

### **Supplement 3**

#### **Analysis of response-locked peak-to-peak ERP data: Results**

Repeated-measures ANOVA of the response-locked peak-to-peak values yielded significant main effects for hand position (parallel: 16.61 (1.40), while crossed: 19.37 (1.812);  $F(1,24)=8.95$ ,  $p<.006$ ,  $\eta^2=.272$ ), S-R correspondence (correspondent: 17.05 (1.55), while non-correspondent: 18.93 (1.67);  $F(1,24)=4.57$ ,  $p<.043$ ,  $\eta^2=.160$ ), and motor execution (executive: 20.63 (1.94), while non-executive: 15.34 (1.38);  $F(1,24)=16.36$ ,  $p<.001$ ,  $\eta^2=.405$ ).

Additionally, there was one significant interaction between hand position and motor execution ( $F(1,24)=7.55$ ,  $p<.011$ ,  $\eta^2=.239$ ). Post-hoc paired t-tests revealed that the interaction was due to a significant difference between parallel and crossed hands in the non-executive hemisphere (parallel: 13.01 (1.43), while crossed: 17.67 (1.69);  $t(1,24)=-3.10$ ,  $p<.003$ ). There was no such effect in the executive hemisphere ( $t(1,24)=-1.33$ ,  $p<.098$ ).