Null Model (REML)

The Mixed Procedure

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Testing RI + 2 random slopes (REML)

The Mixed Procedure

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Homework 2  
Testing RI + 2 random slopes (REML)

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Dropping Cwellbeing random slope

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Homework 2
Dropping Cwellbeing random slope

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Checking fixed effects (ML)

The Mixed Procedure

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Checking fixed effects (ML)

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## Homework 2
### Drop Cwellbeing (ML)

#### The Mixed Procedure

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The Mixed Procedure

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Number of Observations

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The Mixed Procedure

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| Null Model Likelihood Ratio Test |
|---|---|---|
| DF | Chi-Square | Pr > ChiSq |
|    |            |            |
| 3  | 137.32     | <.0001     |

| Type 3 Tests of Fixed Effects |
|-----------------------------|-------|---------|-----|-----|
| Effect                      | Num DF | Den DF  | F Value | Pr > F |
| grade6                      | 1      | 72      | 79.58   | <.0001 |
| meanCwellbeing              | 1      | 72      | 0.05    | 0.8154 |
The Mixed Procedure

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<td>Subjects</td>
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<td>Max Obs Per Subject</td>
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Number of Observations

| Number of Observations Read | 360 |
| Number of Observations Used | 360 |
| Number of Observations Not Used | 0  |

Covariance Parameter Estimates

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### Homework 2

**Add male at level 2 (ML)**

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**Homework 2**

*Add IQ z-score at level 2 (ML)*

**The Mixed Procedure**

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Add IQ z-score at level 2 (ML)

The Mixed Procedure

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**Type 3 Tests of Fixed Effects**

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The Mixed Procedure

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Dimensions

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Number of Observations

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**The Mixed Procedure**

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**Number of Observations**

<table>
<thead>
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<th>360</th>
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<tbody>
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The Mixed Procedure

Fit Statistics

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Type 3 Tests of Fixed Effects

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### The Mixed Procedure

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### Number of Observations

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The Mixed Procedure

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The Mixed Procedure

Model Information

Data Set: WD.HW2
Dependent Variable: score
Covariance Structure: Unstructured
Subject Effect: id
Estimation Method: ML
Residual Variance Method: Profile
Fixed Effects SE Method: Model-Based
Degrees of Freedom Method: Satterthwaite

Dimensions

Covariance Parameters: 4
Columns in X: 7
Columns in Z Per Subject: 2
Subjects: 72
Max Obs Per Subject: 5

Number of Observations

Number of Observations Read: 360
Number of Observations Used: 360
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Covariance Parameter Estimates

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**Homework 2**  
*Add IQZ*\text{*}male at level 2 (ML)*

**The Mixed Procedure**

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### The Mixed Procedure

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**The Mixed Procedure**

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The Mixed Procedure

Model Information

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Number of Observations

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Covariance Parameter Estimates

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Final fixed model testing no RS for grade6 (REML)

The Mixed Procedure

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The Mixed Procedure

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Number of Observations

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Covariance Parameter Estimates

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Fit Statistics

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**The Mixed Procedure**

Null Model Likelihood Ratio Test

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Type 3 Tests of Fixed Effects

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## The Mixed Procedure

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### Covariance Parameter Estimates

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<th>Subject</th>
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<th>Standard Error</th>
<th>Z Value</th>
<th>Pr Z</th>
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Final fixed model with random int+grade6 (REML)

The Mixed Procedure

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Homework 2
Final fixed model with random int+grade6 (REML)
Residual vs. fit plot
Homework 2
Final fixed model with random int+grade6 (REML)
Residual vs. grade6 plot
Homework 2
Final fixed model with random int+grade6 (REML)
Residual vs. grade6
Homework 2
Final fixed model with random int+grade6 (REML)
Quantile normal plot
Add grade6^2 (ML)  
BIC without grade6^2 was 2356.3

The Mixed Procedure

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<td>Subject Effect</td>
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<td>Columns in Z Per Subject</td>
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Add grade6^2 (ML)

BIC without grade6^2 was 2356.3

The Mixed Procedure

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Null Model Likelihood Ratio

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</table>

Solution for Fixed Effects

| Effect     | gender | Estimate | Standard Error | DF | t Value | Pr > |t| |
|------------|--------|----------|----------------|----|---------|-------|---|
| Intercept  |        | 24.0098  | 0.7001         | 126| 34.29   | <.0001|
| grade6     |        | 0.08486  | 0.4739         | 280| 0.18    | 0.8580|
| grade6*grade6 |    | 0.2920   | 0.07082        | 216| 4.12    | <.0001|
| male       | female | 7.0787   | 0.8997         | 72 | 7.87    | <.0001|
| male       | male   | 0        | .              | .  | .       | .     |
| IQZ        |        | 2.5183   | 0.5651         | 70.9| 4.46    | <.0001|
| grade6*IQZ |        | 0.5003   | 0.1999         | 72 | 2.50    | 0.0146|

Type 3 Tests of Fixed Effects

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<tr>
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<th>F Value</th>
<th>Pr &gt; F</th>
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<td>0.8580</td>
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The Mixed Procedure

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<td>Subject Effect</td>
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Dimensions

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Number of Observations

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Covariance Parameter Estimates

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## Final fixed model with random int+grade6 (REML)

### The Mixed Procedure

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### Solution for Fixed Effects

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<th>DF</th>
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### Type 3 Tests of Fixed Effects

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Homework 2
Final fixed model with random int+grade6 (REML)
Residual vs. fit plot
Homework 2
Final fixed model with random int+grade6 (REML)
Residual vs. grade6

Residual

grade6

Residual
Loess
Homework 2
Final fixed model with random int+grade6 (REML)
Quantile normal plot
**The Mixed Procedure**

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For $R^2$, final fixed model with random intercept (REML)

The Mixed Procedure

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