

## Application of Item Response Theory Models for Intensive Longitudinal Data

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SAS PROC NLMIXED can be used to perform IRT analysis, and code is provided for the analyses of the LSAT-6 data presented in Tables 4.1 and 4.2 of this chapter. The code assumes that the data are at the individual level. An individual identifier must be present in the data and here it is named `id`. The dependent variable is named `lsat6` and coded 1 for a correct response and 0 for an incorrect response. The item indicators are named `item1` to `item5`. For example, the data are as follows for an individual with `id` 1001 who did not get any of the five items correct (`id`, `lsat6`, `item1`, `item2`, `item3`, `item4`, `item5`):

```
1001  0  1  0  0  0  0
1001  0  0  1  0  0  0
1001  0  0  0  1  0  0
1001  0  0  0  0  1  0
1001  0  0  0  0  0  1
```

Because the mixed model does not need to assume an equal number of observations per individual, individuals missing a particular item would have less than five lines of data (or have a missing value code for the missed item response). In the LSAT-6 dataset, all of the 1000 subjects had responses on the five items, so the data are complete. This dataset is named `LSAT6.DAT` and the SAS syntax file is named `LSAT6.SAS`.