RESUMO EM INGLÊS (SUMMARY)

The present study aims to contribute to the understanding of the inhibitory ability, within the framework of the neuropsychology. The objective was to develop a paper-and-pencil test to assess the ability to stop an action in a simple and rapid way. A computerized stop signal task was used to validate the test. In the first part of this work, studies that involved the computerized stop signal task are presented. The result of these studies allowed to raise some theoretical issues. The paper-and-pencil test is presented in the second part of this work. In the Experiment 1 the aim was to control experimentally the strategy of waiting for the stop-signal on a lateralized stop signal task, by means of an algorithm, which controlled, on-line, the variation of response latencies for the go-signal (GSRT). Thirty-four healthy volunteers participated in this study. The GRST of the group that performed the task without the algorithm were significantly higher than the GSRT of the group that performed the task with the algorithm, whereas the stop-signal reaction times did not reach significant differences between groups. This procedure provided more stable reaction times throughout the task, and shifted the probability of responding on stop-trials from 0.364 to 0.479. The Experiment 2 studied the relationship between reaction time, laterality, and executive functions were examined by employing two computerized tasks with lateralized visual stimuli. Simple reaction time (SRT) was correlated with the Part B-minus-A difference of Trail Making Test (TMT). No significant difference was found between left and right SRT. Reaction times for left *go*-signals of the Stop-task were longer than reaction times for right go-signals. The ratio of left go-signal-minus left SRT to right go-signal-minus-right SRT was correlated with the loss in the visuospatial component when it was combined with a

concurrent verbal task in the Dual-Task Test. Results suggest association between SRT and executive functions, and the involvement of hemispheric specialization and interhemispheric transfer in both, the stop signal task and the Dual-Tasks Test. Results from Experiment 3 permit to discard the possibility that the observed right visual field advantage observed was due to the orienting of attention across hemifields. The left GSRT were significantly slower than right GSRT. The right GRST advantage was not due to an attentional shift between left and right visual hemifields. In the Experiment 4, the stopping ability of older people in the computerized stop task was explored. There were no significant differences between the stopping ability of older and younger adults. The Square-skipping Test (SST) a paper-an-pencil version of the stop signal computerized task. is described in the second part of this study. The SST is divided in four parts. The effect of the administration of the different parts of the SST was studied in Experiment 5. The results allow for the use of the four parts in the same trial, since there was no effect of order of administration. In Experiment 6 it was studied the effect of placing a digit sequence on the third trial of the test, instead of the X's. It seems that a greater degree on the inhibitory ability is necessary to perform the task with the sequence "1, 2, 3", than with the sequence "3, 2, 1". Thus, the sequence "1, 2, 3" was used in the final version of the SST. The practice effects of the Dual-Task Test on the SST was studied in Experiment 7. The interaction Group x Trial showed a general decrease on the performance of participants without previous practice in the Dual-task Test, contrasting with the performance of participants with within-session practice, which showed a clear digit sequence load effect. The aim of Experiment 8 was to know possible aging effects in the performance of SST. A general decrease was observed

in the performance of older adults compared with performance of young adults; the interaction Group x Trial showed that the slope of the curves were different. The performance in SST is significantly affected by age. Performance in SST correlated with performance in the stop signal and the SRT tasks, respectively. Performance in SST also correlates with TMT, with the visuospatial component of the *mu* index of the Dual-task and with the attention coefficient of the Toulouse-Pièron Test. The best predictor of the stopping ability was the performance on the Part D with the digit sequence (Part D_3). Thus, SST seems to be a useful neuropsychological tool for the assessment of several executive functions, including the stopping ability, mental flexibility, speed for visual search and focused attention.