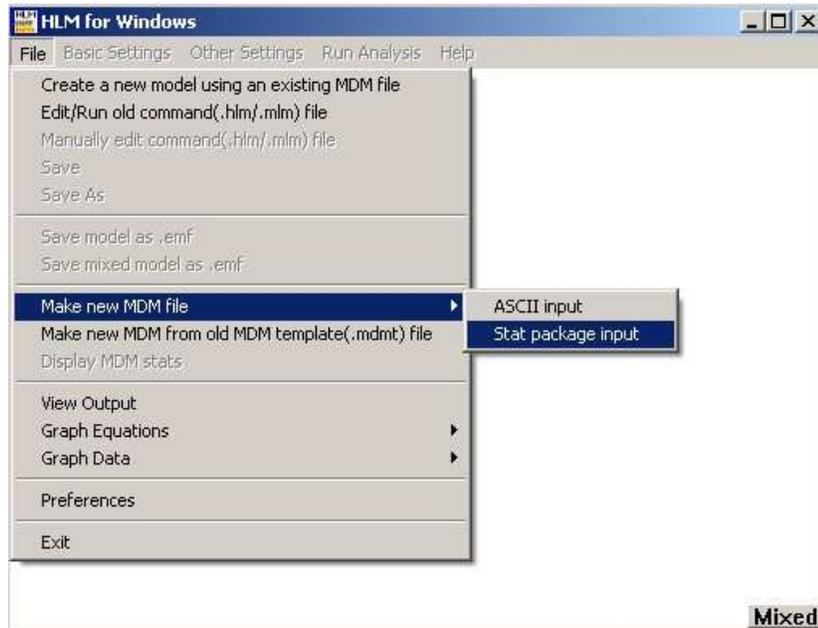
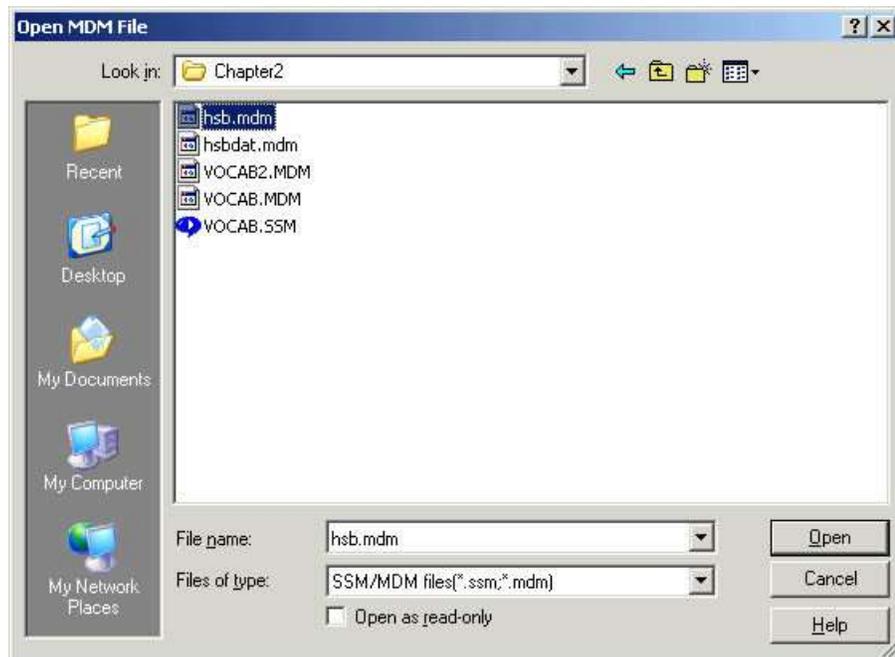


Example of an HLM2 analysis

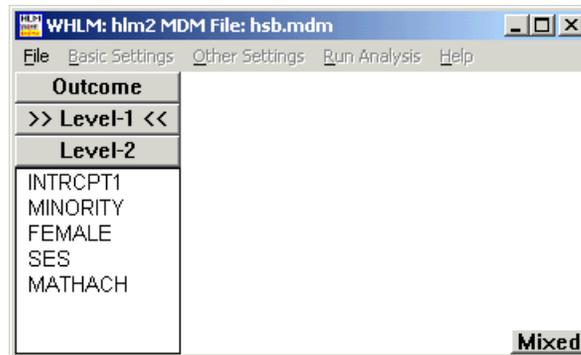
Before creating a new command file for the model given above, the relevant MDM file on which the analysis is to be based must be selected. This is done by selecting the option **Create a new model using an existing MDM file** from the **File** menu.



