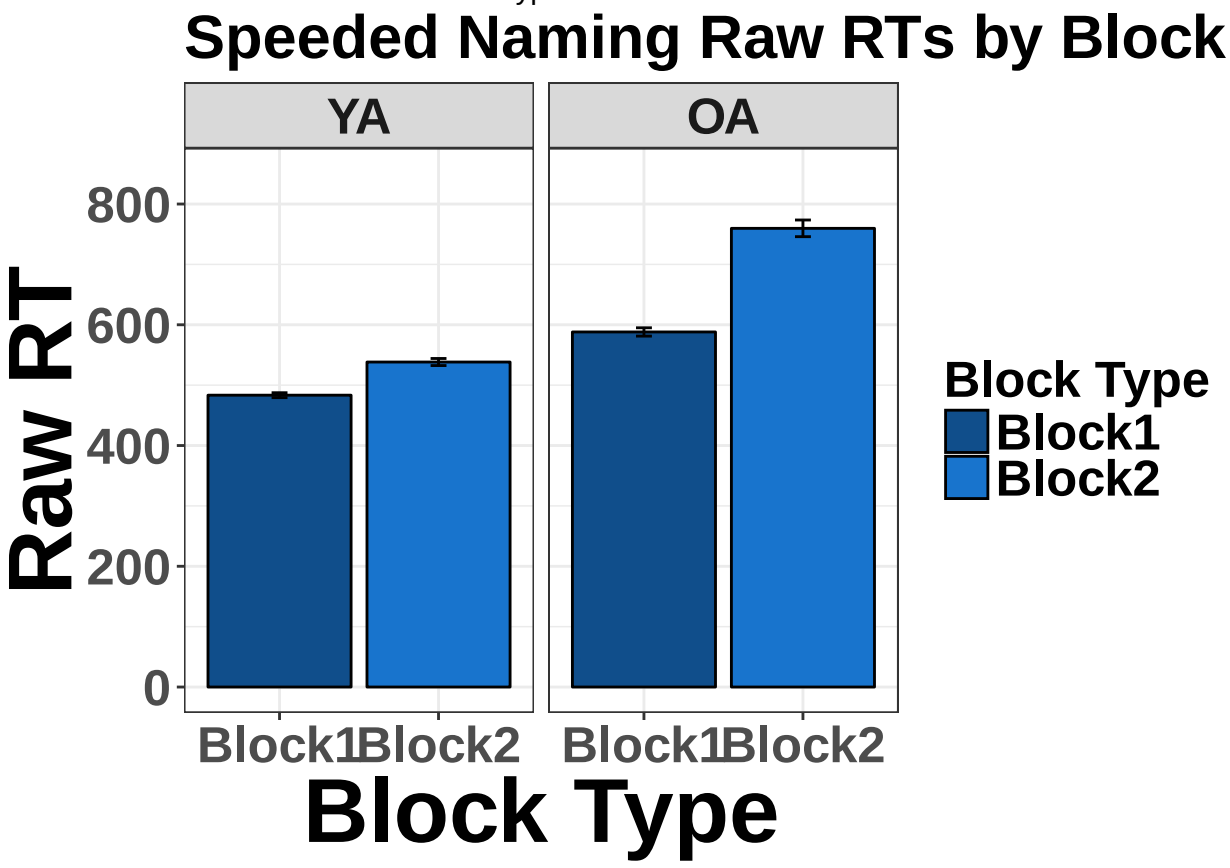
Table 20: Analysis of Variance Table

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
age	1	2895125	2895125	217.7	5.354e-40
studied	1	89202	89202	6.709	0.009927
freq	1	4238	4238	0.3187	0.5727
block	1	1434388	1434388	107.9	1.205e-22
age:studied	1	2.477	2.477	0.0001863	0.9891
age:freq	1	4416	4416	0.3321	0.5647
age:block	1	346885	346885	26.09	4.956e-07
studied:block	1	3685	3685	0.2772	0.5988
freq:block	1	5003	5003	0.3763	0.5399
age:studied:block	1	116.1	116.1	0.008732	0.9256
age:freq:block	1	10088	10088	0.7587	0.3842
Residuals	420	5584433	13296	NA	NA

Table 21: Implict Encoding Raw, Trimmed RTs

	Effect	DFn	DFd	F	p	p<.05	ges
2	age	1	69	0.009703	0.9218		2.038e-05
3	studied	1	69	0.02527	0.8742		0.0003131
4	age:studied	1	69	5.237	0.02518	*	0.06094

