

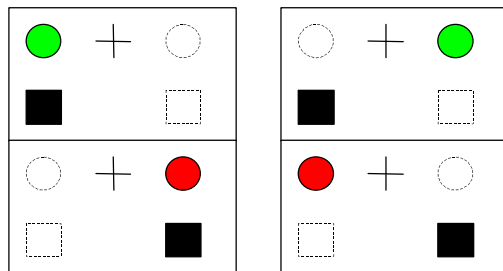
# A comparison among three measures of response inhibition

J.F. Stins, J.C. Polderman, D.I. Boomsma, E.C.J. de Geus  
 Dept. of Biological Psychology, Free University of Amsterdam

Congruent      Incongruent

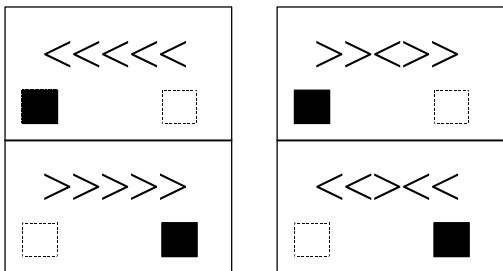
## Simon task

Instruction: Press left key to green stimulus, and right key to red stimulus. Ignore stimulus location.



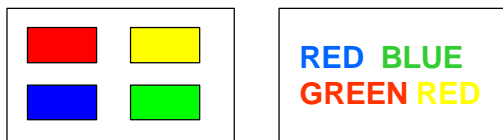
## Flanker task

Instruction: Press left key to left center arrow, and right key to right center arrow. Ignore flanking arrows.



## Stroop task

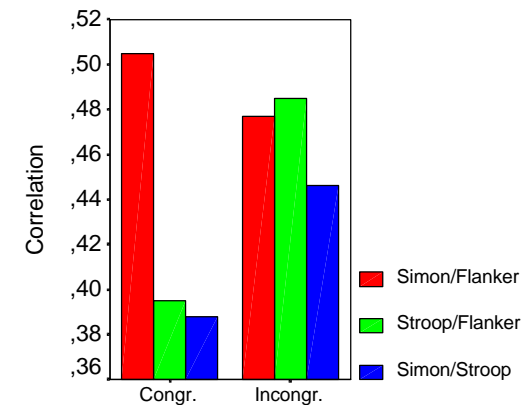
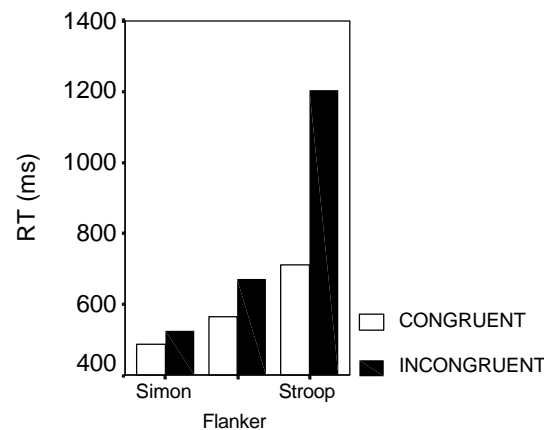
Instruction: Left: read aloud colors. Right: read aloud colors. Ignore word content.



## Background

ADHD is characterized by an impaired response inhibition; both in daily life and in information processing. We compared performance across three cognitive tasks that index the ability to inhibit a prepotent response. All tasks included an easy (congruent) condition and a more difficult (incongruent) condition. The dependent variable was reaction time (RT). The RT-difference between conditions is a measure of response interference. Subjects were 117 healthy children (8 - 14 years).

## Results



In all three tasks we observed significant response interference. Also, all pair-wise correlations between the tasks were significant; both for the congruent and for the incongruent conditions. These behavioral results fit nicely with recent brain imaging findings that the tasks involve the same brain structures, most notably the anterior cingulate cortex and prefrontal cortex.