

# Causal Inference Demo

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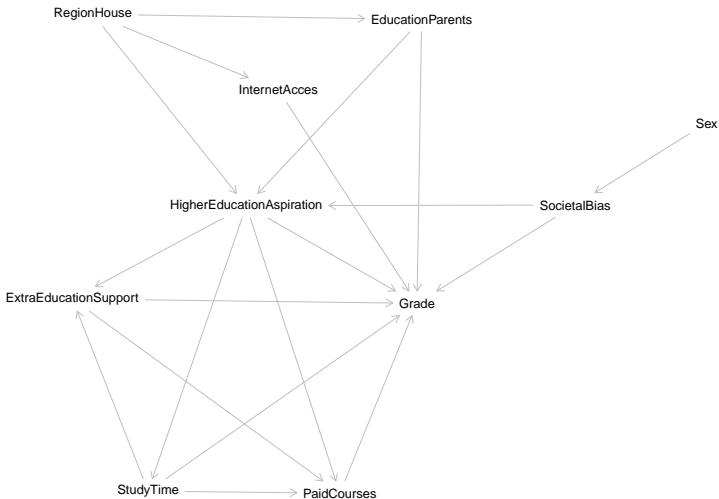
# What are we going to see

- Defining the problem
- DAG
- Simulating the data
- Can we use BRMS to retrieve the parameters
- **Real World Data...**
- Is our dag valid?
- Results

# Defining the Problem

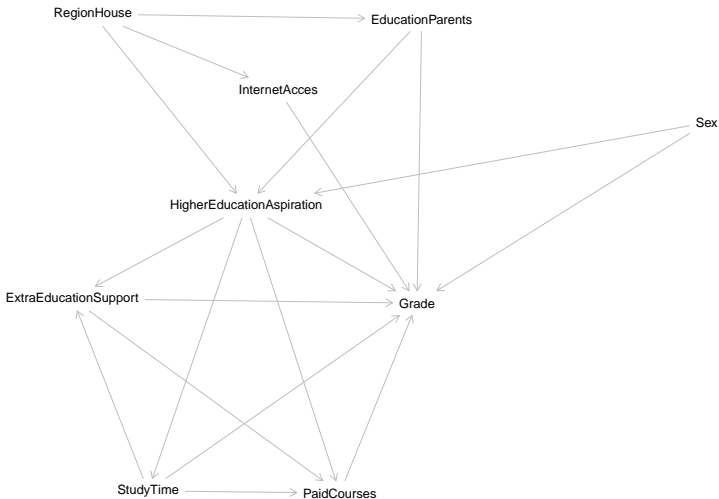
- Mathematics is one of THE fundamental school subjects. . .
- . . . yet, it is stereotypically seen as boring and difficult.
- In this demo we explore what influences school performance in Math
- . . . and possible intervention paths we could use.
- As outcome variable we take the end of year grade in Mathematics for high school students.

# DAG - The Full Causal Pentagram



The unmeasured variable `SocietalBias` explains how `Sex` affects `Grade` and `HigherEducationAspiration`. However, since `Sex` is only a 'Mechanism', we can remove it from the DAG and simplify it.

# DAG - The (slightly simplified) Causal Pentagram



# Simulate data

simulate grades from the inputs