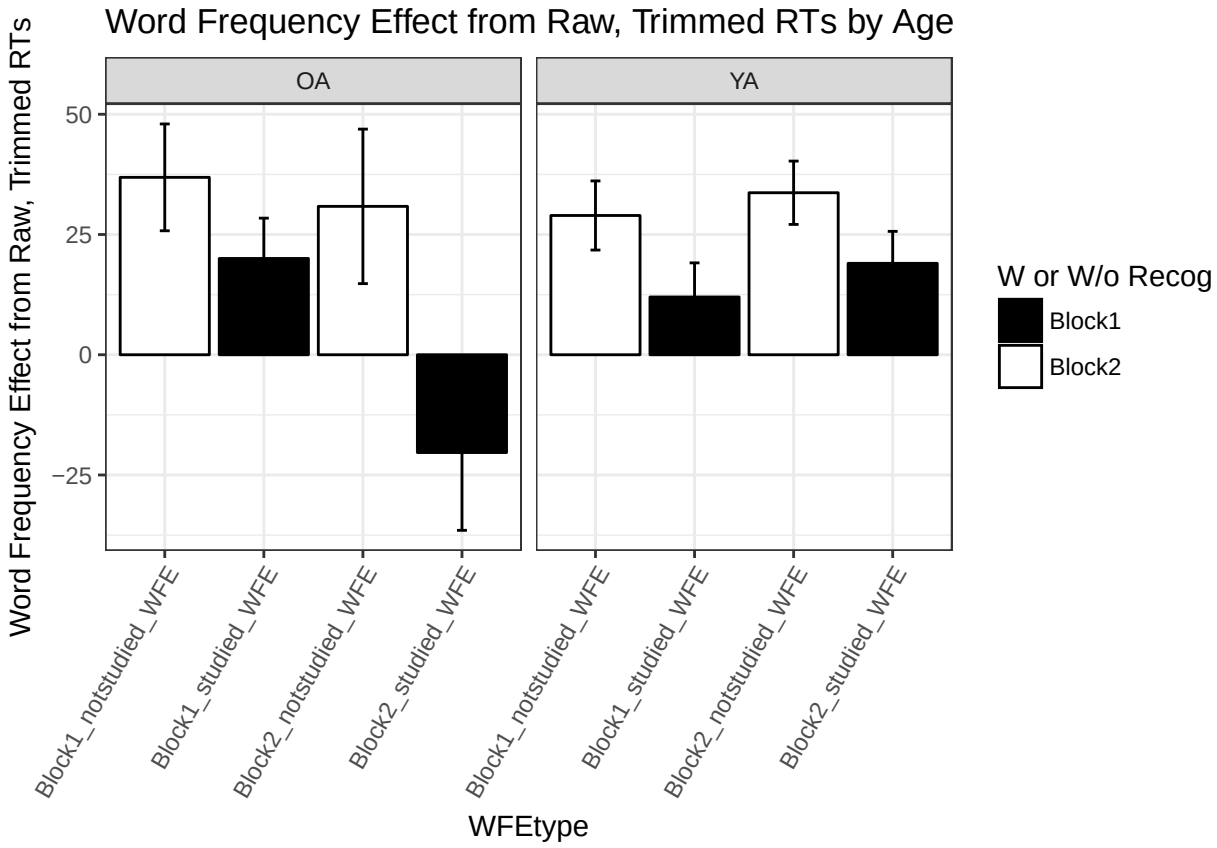

Speeded Naming w/ and w/o Recog Raw, Trimmed RTs
OA
YA
800
600
400
200
0
Raw, Trimmed RT
notstudied_lf
studied_hf
studied_lf
notstudied_lf
studied_hf
studied_lf
type
W or W/o Recog
Block1
Block2


Speeded Naming Raw RTs by Block
YA
OA
800
600
400
200
0
Raw RT
Block1
Block2
Block1
Block2
Block Type
Block Type
Block1
Block2

Word Frequency Effect

Table 22: Word Frequency Effect (using raw, trimmed RTs

WFEtype	age	block	N	WFeffect	sd	se	ci
Block1_notstudied_WFE	OA	Block2	36	36.88	66.62	11.10	22.54
Block1_notstudied_WFE	YA	Block2	36	28.96	43.13	7.19	14.59
Block1_studied_WFE	OA	Block1	36	20.01	50.32	8.39	17.03
Block1_studied_WFE	YA	Block1	36	12.00	42.58	7.10	14.41
Block2_notstudied_WFE	OA	Block2	36	30.85	96.38	16.06	32.61
Block2_notstudied_WFE	YA	Block2	36	33.68	39.50	6.58	13.37
Block2_studied_WFE	OA	Block1	36	-20.33	97.05	16.17	32.84
Block2_studied_WFE	YA	Block1	36	19.00	39.89	6.65	13.50



Collapsed Across Study

Table 23: Word Frequency Effect (using zRTs

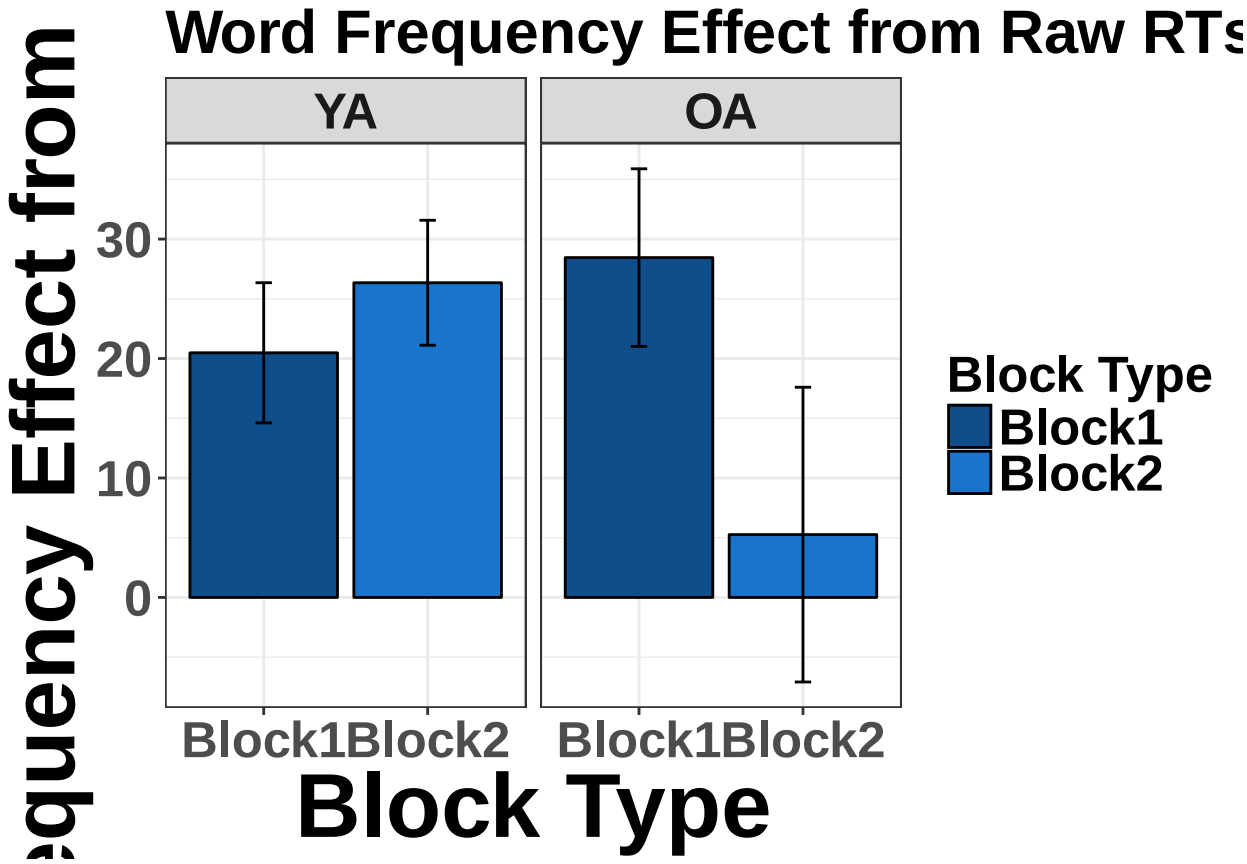
age	block	N	WFeffect	sd	se	ci
OA	Block1	36	28.45	44.61	7.44	15.09
OA	Block2	36	5.26	74.02	12.34	25.04
YA	Block1	36	20.48	35.20	5.87	11.91
YA	Block2	36	26.34	31.38	5.23	10.62

