

Implicit Encoding with Animacy Judgment as Secondary Task

Jessica Nicosia

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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", "secondTask", "type", "RT", "freq", "studied")
```

Study X Frequency

Table 1: Speeded Naming Mean zRTs

secondTask	type	age	N	RT	sd	se	ci
no secondary task	notstudied_hf	OA	13	-0.45	0.20	0.05	0.12
no secondary task	notstudied_hf	YA	20	-0.29	0.33	0.07	0.16
no secondary task	notstudied_lf	OA	13	-0.16	0.37	0.10	0.22
no secondary task	notstudied_lf	YA	20	0.05	0.47	0.11	0.22
no secondary task	studied_hf	OA	13	-0.51	0.23	0.07	0.14
no secondary task	studied_hf	YA	20	-0.33	0.31	0.07	0.15
no secondary task	studied_lf	OA	13	-0.37	0.33	0.09	0.20
no secondary task	studied_lf	YA	20	-0.11	0.31	0.07	0.14
w/ secondary task	notstudied_hf	OA	13	0.24	0.37	0.10	0.22
w/ secondary task	notstudied_hf	YA	20	-0.10	0.32	0.07	0.15
w/ secondary task	notstudied_lf	OA	13	0.42	0.34	0.09	0.20
w/ secondary task	notstudied_lf	YA	20	0.13	0.37	0.08	0.17
w/ secondary task	studied_hf	OA	13	0.22	0.26	0.07	0.16
w/ secondary task	studied_hf	YA	20	-0.12	0.36	0.08	0.17
w/ secondary task	studied_lf	OA	13	0.50	0.48	0.13	0.29
w/ secondary task	studied_lf	YA	20	0.07	0.34	0.08	0.16

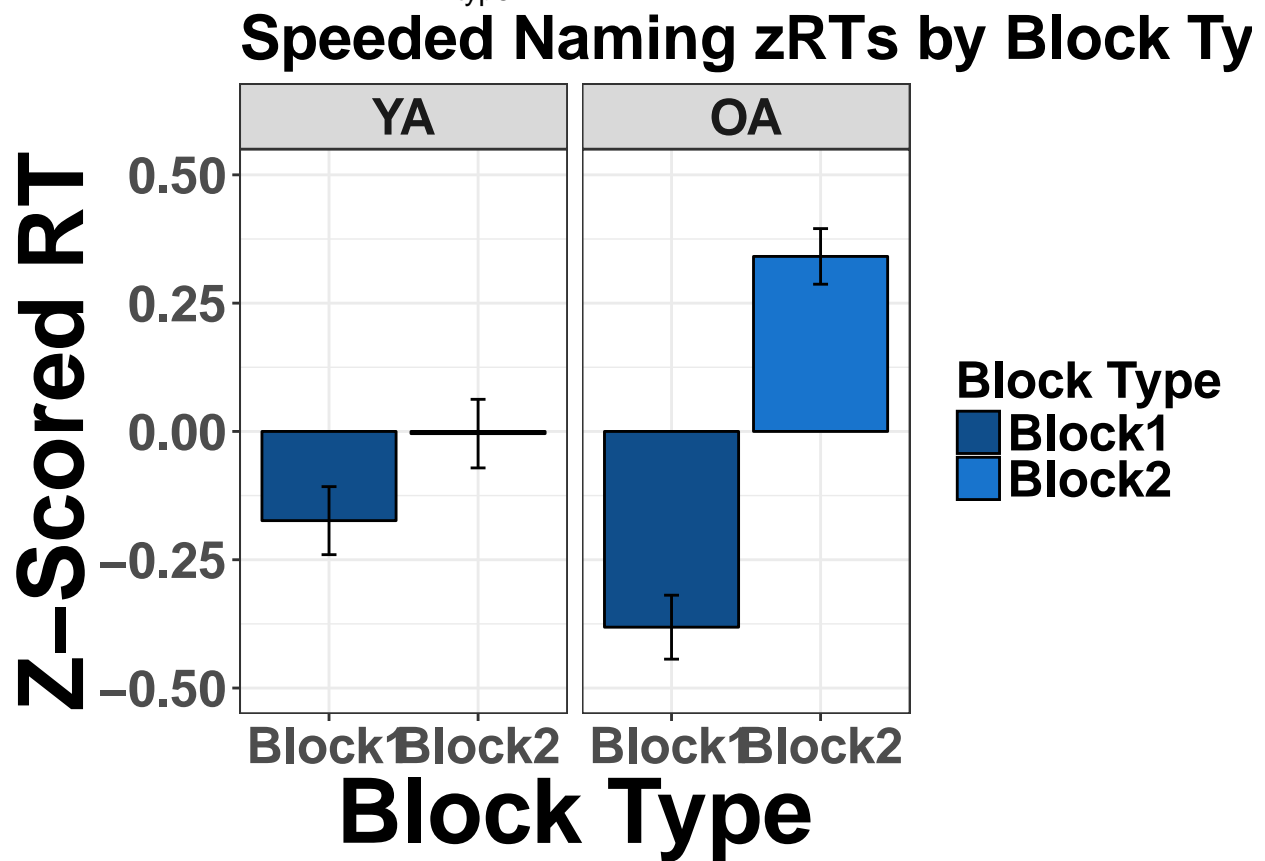
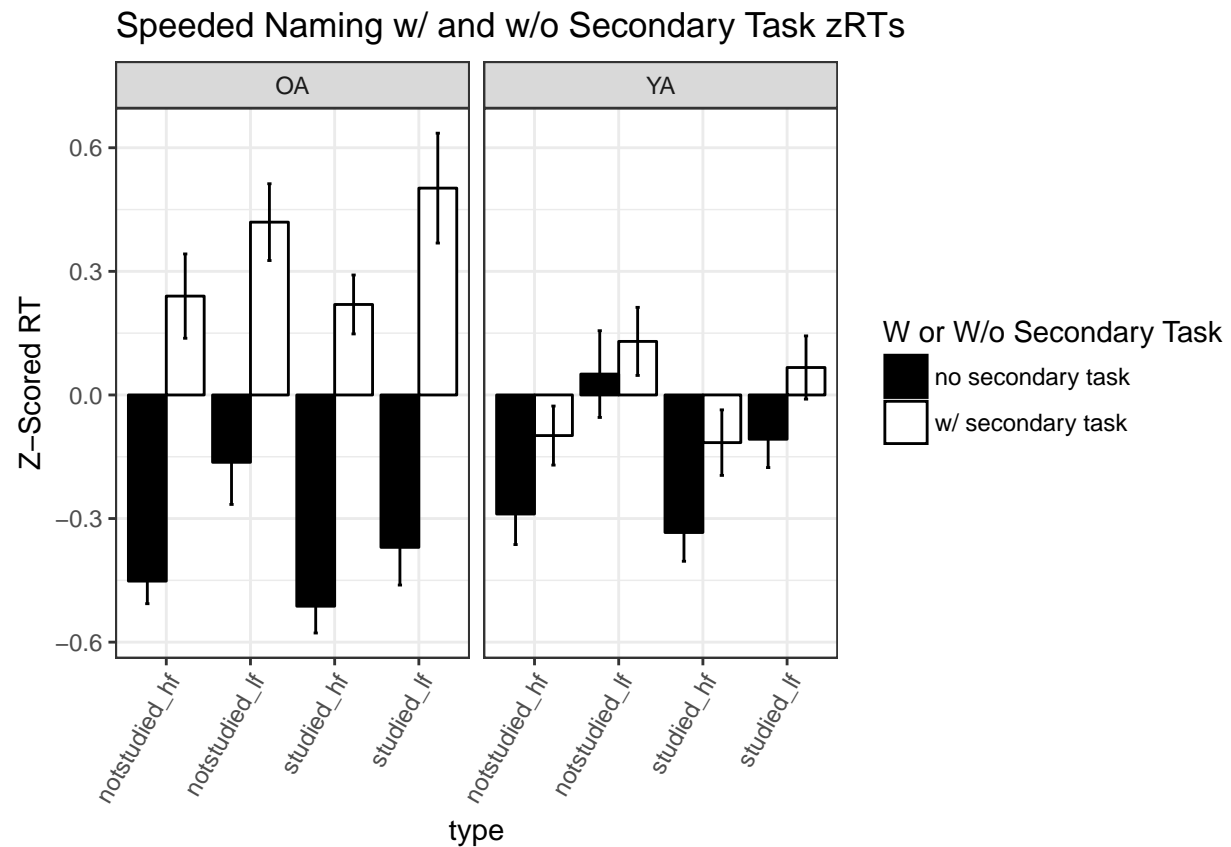
Table 2: Analysis of Variance Model

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
age	1	0.332	0.332	2.767	0.0975
studied	1	0.2633	0.2633	2.194	0.1398
freq	1	3.675	3.675	30.62	7.95e-08
secondTask	1	9.723	9.723	81.02	6.03e-17
age:studied	1	0.006067	0.006067	0.05056	0.8223
age:freq	1	0.006906	0.006906	0.05755	0.8106
studied:freq	1	0.0531	0.0531	0.4424	0.5066
age:secondTask	1	4.841	4.841	40.33	1.014e-09
