

# Results

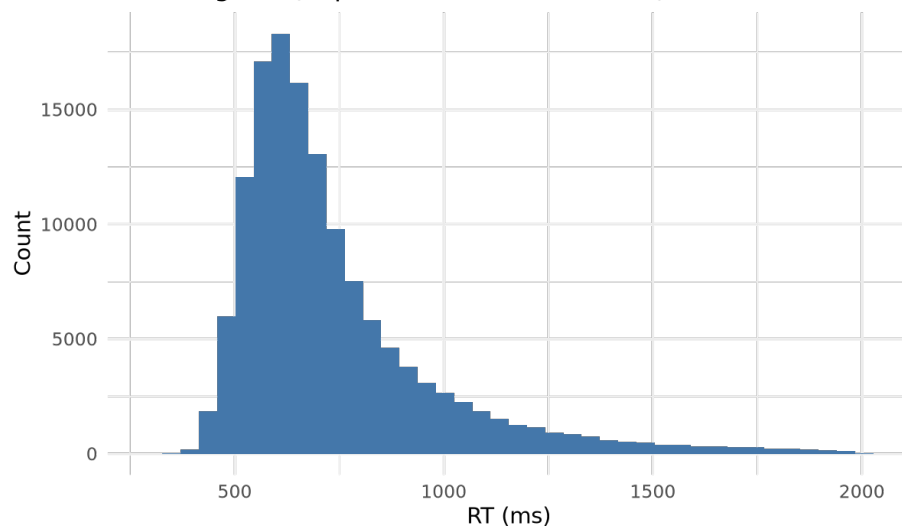
here() starts at /root/repo

## Cleaning

The pipeline kept 137133 of 235016 trials (dropped 97883). Settings: correct-only = TRUE, RT range = 200–2000 ms.

	setting	value
1	correct_only	TRUE
2	rt_min_ms	200
3	rt_max_ms	2000
4	total_trials	235016
5	kept_trials	137133
6	dropped_trials	97883

RT histogram (kept 137133/235016 trials)



## Baseline model: frequency and strokes

term	estimate
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1 intercept 6.452355
2 log_freq -0.070823
3 strokes 0.013355

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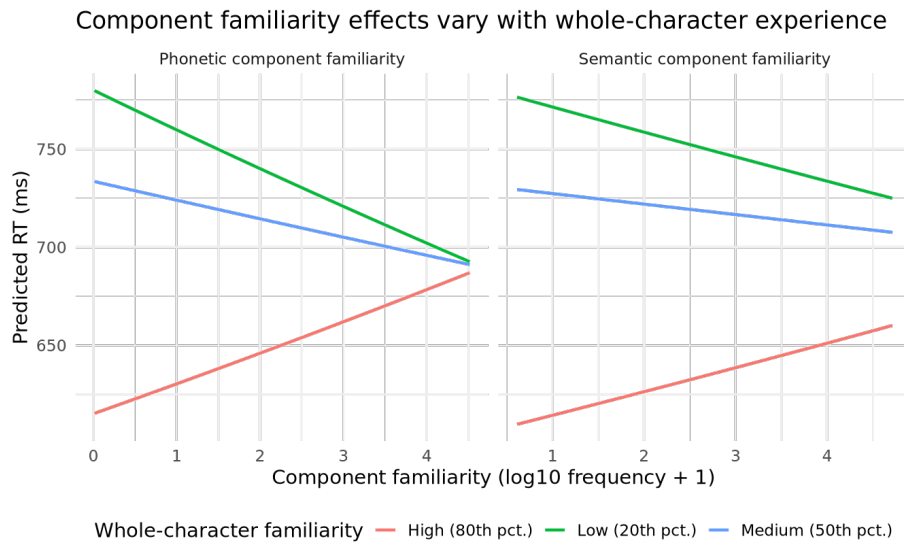
$R^2$  0.434; adjusted  $R^2$  0.433; residual sigma 0.099. AIC -6851.160, BIC -6826.134.

## Subcomponents with whole-character familiarity

The joint model that adds semantic and phonetic component familiarity explained 0.395 of the variance across 2638 characters, capturing the predicted shift from facilitation at low familiarity to competition at the top of the frequency range (Feldman & Siok, 1999; Liu et al., 2022; McClelland & Rumelhart, 1981; Wang et al., 2025).

	component	overall_level	rt_change_ms	rt_change_pct
1	Semantic	Low (20th pct.)	12.83	1.73
2	Semantic	Medium (50th pct.)	5.50	0.77
3	Semantic	High (80th pct.)	-13.08	-2.04
4	Phonetic	Low (20th pct.)	26.89	3.60
5	Phonetic	Medium (50th pct.)	13.06	1.82
6	Phonetic	High (80th pct.)	-22.18	-3.46

Positive values indicate speed-ups when the component moves from the 20th to the 80th percentile of its familiarity distribution (holding other predictors at their medians); negative values denote slow-downs because highly familiar components introduce more lexical competitors near the ceiling of overall familiarity, aligning with interactive activation accounts of neighbor conflict (McClelland & Rumelhart, 1981).



The effect curves show that when overall familiarity is low-to-moderate, familiar phonetic parts provide up to a 26.89 ms advantage (about 3.6%), while comparable semantic advantages taper to roughly 5.5 ms by the median familiarity tier. At the highest familiarity tier, both components flip sign ( $-22.18$  to  $-13.08$  ms), consistent with the competition predicted by structured learning paths (Liu et al., 2022; Wang et al., 2025).