

### Some Mixed Model Practice Problems

For each scenario below, complete the SOURCE and DF columns of an ANOVA table. Circle the random terms and draw an arrow from each fixed term to the appropriate error term for testing the significance of the fixed term.

1. Each of four recipes was used to produce 3 independent batches of bread dough. A response variable was measured for each batch.

2. Each of four recipes was used to produce 3 independent batches of bread dough. Three loaves of bread were made from each batch of dough. Each loaf was baked under identical conditions. A response variable was measured for each loaf.

3. Each of four recipes was used to produce 3 independent batches of bread dough. Three loaves of bread were made from each batch of dough. The three loaves of bread from each batch were randomly assigned to three different baking temperatures. A response variable was measured for each loaf.

4. Each of four recipes was used to produce 3 independent batches of bread dough. Three loaves of bread were made from each batch of dough. The three loaves of bread from each batch were randomly assigned to three different baking temperatures. Each loaf was cut into 10 slices. A response variable was measured for each slice.

5. Each of four recipes was used to produce 3 independent batches of bread dough. Three loaves of bread were made from each batch of dough. The three loaves of bread from each batch were randomly assigned to three different baking temperatures. Four slices were taken from each loaf. The four slices from a loaf were randomly assigned to four different preparation treatments. A response variable was measured for each slice.