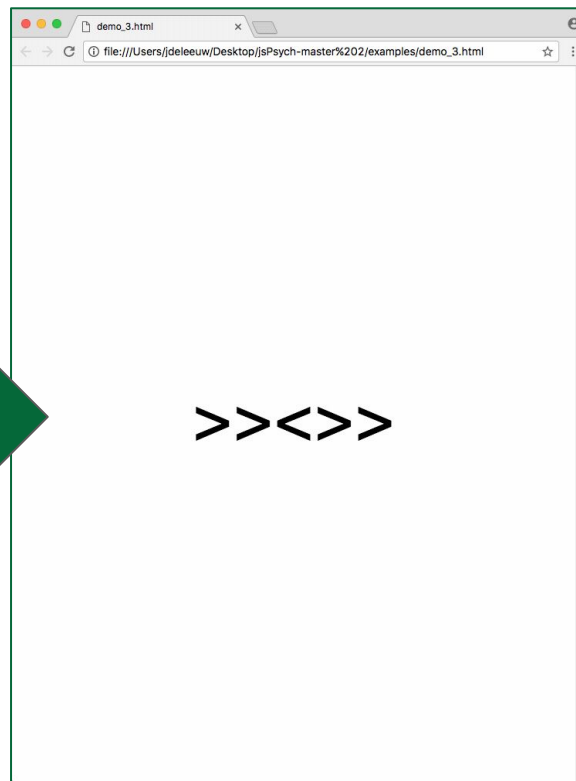
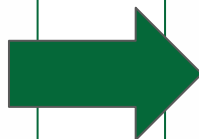


An overview of jsPsych

Josh de Leeuw • Vassar College
Pushkin Developers Workshop

jsPsych is a JavaScript library for building browser-based experiments.

```
var test_stimuli = [  
  { stimulus: '<<<<<', data: {stim_type: 'congruent'} },  
  { stimulus: '>>>>>', data: {stim_type: 'congruent'} },  
  { stimulus: '<<<<<', data: {stim_type: 'incongruent'} },  
  { stimulus: '>><>>', data: {stim_type: 'incongruent'} }  
];  
  
var test = {  
  timeline: [{  
    type: 'html-keyboard-response',  
    choices: [37, 39],  
    stimulus: jsPsych.timelineVariable('stimulus'),  
    data: jsPsych.timelineVariable('data'),  
    post_trial_gap: 1500,  
    response_ends_trial: true  
  }],  
  timeline_variables: test_stimuli,  
  sample: {type: 'fixed-repetitions', size: 2}  
};  
  
jsPsych.init({  
  timeline: [test],  
});
```



jsPsych is two core files (one JS and one CSS) with many plugin files.

```
1 <!DOCTYPE html>
2 <html>
3
4 <head>
5   <script src="jsPsych/jspsych.js"></script>
6   <script src="jsPsych/plugins/jspsych-serial-reaction-time-keys-moving.js"></script>
7   <script src="jsPsych/plugins/jspsych-html-keyboard-response.js"></script>
8   <script src="jsPsych/plugins/jspsych-html-button-response.js"></script>
9   <script src="jsPsych/plugins/jspsych-survey-text.js"></script>
10  <script src="jsPsych/plugins/jspsych-call-function.js"></script>
11  <link rel="stylesheet" href="jsPsych/css/jspsych.css"></link>
12
```

core JavaScript file

plugins

core CSS file

Plugins define the atomic units of a jsPsych experiment.

They have a common structure to ensure compatibility, but virtually any browser-compatible task can be implemented as a plugin. There are currently 37 plugins in the official jsPsych release, and others that are community created.

[jspsych-html-slider-response.js](#)

[jspsych-iat-html.js](#)

[jspsych-iat-image.js](#)

[jspsych-image-button-response.js](#)

[jspsych-image-keyboard-response.js](#)

[jspsych-image-slider-response.js](#)

[jspsych-instructions.js](#)

[jspsych-reconstruction.js](#)

[jspsych-resize.js](#)

[jspsych-same-different-html.js](#)

[jspsych-same-different-image.js](#)

[jspsych-serial-reaction-time-mouse.js](#)

[jspsych-serial-reaction-time.js](#)

[jspsych-survey-likert.js](#)

[jspsych-survey-multi-choice.js](#)

