Using ETPS on Andrew

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1 Accessing ETPS

While ETPS can be installed on many computers, you must use the ETPS which is installed on Andrew in order to get credit for your work when you issue the DONE command. However, you can access it remotely, as is discussed below.

The Unix X11-window system makes it possible for you to run ETPS in a window with fonts that have special symbols for the logical connectives and quantifiers. Formulas will appear just as they do in the textbook. In addition, special windows called proofwindows will display the proof, or relevant parts of it, as you construct it. It is highly recommended that you run ETPS using these facilities. To do this, use XETPS (or XETPS-BIG) as described below.

1.1 Accessing ETPS on Andrew Linux Workstations

ETPS can be run on Andrew Linux workstations. You may find that you can also run it on other Linux-based workstations which are connected to the campus network. If you are not logged in on an Andrew workstation, you should do
klog <andrew userid> -c andrew.cmu.edu
so that ETPS will be able to write in the score file when you execute the DONE command.

To make things easy, add the line
`source /afs/andrew.cmu.edu/mcs/math/etps/etps-no-xset.cshrc`
to your ∼/.cshrc file on Andrew. (If you don't have such a file, create one with this line in it.) Then log out and log in again, so that the system will read the new .cshrc file. (The x-server reads the .cshrc file when it starts up an xterm.) The system will now set up aliases for you, so that the command
`etps`
will start up ETPS without you having to remember the exact path name.

If you have changed your Andrew Linux shell to something other than csh, execute the command
`csh -l`
whenever you login on Andrew Linux to use ETPS. (If you are already using csh, executing this command will be redundant, but won't do any harm.)

Actually, instead of using ETPS it is best to run an enhanced version of ETPS called XETPS which displays formulas using special fonts. To run XETPS when working directly on an Andrew Linux Workstation, at the shell prompt first issue the command
`etfonts`
(which is discussed further in the section on Fonts below) and then issue the command
`xetps`.

An alternative to `xetps` is `xetps-big`. This uses very large X fonts, and the window will take up most of your screen.

1.1.1 Commands to Start ETPS Directly

If you have not set up the aliases, you can start ETPS on Andrew with the following command:

`/afs/andrew.cmu.edu/mcs/math/etps/bin/etps`

Similarly, you can start up XETPS with the command:
`xterm -geometry 80x54 -rw -fn vtsingle -fb vtsymbold -sb -n ETPS -T ETPS -e /afs/andrew.cmu.edu/mcs/math/etps/bin/etps &`
(which is all one line).

1.2 Accessing ETPS Remotely

If you wish to run ETPS remotely, you can connect from your local machine to one of the Andrew 'unix servers' with the command
`ssh unix.andrew.cmu.edu`
and run ETPS there. The Unix servers are set up to allow multiple users and are named unix1, unix2, unix3, ...

1.2.1 Using Uptime

Use the `uptime` command after logging in on one of the Unix servers to learn what its current load is.

1.2.2 Fonts

If you run ETPS remotely, you can always use the GENERIC style to display wffs. However, if X-windows are available on your local machine, it will probably be worth your while to set things up so that you can use the style XTERM to display wffs, particularly as the wffs you deal with become more complex. You will need to install the fonts on the local machine, and probably adjust the font path, in order to use XETPS successfully. (Of course, this need only be done once.) Details are discussed below.

Many recent Linux systems are using a UTF-8 locale to display fonts, but the ETPS fonts seem to work only in the traditional POSIX locale. To get the standard POSIX behavior while running on a Linux machine which is currently using the UTF-8 locale, one can execute the Linux command `setenv LC_ALL C`. The `etfonts` command on Andrew Linux workstations is an alias which does this, and also sets the fontpath appropriately.

1.2.3 Accessing ETPS Remotely Using Unix

You will need to copy the ETPS fonts from /afs/andrew.cmu.edu/mcs/math/etps/fonts to your local machine and use an xset command analogous to that below (with the path adjusted appropriately) to tell your X server where the fonts are:

```
xset +fp /afs/andrew.cmu.edu/mcs/math/etps/fonts/decfonts/
```

or

```
/usr/misc/bin/xset fp+ /afs/andrew.cmu.edu/mcs/math/etps/fonts/decfonts/
```

If your local machine is a Linux machine which is currently using the UTF-8 locale, you should change this locale on your local machine temporarily by executing the Linux command

`setenv LC_ALL C`

before connecting to one of the Unix servers. (See the discussion above in the section on Fonts.) Then make the connection with the command

`ssh unix.andrew.cmu.edu`.