studied:secondTask	1	0.1719	0.1719	1.432	0.2325
freq:secondTask	1	0.02771	0.02771	0.2309	0.6313
age:studied:freq	1	0.01346	0.01346	0.1121	0.738
age:studied:secondTask	1	0.04217	0.04217	0.3514	0.5539
age:freq:secondTask	1	0.03398	0.03398	0.2831	0.5951
studied:freq:secondTask	1	0.07905	0.07905	0.6587	0.4178
age:studied:freq:secondTask	1	0.03242	0.03242	0.2702	0.6037

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Residuals	248	29.76	0.12	NA	NA

Table 3: Analysis of Variance Model

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
age	1	0.07471	0.07471	1.046	0.3104
secondTask	1	2.476	2.476	34.66	1.723e-07
age:secondTask	1	1.204	1.204	16.86	0.0001198
Residuals	62	4.429	0.07143	NA	NA



IE1 SN2 zRTs vs. IE4 SN2 zRTs

Table 4: Speeded Naming Mean zRTs

SN2task	type	age	N	RT	sd	se	ci
animacyJudgment	notstudied_hf	OA	13	0.24	0.37	0.10	0.22
animacyJudgment	notstudied_hf	YA	20	-0.10	0.32	0.07	0.15
animacyJudgment	notstudied_lf	OA	13	0.42	0.34	0.09	0.20
animacyJudgment	notstudied_lf	YA	20	0.13	0.37	0.08	0.17
animacyJudgment	studied_hf	OA	13	0.22	0.26	0.07	0.16
animacyJudgment	studied_hf	YA	20	-0.12	0.36	0.08	0.17
animacyJudgment	studied_lf	OA	13	0.50	0.48	0.13	0.29
animacyJudgment	studied_lf	YA	20	0.07	0.34	0.08	0.16
recognition	notstudied_hf	OA	72	-0.10	0.51	0.06	0.12
recognition	notstudied_hf	YA	72	-0.15	0.28	0.03	0.07
recognition	notstudied_lf	OA	72	0.06	0.50	0.06	0.12
recognition	notstudied_lf	YA	72	0.12	0.33	0.04	0.08
recognition	studied_hf	OA	72	-0.11	0.56	0.07	0.13
recognition	studied_hf	YA	72	-0.21	0.30	0.04	0.07
recognition	studied_lf	OA	72	-0.08	0.50	0.06	0.12
recognition	studied_lf	YA	72	-0.07	0.32	0.04	0.08

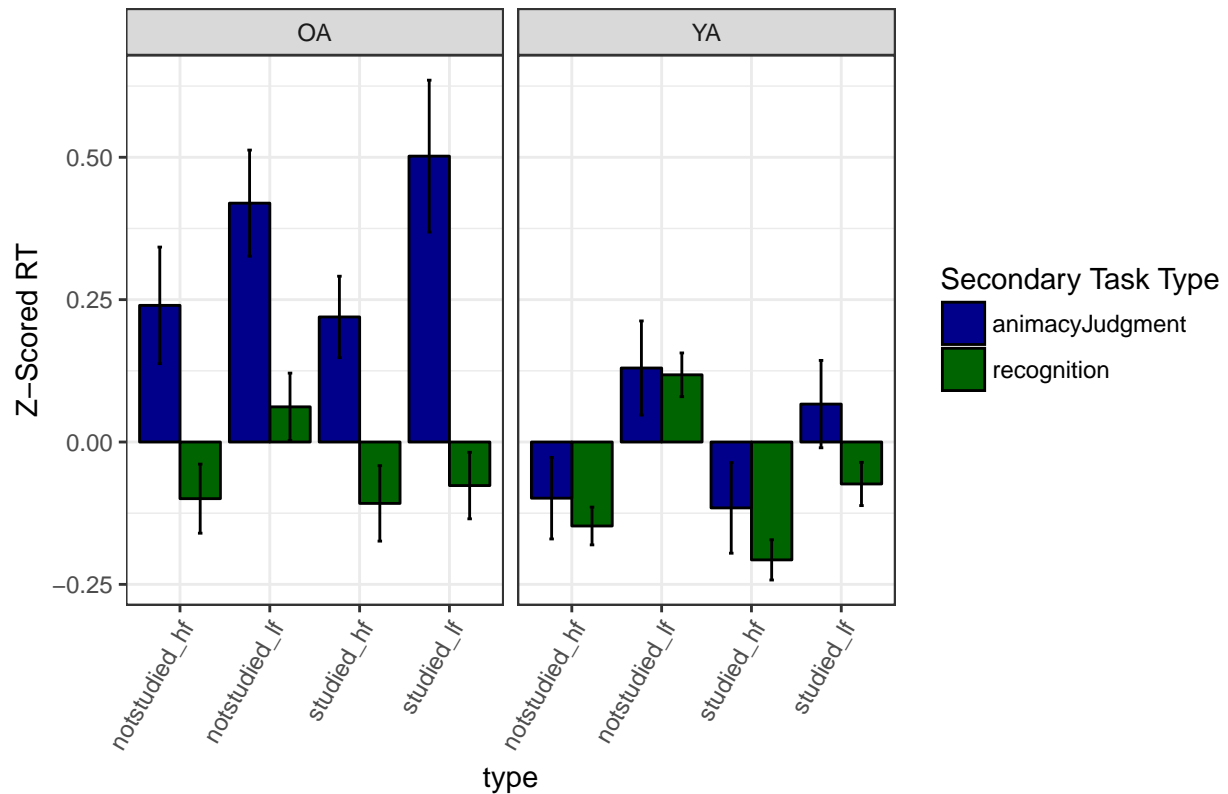
Table 5: Speeded Naming Mean zRTs

SN2task	age	N	RT	sd	se	ci
