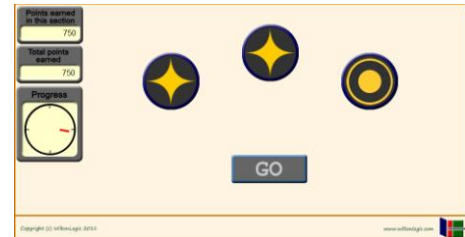


Module 4: Attention

Simple and Choice Reaction Time Task (SCRT)

In the Client Trial System, this test consists of four levels. In the first of these the test participant should click as fast as they can on a target which appears in a centralized location (Simple Reaction Time Task). In the second level, the test is similar, but there are three target locations (Choice Reaction Time Task). In the third level, the target is accompanied on each trial by two distracters in the form of stars (see picture), while in the fourth level, combinations of distracters are used, which appear just before the target. On some trials, the same two distracters are used. On others, a single star appears in either the same (congruent) or different locations (incongruent). The primary hypothesis is that a congruent distracter will speed responding, whereas incongruent distracters will increase the time to respond to the target.

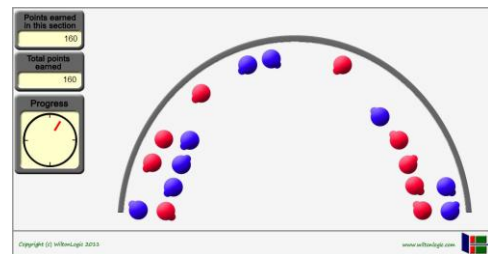


Two additional levels are available for experimental use. The fifth level is similar to the fourth, but the test participant does not have to initiate each trial (continuous performance). In the final level, divided attention is introduced. Two additional locations are added to the far left and far right, which each contain stars. On occasional trials, these stars rotate by a few degrees, and the test participant must click on that location. In this way the test participant must monitor the targets which have been used in all the previous level, but also the small signal coming from the new locations.

Top Down Attentional Task (ATT)

The Top Down Attentional task is based on a published procedure (Gold et al). It uses search time to look at the ability of test participants to distinguish clearly between relevant and irrelevant stimuli. Arrays of small symbols are shown in an arc across the screen as shown in the picture.

The target to be detected is a single red circle. The other red shapes are relevant to the search, whereas the blue stimuli are irrelevant. Two sets of trials are used. The first consists of 3 red and 3 blue, 6 red and 6 blue, and 9 red and 9 blue targets. Across this set, the search time increases in proportion to the size of the relevant stimulus set. The second set consists of 3 red and 3 blue, 3 red and 9 blue, and 3 red and 15 blue targets. In this set, the search time of healthy subjects increases only slightly, since the number of red targets is constant across the set. Published data with a similar method suggests that the search speed of some types of psychiatric patients with poor top-down control of attention may be impeded by these irrelevant stimuli.



Picture AX Task (PAX)

The PAX task is a continuous performance, go/no-go vigilance task. Symbols are shown in the box in the center of the screen. Of the set of 9 symbols, three are positive targets, and are shown in the display at the top of the screen (to reduce memory load). When a large red X follows one of the positive targets, the test participant must click on the blue button. When the red X follows a non-target, then the test participant should refrain from clicking on the button.

Signal detection analysis allows the user to calculate sensitivity to the difference between target and non-target classes, and responsivity, the tendency to respond actively regardless of whether the X follows a target or non target. These calculations use the non-parametric indices, SI and RI, reported by Frey and Colliver, 1973.