If you connect to unix17 (for example) by using telnet, you may need to issue the command

`xhost unix17.andrew.cmu.edu`

on your local machine so that it will permit unix17 to open a window on your screen when you start up XETPS. If you are using ssh instead of telnet, this will probably not be necessary.

Now start XETPS with the command

`xetps`.

In certain circumstances, you may find that you need to issue the command `etfonts` before issuing the command `xetps` or `etps`.

1.2.4 Accessing ETPS Remotely Using Windows

If your local machine is a PC running some version of Windows, you may be able to use XWin32 to bring up simulated X-windows on your local machine. First copy the ETPS fonts to your Windows machine as discussed below. Then connect to one of the unix servers using XWin32, and issue the command

`xetps`.

(At one time it was necessary to issue the command `etfonts` prior to issuing the command `xetps`, but this no longer seems to be necessary.)

The details of copying the ETPS fonts to your Windows machine may vary somewhat for different versions of Windows, but here is some potentially helpful information from students who have done this previously:

1.2.4.1 One Student's Experience Acessing XETPS with a Windows Machine I got the fonts for ETPS to work on my Windows machine! It was actually really simple. All I did was download all the fonts from /afs/andrew.cmu.edu/mcs/math/etps/fonts to the font directory for XWin32, which is by default C:\Program

Files\StarNet\X-Win32 5.1\Fonts\. Then, from the Configuration screen for X-Win32 (X-Config), under the Font tab, I selected each of the font paths it listed and hit the 'Make FONTS.DIR' button.

After that, XETPS worked fine with the fonts and all.

I think I actually did more than was necessary to get it to work, since I don't think you need ALL the fonts in the ETPS font directory, just whichever vtsymbol font ETPS uses, but I'm not sure which since there are around 5 different vtsymbol fonts in there and I didn't take time to see exactly what was needed.

1.2.4.2 Another Student's Experience Acessing XETPS with a Windows Machine Ftp all the fonts and the font.dir (although I think font.dir's not necessary) from the decfonts directory to the XWin32\lib\fonts\etps-fonts directory, where you have created the etps-fonts directory.

Go through the described method of adding fonts to the directory described in the README file for XWin32, which is: run X-config, add this newly-created font dir etps-fonts to the path (the 'Font' tab in the newest version 5.03), rebuild font.dir (click on apply button), close and restart XWin32, and proceed as usual (setenv DISPLAY <hostname>:0.0, xetps, etc.).

This at least worked on my home machine. I am not sure if we have enough of the permissions necessary to do this in the cluster.

Now, when you setflag style to xterm again, it should work.

1.2.5 Accessing ETPS Remotely Using a Macintosh

You may also be able to access ETPS remotely using a Macintosh.

1.2.5.1 One Student's Experience Acessing XETPS with a Macintosh I got ETPS working with the nice xterm fonts on my Macintosh last night. It was actually quite easy. I put the fonts that were distributed for the other operating systems in /Library/Fonts/, opened up the OS X X11 application, and then proceeded as if I was in a UNIX environment. Which is to say: I used ssh with X forwarding to connect to unix.andrew.cmu.edu, and then ran xetps.

2 Using ETPS

Remember that your work on ETPS exercises, like other exercises, is to be done independently unless collaboration is specifically authorized. You are obligated to work on these exercises without help from other people, documents which contain solutions, or programs which could be used to generate solutions to the exercises. You need to think about these exercises for yourself in order to learn from them.

2.1 Documentation

To use ETPS efficiently, you should be familiar with the ETPS manual. The postscript and pdf files for this manual can be found at:
http://gtps.math.cmu.edu/tps-mans.html

ETPS online documentation is at:
http://gtps.math.cmu.edu/htmldoc-etps

2.2 Starting ETPS or XETPS

You should run this program from a private directory, where the files you will be creating cannot be read by others. Start the program as discussed above. When you start up XETPS, you can click with the mouse to place the left corner of the window.