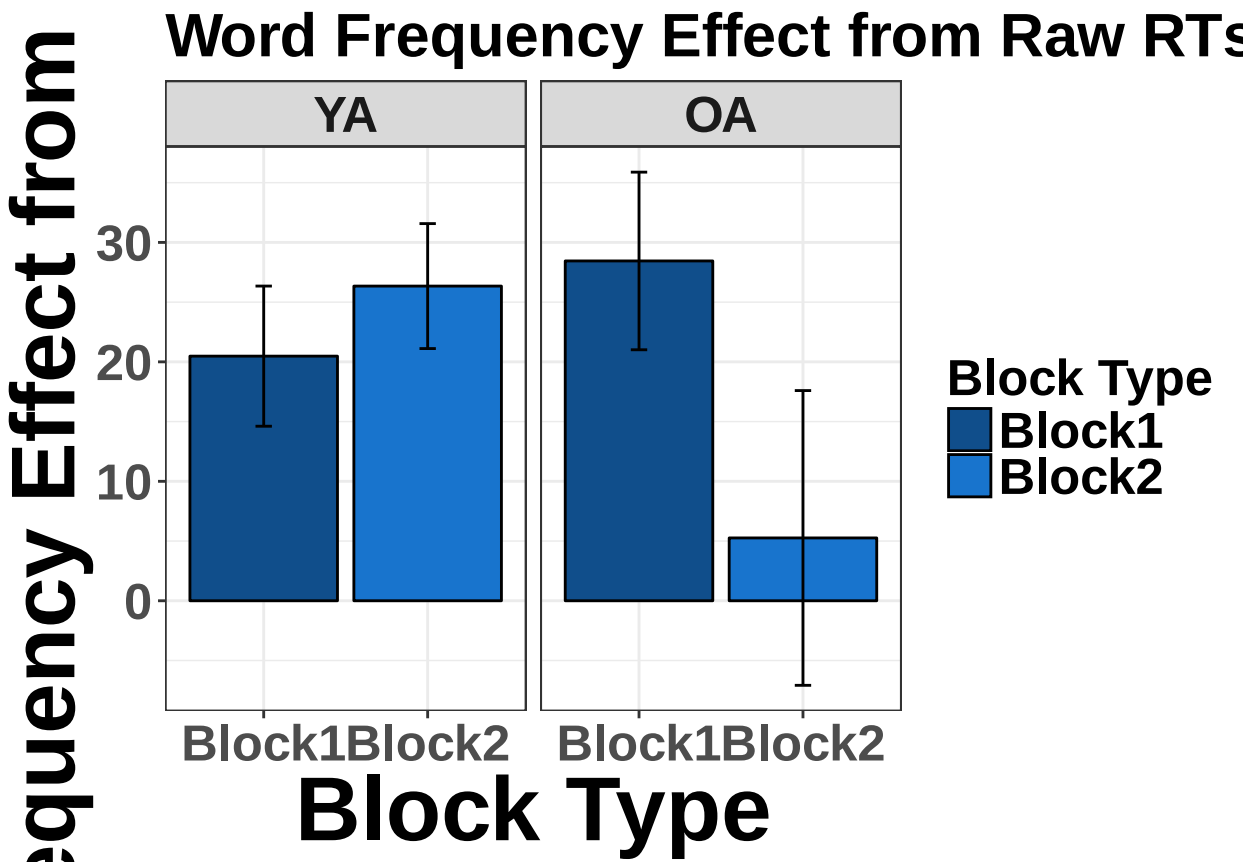
```
## Warning: Converting "Subject" to factor for ANOVA.
```

```
## Warning: Converting "block" to factor for ANOVA.
## Warning: Converting "age" to factor for ANOVA.
```

Table 24: Word Frequency Effect (with zRTs)

	Effect	DFn	DFd	F	p	p<.05	ges
2	age	1	70	0.5113	0.4769		0.004543
3	block	1	70	1.485	0.2271		0.007898
4	age:block	1	70	4.177	0.04474	*	0.0219





WFE by Block

Block 1

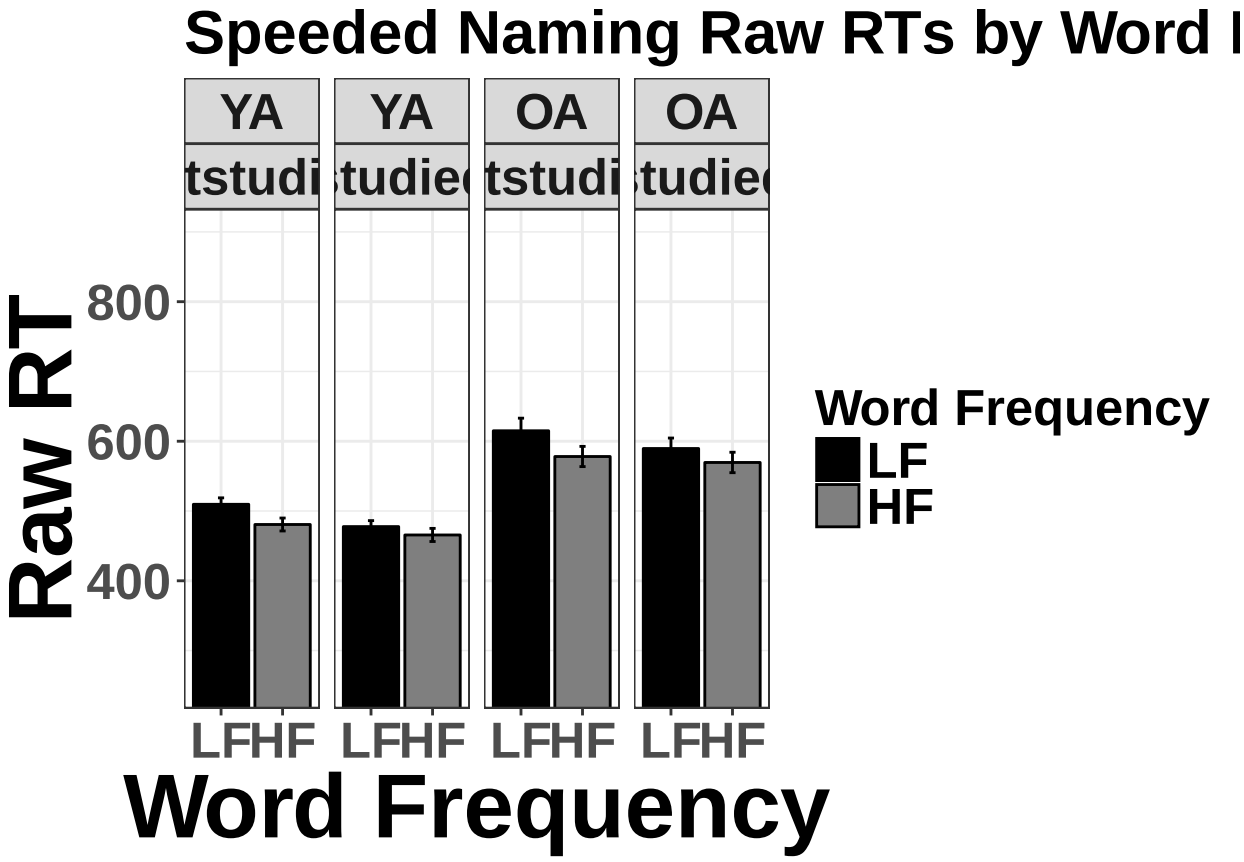
Table 25: Speeded Naming Mean Raw RTs - Block 1 Only

studied	freq	age	N	RT	sd	se	ci
notstudied	HF	OA	36	578.12	86.90	14.48	29.40
notstudied	HF	YA	36	480.67	55.44	9.24	18.76
notstudied	LF	OA	36	615.00	108.41	18.07	36.68
notstudied	LF	YA	36	509.62	55.30	9.22	18.71
studied	HF	OA	36	569.57	87.87	14.65	29.73
studied	HF	YA	36	465.68	56.48	9.41	19.11
studied	LF	OA	36	589.59	90.03	15.01	30.46
studied	LF	YA	36	477.69	51.26	8.54	17.34

