



Running multiple analyses using a batch file

Start by constructing MDM files, for example a set of 30 named **hbsc_1.mdm** to **hbsc_30.mdm**. Create a copy of **hbsc_1.mdm** and rename the copy **hbsc.mdm**.

Next, create a single MLM/HLM file, for example **unconditional_model.hlm**, using an MDM file named **hbsc.mdm**.

Here are the contents of **unconditional_model.hlm**:

```
#WHLM CMD FILE FOR hbsc.mdm
nonlin:binomial
microit:14
macroit:100,y
stopmicro:0.0000010000
stopmacro:0.0001000000
level1:OUTCOME=INTRCPT1+RANDOM
level2:INTRCPT1=INTRCPT2+random/
level3:INTRCPT2=INTRCPT3+random/
fixsigma2:1.000000
fixtau2:3
fixtau3:3
accel:5
level1weight:none
level2weight:none
level3weight:none
varianceknown:none
level1deletion:none
hypoht:n
resfil1:n
resfil2:n
resfil3:n
constrain:N
graphgammas:unconditional_model.geq
lvr-beta:n
title:no title
output:unconditional_model.html
fulloutput:n
fishertype:2
```

Note that the output for this run will be to the file **unconditional_model.html**. This HLM/MLM file, as well as the two **.bat** files that are described next, should be in the same folder as the set of MDM files.

The first **.bat** file is named **runall.bat** and it contains the following:

```
FOR /L %%i IN (1,1,30) DO call hlm_multimp %%i
```

This file will run **30** analyses, calling the HLM3 executable 30 times.

The second **.bat** file is named **hlm_multimp.bat**, and this is what is in it:

```
del hbsc.mdm
copy hbsc_%1.mdm hbsc.mdm
"c:\program files (x86)\hlm7\hlm3" hbsc.mdm unconditional_model.hlm
ren unconditional_model.html unconditional_model%1.html
```

What is important to note about this file:

- In the second line, the next MDM file replaces the previous, for example **hbsc_2.MDM** will be copied to **HBSC.MDM**.
- The third line contains the path to the HLM executable that is needed to run the analysis. In this case, the installation is in the HLM8 subfolder of the Program Files (x86) folder on the C: drive, and the HLM3 executable is invoked to run this series of analyses. If HLM is installed elsewhere, this needs to change to the correct path to the HLM installation.
- In the fourth line, the output file is renamed to prevent overwriting by the output file for the next run. Due to this, there will be 30 output files named **unconditional_model1.html** to **unconditional_model30.html** on completion of the run.

This example can be used to run the same model on multiple MDM files, for example multiple imputed data sets. Note that up to 10 MDMs can be included via the HLM GUI and, if this option is used, an **.avg** file is automatically produced.

When the **.bat** files are used for a similar run, the user will have to calculate the contents of the **.avg** file using a stat package of choice and selected output from the produced output files, along with the formulae given in the PDF version of the HLM manual automatically supplied with the program (see Section 11.2 of the HLM manual)