2.3 Using XETPS

2.3.1 Style of Output for Wffs

Once the X-window has appeared and ETPS has started, you need to tell ETPS that you want to use the special fonts for output. At the ETPS prompt, issue the command
`<0> setflag style`
then, at the subsequent prompt
`xterm`
If you have followed all the steps above, the special symbols should appear when any wffs are printed by ETPS.

2.3.2 Proofwindows

Once you have started XETPS, you will probably wish to use the BEGIN-PRFW command to start up windows containing the current subproof and the complete proof. You will need to iconify the lower window or move it up on your screen by the usual methods for manipulating X-windows so that you will have room to issue commands in the main ETPS window.

2.3.3 Adjusting RIGHTMARGIN

If you resize your ETPS X-window and make it wider or narrower, you will want to change the setting of the flag `rightmargin`. This is normally set at 79 for 80 column output. For example, if you change the window to be only 50 columns wide, issue the command
`<1> setflag rightmargin`
then at the prompt enter
`49`

2.4 Aborting a Command

Respond to a prompt for an argument with `ABORT` to abort the current command and return to the top level. You can also use the control character `CTRL-C` or `CTRL-G` (depending on what machine and version of LISP is being used) to interrupt ETPS and return to the top level.

2.5 Stopping ETPS

To temporarily suspend ETPS, use the control character `CTRL-Z`. Then you can restart ETPS with the Unix command `fg`. Of course, if you are running ETPS in an X-window, you should not need to suspend it. You can just make it into an icon.

To kill ETPS, use the `EXIT` command from within ETPS, or use the Unix `kill` command from outside ETPS. Warning: it is possible to start multiple versions of ETPS and leave them hanging around. This is a bad idea, since those that you are not using will be a drag on the system, slowing things down considerably.

2.6 Filenames

In the Unix system, filenames are case sensitive. When you enter a filename in ETPS, it will be translated to lower case *unless you enclose the filename in double quotes.* For example, if you answer `X2106.WoRK` when prompted for a filename, ETPS will interpret this as `x2106.work`, but the entry `''X2106.WoRK''` will be interpreted as `X2106.WoRK`, just as you entered it.

2.7 Tex, Scribe and Printing

The command `TEXPROOF` works just as described in the ETPS manual. Once you have created your '.tex' file on Andrew, however, you should just start TeX by, for example,

```
% tex x2106
This is TeX, Version 3.1415 (C version 6.1)
(x2106.tex (/afs/andrew.cmu.edu/mcs/math/etps/sun4_55/doc/lib/tps.tex))
[1]
Output written on x2106.dvi (1 page, 1212 bytes).
Transcript written on x2106.log.
```

This will produce the file x2106.dvi, and you can use the system command dvips to create x2106.ps from this:

```
dvips x2106
```

To print such a file, do the following, replacing *printer* with the name of one of the Postscript printers such as birch, pine, etc.

`% lpr -P`*printer* `x2106.ps`

You can look at the file after running tex but before printing it with the command

```
xdvi x2106
```

Exit xdvi with the command 'q'.

To create output suitable for LaTeX rather than TeX, set the flag `LATEX-EMULATION` to T while you are running ETPS.

Alternatively, to print a proof you can use the `SCRIBEPROOF` command in ETPS to produce a file such as x2106.mss, run it through Scribe with the command 'scribe x2106' to produce the Postscript file x2106.ps. Scribe is not available on some machine types.

2.8 Possible Problems

Various ETPS commands involve writing files. These commands include DONE, SAVEPROOF, and TEXPROOF. Unfortunately, it quite often happens that the fileservers which handle the directory in which you wish to write are down. This is especially common at night, when the backing-up of AFS volumes is done. When this happens, you will get an error message saying something like 'Clisp error trapped'. If this occurs, try the following:

1. Try storing the file on your local workstation disk instead of AFS. As an example, instead of
   `texproof ‘‘x2106.tex’’`
   try
   `texproof ‘‘/usr/tmp/x2106.tex’’`.
2. Later, after the fileservers are back up, you can copy the file to your home directory on AFS.
3. If the DONE command has failed, use SAVEPROOF to save your proof. Later you can restore the proof and try the DONE command again.