animacy	OA	13	0.35	0.20	0.06	0.12
animacy	YA	20	0.00	0.30	0.07	0.14
recog	OA	36	-0.06	0.07	0.01	0.02
recog	YA	36	-0.08	0.07	0.01	0.02

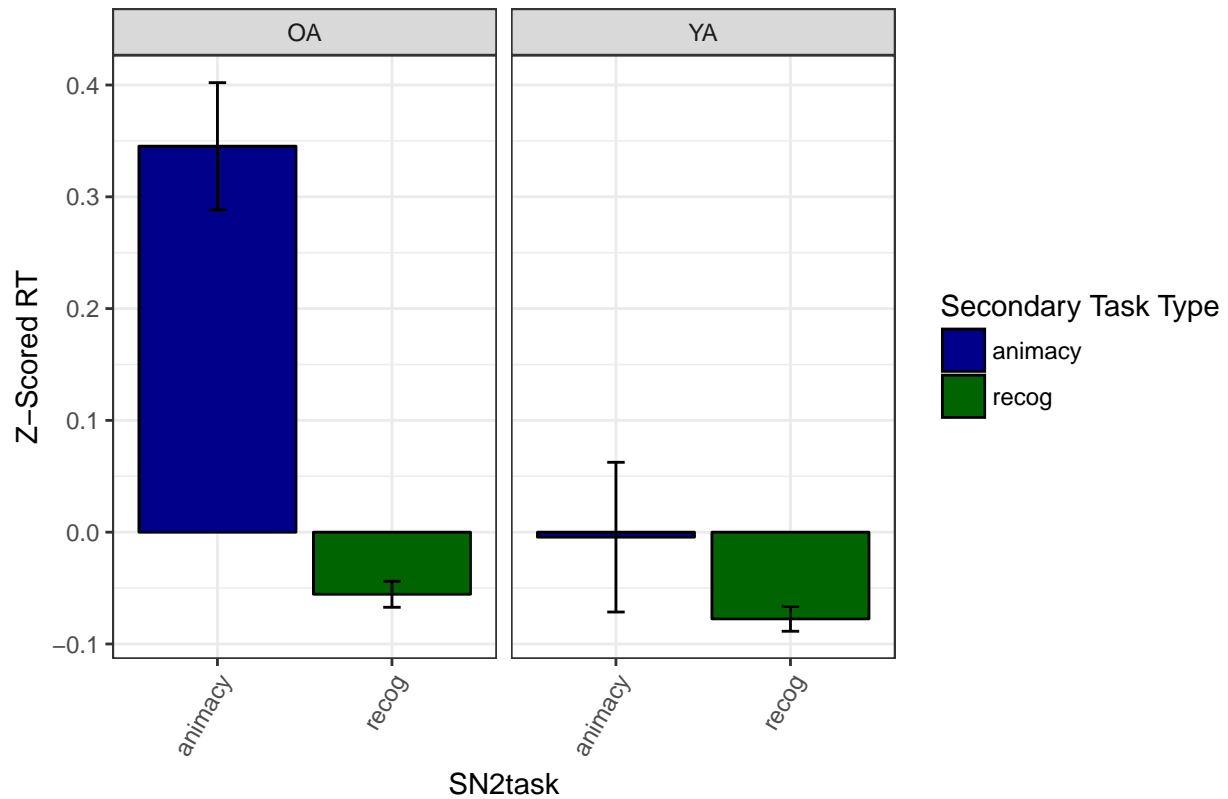
Table 6: Analysis of Variance Model

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
age	1	0.8037	0.8037	4.664	0.03115
studied	1	1.224	1.224	7.104	0.007873
freq	1	4.557	4.557	26.44	3.54e-07
SN2task	1	4.633	4.633	26.88	2.84e-07
age:studied	1	0.1093	0.1093	0.6341	0.4261
age:freq	1	0.3104	0.3104	1.801	0.18
studied:freq	1	0.4813	0.4813	2.793	0.09514
age:SN2task	1	2.776	2.776	16.11	6.627e-05
studied:SN2task	1	0.2317	0.2317	1.345	0.2466
freq:SN2task	1	0.09335	0.09335	0.5417	0.462
age:studied:freq	1	0.004065	0.004065	0.02359	0.878
age:studied:SN2task	1	0.002341	0.002341	0.01359	0.9072
age:freq:SN2task	1	0.1069	0.1069	0.6204	0.4312
studied:freq:SN2task	1	0.1432	0.1432	0.8311	0.3623
age:studied:freq:SN2task	1	0.03488	0.03488	0.2024	0.6529
Residuals	692	119.2	0.1723	NA	NA

Speeded Naming w/ Animacy vs Recognition Task in SN2



Speeded Naming w/ Animacy vs Recognition Task in SN2



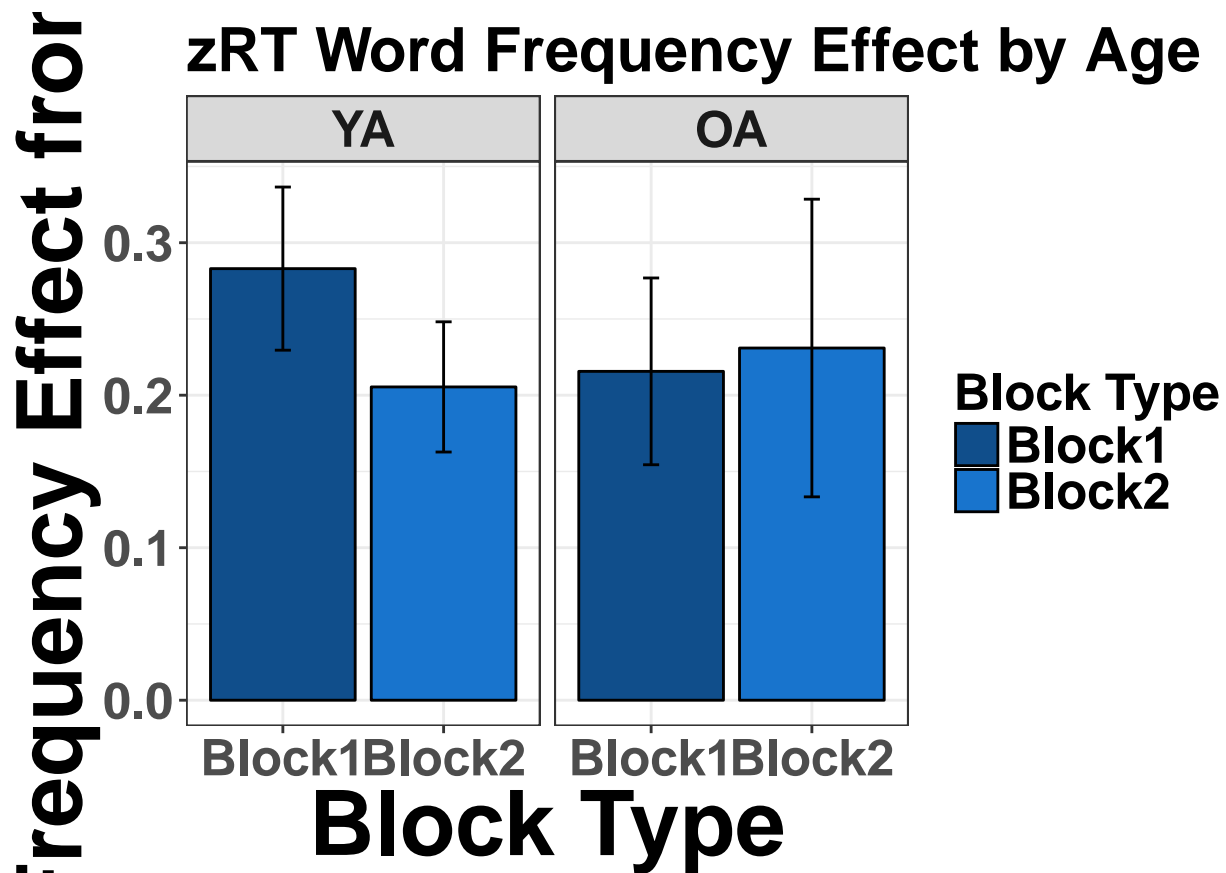
Word Frequency Effect

Table 7: Word Frequency Effect (using zRTs)

age	block	studied	N	WEffect	sd	se	ci
OA	Block1	notstudied	13	0.29	0.33	0.09	0.20
OA	Block1	studied	13	0.14	0.29	0.08	0.18
OA	Block2	notstudied	13	0.18	0.46	0.13	0.28
OA	Block2	studied	13	0.28	0.55	0.15	0.33
YA	Block1	notstudied	20	0.34	0.35	0.08	0.16
YA	Block1	studied	20	0.23	0.33	0.07	0.15
YA	Block2	notstudied	20	0.23	0.28	0.06	0.13
YA	Block2	studied	20	0.18	0.26	0.06	0.12

Table 8: Analysis of Variance Model

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
age	1	0.01381	0.01381	0.1109	0.7396
block	1	0.05543	0.05543	0.4452	0.5058
age:block	1	0.06796	0.06796	0.5458	0.4614
