**SERIAL REACTION TIME TASK INSTRUCTIONS**

**Methods in Brief**

The Serial Reaction Time Task (SRTT) is a linear, mono- or bimanual response task involving the learning of a sequence of button presses. The task appears to tap procedural learning of perceptual-motor sequences, but other versions have shown similar effects in purely-observational paradigms (showing cognitive sequence learning).

This version of the task includes the same random and patterned blocks as was shared with us by Jarrad A.G. Lum (Deakin University). The version here was programmed by Phillip Hamrick (Kent State University) and adapted by Jana Reifegerste (Georgetown University). Participants are exposed to a visual of four empty squares presented horizontally on the computer. A smiley face image can appear in any one of these four locations. Unbeknownst to participants, the sequence of locations of the smiley face follows either a (pseudo-)random and balanced (i.e., there is no pattern) sequence or a ten-item patterned sequence (locations: 1-3-4-2-3-1-4-2-1-4).

The Learning paradigm (name?) follows the structure: random-sequence-sequence-sequence-seuqnece-random (RSSSSR).

The Retention paradigm follows the structure: random-sequence-random (RSR) plus an explicit probe question and a process dissociation task.

The standard finding is that participants increase their speed of responding overall, but with patterned trials being faster than pseudorandom trials as the task progresses, indicating some amount of learning.

**Trial parameters:**

* ISI between trials is 100 ms
* There is no time-out; that is, the experiment moves on to the next trial only once a correct button is pressed (or after 20 incorrect buttons were pressed (which shouldn’t happen)).

**Instructions for the Experimenter**

**Session 1**

1. Make sure Chronos is attached correctly.
2. To open the task, click on the folder **SRT Task (Linear) > SRTT\_Session 1 E-Run 3.0 Script File**
3. Enter the subject’s ID number, session number, and handedness.
4. Remind participants that they are to place a) four fingers on their dominant hand or b) index and middle fingers of both hands on the first four buttons. They should respond ONLY with these fingers.
5. Do NOT inform the participants of the presence of a pattern.
6. You may read the task instructions to the participant verbatim.
   1. “You will see a smiley face appear in one of four places on the computer screen. Press the buttons on the response box that match where the smiley face is. Let's try a few out loud to practice first.”
   2. “If the smiley face is here, you should press this button. Go ahead and press it now.”
   3. And so on..

(Adult participants usually understand the task immediately.)

1. After the brief practice phase (12 trials, which will be repeated if the participant makes too many mistakes during practice), tell the participants: “Okay. Now it is time to start the real game. Remember to go as fast as you can, but also be accurate. That means try not to make any mistakes. Do you have any questions?”
2. If the participant has questions, answer them to the best of your ability at this time. Again, do NOT inform the participants of the presence of a pattern.
3. Once the participant has no further questions, you can instruct them to begin the task by pressing any of the buttons on the Chronos box.
4. At the end of each block, the experimenter moves on to the next block by clicking the space bar.
5. At the end of the experiment, a goodbye message appears on the screen (e.g., “That’s all for this experiment. Thanks.”)

If the participant comments on the fact that they got faster throughout the experiment, you may suggest that they just got better at quickly responding with training. If the participant comments on the fact that the last round was harder than the others, you may suggest that they maybe just got tired and their concentration might be fading.

**Session 2**

1. Make sure Chronos is attached correctly.
2. To open the task, click on the folder **SRT Task (Linear) > SRTT\_RETENTION\_Session 2 E-Run 3.0 Script File**
3. Enter the subject’s ID number and session number.
4. Remind participants that they are to place four fingers on their dominant hand along the lighted buttons. They should respond ONLY with these fingers.
5. Do NOT inform the participants of the presence of a pattern.
6. You may remind participants that this task is similar to one they did in a previous session.
7. You may read the task instructions to the participant verbatim.
   1. “You will see a smiley face appear in one of four places on the computer screen. Press the buttons on the response box that match where the smiley face is. Let's try a few out loud to practice first.”
   2. “If the smiley face is here, you should press the green button. Go ahead and press it now.”
   3. And so on..
8. After the brief practice phase, tell the participants: “Okay. Now it is time to start the real game. Remember to go as fast as you can, but also be accurate. That means try not to make any mistakes. Do you have any questions?”
9. If the participant has questions, answer them to the best of your ability at this time. Again, do NOT inform the participants of the presence of a pattern.
10. Once the participant has no further questions, you can instruct them to begin the task by pressing any of the buttons on the Chronos box.
11. The task will continue through until the end, when participants are told there is one more part to complete.
12. The final step is an explicit recall task. NOW, participants are told that the location of the smiley faces sometimes followed a pattern. Participants are asked to produce a series of button presses that they think matches the pattern they saw. They are given twenty seconds to do this. Participants are then asked to produce a pattern that is DIFFERENT from the one they just produced. They are given twenty seconds to do this, too. Verbatim delivery of the instructions should suffice here.
13. When this task is complete, a goodbye message is delivered and the data are auto-saved.