Trale

1 Links

Here you can learn how to install Trale and test its functionality on a simple grammar. To learn more about Trale and Trale grammars you should consult the Trale manual: `http://utkl.ff.cuni.cz/~rosen/public/trale-manual.pdf`. Or see the Trale download web page with more links, including more detailed documentation at `http://milca.sfs.uni-tuebingen.de/A4/Course/trale/`.

The textbook `http://milca.sfs.uni-tuebingen.de/A4/Course/PDF/gramandpars.pdf` provides a good introduction to grammar writing in Trale.

2 How to avoid installing Trale

2.1 Running Trale on a server

You can log onto a machine that has Trale installed. Please drop me an email if you want to use this option. If you can log in from a linux machine using ssh with the -Y option, you will see the GUI, too. Once you get the access, launch Trale using the command "tralesm"with the appropriate set of parameters (use at least -au) instead of "trale"to run the version of Trale compatible with the grammars we use.

2.2 Running Trale from a bootable CD or image

You can use the bootable CD image “Grammix”. This CD persuades your PC to run Knoppix, a Linux system. To use it, some experience with Linux is a plus. You can do it even if you have Linux on your PC, but then you might prefer to save yourself the trouble of rebooting, using a different system and fiddling with a memory stick, at the cost of spending a while installing Trale on your system (see § 3.3).

You can download the ISO image of the CD from `http://hpsg.fu-berlin.de/Software/Grammix/`, or ask your teacher for a free copy. Note that while using this CD, you should have a flash memory stick to save your files. If you want to use a physical CD, your PC must allow for CD system booting (this is a BIOS option). A few hints on how to use this CD:

1. Make sure your PC allows booting a system from CD. To enter the BIOS setup screen, you should press a key while the PC is starting up, before any system is loaded. This key is often F12. In the BIOS setup, find an item specifying the order of system boot devices and make sure the highest priority is assigned to CD. Save the new BIOS setup.
2. Insert the Grammix CD into your CD drive. Let your PC boot from the CD. Restart your PC, if you have a system running.
3. After a while you should see a Knoppix intro screen in German. At the
   ```
   boot:
   ```
   prompt below type
   ```
   knoppix lang=us
   ```
   and press Enter.
4. After another while you should see the HPSG grammar development desktop with sample grammars in German. You can change the language to English and explore this environment. To use and develop grammars of your own, click on the Home icon below and create a new folder for your grammars and other data. **This folder disappears when you log off!**
5. Insert your flash memory stick into a USB port. Its icon should appear on the desktop. Now you can synchronize its content with that of your temporary Knoppix. **Don’t forget to save the content of your Knoppix folder onto the flash memory before you log off!**
6. To run Trale with your grammar, open a terminal window and cd to the folder with the grammar, usually consisting of the two files signature and theory. Proceed as described below in § 5.

3 How to install Trale

3.1 How to install Trale on a Windows system

First you should have a virtual machine running Linux, such as Cygwin. Then you can proceed using one of the options below. You might also find helpful the instructions at `http://milca.sfs.uni-tuebingen.de/A4/Course/trale/` and the help files included with the distributions. Note that only the new Trale package handles UTF-8 characters.

3.2 How to install Trale on a Linux system with Sicstus Prolog

This way, you'll use Trale compiled on your system (which runs faster for larger grammars and data). See `http://milca.sfs.uni-tuebingen.de/A4/Course/trale/` and the help files included with the distributions. Note that only the new Trale package handles UTF-8 characters. For instructions concerning the Qt4 package see below. There is one important limitation: Trale only runs with Sicstus version 3.

3.3 How to install Trale on a Linux system without Sicstus Prolog

1. Create a folder Gram1, download into it the files signature and theory from Moodle, LTGF, Topic 4, Trale: Grammar 1: `http://moodle.ff.cuni.cz/mod/resource/view.php?id=5773&subdir=/GRAM1`.
2. Go to `http://hpsg.fu-berlin.de/Software/Trale/` and download the file standalone-trale.tbz.
3. Follow the instructions 1–3 on the Standalone Trale web page. Then:
4. `cd` to Gram1 and try this:

   ```
   trale -sag
   ```

   There can be two results:

   A: If you see a response similar to that below and a new window named GRISU, you are done. You can now compile the grammar and parse a string — see below in § 5.

   ```
   Using Trale system found in /usr/local/standalone-trale
   Starting Trale (no saved state) from sources and the grisu interface
      Starting grisu interface .... started on 5002 of host localhost
      Starting standalone version of Trale (standalone-trale.Linux)
   Loading Interface connection specifications (options -g):

   Establishing connection to interface on port 5002 of localhost.
   Connection established.

   TRALE Milca environment (version 2.7.12)
   Copyright (C) 2002/3 Project MILCA A4
   PIs: Detmar Meurers (OSU), Gerald Penn (Univ. Toronto),
        Frank Richter (Univ. Tubingen)
   All rights reserved

   | ?-
   ```

   B: If you see

   ```
   Starting grisu interface ........................
   ```

   going on and on, then there is more work to do. You have to install the graphical interface for Trale. The easiest way is to use its implementation in Java, see § 3.3.1.[1] Alternatively, you may use the Qt-based version, see § 3.3.2.