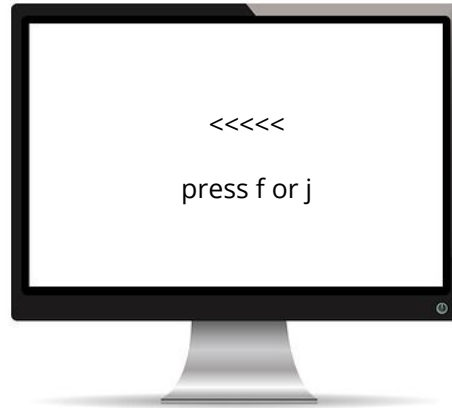
[jspsych-survey-multi-select.js](#)

[jspsych-survey-text.js](#)

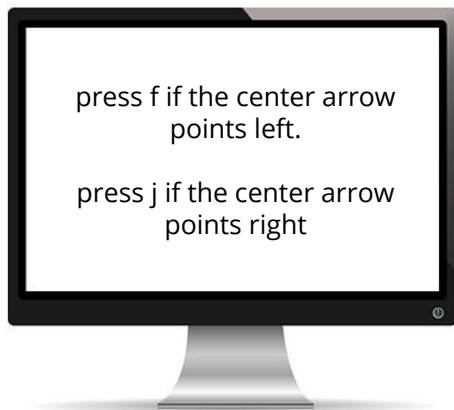
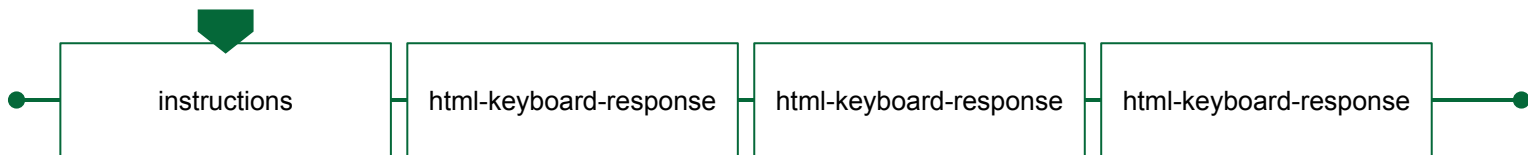
[jspsych-video.js](#)

The html-keyboard-response plugin displays arbitrary HTML content on the screen and allows the participant to respond by pressing a key. The key choice and response time are measured.

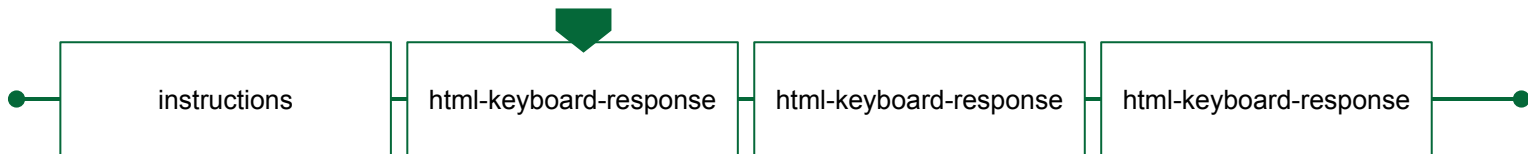
```
{  
  stimulus: "<<<<<",  
  choices: ["f", "j"],  
  prompt: "press f or j",  
  stimulus_duration: 250,  
  trial_duration: 2000,  
  response_ends_trial: false  
}
```



Experiments are defined by specifying a timeline.



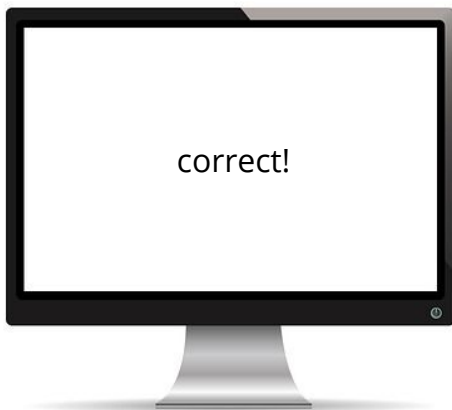
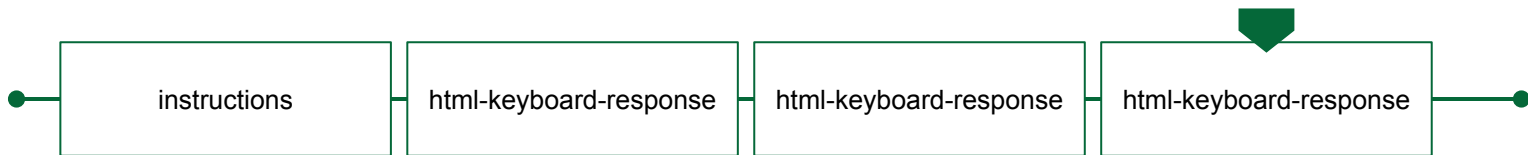
Experiments are defined by specifying a timeline.



