

Appendix S1.

The syntax of the R models

The syntax of the linear mixed-effects model examining the conflict effects in the flanker task:

Formula: $\log RT \sim \text{Trialtype} + (1 + \text{Trialtype} \mid \text{Subject})$; $\text{Accuracy} \sim \text{Trialtype} + (1 \mid \text{Subject})$

The syntax of the linear mixed-effects model examining the reversed language dominance effect in the reading task:

In the 300-500 ms time window, the omnibus model was: $\text{Latency} \sim$

$\text{Language} * \text{Anteriority} * \text{Laterality} + (1 + \text{Language} + \text{Anteriority} + \text{Laterality} \mid \text{Subject}) + (1 + \text{Anteriority} \mid \text{Item}) + (1 \mid \text{Channel})$;

In the 500-800 ms time window, the omnibus model was: $\text{Latency} \sim$

$\text{Language} * \text{Anteriority} * \text{Laterality} + (1 + \text{Language} + \text{Anteriority} + \text{Laterality} \mid \text{Subject}) + (1 + \text{Anteriority} + \text{Laterality} \mid \text{Item}) + (1 \mid \text{Channel})$.

The syntax of the linear mixed-effects model examining the switch cost in the reading task:

In the 300-500 ms time window, the omnibus model was: $\text{Amplitude} \sim$

$\text{Trialtype} * \text{Anteriority} * \text{Laterality} + (1 + \text{Trialtype} + \text{Anteriority} + \text{Laterality} \mid \text{Subject})$

$+ (1 + \text{Trialtype} + \text{Anteriority} \mid \text{Item}) + (1 \mid \text{Channel})$. In additional analysis on

channels AF3, F3, F5, and F7, the model was: $\text{Amplitude} \sim \text{Trialtype} + (1 + \text{Trialtype} | \text{Subject}) + (1 + \text{Trialtype} | \text{Item})$. In additional analysis on channels FZ, CZ, PZ, the model was: $\text{Amplitude} \sim \text{Trialtype} + (1 + \text{Trialtype} | \text{Subject}) + (1 + \text{Trialtype} | \text{Item}) + (1 | \text{Channel})$;

In the 500-800 ms time window, the omnibus model was: $\text{Amplitude} \sim \text{Trialtype} * \text{Anteriority} * \text{Laterality} + (1 + \text{Trialtype} + \text{Anteriority} + \text{Laterality} | \text{Subject}) + (1 + \text{Trialtype} + \text{Anteriority} | \text{Item}) + (1 | \text{Channel})$. In additional analysis on channels PZ/1/2/3/4/5/6 and CPZ/1/2/3/4/5/6, the model was: $\text{Amplitude} \sim \text{Trialtype} + (1 + \text{Trialtype} | \text{Subject}) + (1 + \text{Trialtype} | \text{Item}) + (1 | \text{Channel})$.

The syntax of the linear mixed-effects model examining the correlations between global RTs in the flanker task and language dominance effects in the reading task:

In the 300-500 ms time window, the omnibus global RTs model was: $\text{Latency} \sim \text{global RTs} * \text{Language} * \text{Anteriority} + (1 + \text{Language} + \text{Anteriority} | \text{Subject}) + (1 + \text{Anteriority} | \text{Item}) + (1 + \text{Language} | \text{Channel})$;

In the 500-800 ms time window, the omnibus global RTs model and the simple effects models were: $\text{Latency} \sim \text{global RTs} * \text{Language} * \text{Anteriority} + (1 + \text{Language} + \text{Anteriority} | \text{Subject}) + (1 + \text{Anteriority} | \text{Item}) + (1 + \text{Language} | \text{Channel})$.

The syntax of the linear mixed-effects model examining the correlations between conflict effect in the flanker task and switch costs in the reading task:

In the 300-500 ms time window, the omnibus conflict effect model was: Amplitude ~ Language*Trialtype*conflict effect*Anteriority + (1 + Language + Trialtype + Anteriority | Subject) + (1 + Trialtype | Item) + (1 + Language | Channel);

In the 500-800 ms time window, the omnibus conflict effect model was: Amplitude ~ Language*Trialtype*conflict effect*Anteriority + (1+ Language + Trialtype + Anteriority |Subject) + (1 + Trialtype +Anteriority | Item) + (1 | Channel). The simple effects models were: Amplitude ~ conflict effect*Language*Trialtype + (1 + Language + Trialtype | Subject) + (1 + Trialtype | Item) + (1 + Language | Channel).