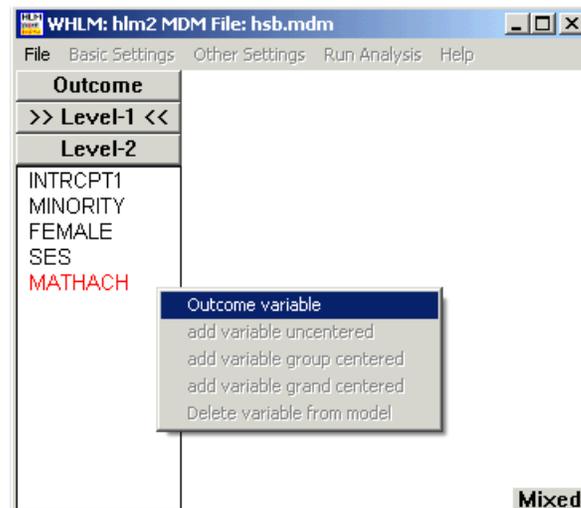
The user is then prompted for the name of the MDM file.



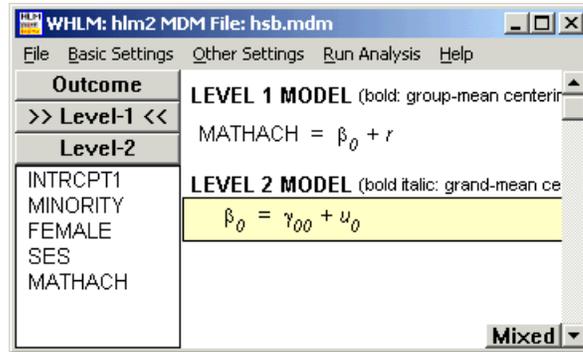
Click **Open** after selecting the MDM file. The following information is displayed in the main WHLM window. On the left of the main window, the level-1 variables for which information is available in the MDM file are given in a list box.



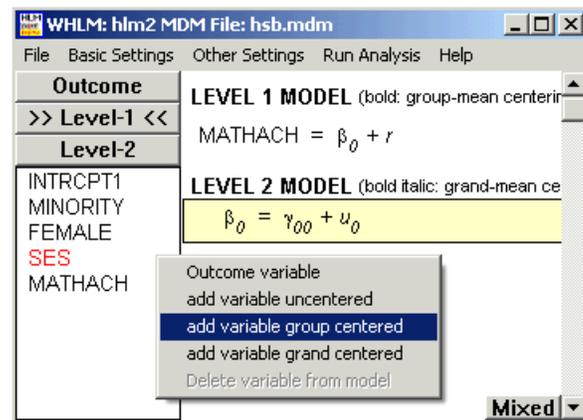
As a first step, the variable MATHACH, representing a student's math achievement, is selected as the outcome variable. By clicking on the variable name, a selection menu is displayed, with the only active option **Outcome variable**, as shown below:



Once the outcome variable has been selected, the following basic model is displayed in the WHLM window.

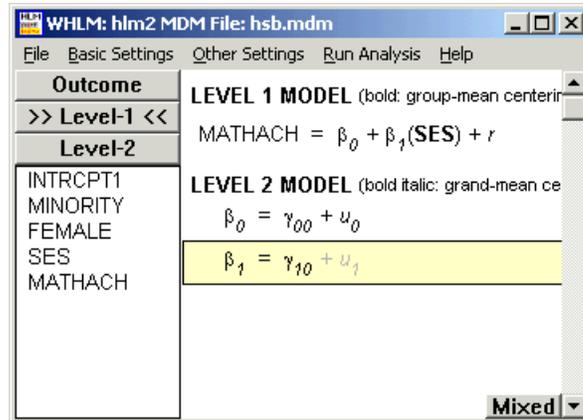


As the math achievement on level 1 of the model is to be modeled in terms of the student's social class, the variable SES is now added to the level-1 model. Clicking on the variable name SES leads to the display of a pop-up menu, on which a number of options are available.