Table 26: Analysis of Variance Table

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
age	1	788553	788553	134	1.39e-25
studied	1	29435	29435	5.002	0.02611
freq	1	43087	43087	7.321	0.007232
age:studied	1	756.6	756.6	0.1286	0.7202

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
age:freq	1	1143	1143	0.1942	0.6598
studied:freq	1	5147	5147	0.8746	0.3505
age:studied:freq	1	0.03244	0.03244	5.513e-06	0.9981
Residuals	280	1647831	5885	NA	NA



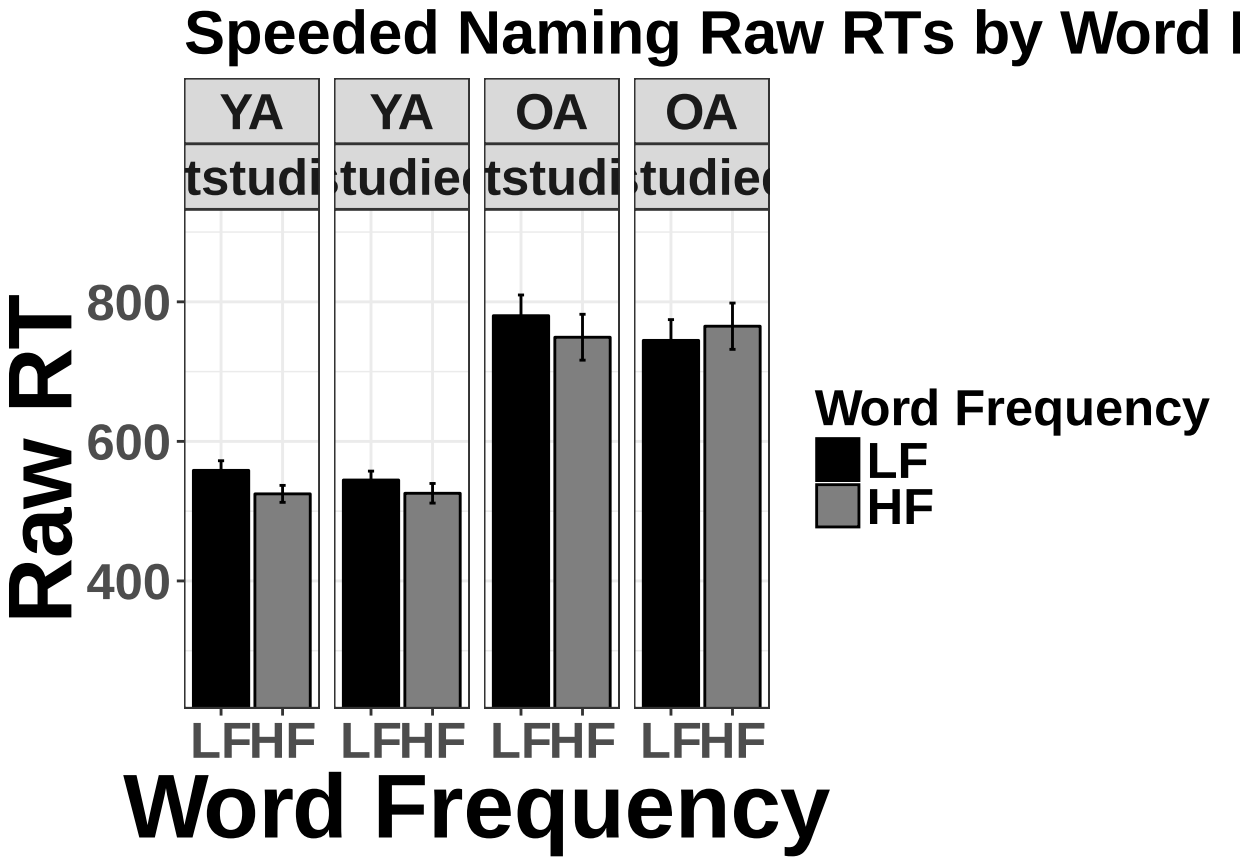
Block 2

Table 27: Speeded Naming Mean Raw RTs - Block 2 Only

studied	freq	age	N	RT	sd	se	ci
notstudied	HF	OA	36	749.27	197.19	32.86	66.72
notstudied	HF	YA	36	524.79	72.95	12.16	24.68
notstudied	LF	OA	36	780.12	178.26	29.71	60.31
notstudied	LF	YA	36	558.47	82.64	13.77	27.96
studied	HF	OA	36	765.06	198.95	33.16	67.31
studied	HF	YA	36	525.62	84.36	14.06	28.54
studied	LF	OA	36	744.73	178.75	29.79	60.48
studied	LF	YA	36	544.62	76.45	12.74	25.87

Table 28: Analysis of Variance Table

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
age	1	3529992	3529992	168.8	1.597e-30
studied	1	4787	4787	0.2289	0.6327
freq	1	17977	17977	0.8596	0.3546
age:studied	1	195.3	195.3	0.009336	0.9231
age:freq	1	8001	8001	0.3826	0.5367
studied:freq	1	19519	19519	0.9333	0.3348
age:studied:freq	1	5997	5997	0.2868	0.5927
Residuals	280	5855645	20913	NA	NA



ANCOVA

```
##
## Error: Subject
##     Df   Sum Sq  Mean Sq
## age  1 19414047 19414047
##
## Error: Within
##               Df    Sum Sq Mean Sq F value   Pr(>F)
## age            1   2188656 2188656  18.109 2.16e-05 ***
## studied        1     45619   45619   0.377    0.539
## age:studied    1    200564  200564   1.659    0.198
## Residuals   2780 335999339  120863
```

```
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
##               Df    Sum Sq  Mean Sq F value   Pr(>F)
## age            1  21433224 21433224 178.099  < 2e-16 ***
## studied        1     45667    45667   0.379 0.537939
## recog.ACC      1   1737821  1737821  14.440 0.000148 ***
## age:studied    1     73328    73328   0.609 0.435112
## Residuals   2780 334558185   120345
## ---
## Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
## 95 observations deleted due to missingness
```

