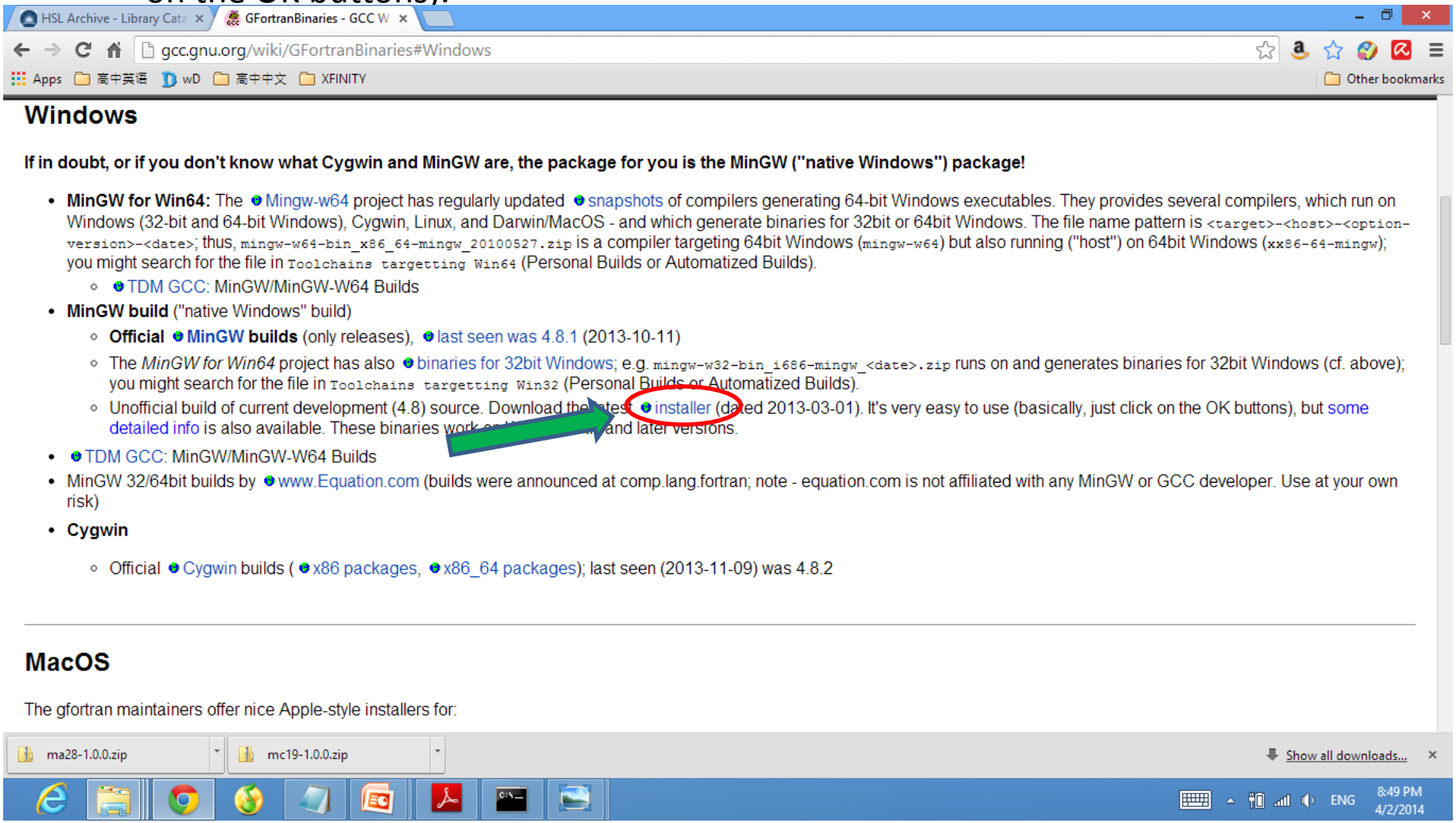
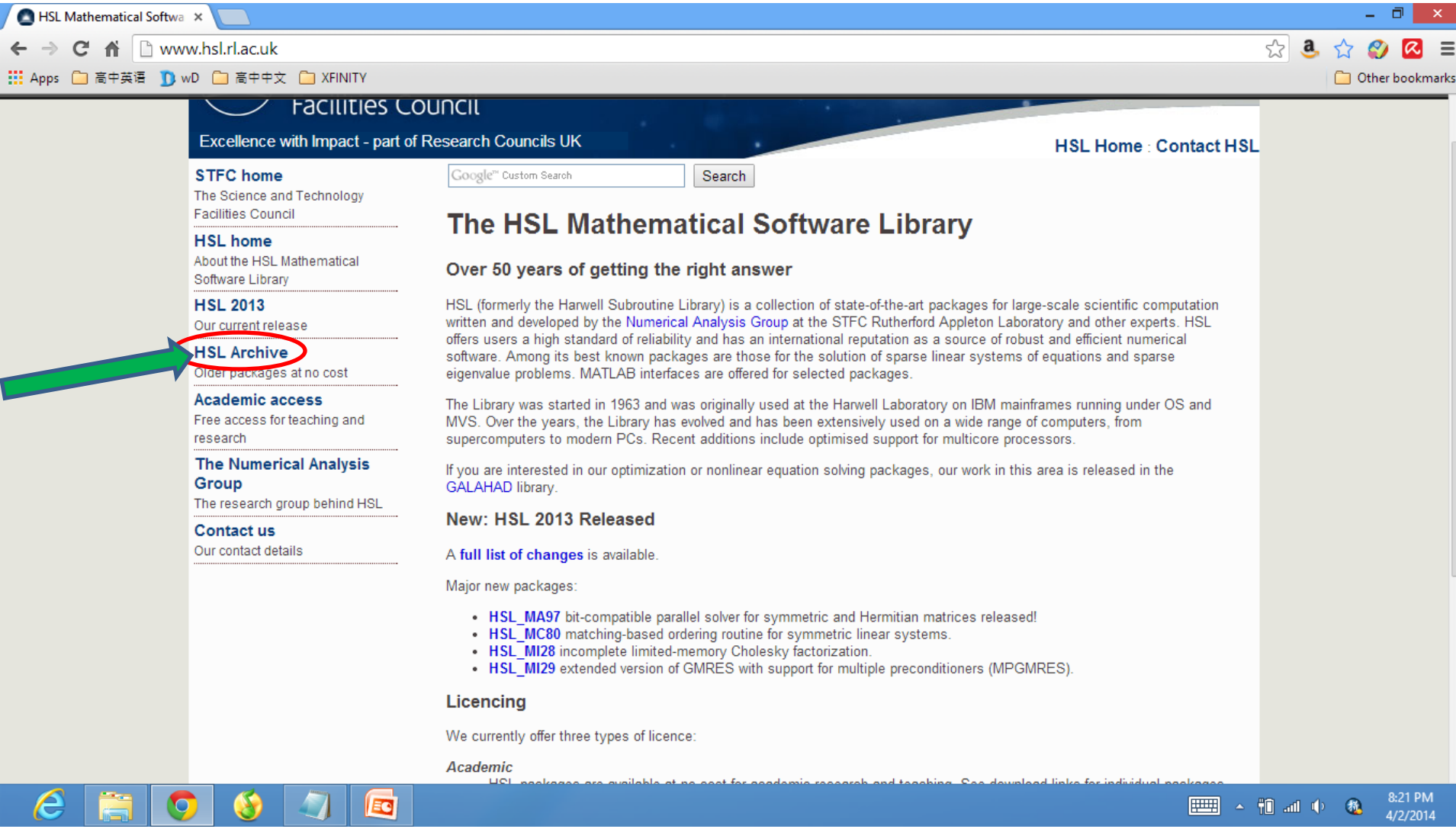
A Step-by-Step Tutorial for making MA28.dll and running GEBT

