Trouble shooting guide: Windows

LMMgui (www.unifr.ch/neurology/en/lmmgui) provides a free, graphical user interface (gui) to provide linear mixed-models (LMM) analyses with the lme4 package (Bates et. al) in the statistical environment R (see www.r-project.org). A manuscript reviewing LMMs and introducing LMMgui is currently under review in an open-access journal.

At present, this software has been developed for the Windows® platform. It has been tested on XP, and Windows 7, both 32 and 64-bit architectures.

This document describes how to identify and treat some of the common errors or warnings which may occur after clicking "Compare Models".

1. *Error: "At least one model does not contain any random-effects terms"*
   LMMs must contain at least one random-effects term. More information available in Magezi 2014 [under review] and references therein.

2. *LMMgui does not generate an ".R" file file.*
   Based on the user-provided information about the desired models, LMMgui should generate a file, which ends in the extension ".R" in the same folder as the data file (such as "example.csv"). The ".R" file contains the code needed by the program R.

   If no ".R" file has been written, this suggests that LMMgui does not have permission to write in the folder where the data file is located. The recommended approach is to move the data file from a "protected" location to a folder where the user has permission to modify. In windows, a typical example of a "protected" location would be "C:\Program Files", and a typical location where one has permission to modify is "My Documents" or "Documents Library".

   The user will be warned of these potential issues if they try to load a data file from a location in "C:\Program Files".

   There are other solutions to the problem of "writing permission", which are not recommended, unless one is fully aware of the risks. One could try to run LMMgui as an administrator. Alternatively, one could change the security settings of the folder where the date file is saved. Right click on the folder, choose Properties and click on the Security tab. Click on the appropriate user and edit the properties to give "full control".

   LMMgui writes the ".R" file, but returns the error "unable to run R."
   In this case, please follow the instructions in LMMgui to try and manually input the ".R" file into the console of the program R. Reading the output of the console should give information about the errors:

   a) *No errors reported in the R-console*
      This suggests that there was only one problem: LMMgui was unable to automatically call R. One option is to try and tell LMMgui where R has been installed. In the "Model Creation" window, under the "File" menu, click on "Advanced", and then select "Where is R installed?". This is the folder where the user chose to install R, for example "C:\Program Files\R\R-3.1.2".

   b) *Errors at the level of model specification.*

Check that you have correctly specified the models, and that there are no errors in the formatting of the data file. More information on model specification is available in Magezi 2014 [under review] and references therein. The appendix of the manuscript describes how to format the input data, and an example file ("example.csv") is provided.

c) *"unable to install packages" because the folder XXX " is not writable"*
In this case, the program R does not have permission to make changes in the folder where it will store the package lme4. This is similar to the situation described in 2 above. To avoid this error, LMMgui can get R to save packages in the users "Document" folder. This is the default option, and can be confirmed or changed in the "Model Creation" window, under the "File" menu, by clicking on "Advanced" and "Create folder for packages in user 'Documents' ". Alternatively, non-recommended solutions are as described in 2 above: one can Run R manually as an administrator, or change the security settings of the folder where the R packages are saved. The location of this folder is given in the error message.

d) *Unable to install packages while I am not connected to the internet.*
In order to first install the package "lme4", an analysis needs be run once, while the computer is connected to the internet. After that, further work can be done offline by checking "Work offline" in the "File" menu of the "Model Creation" window.

e) *Other errors while installing package lme4*
Some errors may occur if one installs the latest packages while using an older version of R. Current lmmgui was tested on R version 3.1.2. and lme4 version 1.1.7. Information about which version of R the current version of lme4 requires can be found at http://cran.r-project.org/web/packages/lme4/index.html.

f) *Errors during plotting*
If one of the models does not have a random-effects part specified (see 1 above), an error will be generated when R tries to create diagnostic plots.

g) *Unable to open plots*
A pdf reader (such as Adobe Reader or GSView) is required to view the plots.

h) *More information about errors*
When running R automatically from LMMgui, in the same folder as the data, there should not only be a ".R" file of the instruction code sent to R, but also a ".Rout" file, which shows the actual steps taken, and their results. This file may be informative regarding where the error took place. When the ".R" file is run manually (see above), more options may available to see/rectify errors. If available, please report this information when reporting errors.

3. *I have results, but with some possible warnings.*
Check the details in the warnings file mentioned by LMMgui. The most common reason for warnings is failure for the model to converge. As briefly mentioned in Magezi 2014 [under review], this may be due to the random-effects structure of the model specified. Further discussion of the topic and possible solutions can be found in Barr et al (2013: *J. Mem. Lang.* **68**, 255 – 278). Note that the warning file is in the same folder as the data file (e.g. "example.csv"),

If none of the above were helpful, please report bugs to auditory@magezi.com