Priming Scores

```
## Joining, by = c("Subject", "age")
```

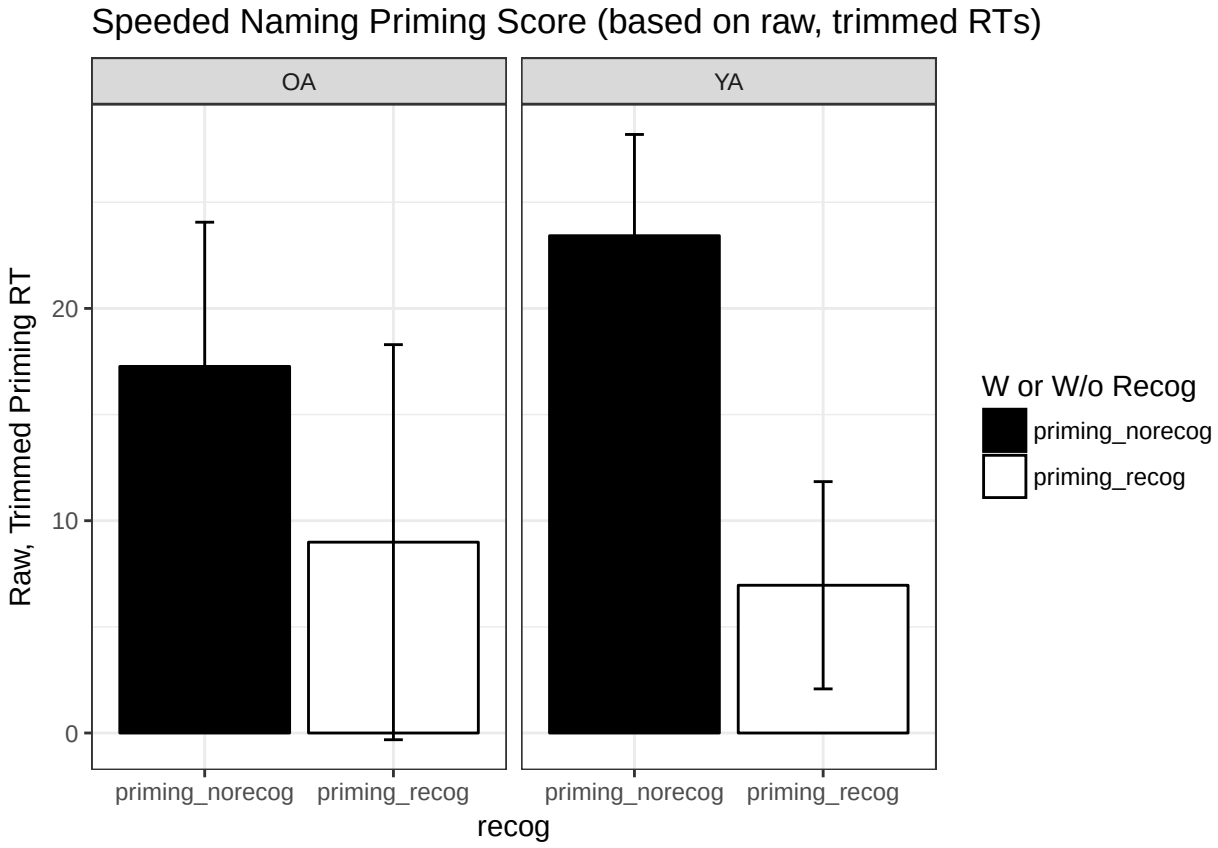
Table 29: Speeded Naming Mean Priming Raw, Trimmed RTs

age	recog	N	primingScore	sd	se	ci
OA	priming_norecog	36	17.27	40.76	6.79	13.79
OA	priming_recog	36	8.99	55.83	9.31	18.89
YA	priming_norecog	36	23.42	28.62	4.77	9.68
YA	priming_recog	36	6.96	29.29	4.88	9.91

```
## Warning: Converting "Subject" to factor for ANOVA.
```

Table 30: Priming Scores (based on raw, trimmed RTs)

	Effect	DFn	DFd	F	p	p<.05	ges
2	age	1	70	0.07926	0.7791		0.000678
3	recog	1	70	4.26	0.04273	*	0.02381
4	age:recog	1	70	0.4662	0.497		0.002662



Recognition

Study X Frequency (Hits & Correct Rejections)

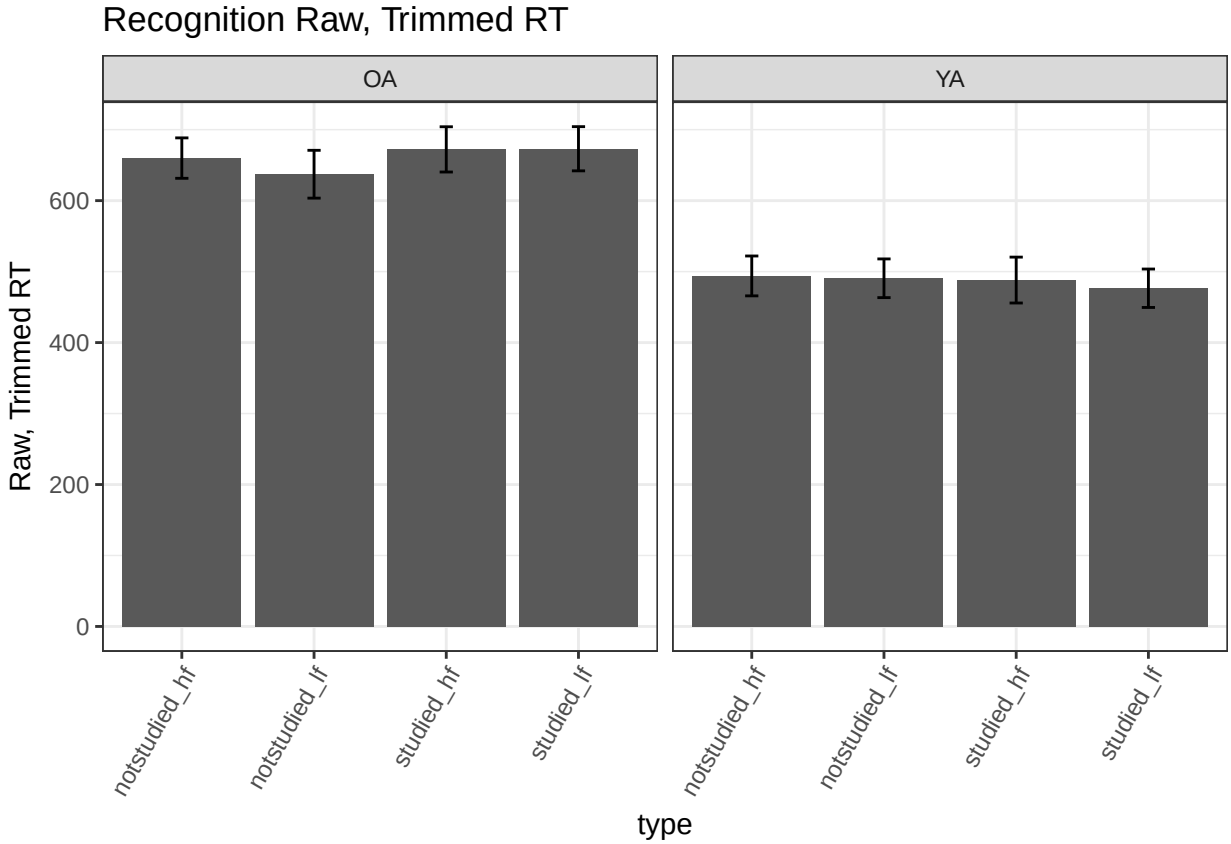
Table 31: Recognition Mean Raw, Trimmed RTs

