

## Instructions for color adjustment task (Experiment 2)

At the beginning of each trial you will see a black cross in the center of the screen with a small dot in the middle. When you are ready to begin a trial, use the mouse to move the cursor to the center of the cross so it covers the small dot and click the mouse. The cursor will be a small black circle. At the start of each trial it can appear anywhere on the screen.

When you click the cross, five squares will appear on the screen. The square in the center of the screen will be the target for the trial. It will be surrounded by four squares.

One of the four surrounding squares will be either white or black. This square will be the test square for the trial. At each trial, the position of the test square will be chosen at random.

***Your task is to adjust the test square so that it matches the target square in color.***

To adjust the color of the test square, use the joystick and red buttons on the controller (identical to those used during training). You already know how the controller works from the training session.

Pressing the left or the right red button will change the *intensity* of the test square. Pressing the right red button will make the test square more intense. Pressing the left red button will make the test square *less intense*.

Moving the joystick up or down changes a hue of the test square. This corresponds roughly to changing the dominant color of the square along a circular sequence [red, orange, yellow, green, blue, purple, and back to red], as shown in the diagram (point to diagram of the controller). Moving the joystick up will change the color in counter-clockwise direction around the circle. Moving it down will change the color in the clockwise direction around the circle.

Moving the joystick left or right will adjust the chroma, sometimes called saturation or purity, of the color test square. You can think of this as corresponding to how much “whiteness” is mixed in with the dominant color of the square. Moving the joystick to the left will make the test square less saturated (less pure). Moving it to the right will make it more saturated (more pure).

Remember that initially each movement of the joystick and each red button press has a large effect on the color of the test square. As your adjustment approaches a good match, you will want to make the adjustment step size smaller. The yellow buttons allow you to control the step size. Press the left yellow button to make the step size smaller. Press the right yellow button to make it larger. There are three step sizes in all, and you should feel free to go back and forth as you proceed. As you finalize your match, however, you should use the smallest step size. Each time you press a yellow button, the program will

remind you of your current step size, by saying “large”, “medium” or “small” so you can keep track of it.

Sometimes, you may reach the limits that the color can change in the direction you chose. Then you will hear a warning “Cannot change color further”. You should then try to move in the opposite direction of the one you just chose, change the step size and/or vary the remaining two dimensions to obtain your desired match.

When you are satisfied with your match, when it is as good as you can make it, press the right green button, labeled "Match Complete" in the diagram of the controller. In case you press match complete button by mistake while you are still not satisfied with your match, please let the experimenter know immediately.

In case you cannot make a satisfactory match no matter how hard you try, press the left green button, labeled “Match Impossible” in the diagram of the controller. You should try, however, to choose this option rarely – only when you feel you tried many combinations of dimensions and step sizes and none of them lead you to a satisfactory match.

Remember that at the beginning the test square will be either black or white. If it’s black, you should first try to increase its *intensity*. If it’s white, you should first try to decrease its *intensity* (*neutral*).

When you think you found a good match, you can evaluate how good the match is by changing the test color by one step in “positive” and “negative” direction for each dimension at the time. This will allow final fine-tuning of your match.

In today’ session we will do between 6 of trials (in illuminant- constant; 3 in illuminant-changed), each consisting of 4 single trials (in illuminant- constant; 8 in illuminant-changed). At the beginning of each trial, we will perform the calibration and validation for the eye tracker. It is extremely important that you try not to move your head in between calibrations (that is, the moment the calibration starts) to the end of that trial. In the pause before we do a new calibration and between trials you will be able to move your head and take a break for however long you need.

Also, try not to blink too much within the actual trial. You can use the interval between the trials to blink or close your eyes for a prolonged period of time to relax them.

Just before the experimenter starts, experimenter reminds the observer of their task:

*Your task is to adjust the test square so that it matches the target square in color.*