Residuals	128	15.94	0.1245	NA	NA



Raw, Trimmed Response Times

Speeded Naming

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

Study X Frequency

Table 9: Speeded Naming Mean Raw, Trimmed RTs

secondTask	type	age	N	RT	sd	se	ci
no secondary	notstudied_hf	OA	13	616.82	98.94	27.44	59.79
no secondary	notstudied_hf	YA	20	503.23	85.90	19.21	40.20
no secondary	notstudied_lf	OA	13	685.85	134.26	37.24	81.13
no secondary	notstudied_lf	YA	20	545.94	91.91	20.55	43.01
no secondary	studied_hf	OA	13	602.05	86.50	23.99	52.27
no secondary	studied_hf	YA	20	498.20	73.17	16.36	34.24
no secondary	studied_lf	OA	13	641.00	134.92	37.42	81.53
no secondary	studied_lf	YA	20	525.96	97.34	21.77	45.56
w/ secondary	notstudied_hf	OA	13	777.26	141.73	39.31	85.65
w/ secondary	notstudied_hf	YA	20	528.77	88.16	19.71	41.26
w/ secondary	notstudied_lf	OA	13	816.80	107.22	29.74	64.79
w/ secondary	notstudied_lf	YA	20	566.53	80.81	18.07	37.82
w/ secondary	studied_hf	OA	13	785.46	132.62	36.78	80.14
w/ secondary	studied_hf	YA	20	526.06	90.76	20.29	42.48
w/ secondary	studied_lf	OA	13	848.15	201.82	55.97	121.96
w/ secondary	studied_lf	YA	20	551.97	97.85	21.88	45.80

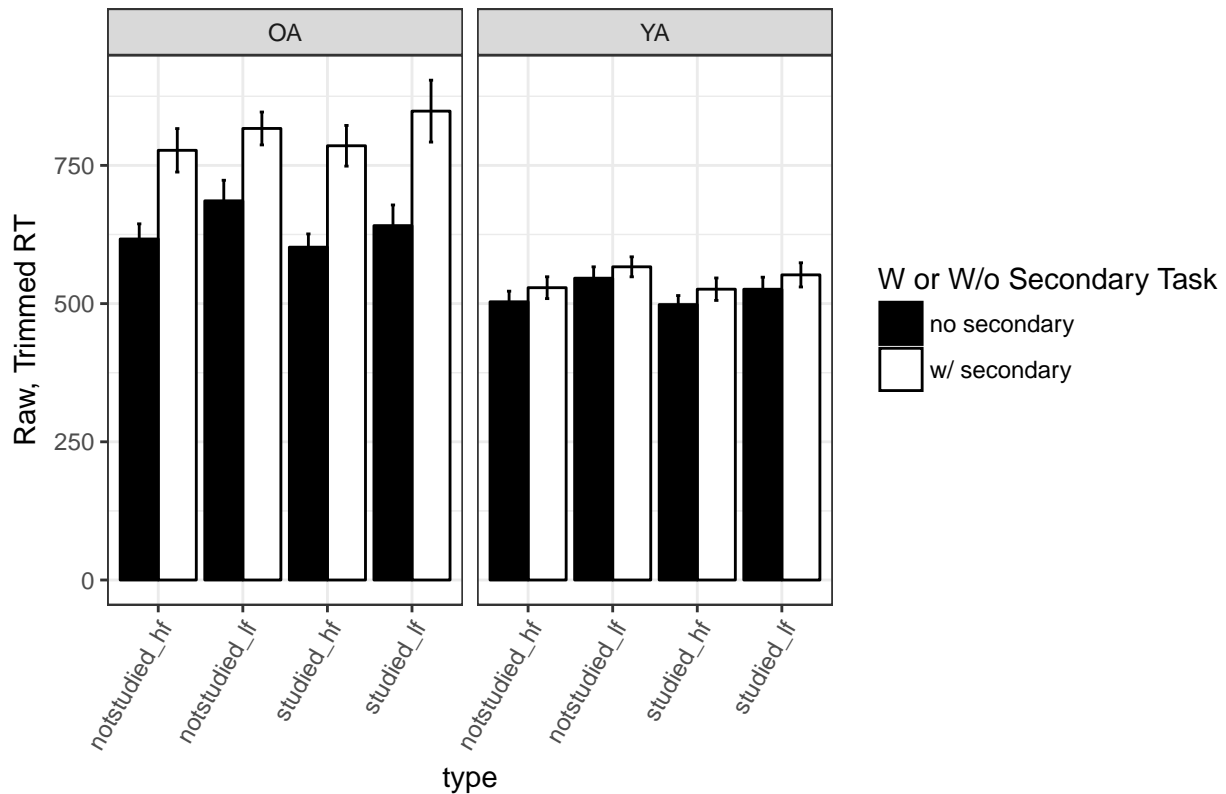
Table 10: Analysis of Variance Model

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
age	1	2295560	2295560	195.4	3.88e-33
studied	1	4636	4636	0.3946	0.5305
freq	1	111082	111082	9.456	0.002341
secondTask	1	447169	447169	38.06	2.768e-09
age:studied	1	485.5	485.5	0.04133	0.8391
age:freq	1	5702	5702	0.4853	0.4867
studied:freq	1	1486	1486	0.1265	0.7224
age:secondTask	1	333545	333545	28.39	2.224e-07
studied:secondTask	1	7897	7897	0.6722	0.4131
freq:secondTask	1	168.5	168.5	0.01434	0.9048
age:studied:freq	1	388.7	388.7	0.03309	0.8558