- Step 1: Download and install gfortran complier.
  - 1.1 Go to http://gcc.gnu.org/wiki/GFortranBinaries#Windows .
  - 1.2 Click on the “installer” (shown below) for Windows OS. Run the downloaded exe file, follow the instructions to install the gfortran complier (basically just click on the OK buttons).



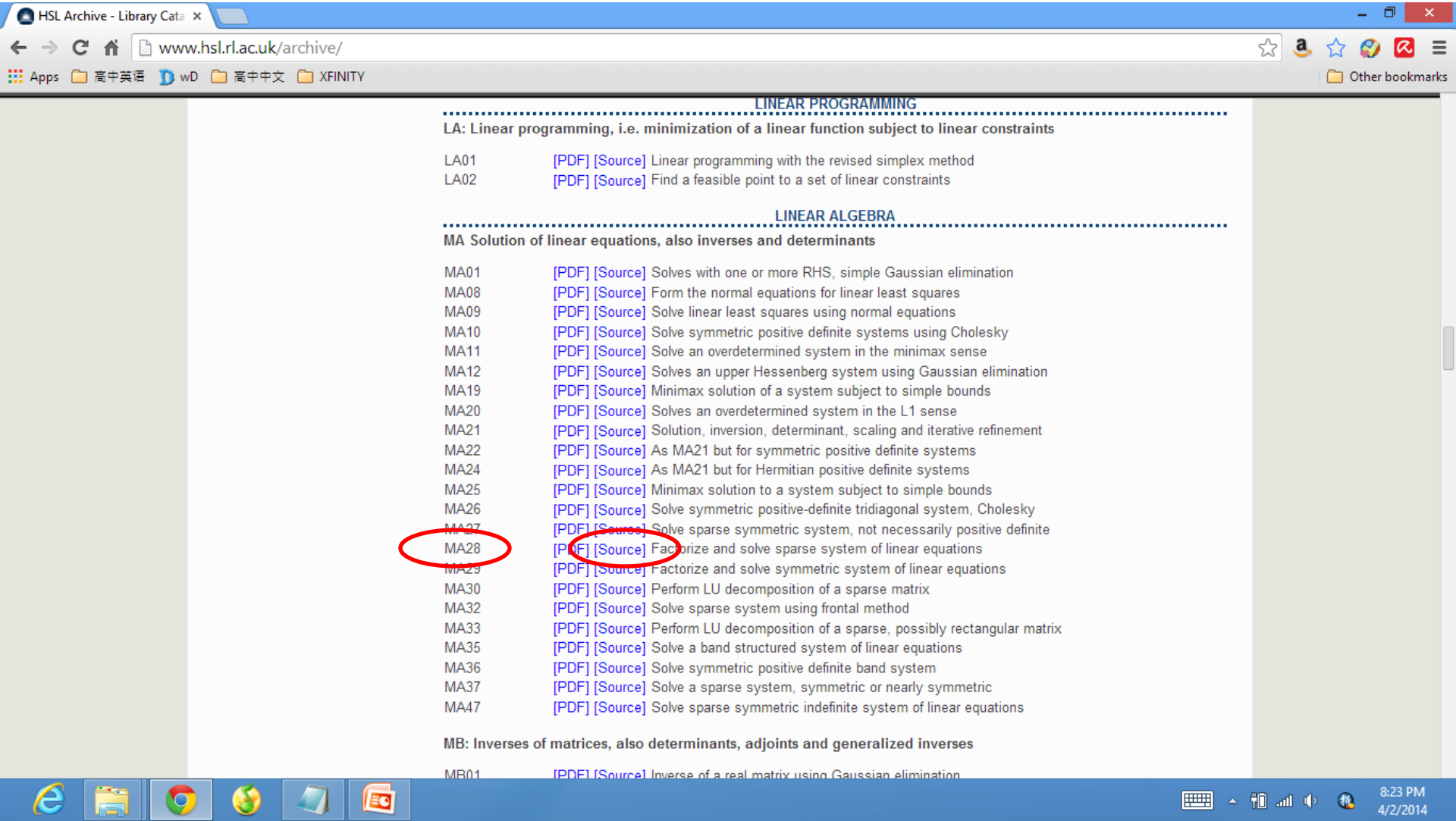
Step 2: Download MA28 and MC19

- 2.1 Create a new folder “MA28” as working directory.
- 2.2 Go to: http://www.hsl.rl.ac.uk/ .
  - 2.2.1 Click “HSL Archive” on the left column, see figure below.



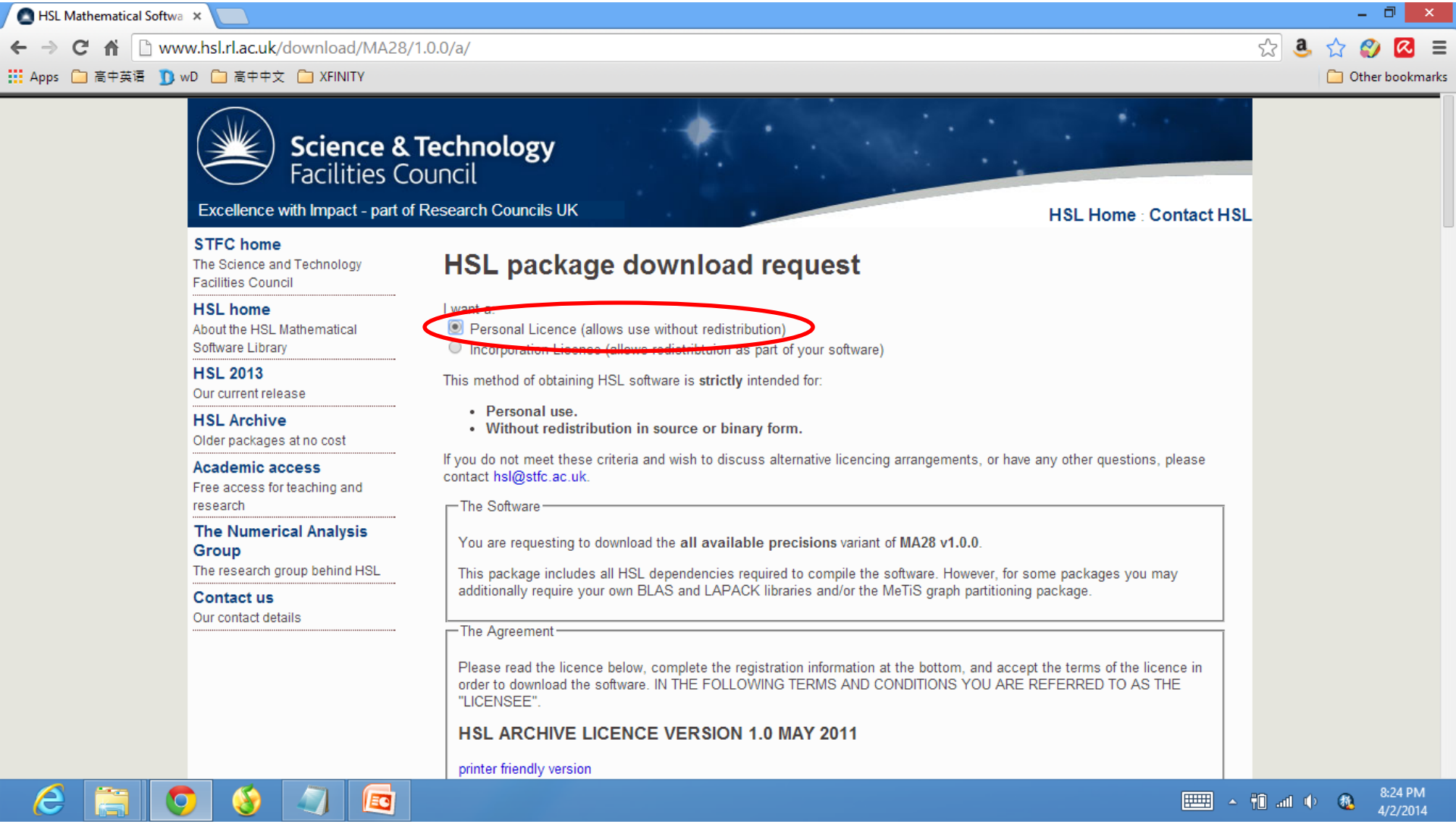
Step 2: Download MA28 and MC19 (continued)

