Vong1 (Preliminary Version) Specs

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Preliminaries

1. Make a jpeg image of a black rectangle about 1/4 of the width of the total screen, and about 1/12 of the height. Call it S1.jpg

2. Make a jpeg image of a dark blue rectangle (readily distinguishable in color from the target) and the same size. Call it S2.jpg.

3. Make a jpeg image of a dark green rectangle (readily distinguishable in color from the target) and the same size. Call it S3.jpg.

These will be used as stimuli in the preliminary version. Later we will provide the actual images to be used.

Design Overview

There will be 540 trials, comprised of 9 blocks of 60 trials. Subjects will be assigned to one of three order conditions (that means the experimenter types in a number 1,2 or 3 at the beginning of the experiment). This determines which of the three stimuli (S1.jpg, etc.) are used as targets, and which are used as distractors, in particular blocks. Whenever the subject searches for S1, the distractors are S2 and S3. When the subject searches for S2, the distractors are S1 and S3. etc.

Within every 60-trial block, there are two trialtype factors: target presence/absence (levels: present, absent) and display set size (levels: 4, 8, 12). Target presence/absence determines whether there is a target present in the display. Display set size consists in how many rectangles are shown on the screen. The number of trials in each cell should be equalized, i.e., there will be 10 trials per block in display set size 8 with a target present, etc.

Response Details

The yes key is “.”; the no key is “,”.

Procedure

1. Collect subject number, subject initials, and subject order condition (1,2, or 3).

Subject order condition determines which stimuli are targets in the 9 different blocks. The mapping is as follows:

Order Condition

Block	1	2	3
1	1	2	3
2	1	2	3
3	1	2	3
4	2	3	1
5	2	3	1
6	2	3	1
7	3	1	2
8	3	1	2
9	3	1	2

That is, if a subject is in order condition 2, then in blocks 1-3 they search for S3, in blocks 4-6 they search for S1, and in blocks 7-9 they search for S2.

2. Present Instructions1. Instructions should always be in big lettering (>= 14 point), because people do not like to read fine print. We also divide instructions into several screens:

“Thank you for participating in the experiment. Your task here today will be to look at the screen and determine whether a particular pattern (which we call the “target”) is present. Half the time, there will be a target present, and half the time there will not be. If you find the target, you will press the key labeled “Yes”. If you find that there is no target present, you will press the key labeled “No”.

Subject mouseclicks for next screen (button is labeled “I understand”):

Please keep your index and middle fingers of your right hand resting on these keys throughout the experiment (except during rest periods).

Try to respond as rapidly and accurately as you can. We are measuring both your response time and your accuracy.

The experiment will be divided into 9 blocks of trials, each lasting a few minutes. At the end of each block of trials, we will show you your average response time and number of errors made over the preceding block.”

Subject mouseclicks for next screen (button is labeled “I understand”):

“On this block of trials, your target is:” [show sample of target]”

That should remain present for 8 seconds. Then put up this msg:

“If you have any questions, please summon the experimenter, who will be happy to answer your questions.

When you are ready to begin, please rest your fingers on the two response keys, and press either of the two keys. ”

3. Procedure on each trial. Present warning cue in the middle of the screen. This should be a large plus sign. It should remain present for 500 msec. It then disappears for 500 msec. Then the search display appears. Response time measurement begins when the search display begins.

4. Generation of Search Display. The order condition and block tells you which stimulus is target, and which are distractors. You also randomly determine what the display size is (4,8,12) and whether the target is present, subject to the constraint of equal numbers of cells within each block. You want to place the stimuli on the screen randomly subject to the following constraint: no stimulus should be less than x pixels away from any neighboring stimulus or the edge of the screen. X = 1/2 the height of the stimulus itself (1/24 of the screen height). Note that the same x constraint applies to vertical neighbors and horizontal neighbors (and to the top, bottom, and sides of the display).

Thus, the display elements will be scattered throughout the entire display. The display background should be medium gray. Between trials, the “blank field” should be the same shade of medium gray (no rapid transitions to white, because these alter the state of the subject’s eyes).

Distractors are always randomly chosen with replacement from the set of potential distractors. So for example, suppose you are creating a display of display set size 4, with no target present, and in this block, the subject is searching for S1. For element 1, you would randomly choose from the set {S2,S3}. For element 2, you would also randomly choose from the set {S2,S3}; and so on, for all four positions.

The best way to generate target-present displays is first to create a target-absent display of the appropriate number of elements, then randomly pick one of the elements to be replaced with a target. That way, there is no possible nonrandom relationship between the composition of the target and nontarget positions in the display. If you have questions about this, please discuss it with me.

5. When you present the search display, this remains present until the subject responds by pressing one of the two response keys. When they do that, the search display goes blank. If the subject responded correctly, play the windows “affirmation” sound; if the subject responded incorrectly, play the windows error sound. One second after the sound stops playing, go on to the next search display.

6. At the end of each block, present a message that says “End of block X” (where X is the block number the subject just completed). “Please take at least 30 seconds to rest”. Then count down for 30 seconds. At the end of 30 seconds,

put up a message that says “On this block of trials, your target is:” [show sample of target]” That should remain present for 8 seconds. Then put up this msg: “Press any response key to continue”.

(Thus, note that we remind the subject of the target at the beginning of each block.)

7. At the end of the whole experiment, put up a message that says “Experiment complete. Thank you very much for participating. Please call the experimenter now.”

Data Files

Please write a datafile called R-x (where x is the subject number). R-x should have 540 rows, with the following information in each column:

1. Subject number
2. Block number
3. Trial number
4. Target for this block
5. Was target present? (Y or N)
6. Display set size (4,8,or 12)
7. Subject’s response
8. Was this response correct? (C or I, for correct or incorrect)
9. Subject’s response time in msec (never record any more precision than 1 msec)