age:studied:secondTask	1	8234	8234	0.7009	0.4033
age:freq:secondTask	1	1.089	1.089	9.272e-05	0.9923
studied:freq:secondTask	1	2153	2153	0.1833	0.6689
age:studied:freq:secondTask	1	2475	2475	0.2107	0.6466
Residuals	248	2913437	11748	NA	NA

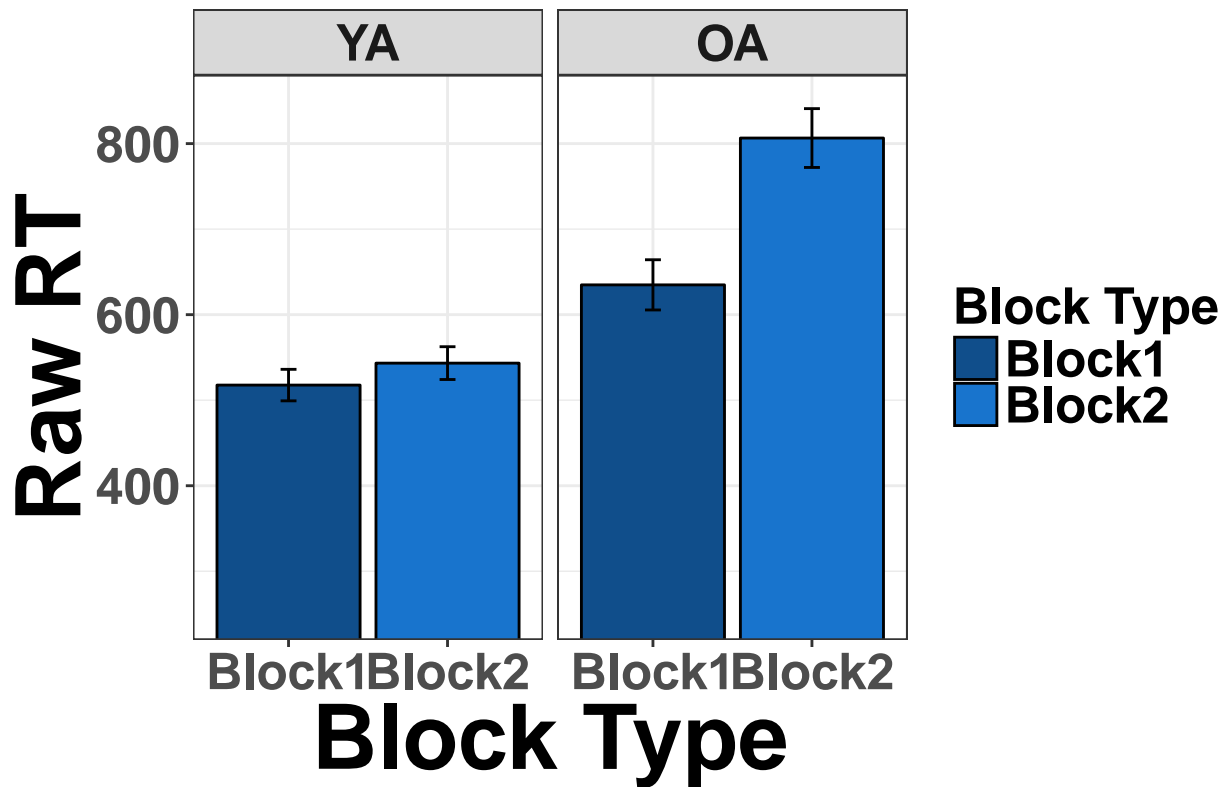
Table 11: Analysis of Variance Model

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
age	1	569900	569900	60.12	1.06e-10
secondTask	1	114167	114167	12.04	0.000952
age:secondTask	1	83934	83934	8.854	0.004165
Residuals	62	587750	9480	NA	NA

Speeded Naming w/ and w/o Recog Raw, Trimmed RTs



Speeded Naming Raw RTs by Block



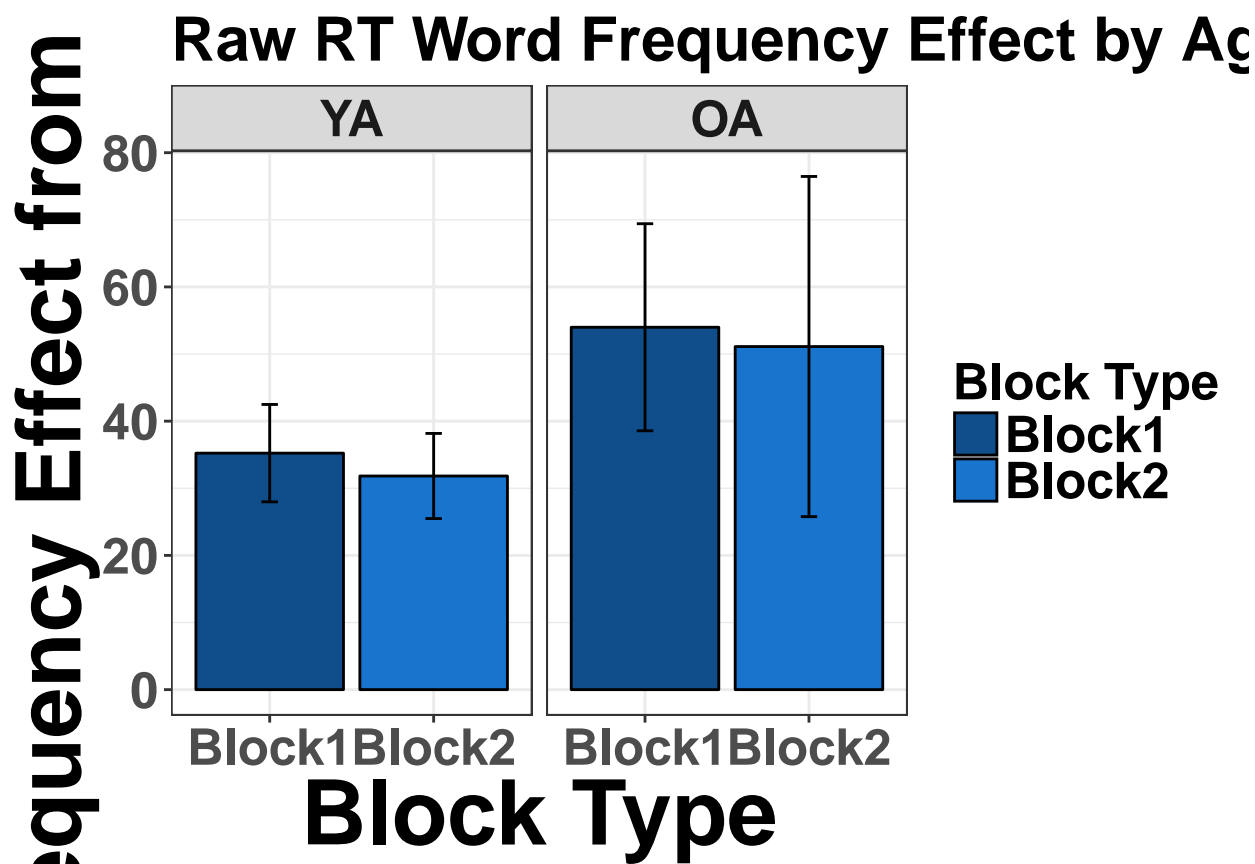
Word Frequency Effect

Table 12: Word Frequency Effect (using zRTs)

age	block	studied	N	WFEffct	sd	se	ci
OA	Block1	notstudied	13	69.03	79.23	21.98	47.88
OA	Block1	studied	13	38.95	78.25	21.70	47.29
OA	Block2	notstudied	13	39.54	108.00	29.95	65.26
OA	Block2	studied	13	62.69	151.11	41.91	91.32
YA	Block1	notstudied	20	42.71	35.34	7.90	16.54
YA	Block1	studied	20	27.76	54.34	12.15	25.43
YA	Block2	notstudied	20	37.76	45.95	10.27	21.50
YA	Block2	studied	20	25.90	33.44	7.48	15.65

Table 13: Analysis of Variance Model

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
age	1	11403	11403	2.036	0.1561
block	1	337	337	0.06016	0.8066
age:block	1	2.179	2.179	0.0003889	0.9843
Residuals	128	716998	5602	NA	NA



WFE by Block

Block 1

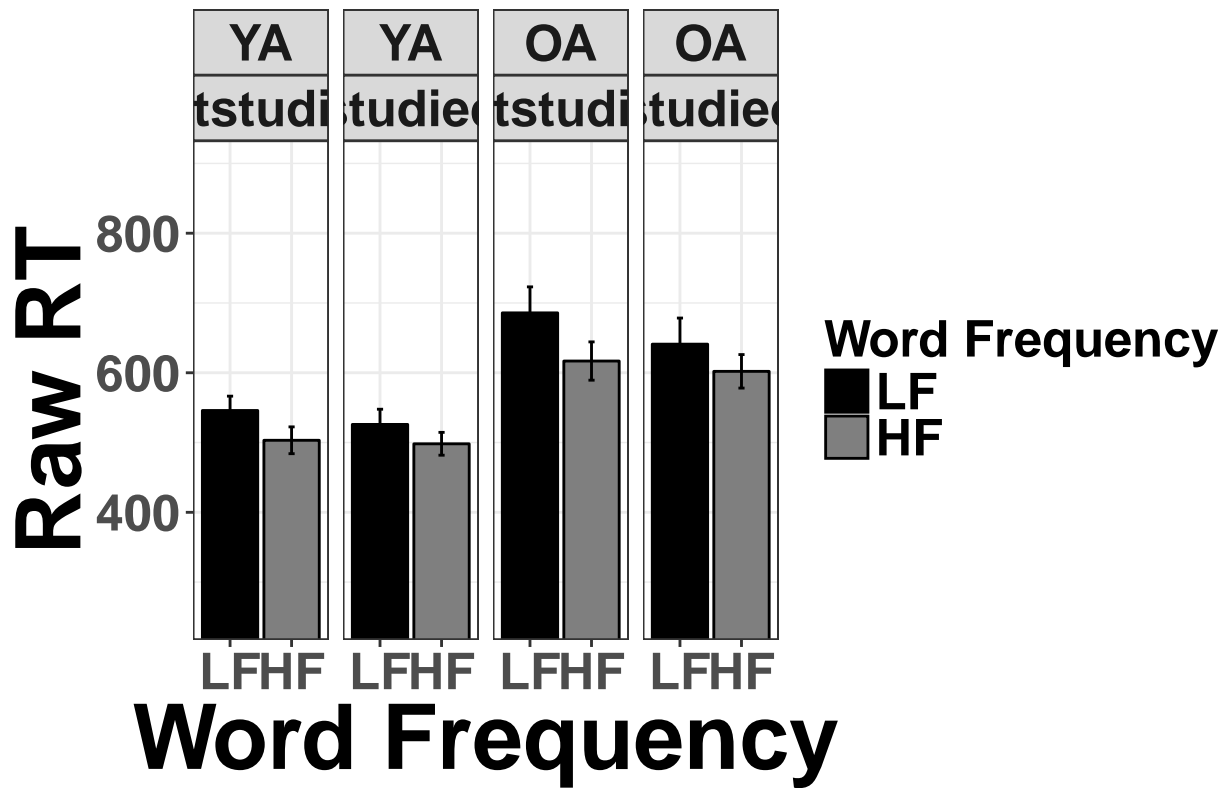
Table 14: Speeded Naming Mean Raw RTs - Block 1 Only

studied	freq	age	N	RT	sd	se	ci
notstudied	HF	OA	13	616.82	98.94	27.44	59.79
notstudied	HF	YA	20	503.23	85.90	19.21	40.20
notstudied	LF	OA	13	685.85	134.26	37.24	81.13
notstudied	LF	YA	20	545.94	91.91	20.55	43.01
studied	HF	OA	13	602.05	86.50	23.99	52.27