type	age	N	RT	sd	se	ci
notstudied_hf	OA	36	659.93	170.92	28.49	57.83
notstudied_hf	YA	35	493.91	166.23	28.10	57.10
notstudied_lf	OA	36	637.21	202.15	33.69	68.40
notstudied_lf	YA	35	490.61	161.25	27.26	55.39
studied_hf	OA	36	672.21	191.32	31.89	64.73
studied_hf	YA	35	488.07	191.31	32.34	65.72
studied_lf	OA	36	673.09	186.77	31.13	63.19
studied_lf	YA	35	476.56	160.17	27.07	55.02

```
## Warning: Converting "Subject" to factor for ANOVA.
## Warning: Converting "study" to factor for ANOVA.
## Warning: Converting "freq" to factor for ANOVA.
## Warning: Converting "age" to factor for ANOVA.
## Warning: Data is unbalanced (unequal N per group). Make sure you specified
## a well-considered value for the type argument to ezANOVA().
```

Table 32: Implict Encoding Raw, Trimmed RTs

	Effect	DFn	DFd	F	p	p<.05	ges
2	age	1	69	25.29	3.734e-06	*	0.1934
3	study	1	69	0.2431	0.6235		0.0004264
5	freq	1	69	0.2973	0.5873		0.0006733
4	age:study	1	69	1.316	0.2553		0.002304
6	age:freq	1	69	0.01087	0.9173		2.463e-05
7	study:freq	1	69	0.1262	0.7234		0.0001253
8	age:study:freq	1	69	0.5089	0.478		0.0005051



Study

Table 33: Recognition Mean Raw, Trimmed RTs

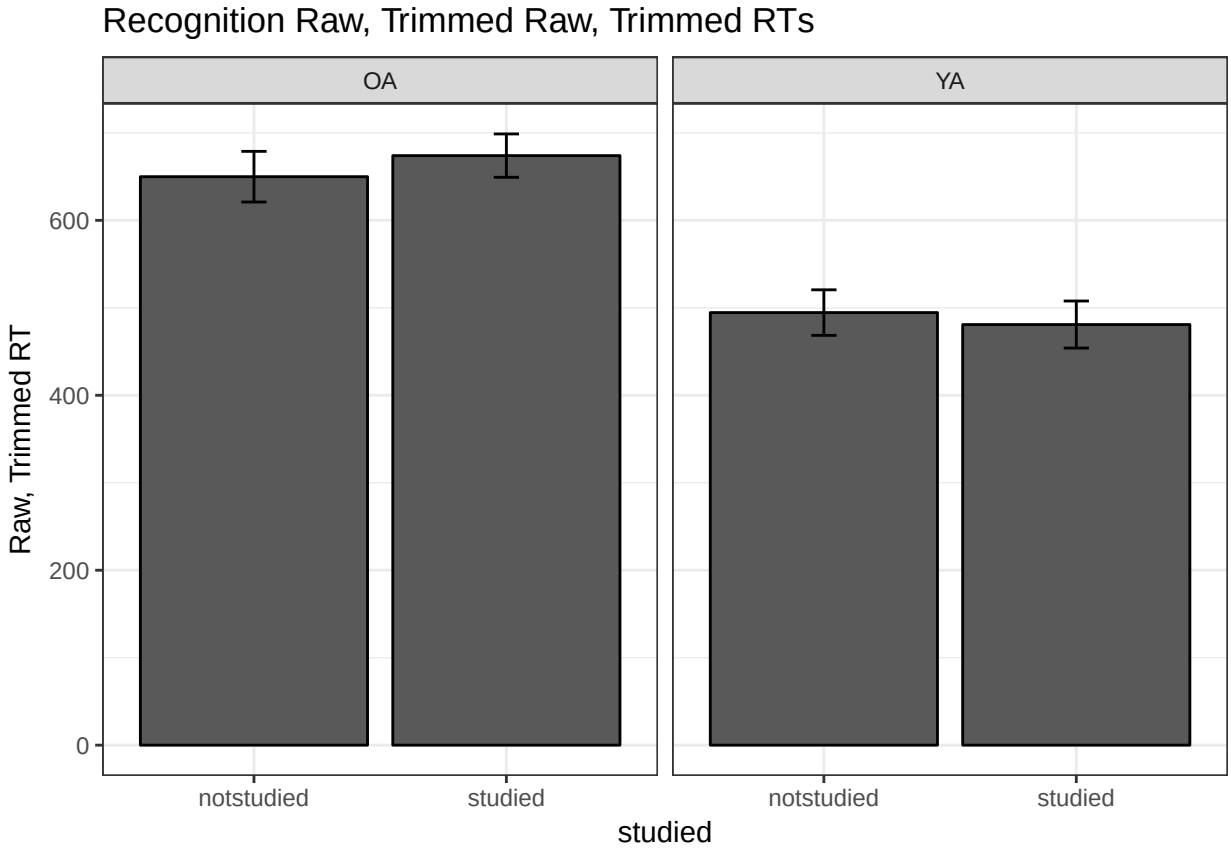
studied	age	N	RT	sd	se	ci
notstudied	OA	36	649.90	173.74	28.96	58.78
notstudied	YA	35	494.54	153.99	26.03	52.90
studied	OA	36	673.98	148.74	24.79	50.33
studied	YA	35	480.85	159.22	26.91	54.69

```
## Warning: Converting "Subject" to factor for ANOVA.
## Warning: Converting "studied" to factor for ANOVA.
## Warning: Converting "age" to factor for ANOVA.
```

```
## Warning: Data is unbalanced (unequal N per group). Make sure you specified
## a well-considered value for the type argument to ezANOVA().
```

Table 34: Implict Encoding Raw, Trimmed RTs

	Effect	DFn	DFd	F	p	p<.05	ges
2	age	1	69	25.38	3.612e-06	*	0.2355
3	studied	1	69	0.1283	0.7213		0.0003026
4	age:studied	1	69	1.533	0.2198		0.003603



Accuracy

Speeded Naming

Study X Frequency

```
## Joining, by = c("Subject", "age", "recog", "type", "acc")
```

