Instructions for adapting the Eyelink WaitForFixation (E-Prime program) to suit your personal needs:

This experiment is designed to illustrate the techniques necessary for custom real-time gaze contingency. Specifically, a trial will begin by showing the subject a fixation cross. Only after the subject fixates the cross will the trial progress (automatically).

First, you will see comments throughout the entire experiment file. They are usually pretty straightforward, and will demonstrate where you can change parameters, and what you should simply leave alone. For the most part, these comments will teach you how to implement the program, but I've got a few things I'd like to point out (below).

Take note of the User Script. Here you will find all the necessary global declarations and eye tracking sub-routines. You shouldn't have to change any of this code; simply copy and paste it into your new experiment.

The elConnect Inline object will connect you to the Eyelink. This Inline also performs two other functions. First, it automatically designates a filename for the gaze data file; this script can be edited to create an experiment appropriate filename, enumerated by the subject number. Second, the parameters of the calibration procedure are defined here (see below).

Next, please note that the experiment will automatically perform the calibration procedure at the beginning of each run. Because there is no real function for this built into E-Prime, I've had to emulate it with a little code (specifically, in the doCameraSetup sub-routine). You can play with the parameters of this function if you'd like (e.g., background color, tracking dot size, etc.). When you see the Eyelink Calibration prompt appear, simply proceed as you would normally do with Calibration outside of E-Prime. Use the "C" key to run the calibration; once it completes, press Escape. At that point, the subject's face will appear again on the Experimenter station computer of your Eyelink setup. To run the Validation procedure, simply press "V" (note that the instructions disappear at this point; sadly, there is no way to redraw the screen while this procedure is running, so I couldn't redisplay the instruction text). Once the validation procedure has ended, press Escape twice, and the experiment will continue.

In the SetupTrial Inline object, you will see the option to adjust the parameters of your WaitForFixation procedure. Specifically, you can adjust the amount of time you want the subject to fixate before the experiment continues, and you can set the amount of time you'd like the procedure to time out after (in case tracking difficulties occur). Here you will also set the location and dimensions of the area in which the subject must fixate.

The elWaitForFix Inline object will perform the actual procedure. It will monitor (in real-time) the location of the subject's gaze. Once the subject has fixated the cross for a consecutive two seconds, it will automatically be cleared from the screen and the trial will progress.

The elStopRec Inline object will stop the eye tracker and will also declare an interest area (as per your specified dimensions). This interest area will automatically be exported to the gaze data file created by the Eyelink.

What to do after the experiment:

When the experiment is over, you will have an EDat file, just like any other E-Prime experiment. There will also be the standard gaze data file, created by the Eyelink. This file will contain all of your eye tracking data, including the user-specified areas of interest. Please note that you can send any other E-Prime related variables to the gaze data file. You will see that I send over a number of things (e.g., trial number, subject number). Between these two files, you should have everything you need to analyze your data.

Disclaimer

I feel as if I should give a disclaimer here. The software, as it is free, is just my way of giving back to the Psychology community. I cannot assume liability for any problems that a user encounters with the E-Prime files, gaze data files, etc. I imagine this is assumed from the outset (and I anticipate no problems whatsoever), but of course, I need to cover myself.

Finally, please note that there is always a possibility of bugs, etc. If you have any problems with the software, or if you are having difficulty adjusting it to your future needs, please feel free to contact me. I am quite willing to help anyone get the most out of this software. I hope you find it useful and fun. I also encourage you to visit my website periodically; I will have additional software and macros posted in the future, on the Software page of my site.

Thanks for your interest in this software, and please feel free to let me know how it works for you! I'm very curious to hear how well it works for other researchers, and what kind of purposes it is being used for.

-Mike

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