- 2.2.2 Scroll down on the Archive page to “LINEAR ALGEBRA”.
- 2.2.3 Click on “Source” of MA28 and MC19, respectively.



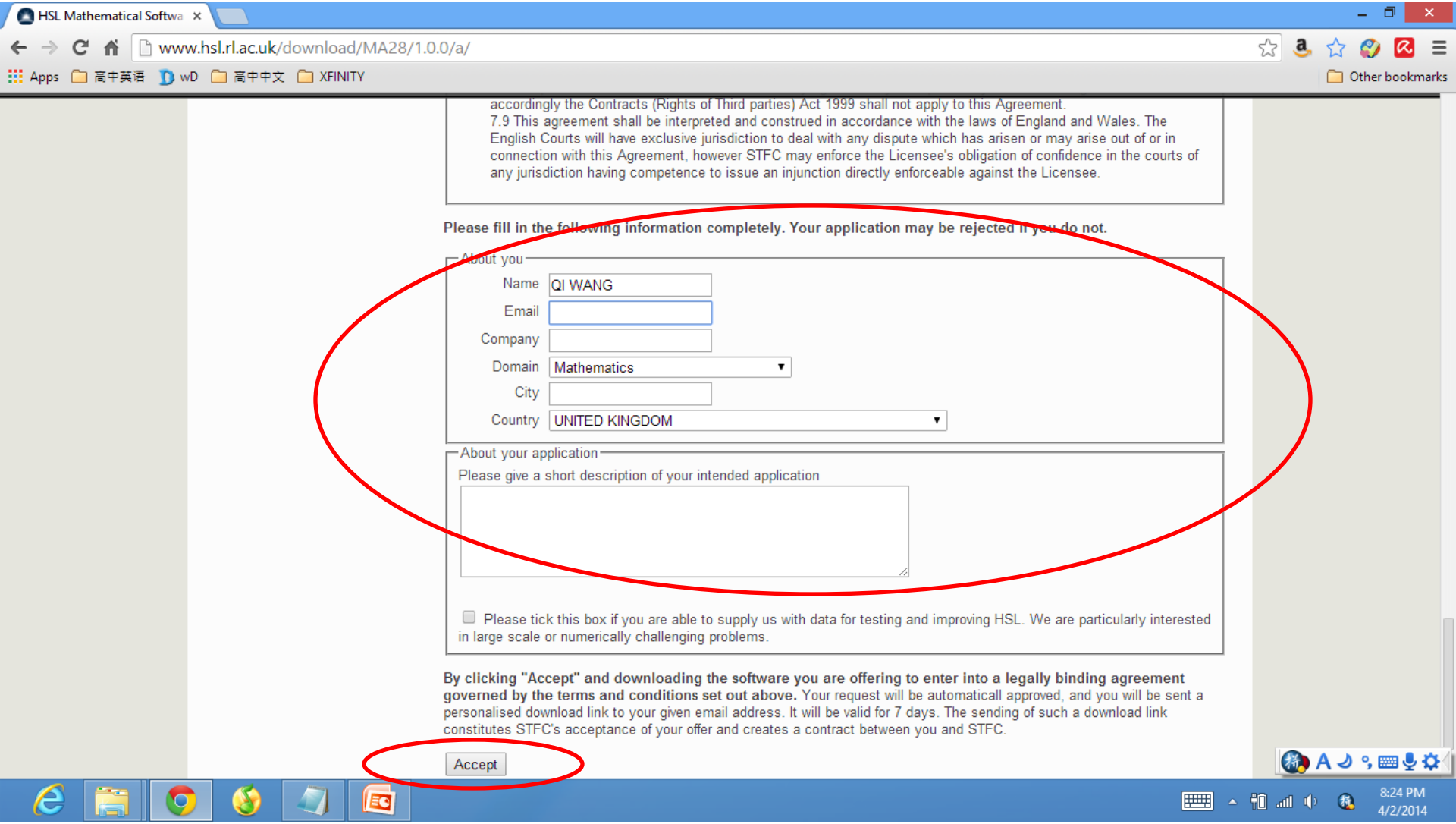
Step 2: Download MA28 and MC19 (continued)