Table 35: Speeded Naming Mean Accuracy

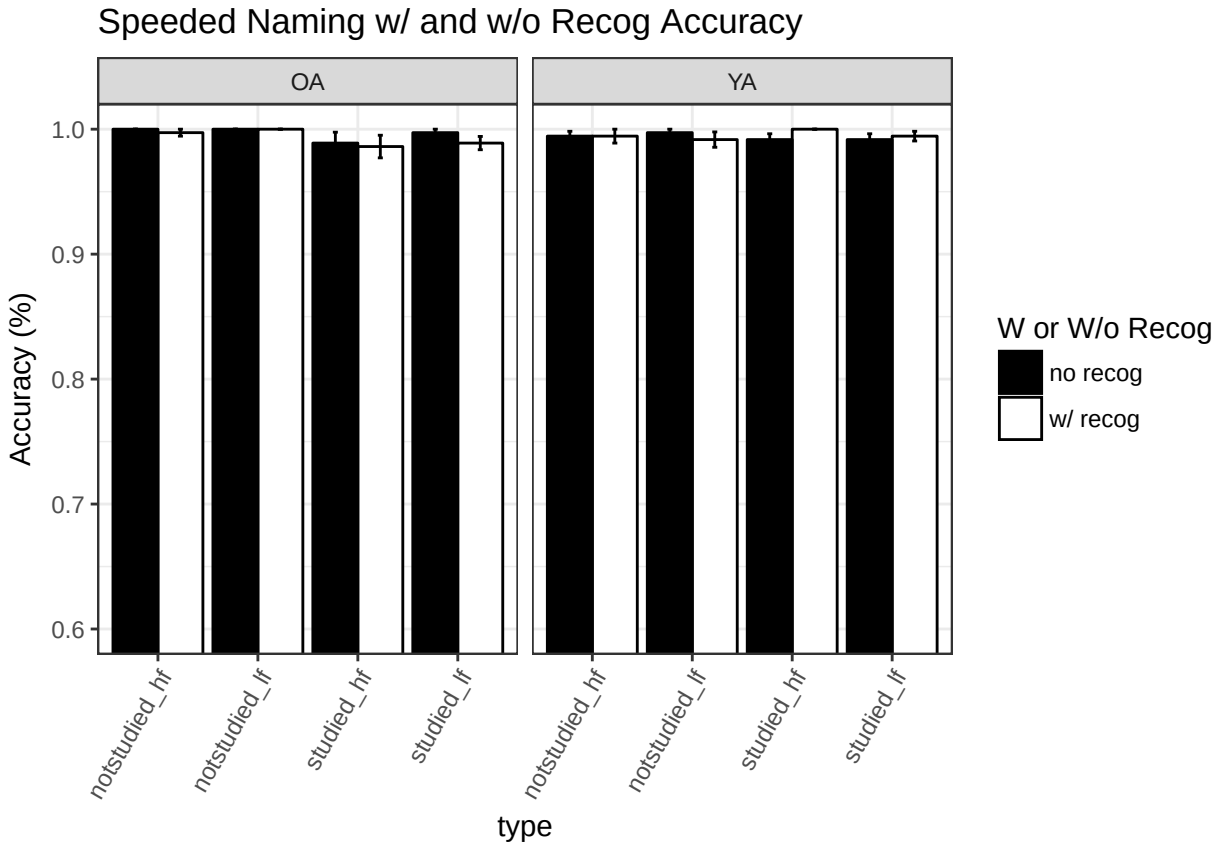
recog	type	age	N	acc	sd	se	ci
no recog	notstudied_hf	OA	36	1.00	0.00	0.00	0.00
no recog	notstudied_hf	YA	36	0.99	0.02	0.00	0.01
no recog	notstudied_lf	OA	36	1.00	0.00	0.00	0.00

recog	type	age	N	acc	sd	se	ci
no recog	notstudied_lf	YA	36	1.00	0.02	0.00	0.01
no recog	studied_hf	OA	36	0.99	0.05	0.01	0.02
no recog	studied_hf	YA	36	0.99	0.03	0.00	0.01
no recog	studied_lf	OA	36	1.00	0.02	0.00	0.01
no recog	studied_lf	YA	36	0.99	0.03	0.00	0.01
w/ recog	notstudied_hf	OA	36	1.00	0.02	0.00	0.01
w/ recog	notstudied_hf	YA	36	0.99	0.03	0.01	0.01
w/ recog	notstudied_lf	OA	36	1.00	0.00	0.00	0.00
w/ recog	notstudied_lf	YA	36	0.99	0.04	0.01	0.01
w/ recog	studied_hf	OA	36	0.99	0.05	0.01	0.02
w/ recog	studied_hf	YA	36	1.00	0.00	0.00	0.00
w/ recog	studied_lf	OA	36	0.99	0.03	0.01	0.01
w/ recog	studied_lf	YA	36	0.99	0.02	0.00	0.01

```
## Warning: Converting "Subject" to factor for ANOVA.
## Warning: Converting "studied" to factor for ANOVA.
## Warning: Converting "freq" to factor for ANOVA.
## Warning: Converting "recog" to factor for ANOVA.
## Warning: Converting "age" to factor for ANOVA.
```

Table 36: Implict Encoding Accuracy

	Effect	DFn	DFd	F	p	p<.05	ges
2	age	1	70	0.01135	0.9155		3.923e-05
3	studied	1	70	1.904	0.172		0.006587
5	freq	1	70	0.2291	0.6337		0.000353
7	recog	1	70	0.2559	0.6145		0.000353
4	age:studied	1	70	1.904	0.172		0.006587
6	age:freq	1	70	1.247	0.2679		0.001919
8	age:recog	1	70	1.393	0.2419		0.001919
9	studied:freq	1	70	0.02516	0.8744		3.923e-05
11	studied:recog	1	70	0.3398	0.5618		0.000353
13	freq:recog	1	70	1.079	0.3025		0.0009799
10	age:studied:freq	1	70	0.629	0.4304		0.0009799
12	age:studied:recog	1	70	3.058	0.08471		0.003168
14	age:freq:recog	1	70	0.3884	0.5352		0.000353
15	studied:freq:recog	1	70	0.3846	0.5372		0.000353
16	age:studied:freq:recog	1	70	0.3846	0.5372		0.000353



