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3.R.R1

1/1 point (graded)

What is the difference between lm(y ~ x*z) and lm(y ~ I(x*z)), when x and z are both numeric variables?

- (●) The first one includes an interaction term between x and z, whereas the second uses the product of x and z as a predictor in the model. ✔
- ( ) The second one includes an interaction term between x and z, whereas the first uses the product of x and z as a predictor in the model.
- ( ) The first includes only an interaction term for x and z, while the second includes both interaction effects and main effects.
- ( ) The second includes only an interaction term for x and z, while the first includes both interaction effects and main effects. ✔

Explanation

An interaction term between a numeric x and z is just the product of x and z. The difference is that in the first model, lm processes the "*" operator between variables and automatically includes main effects, whereas in the latter model, the expression inside the I() function is not parsed as a part of the formula, but rather is simply evaluated.

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the * operator denotes factor crossing: a*b interpreted as a+b+a:b.

Answers are displayed within the problem