3.3.1 Installing Java-based Grale

GraleJ is a Java graphic interface for Trale. No compilations or installations are needed, you must just unpack archive and run *.jar files. Here are the instructions:

1. Download GraleJ from `http://code.google.com/p/gralej/`.
2. Unpack it, for example to `/usr/local/gralej`.
3. Make a shell-script file for starting gralej:

   ```
   $ cat gralej.sh
   #!/bin/sh
   java -jar /usr/local/gralej/gralej.jar
   ```

4. Go to /usr/local/bin and make a symbolic link to your shell-script:

   ```
   #/usr/local/bin: ln -s /usr/local/gralej/gralej.sh gralej
   ```

5. Open the file trale and change line with parameter FRONTEND:

   ```
   FRONTEND=gralej
   ```

[1] Thanks to Vincent Kríž for discovering this option and describing the procedure.

3.3.2 Installing Qt-based Grale

1. Go to `http://milca.sfs.uni-tuebingen.de/A4/Course/trale/` and download the file grale-v-1-0-2-src.tar.bz2. Unpack it.
2. Unless you have it installed already, install the development package Qt, version 4. The easiest way is to install the package using your Linux distribution procedure. For example, in Fedora you say this:
   ```
   yum install qt4-devel
   ```
   Alternatively, but with some risk of problems, you can download and install Qt4 from here:
   `http://wftp.tu-chemnitz.de/pub/Qt/qt/source/qt-x11-opensource-src-4.3.4.tar.gz`.
3. `cd` to the source folder of Grale (see Step 1) and do:
   ```
   /usr/lib/qt4/bin/qmake
   ```
   (or similar, depending on where your Qt4 resides)
4. Check that your current version of the C++ compiler is compatible with the Grale package. You can do it using the following command:
   ```
   g++ -v
   ```
   The version should be 4.2 or lower.[2] If not, first make sure that a version 4.2 or lower is installed on your system. In Ubuntu you can install it using the command:
   ```
   sudo apt-get install g++-4.2
   ```
   Then you should modify the file Makefile in the source folder of Grale (path-to-Grale/grale-v-1-0-2-src/Makefile). Find the line including the following string:
   ```
   CXX       = g++
   ```
   and modify it using the lower version's number:
   ```
   CXX       = g++-4.2
   ```
   Do not forget to save the file Makefile.
5. Then do:
   ```
   make
   ```
   If you encounter a problem, consult the file GRALE.HOWTO in the Grale source folder.
6. Create a symbolic link to the grale executable in a folder included in a search path of your system. For example:
   ```
   cd /usr/local/bin ln -s ../grale-v-1-0-2-src/grale
   ```
7. `cd` to the Trale folder (standalone-trale, see Step 3) and liberalize your access rights to the file trale, e.g. like this:
   ```
   chmod a+rwx trale
   ```
   Then open the file for editing, and modify the instruction which graphical interface should be used. Change
   ```
   # What to call to start the graphical interface
   FRONTEND=grisu
   ```
   into
   ```
   # What to call to start the graphical interface
   FRONTEND=grale
   ```
   Save.
8. Repeat Step 4 in § 3.3. You should now see Result A.

4 How to install the chart parser display tool

For anyone wanting to use chart display as a way to see what Trale is doing – see `http://utkl.ff.cuni.cz/~rosen/public/trale-manual.pdf`, p. 35. To install the package on your machine, see instructions in `http://hpsg.fu-berlin.de/Software/Trale/` (close to the bottom). Note that you must have the package tcl/tk installed. If you have an account on chomsky.ruk.cuni.cz (just let me know if you need one), you can start using chart display right away. Just include

```
:- chart_display.   :- nochart_debug.
```

in your theory file and type "go."after compiling the grammar.

[2] Thanks to Kamil Kos for adding this important point.

5 How to run Trale

1. `cd` to a folder with the files signature and theory
2. Say:
   ```
   $ trale -sag
   ```
   or, if you have Sicstus Prolog and don't use the standalone version:
   ```
   $ trale -sg
   ```
3. You can list all paremeters for Trale with
   ```
   $ trale -h
   ```
   If you are comfortable with emacs, call Trale without the parameter `s`, or replace `s` by `x`. If you use UTF-8 encoding in your grammars, add `u` (not available with the old compiled version of Trale). You shouldn't omit `g` with the standalone version of Trale, the plain text output is not properly formatted.
4. `| ?- c.` — compile a grammar
5. `| ?- rec.` — parse a string as shown
   `|: pepa pase kozu` — type a string
6. A window with a parse tree should appear. You can click on a node in the tree to see the structure and on various parts of the structure to see more or less of it.
   Trale asks you if you want to see more trees by a prompt `ANOTHER?`. If can respond by pressing Enter or `Y` you'll see another parse. Of course, only if your grammar has determined that the string has more parses.
   Each parse is listed in the GRALE (GRISU) window. You can recall any previous parse by double clickling on the corresponding line.
7. `| ?- halt.` — to quit
8. More commands:
   `| ?- rec([pepa,pase,kozu]).` — parse a string
   `| ?- rule` Rulename`.` — show a rule Rulename
   `| ?- lex` Word`.` — show a lexical entry Word
9. Inspecting signature:
   `| ?- show_approp(`Type`).`
   `| ?- show_subtypes(`Type`).`
   `| ?- show_all_subtypes(`Type`).`
   `| ?- show_supertypes(`Type`).`
   `| ?- show_all_supertypes(`Type`).`
10. Parsing numbered examples:
    `| ?- test(`Nr`).`
    `| ?- test([`From`,`To`]).`
    `| ?- test(`all`).`
    `| ?- testt(...).` — same as above without producing structures