Recognition

Study X Frequency

Table 37: Recognition Accuracy

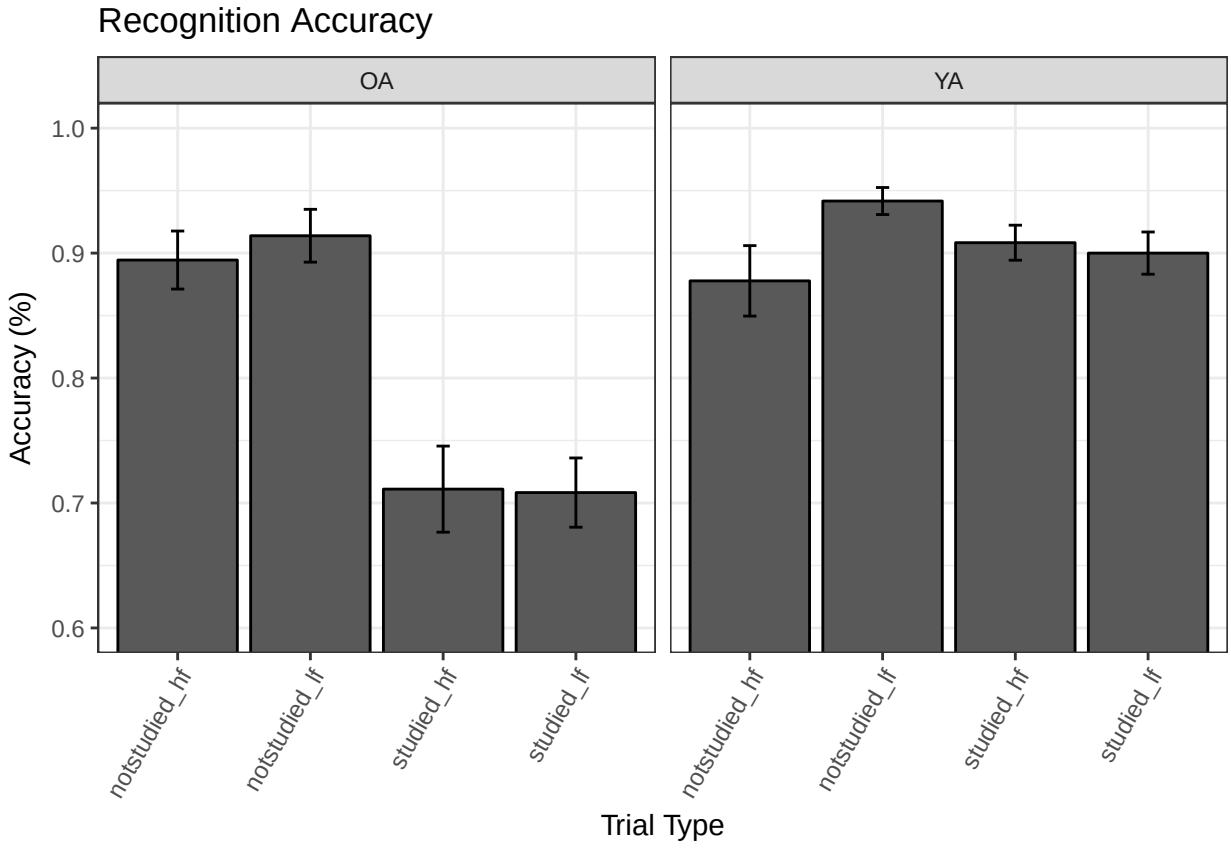
type	age	N	accuracy	sd	se	ci
notstudied_hf	OA	36	0.89	0.14	0.02	0.05
notstudied_hf	YA	36	0.88	0.17	0.03	0.06
notstudied_lf	OA	36	0.91	0.13	0.02	0.04
notstudied_lf	YA	36	0.94	0.06	0.01	0.02
studied_hf	OA	36	0.71	0.21	0.03	0.07
studied_hf	YA	36	0.91	0.08	0.01	0.03
studied_lf	OA	36	0.71	0.17	0.03	0.06
studied_lf	YA	36	0.90	0.10	0.02	0.03

```
## Warning: Converting "Subject" to factor for ANOVA.
## Warning: Converting "study" to factor for ANOVA.
## Warning: Converting "freq" to factor for ANOVA.
## Warning: Converting "age" to factor for ANOVA.
```

Table 38: Implict Encoding Recog Accuracy

	Effect	DFn	DFd	F	p	p<.05	ges
2	age	1	70	34.85	1.158e-07	*	0.1165

	Effect	DFn	DFd	F	p	p<.05	ges
3	study	1	70	20.59	2.299e-05	*	0.1165
5	freq	1	70	1.911	0.1712		0.004279
4	age:study	1	70	18.37	5.713e-05	*	0.1052
6	age:freq	1	70	0.5541	0.4591		0.001244
7	study:freq	1	70	3.965	0.05036		0.007295
8	age:study:freq	1	70	1.111	0.2954		0.002055



Demographics

```
## Joining, by = c("Subject", "Age", "Gender", "Edu", "Hand", "Alert", "Race", "Hispanic.", "First.Langu
## Warning: Column `Gender` joining factors with different levels, coercing to
## character vector
## Warning: Column `Hand` joining factors with different levels, coercing to
## character vector
## Warning: Column `Alert` joining factors with different levels, coercing to
## character vector
## Warning: Column `Race` joining factors with different levels, coercing to
## character vector
## Warning: Column `Hispanic.` joining factors with different levels, coercing
## to character vector
## Warning: Column `First.Language` joining factors with different levels,
## coercing to character vector
## Warning: Column `Etc.` joining factors with different levels, coercing to
```

```
## character vector
```

Age

```
## Warning in qt(conf.interval/2 + 0.5, datac$N - 1): NaNs produced
```

Table 39: Age Group Means

ageGroup	N	Age	sd	se	ci
OA	36	68.03	8.04	1.34	2.72
YA	36	19.89	1.39	0.23	0.47
NA	1	NA	NA	NA	NA

Table 40: Welch Two Sample t-test: `YAs$Age` and `OAs$Age` (continued below)

Test statistic	df	P value	Alternative hypothesis	mean of x
-35.38	37.09	3.512e-30 * * *	two.sided	19.89

mean of y
68.03

Edu

```
## Warning in qt(conf.interval/2 + 0.5, datac$N - 1): NaNs produced
```

Table 42: Edu Group Means

ageGroup	N	Edu	sd	se	ci
OA	36	16.15	2.90	0.48	0.98
YA	36	14.17	1.28	0.21	0.43
NA	1	NA	NA	NA	NA

Table 43: Welch Two Sample t-test: `YAs$Edu` and `OAs$Edu` (continued below)

Test statistic	df	P value	Alternative hypothesis	mean of x
-3.758	48.04	0.0004637 * * *	two.sided	14.17

mean of y
16.15

Shipley

```
## Warning in qt(conf.interval/2 + 0.5, datac$N - 1): NaNs produced
```

Table 45: Shipley Group Means

ageGroup	N	Shipley	sd	se	ci
OA	36	33.44	4.05	0.67	1.37
YA	36	32.78	2.81	0.47	0.95
NA	1	NA	NA	NA	NA

Table 46: Welch Two Sample t-test: `YAs$Shipley` and `OAs$Shipley`

Test statistic	df	P value	Alternative hypothesis	mean of x	mean of y
-0.8121	62.38	0.4198	two.sided	32.78	33.44