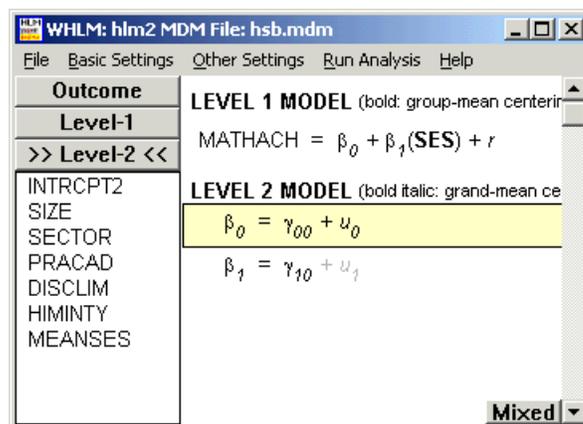
Select the option **add variable group centered**, indicating that the group mean is to be used as point of reference. Once this option has been selected, the additional variable is displayed in the WHLM window in a bold font, indicating the fact that the particular variable is group mean centered. The predictor now appears in the equation window and each regression coefficient associated with it has become an outcome in the level-2 model.

Note that in HLM 6 only the intercept coefficient, β_0 , is assumed to be vary randomly over level-2 units. The slope of the level-1 predictor(s) is assumed fixed.

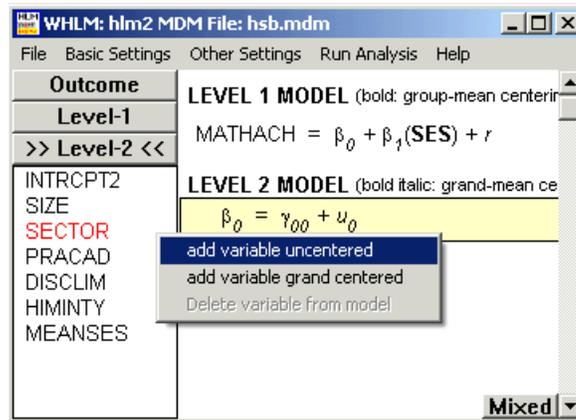


This concludes the specification of the level-1 model. In the level-2 model, both the intercept and SES slope are to be modeled as dependent on the school's mean social class (MEANSES) and school sector (SECTOR).

Start by clicking on the **Level-2** button on the left of the window. This leads to the display of the variables on which information at this level (>> Level-2 <<) is available in the MDM file. Select the equation for β_0 by clicking on it, as predictors will be added to this equation first. The procedure to add variables to the equation for β_1 is similar and is initiated by clicking on the equation for β_1 before adding variables.



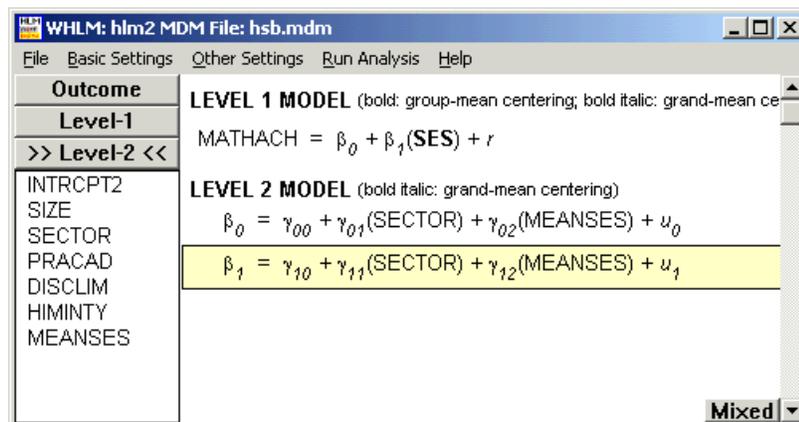
Select variables to be added to the level-2 equations as before. Click on a variable name to display a pop-up menu. Both the variables MEANSES and SECTOR are added **uncentered** to the model:



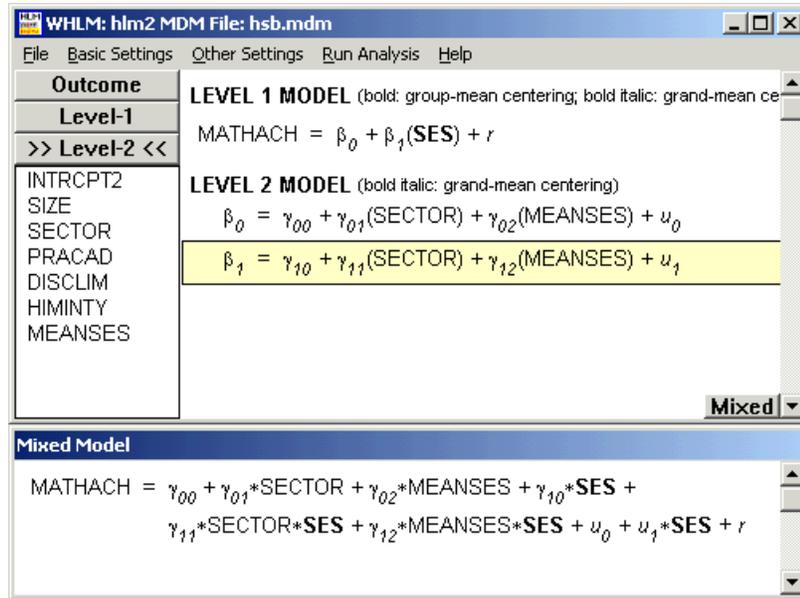
Repeat the variable selection procedure on the equation for β_1 so that the variables MEANSES and SECTOR are also added **uncentered** to the equation.

The u_1 at the end of the β_1 equation is grayed out. The error term can be toggled by clicking on the error term, β_1 .

The model discussed in the introduction is obtained:

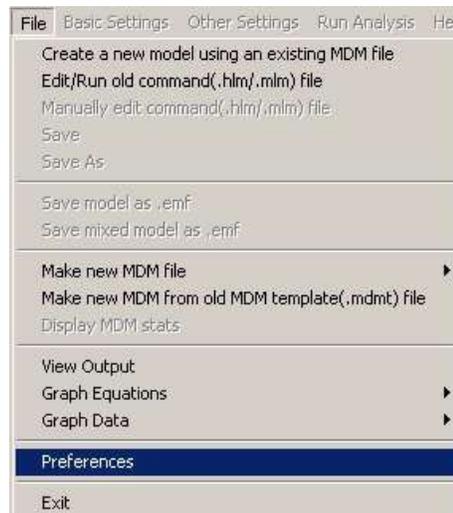


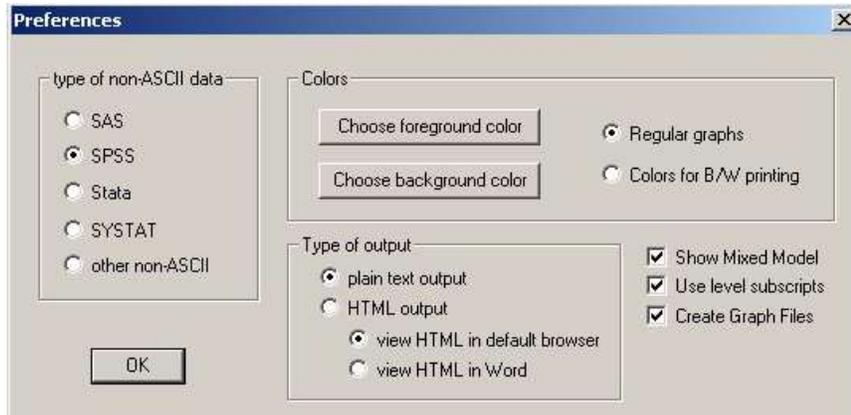
HLM 6 can also display the model in other two alternative forms. The mixed model is obtained by clicking the **Mixed** button on the bottom right of the main window:



The model with complete subscripts is obtained by the following steps:

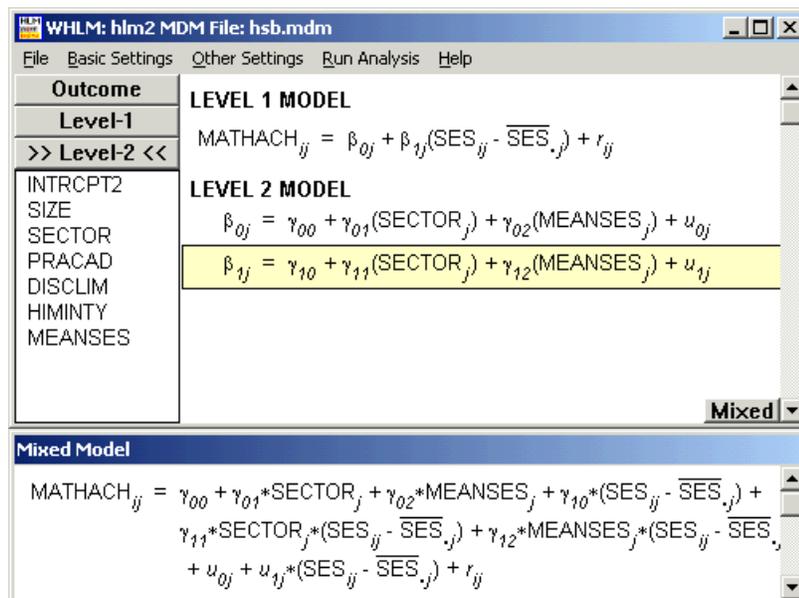
Select the **Preferences** option from the **File** menu to bring out the **Preferences** dialog box as shown below.





Check the box for the request **Use level subscripts**. Click **OK** button.

The model with complete subscripts is displayed as follows. Note that both the “standard” model and the mixed model now have all subscripts displayed.



Before running the analysis, save the newly constructed command file. This is done by selecting the **Save As** option from the **File** menu and assigning a filename when prompted to do so.

After saving the command file, clicking the **Run Analysis** option at the top of the main window initiates the analysis. A screen showing details of the iterative procedure is shown. Note that the information on the screen is also given as part of the WHLM output file.

```
C:\VLM\HLM2.EXE
The value of the likelihood function at iteration 33 = -2.325097E+004
The value of the likelihood function at iteration 34 = -2.325097E+004
The value of the likelihood function at iteration 35 = -2.325094E+004
The value of the likelihood function at iteration 36 = -2.325094E+004
The value of the likelihood function at iteration 37 = -2.325094E+004
The value of the likelihood function at iteration 38 = -2.325094E+004
The value of the likelihood function at iteration 39 = -2.325094E+004
The value of the likelihood function at iteration 40 = -2.325094E+004
The value of the likelihood function at iteration 41 = -2.325094E+004
The value of the likelihood function at iteration 42 = -2.325094E+004
The value of the likelihood function at iteration 43 = -2.325094E+004
The value of the likelihood function at iteration 44 = -2.325094E+004
The value of the likelihood function at iteration 45 = -2.325094E+004
The value of the likelihood function at iteration 46 = -2.325094E+004
The value of the likelihood function at iteration 47 = -2.325094E+004
The value of the likelihood function at iteration 48 = -2.325094E+004
The value of the likelihood function at iteration 49 = -2.325094E+004
The value of the likelihood function at iteration 50 = -2.325094E+004
The value of the likelihood function at iteration 51 = -2.325094E+004
The value of the likelihood function at iteration 52 = -2.325094E+004
The value of the likelihood function at iteration 53 = -2.325094E+004
The value of the likelihood function at iteration 54 = -2.325094E+004
The value of the likelihood function at iteration 55 = -2.325094E+004
The value of the likelihood function at iteration 56 = -2.325094E+004
```