- 2.2.4 Check “Personal License” .



Step 2: Download MA28 and MC19 (continued)

- 2.2.5 Fill in the information at the bottom of the webpage, click “Accept”.



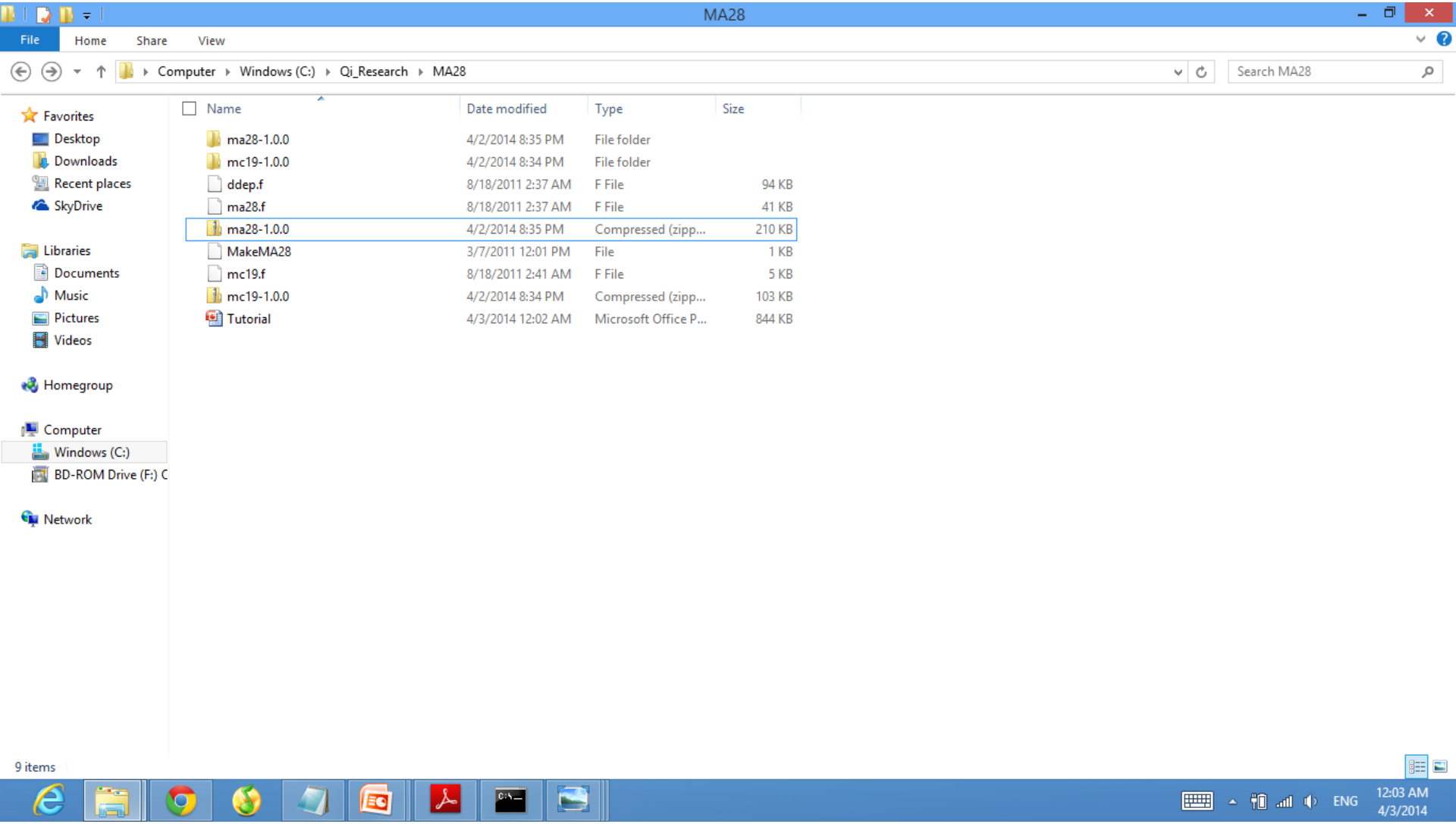
Step 2: Download MA28 and MC19 (continued)