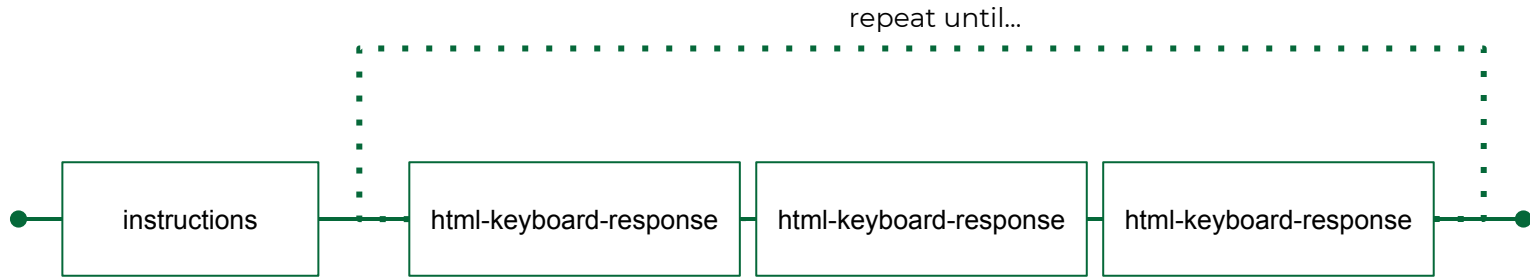
Experiments are defined by specifying a timeline.



Experiments are defined by specifying a timeline.



Timelines support linear, conditional, and looping structures.



A few additional **features of jsPsych**



Data management

Data collection is centralized. Data objects support many actions, like filtering, aggregating, and summary statistics.



Automatically preload media

Images and audio files will automatically preload to prevent buffering issues during the experiment.



Randomization

Several randomization methods are built in for within-experiment manipulation (e.g., order or selection of stimuli).



Progress bar

An automated progress bar is available. It can also be controlled manually through an API.



Display size calibration

A short calibration procedure can adjust the display size of jsPsych content to match some predefined physical size.



Automatically record user-interactions

A record is kept of every user interaction event, which includes when the user switches the active display window to something else during the experiment.

jsPsych is a client-side library; it does not handle any server-side needs by design. It needs to be paired with a mechanism for hosting studies and storing data permanently.



We're currently building a **graphical interface** for jsPsych, <http://builder.jspsych.org>

The screenshot shows the jsPsych Experiment Builder web application in a browser window. The browser's address bar displays "builder.jspsych.org". The page title is "Demo Experiment 1". The interface is divided into several sections:

- Header:** Includes the jsPsych logo, a toolbar with icons for home, add, save, print, and share, and a user profile icon labeled "test".
- Timeline/Trial Organizer (Left Panel):** A tree view showing the experiment structure. The "Main" section is expanded, showing a "Welcome" trial (highlighted in blue), "Instructions", and a "Test Stimulus" section containing "Fixed", "Test", and "Debrief" trials. Each trial has a green status indicator.
- Preview Window (Center):** A window titled "760 x 476 100%" showing a preview of the "Welcome" trial. The text displayed is "Welcome to the experiment. Press any key to begin." A "Window Snip" button is visible in the bottom right corner of the preview area. Below the preview are play, refresh, and full-screen icons.
- Timeline/Trial Editor (Right Panel):** A configuration panel for the selected trial. It includes:
 - Trial Name: "Welcome"
 - Plugin: "html-keyboard-resp..."
 - stimulus: "Welcome to the experiment. F"
 - Choices: "[ALL KEYS]" with a checked checkbox
 - Prompt: (empty)
 - Stimulus duration: "-1"
 - Trial duration: "-1"
 - Response ends trial: (checked green circle)

We're also working on **hardware extensions** for lab studies

