normal is not transitive

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The phrase "normal is not transitive" can be used as a mnemonic for two statements.

The first is: "The relation 'is a normal subgroup of' is not transitive." This means that, if $H \triangleleft N \triangleleft G$, it does not follow that $H \triangleleft G$. See normality of subgroups is not transitive for more details.

The second is: "The relation 'is a normal extension of' is not transitive." This means that, if K/F and L/K are normal extensions, it does not follow that L/F is normal. See example of normal extension for more details.