- 2.2.7 You will receive a personalised download link in the email you provided in the previous step in few minutes. Click the link to download the zip file to the working folder "..\MA28" created in the Step 2.1.
- 2.2.8 Unzip these two files, you will have two folders, "mc19-1.0.0" and "ma28-1.0.0".
- 2.2.9 Copy "mc19d.f" from ..\MA28\mc19-1.0.0\src to ..\MA28 (the working folder), rename it as "mc19.f".
- 2.2.10 Copy "ma28d.f" from ..\MA28\ma28-1.0.0\src to ..\MA28 (the working folder), rename it as "ma28.f".
- 2.2.11 Copy "ddeps.f" from ..\MA28\mc19-1.0.0\src to ..\MA28 (the working folder), rename it as "ddep.f".
- 2.2.12 Copy "MakeMA28" from ..\GEBT4 (your download package from analyswift.com) to ..\MA28 (the working folder).

- 2.3 Now you have all the files needed for compiling MA28.dll. The working folder "..\MA28" should look like this (see figure on the next slide):

Step 2: Download MA28 and MC19 (continued)

- 2.3.1 Working directory "..\MA28".

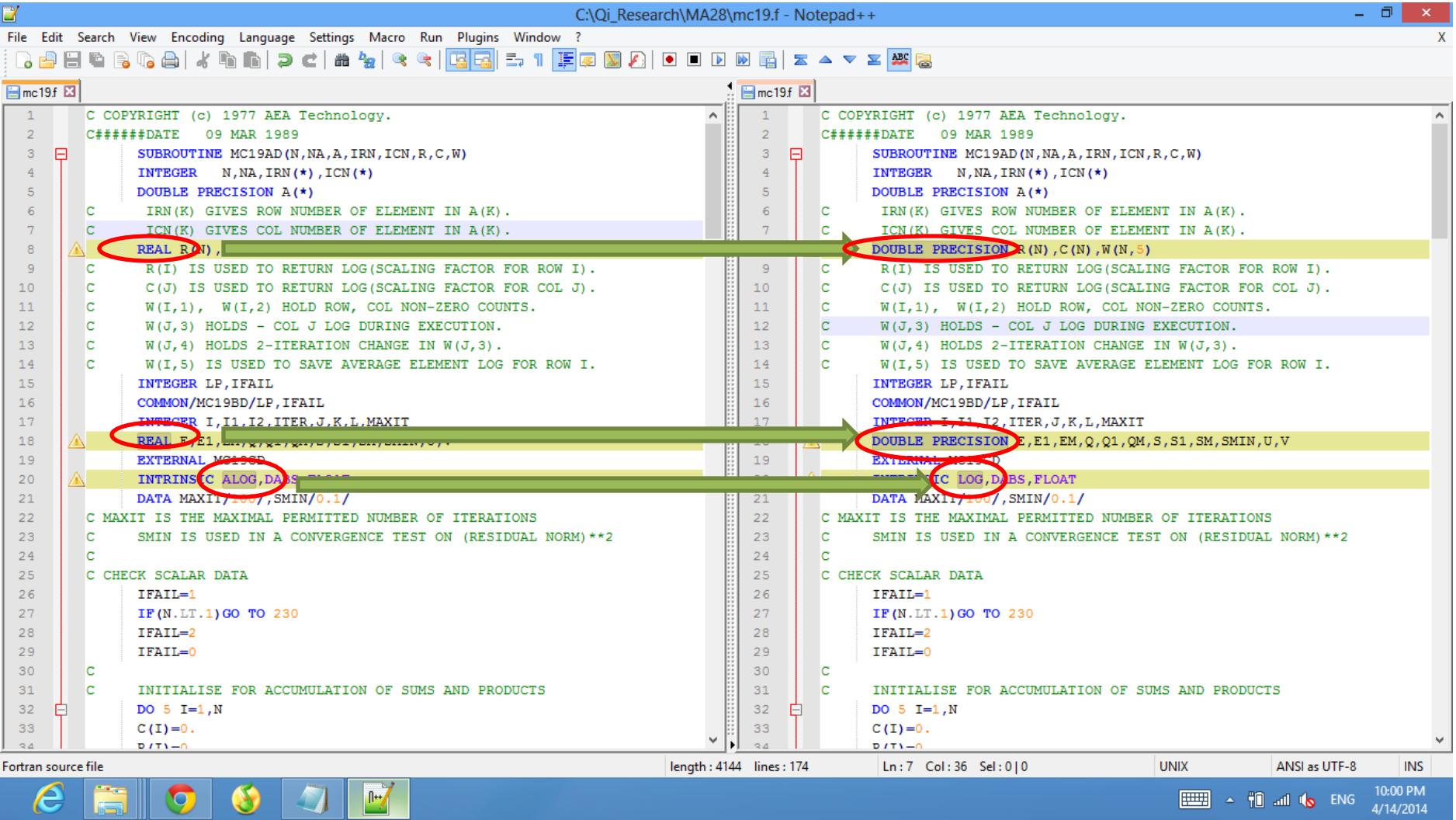


Step 2: Download MA28 and MC19 (continued)

