UNIVERSIDAD DE GRANADA

Centro de Investigación
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CONFERENCIA DE MARKUS BRAUER - "Recent developments in Linear Mixed-Effects Models"

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Noticias Generales

"**Recent developments in Linear Mixed-Effects Models**" It turns out that we have allanalyzed our data incorrectly, because we haveusually failed to include by-stimulus randomeffects. When participants are exposed to multiplestimuli, it is not enough to treat only participantsas a random factor (which is what we do in our standard ANOVAs), but we also have to treatstimuli as a random factor. Failure to do soincreases the type-I error rate drastically,sometimes as high as 60%. Judd et al. (2012) werethe first to raise awareness about this point. The problem: In order to treat bothparticipants and stimuli as random factors, we have to run linear-mixed effectsmodels, a rather complicated statistical procedure. Recent work by Barr et al. (2013)shows that many people run incorrect linear-mixed effects models. Many researchersinclude only by-stimulus random intercepts but fail to include by-stimulus randomslopes. This leads once more to increased type-I error rates. The correct analyticprocedure is to include both random intercepts and random slopes and, if the modeldoesn't converge, to take a number of "corrective actions" that can be ordered fromyielding the most correct to the least correct estimates and that should be taken oneby one (i.e., a corrective action further down on the list should be taken only if noneof the previous actions fix the problem). On the list of corrective actions, the action"remove the random-intercept (but keep the random-slope)" comes much earlierthan the action "remove the random-slope". Removing the random slope is the verylast thing we want to do, and should be done only in extreme cases