## **Automated Testing**

This app includes predefined tests in the file tests.py, allowing for automated testing with an arbitrary number of "bots" simulating participant behavior. The bots for this app are programmed to behave consistent with theory but randomly, i.e. they choose "Option A" or "Option B" at random but do alternate between "Option A" and "Option B" at most once.

To run a test on the particular parameterization of the app defined in <code>config.py</code>, make sure to include a session configuration in <code>SESSION\_CONFIG</code> in <code>settings.py</code>.

Open your terminal and run the command otree test < name > < n > from the project's root directory, where < name > refers to the name of the session configuration and < n > refers to the number of bots to be simulated simultaneously. In addition, the --export flag can be added to export the data generated by the bots to a \*.csv-file (stored in oTree's project directory). For example, the command otree test mpl 50 --export will simulate a session of 50 participants for the session named mpl and export the generated data to a spreadsheet table.

To test the apps in a more full and realistic way, tests can be launched using oTree's "browser bots", simulating the app in an actual web browser. To do so, add 'use\_browser\_bots': True to the respective session configuration in settings.py, run the server and create a session. The pages will auto-play with browser bots once the start links are accessed. Alternatively, browser bots can be started from the terminal by running the server (otree runserver) first and calling the command otree browser\_bots <name> <n>, which will result in auto-play of <n> browser bots in Google Chrome $^{©}$ .1

For more detailed information on automated tests in oTree, refer to oTree's Docs.

<sup>&</sup>lt;sup>1</sup> To use a browser other than Google Chrome<sup>®</sup>, add the setting BROWSER\_COMMAND to settings.py, specifying the full path to the executable of the desired web browser.