– 2.3.2 Change variable type in mc19.f

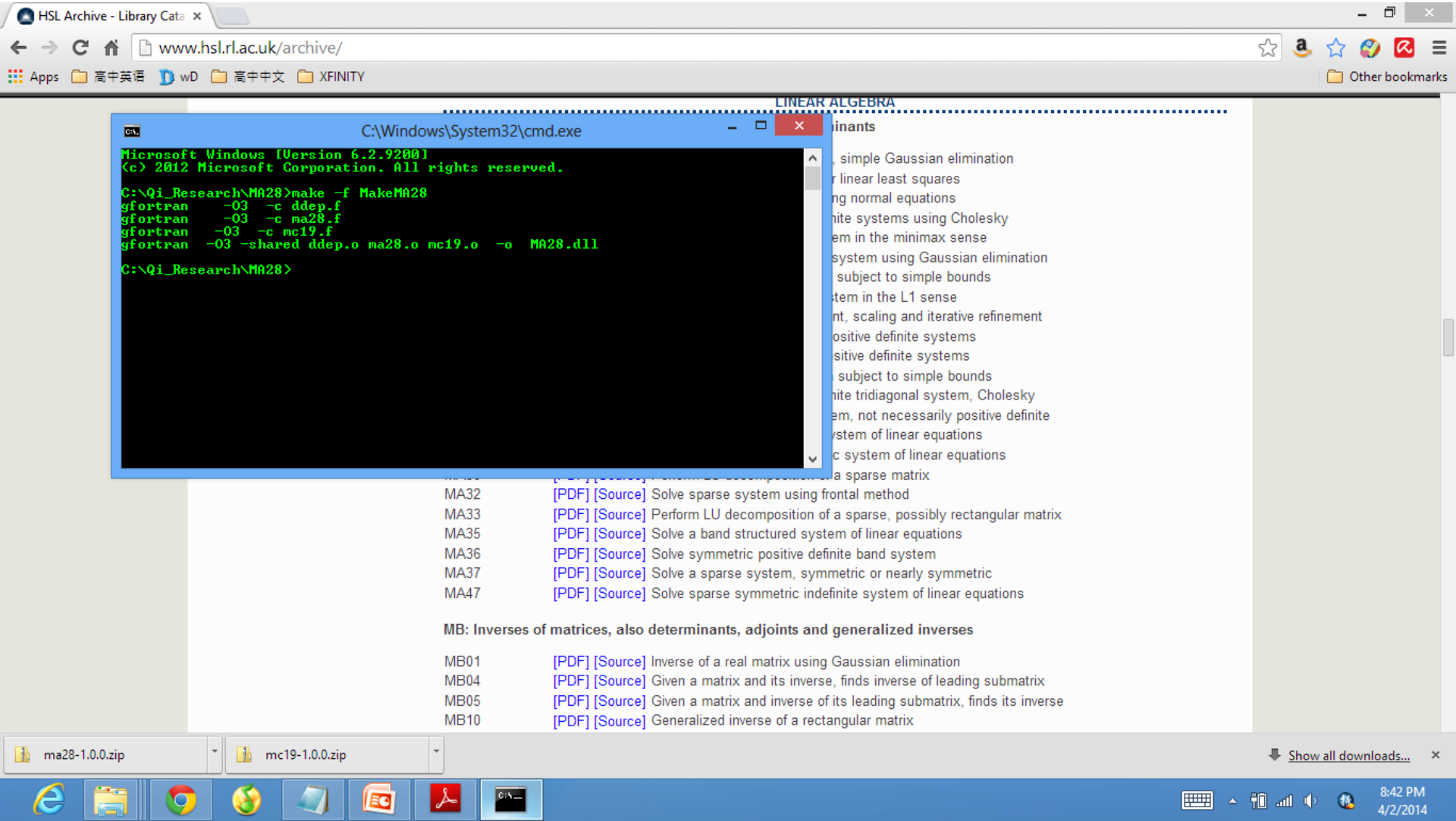
Before compiling MA28.dll, some variables need to be modified in “mc19.f” from “REAL” to “DOUBLE PRECISION”. There are totally four changes needed

- Line 8 Change from “REAL” to “DOUBLE PRECISION”
- Line 18 Change from “REAL” to “DOUBLE PRECISION”
- Line 20 Change from “ALOG” to “LOG”
- Line 44 Change from “ALOG” to “LOG”, see Figure below (Change 4, Line 44, does not shown)



