

## Using the SME\v4 distribution

The SME\v4 distribution consists of two zip archives:

- sme4-code.zip consists of the SME source code.
- Sme4-corpus.zip consists of the 5,845 dehydrated SME instances used as data in the computational experiments for the 2016 *Cognitive Science* journal article.

### Installing SME\v4

To install the source code, you'll need to have already installed Common Lisp. We mostly use it with Allegro Common Lisp, under both Windows and Linux. Franz, Inc. makes a free version that it will work fine with, for example. SME should work with other Common Lisp implementations, albeit with some tweaking<sup>1</sup>. Specifically some of the experiment-running routines in particular use Franz-specific timing code, although we have also included what should be a portable timing macro as well.

1. Create an empty directory to install the code and corpus in. You'll want to use a drive that has at least 400MB in it, if you are installing the entire corpus of examples.
2. Unzip the sme4-code.zip archive contents into that directory.
3. At this point you should see two directories and two files
  - a. The directory v4 holds the SME source code
  - b. The directory mars holds the Minimal Analogical Reasoning System, an extremely simple problem-solver that uses analogies to solve numerical textbook problems.
  - c. The defsys.lsp file is a system definition file, which basically loads the defsys.lsp file in the v4 directory.
  - d. qrgsetup.lsp, which contains utilities for compiling and loading.
4. Edit qrgsetup.lsp to change the value of \*qrg-path\* to be the directory you unpacked everything to. For example, if you installed everything in c:\sme4-open, you'll change this to be  
(setq \*qrg-path\* "c:\\sme4-open\\")
5. (optional) Change the startup file for your Lisp to load qrgsetup.lsp.
6. If you are installing the corpus, unzip it into the same directory you unzipped the code into. (This simplifies using the replication code in v4\testing). You will see two new directories appear:
  - a. corpus has one subdirectory for each experiment, containing the dehydrated SMEs for that experiment.
  - b. data contains the comma separated files generated by the code in v4\testing over the corpus.

At this point, everything should be set up and ready to go.

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<sup>1</sup> The only compatibility issue we know about as of 2/16 is that in Franz and SBCL, it is legal to use a package qualifier in front of a list, i.e. cl-user::(...), whereas this convention is not supported in Clozure and LispWorks.

## Running sme\v4

1. Start Lisp. If your startup file doesn't load qrgsetup.lsp automatically, load it first.
2. Load the system definition, by calling (load-qrg-defsys "v4"). If you are using SME a lot, this is also handy to add to your startup file.
3. If you haven't compiled SME, do so by calling (compile-sys :sme). If you change the source code, you'll want to recompile it.
4. If you've already compiled SME, load it by calling (load-sys :sme).

## Running the regression test

To make sure that your installation is correct, please run the SME regression tests.

1. With SME loaded, call (sme-shakedown).
2. It should pass all seven tests.

## Setting up MARS

1. After SME is loaded, load the MARS system definition, i.e. (load-qrg-defsys "mars").
2. If you haven't compiled MARS already, use (compile-sys :mars).
3. Otherwise, just load the compiled version, by calling (load-sys :mars).
4. You'll find some simple regression tests for the algebra system and the code to run the four problems from the thermodynamics experiment in the paper in the file debug.lsp.

## Experimenting with SME

SME is designed to be used as a module in larger-scale systems. However, we also include a character-oriented interface you can use at the Lisp Read-Eval-Print loop for easy experimentation. With SME loaded, call

```
(sme-toplevel)
```

Which then gives you a set of options. Anywhere, 0 shows you what options are available and q pops up one menu level. When you first start it up, you will need to load a vocabulary, using the Set Defaults menu. The Create a Match menu lets you choose a base and target and runs the comparison. The Examine a match menu provides means for displaying the results.