Project in PYTHON

Stroop task

Introduction

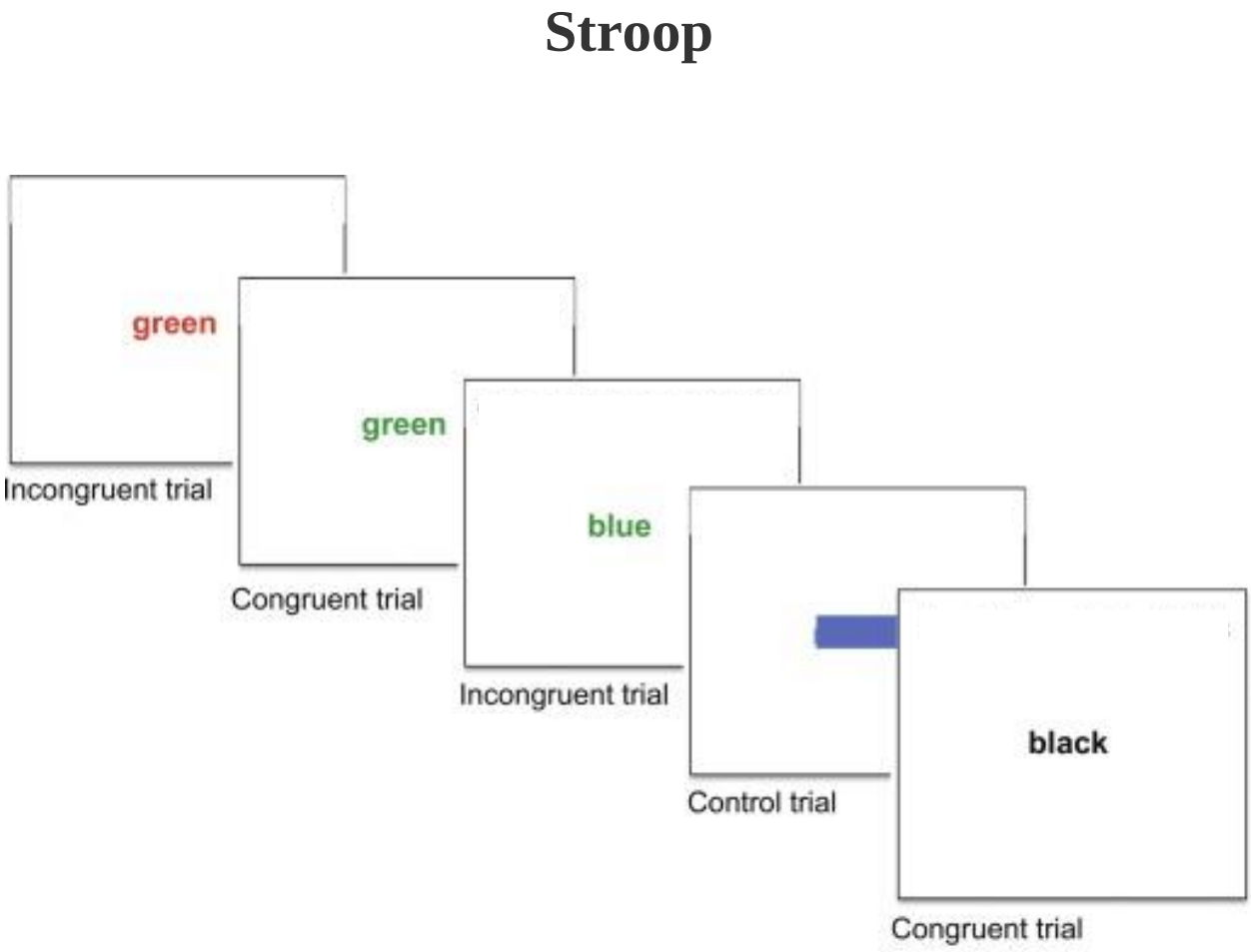
In psychology, the **Stroop effect** is the delay in reaction time between congruent and incongruent stimuli. The effect has been used to create a psychological test (the **Stroop test**) that is widely used in clinical practice and investigation.

A basic task that demonstrates this effect occurs when there is a mismatch between the name of a color (e.g., "blue", "green", or "red") and the color it is printed on (i.e., the word "red" printed in blue ink instead of red ink). When asked to name the color of the word it takes longer and is more prone to errors when the color of the ink does not match the name of the color.

The effect is named after John Ridley Stroop, who first published the effect in English in 1935.[1] The effect had previously been published in Germany in 1929 by other authors.[2][3][4] The original paper by Stroop has been one of the most cited papers in the history of experimental psychology, leading to more than 700 Stroop-related articles in literature.[4]

- **Congruent (Compatible)**: The color of the word and the meaning is the same
- **Incongruent (Incompatible)**: The color of the word and the meaning is different

A schema of the task:



Stroop task instructions

In this task, you will see color names (red, green, blue,yellow) in different "print" colors. You need to respond to the print color. For example, if you see:

GREEN

You need to respond to the print color (red), and press the associated button ("r"). The other buttons used in this study are "g","b", and "y", for green, blue, and yellow.

GREEN → press button "r", because ink is red
YELLOW → press button "y", because ink is yellow
BLUE → press button "g", because ink is green
RED → press button "b", because ink is blue

It can be difficult, because the name and the ink color are conflicting (except for yellow in the example above). So concentrate and ignore the meaning of the color words, instead, look at the ink color.
You get multiple trials and it takes around 5 minutes to complete. At the end, you get your response times.

The details of task you need:

- The task requires button presses.
- There are 40 trials.
- Each stimulus is presented for 500 milliseconds.
- Participants should respond with type {*'g', 'b', 'y', 'r'}* letters for {*green, blue, yellow, red*} colors respectively.
- After each trial you should show the 'correct' and 'wrong' feedback to the participants.
- At the end of the task, you should show feedback about participants' response times in the compatible and incompatible condition.
- The Stroop effect is reported as the average response time in incompatible trials minus compatible trials.
- You need to collect this information for your data analysis.
  1. name of the word (e.g., "yellow")
  2. the color the word is printed in (e.g., "red")
  3. Stroop color match (1=compatible, 0=incompatible)
  4. the pressed key
  5. Status (1=correct, 2=wrong, 3=timeout)
  6. Response time (milliseconds)

- Your Output should be as the following:
  - **Your speed in correct trials:**
  - **Congruent: ? ms**
  - **Incongruent: ? ms**
  - **Your Stroop effect is congruent minus congruent: ? ms**

- **You can use** *colorama* or *termcolor* packages in python to color the texts.

To become more familiar with the task, see the following link:
https://www.psytoolkit.org/experiment-library/stroop.html

Deadline: 19 Shahrivar