

# Modeling fixed and random item features with SAS NLMixed

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## **Abstract**

In this presentation we will discuss two different approaches to modeling item stimulus features, both of which can be carried out using the SAS NLMixed routine. Most item features models (sometimes called “Facets” models) assume that the item feature is fixed—that is, it is the same for all persons taking the item. But it is also possible to model the item effects as random, that is, varying from person to person according to a certain distribution (Rijmen & De Boeck, 2002). We will compare these two approaches using SAS NL-Mixed to estimate the models for a data set based on propositional reasoning problems. We will also carry out the same estimations using the Conquest software (Wu, Adams & Wilson, 1998), and compare the results. An extension to groups of persons will also be discussed, illustrating fixed and random DIF.

Rijmen, F., & De Boeck, P. (2002). The random weights linear logistic test model. *Applied Psychological Measurement, 26*, 271-285.

Wu, M.L., Adams, R.J., & Wilson, M. (1998). *Acer Conquest: Generalized Item Response Modelling Software manual*. Camberwell, Australia: The Australian Council for Educational Research Ltd.