studied	HF	YA	20	498.20	73.17	16.36	34.24
studied	LF	OA	13	641.00	134.92	37.42	81.53
studied	LF	YA	20	525.96	97.34	21.77	45.56

Table 15: Analysis of Variance Model

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
age	1	439525	439525	44.51	7.507e-10
studied	1	12317	12317	1.247	0.2662
freq	1	59951	59951	6.071	0.01511
age:studied	1	2360	2360	0.239	0.6258
age:freq	1	2773	2773	0.2808	0.5971
studied:freq	1	3608	3608	0.3654	0.5466
age:studied:freq	1	451.1	451.1	0.04568	0.8311
Residuals	124	1224440	9875	NA	NA

Speeded Naming Raw RTs by Word I



Block 2

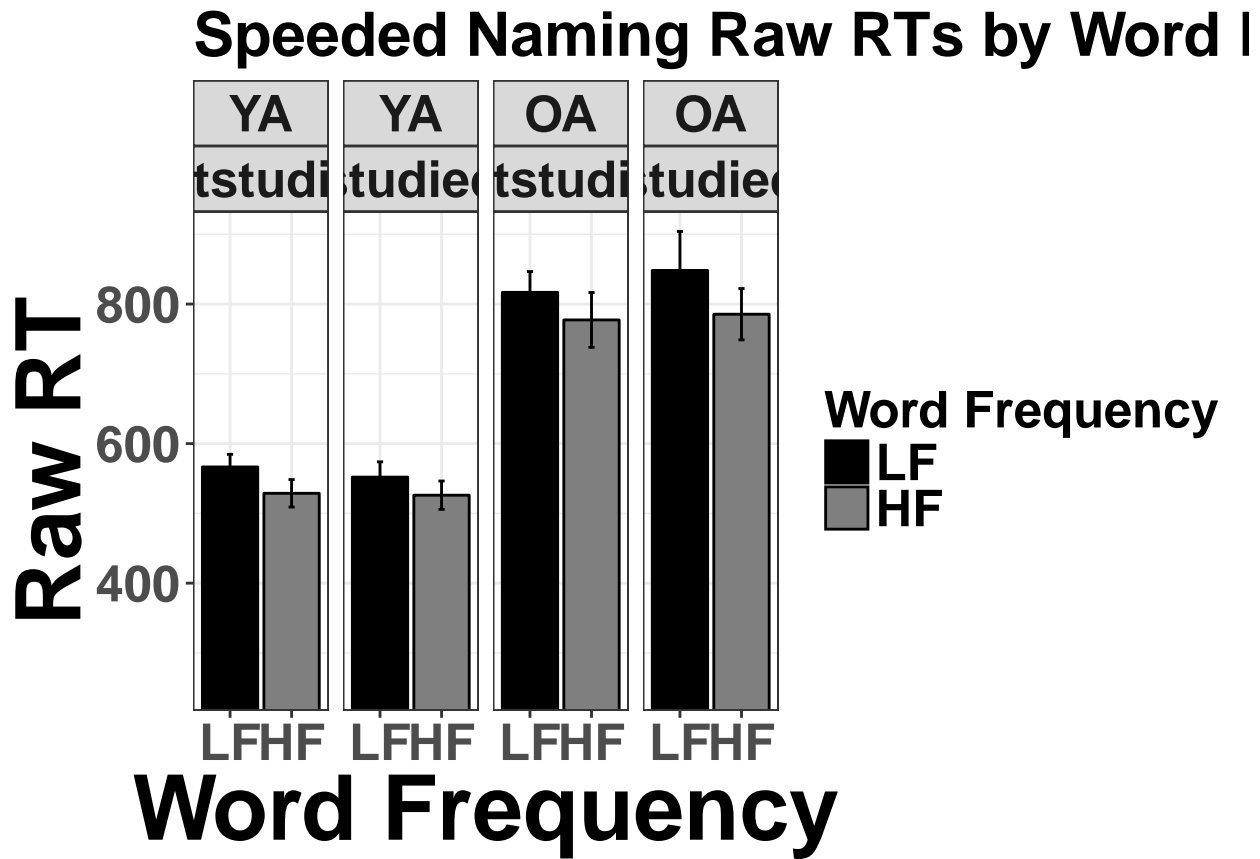
Table 16: Speeded Naming Mean Raw RTs - Block 2 Only

studied	freq	age	N	RT	sd	se	ci
notstudied	HF	OA	13	777.26	141.73	39.31	85.65
notstudied	HF	YA	20	528.77	88.16	19.71	41.26
notstudied	LF	OA	13	816.80	107.22	29.74	64.79
notstudied	LF	YA	20	566.53	80.81	18.07	37.82
studied	HF	OA	13	785.46	132.62	36.78	80.14
studied	HF	YA	20	526.06	90.76	20.29	42.48
studied	LF	OA	13	848.15	201.82	55.97	121.96
studied	LF	YA	20	551.97	97.85	21.88	45.80

Table 17: Analysis of Variance Model

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
age	1	2189580	2189580	160.8	3.901e-24
studied	1	215.9	215.9	0.01585	0.9
freq	1	51299	51299	3.766	0.05457
age:studied	1	6359	6359	0.4669	0.4957
age:freq	1	2930	2930	0.2151	0.6436
studied:freq	1	30.87	30.87	0.002266	0.9621
age:studied:freq	1	2413	2413	0.1771	0.6746

	Df	Sum Sq	Mean Sq	F value	Pr(>F)
Residuals	124	1688998	13621	NA	NA



Accuracy

Speeded Naming

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

Table 18: Speeded Naming Mean Accuracy

secondTask	type	age	N	acc	sd	se	ci
no secondary	notstudied_hf	OA	13	0.96	0.05	0.01	0.03
no secondary	notstudied_hf	YA	20	0.98	0.06	0.01	0.03
