

Lesim-Mode: Edit Learning Simulator Scripts in Emacs

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1 Introduction

Lesim-Mode is an Emacs major mode to write and run Learning Simulator scripts. Its features are:

- Syntax highlighting.
- Align parameter blocks at the = sign.¹
- Align phase lines within a phase block at | signs.
- Highlight misspelled stimuli, behaviors, and line names in phase blocks.
- Handy movement by field in phase blocks.
- Insert script template.
- Run scripts through the Learning Simulator.

Lesim-Mode does not understand the full Learning Simulator syntax. That is a job for Superman, that is, Learning Simulator chief software architect Markus Jonsson.

2 Installation

Install from here for now, hopefully from MELPA later.

¹The earlier Learning Simulator syntax using : for assignments is not supported by Lesim-Mode.

```

File Edit Options Buffers Tools Terminal Help
###
title: A simple test script
author: Stefano Ghirlanda
date: 2023-05-03
summary: Just to show off lesim-mode
###

n_subjects = 10
mechanism = sr
behaviors = response, no_response
stimulus_elements = background, stimulus, reward
start_v = 0
start_w = 0
alpha_v = 0.1
u = reward:10, default:0

@phase training stop: stimulus=10
START_TRIAL stimulus | response: REWARD(.5) | NO_REWARD
REWARD reward | START_TRIAL
NO_REWARD background | START_TRIAL

@run training

@figure v(stimulus->response)
@subplot 111 {'xlabel':'exposures to stimulus', 'ylabel':'v-value'}
@vplot stimulus->response

-:--- test.les All of 682 L2 Git:main (Les)

```

Figure 1: Sample screenshot

3 Quick start

- Syntax coloring is enabled automatically. It also highlights some errors, line unassigned parameters.
- Press **TAB** anywhere in the buffer. This has different actions depending on context:
 - In a parameter block, it aligns the block.
 - In a phase block, it aligns the block, highlights misspelled stimulus elements, behaviors, and phase line names, and moves to the next field.
 - Everywhere else, it has currently no effect.
- Press **C-c r** to run the script in the Learning Simulator (see 5).
- Press **C-c t** to insert a template to get started on a script (see 5).

4 Learning Simulator

You can learn about the Learning Simulator from these sources:

- The Learning Simulator Website

- Learning Simulator documentation on Read The Docs
- Short article in the Journal of Open Source Software

5 Configuration

Using M-x `customize-group lesim` you can configure:

- The command used to run the Learning Simulator (default: `lesim.py`).
- The key binding to run scripts (default: `C-c r`).
- The key binding to insert a template script (default: `C-c p`).
- Whether to insert a template script automatically upon opening an empty `.les` file (default: `nil`).
- Other minor items explained in the customization buffer.

6 Planned features

- Look up parameter definitions in the online docs.
- Use online docs to set default parameter values.
- Parse assignments to highlight syntax and content errors.
- Highlight and validate plotting commands.
- Add Lesim menu.

Please suggests features as issues on Github.

7 Bugs

- The content of multiline comment blocks is highlighted as regular script text.

Please report bugs as issues on Github.