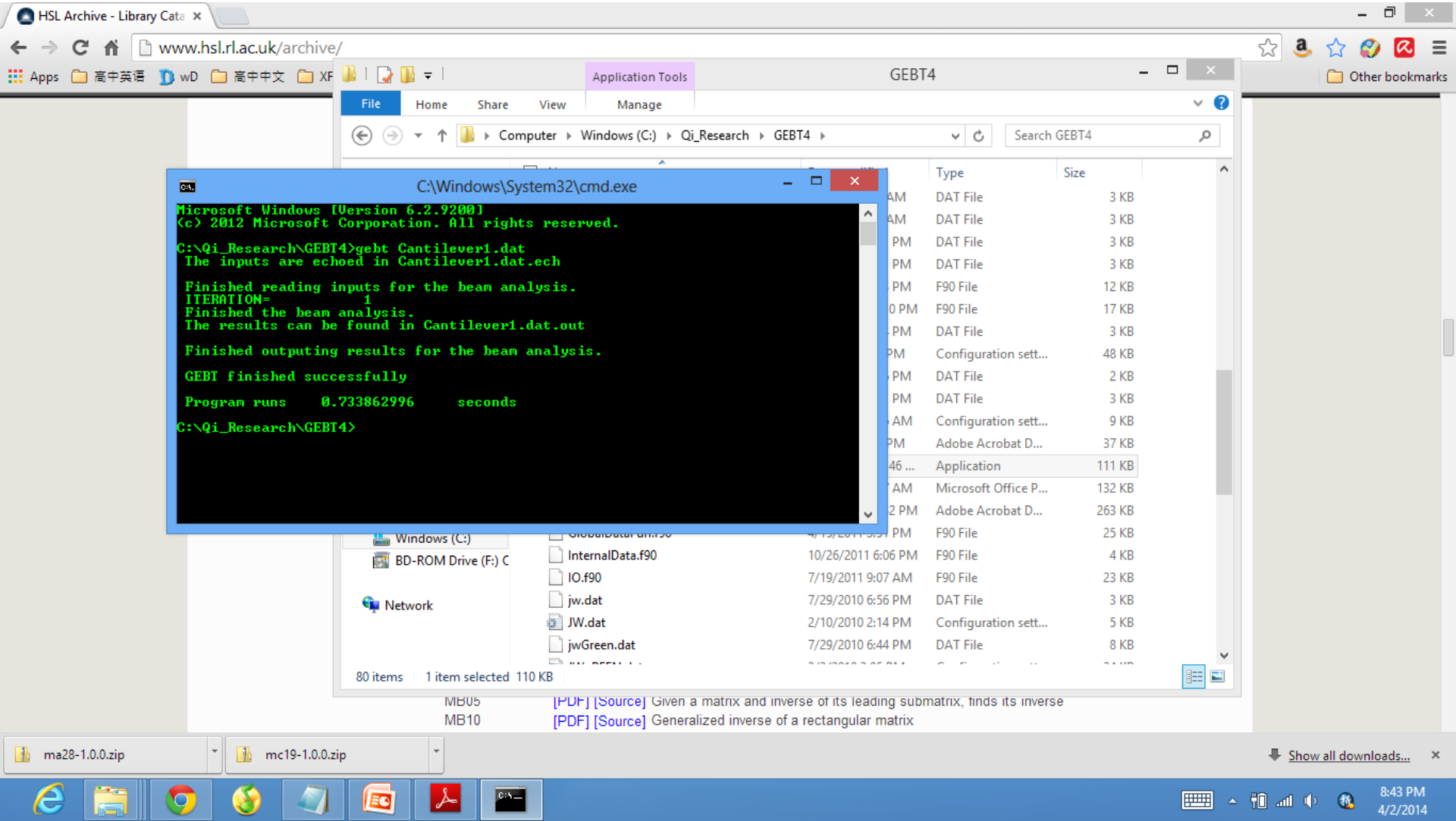
Step 3: Compile “MA28.dll”

- 3.1 Launch a command window in the working directory “..\MA28”.
- 3.2 Type command “make –f MakeMA28” in the command line, click “enter”.
- 3.3 A “MA28.dll” file will be generated in your working folder. Copy this “MA28.dll” to “..\GEBT4” folder.



Step 4: Running GEBT

- 4.1 The best way to run GEBT is in the command window. Launch a command window in the "..\GEBT4" folder.
- 4.2 Type "gebt 'input_file_name.dat'" in the command line, then click "enter". In this example, the input file is "Cantilever1.dat", which is included in the download package.



Step 5: Running PostGEBT

- 5.1 Two new files, “Cantilever1.dat.ech” and “Cantilever1.dat.out” for this case, will be generated which showed the analysis information and results, respectively.
- 5.2 Now you can run PostGEBT to visualize the results.