no secondary	notstudied_lf	OA	13	0.92	0.10	0.03	0.06
no secondary	notstudied_lf	YA	20	0.99	0.03	0.01	0.01
no secondary	studied_hf	OA	13	0.97	0.05	0.01	0.03
no secondary	studied_hf	YA	20	1.00	0.00	0.00	0.00
no secondary	studied_lf	OA	13	1.00	0.00	0.00	0.00
no secondary	studied_lf	YA	20	0.98	0.04	0.01	0.02
w/ secondary	notstudied_hf	OA	13	0.93	0.14	0.04	0.08
w/ secondary	notstudied_hf	YA	20	0.99	0.03	0.01	0.01
w/ secondary	notstudied_lf	OA	13	0.93	0.13	0.03	0.08

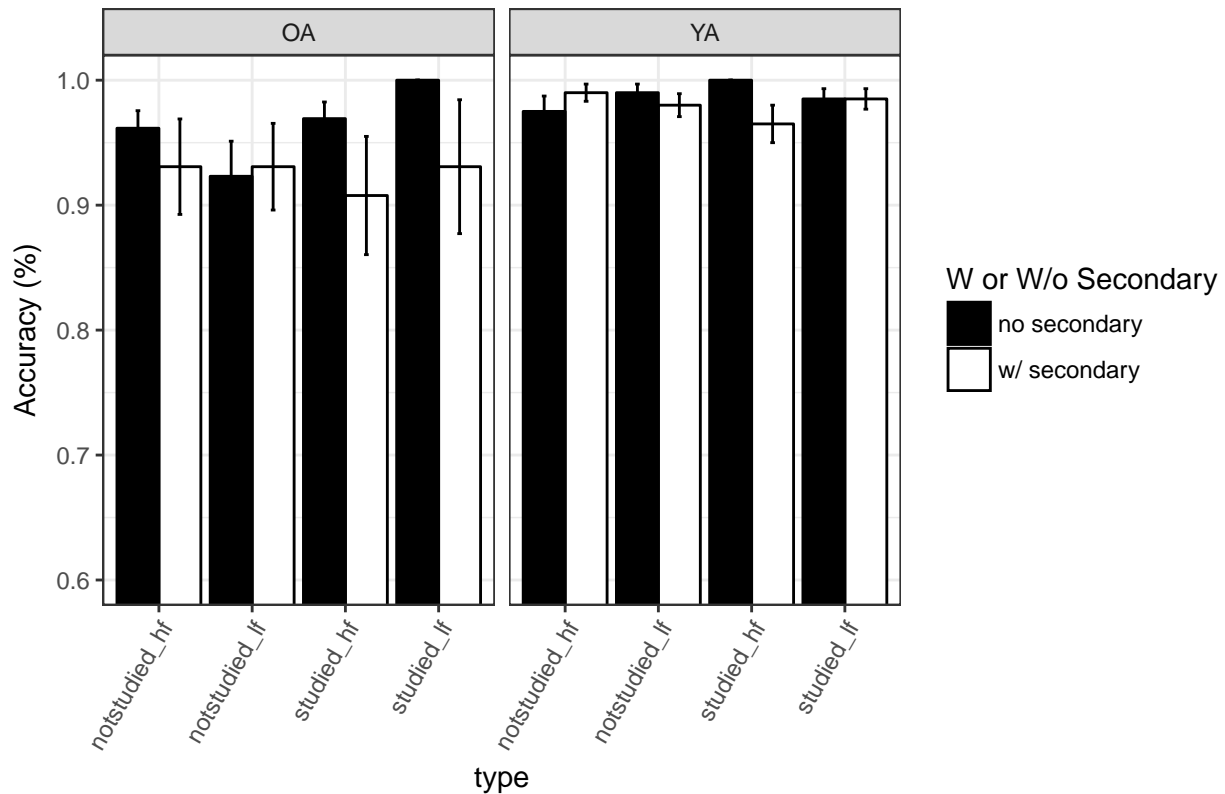
secondTask	type	age	N	acc	sd	se	ci
w/ secondary	notstudied_lf	YA	20	0.98	0.04	0.01	0.02
w/ secondary	studied_hf	OA	13	0.91	0.17	0.05	0.10
w/ secondary	studied_hf	YA	20	0.96	0.07	0.01	0.03
w/ secondary	studied_lf	OA	13	0.93	0.19	0.05	0.12
w/ secondary	studied_lf	YA	20	0.98	0.04	0.01	0.02

Table 19: Analysis of Variance Model (continued below)

	Df	Sum Sq	Mean Sq	F value
age	1	0.09844	0.09844	14.74
studied	1	0.002424	0.002424	0.3631
freq	1	0.0006061	0.0006061	0.09077
secondTask	1	0.02561	0.02561	3.835
age:studied	1	0.00373	0.00373	0.5586
age:freq	1	2.855e-05	2.855e-05	0.004277
studied:freq	1	0.005455	0.005455	0.8169
age:secondTask	1	0.01511	0.01511	2.262
studied:secondTask	1	0.01833	0.01833	2.746
freq:secondTask	1	0.001364	0.001364	0.2042
age:studied:freq	1	0.008392	0.008392	1.257
age:studied:secondTask	1	0.004513	0.004513	0.6759
age:freq:secondTask	1	0.0004248	0.0004248	0.06363
studied:freq:secondTask	1	0.001364	0.001364	0.2042
age:studied:freq:secondTask	1	0.0111	0.0111	1.662
Residuals	248	1.656	0.006677	NA

	Pr(>F)
age	0.0001564
studied	0.5473
freq	0.7635
secondTask	0.05131
age:studied	0.4555
age:freq	0.9479
studied:freq	0.367
age:secondTask	0.1338
studied:secondTask	0.09877
freq:secondTask	0.6517
age:studied:freq	0.2633
age:studied:secondTask	0.4118
age:freq:secondTask	0.8011
studied:freq:secondTask	0.6517
age:studied:freq:secondTask	0.1985
Residuals	NA

Speeded Naming w/ and w/o Secondary Task Accuracy



Demographics

```
## Joining, by = c("Subject", "Age", "Gender", "Edu", "Hand", "Alert", "Race", "Hispanic.Latino.", "Fir
## Warning: Column `Gender` 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.Latino.` joining factors with different levels,
## coercing to character vector
## Warning: Column `First.Lang.` joining factors with different levels,
## coercing to character vector
## Warning: Column `Eng.before.5.` joining factors with different levels,
## coercing to character vector
## Warning: Column `Etc..` joining factors with different levels, coercing to
## character vector
```

Age

ageGroup	N	Age	sd	se	ci
----------	---	-----	----	----	----

Table 21: Age Group Means

ageGroup	N	Age	sd	se	ci
OA	13	75.31	10.90	3.02	6.58
YA	20	20.30	1.08	0.24	0.51

Table 22: Welch Two Sample t-test: **YAs\$Age** and **OAs\$Age** (continued below)

Test statistic	df	P value	Alternative hypothesis	mean of x
-18.14	12.15	3.59e-10 * * *	two.sided	20.3

mean of y
75.31

Edu

Table 24: Edu Group Means

ageGroup	N	Edu	sd	se	ci
OA	13	15.15	1.95	0.54	1.18
YA	20	14.50	1.26	0.28	0.59

Table 25: Welch Two Sample t-test: **YAs\$Edu** and **OAs\$Edu**

Test statistic	df	P value	Alternative hypothesis	mean of x	mean of y
-1.072	18.49	0.2974	two.sided	14.5	15.15

Shipley

Table 26: Shipley Group Means

ageGroup	N	Shipley	sd	se	ci
OA	13	32.46	4.46	1.24	2.70
YA	20	31.25	1.97	0.44	0.92

Table 27: Welch Two Sample t-test: `YAs$Shipley` and `OAs$Shipley`

Test statistic	df	P value	Alternative hypothesis	mean of x	mean of y
-0.9218	15.08	0.3712	two.sided	31.25	32.46