Causal Inference Demo

Alex van Vorstenbosch

15 April, 2022

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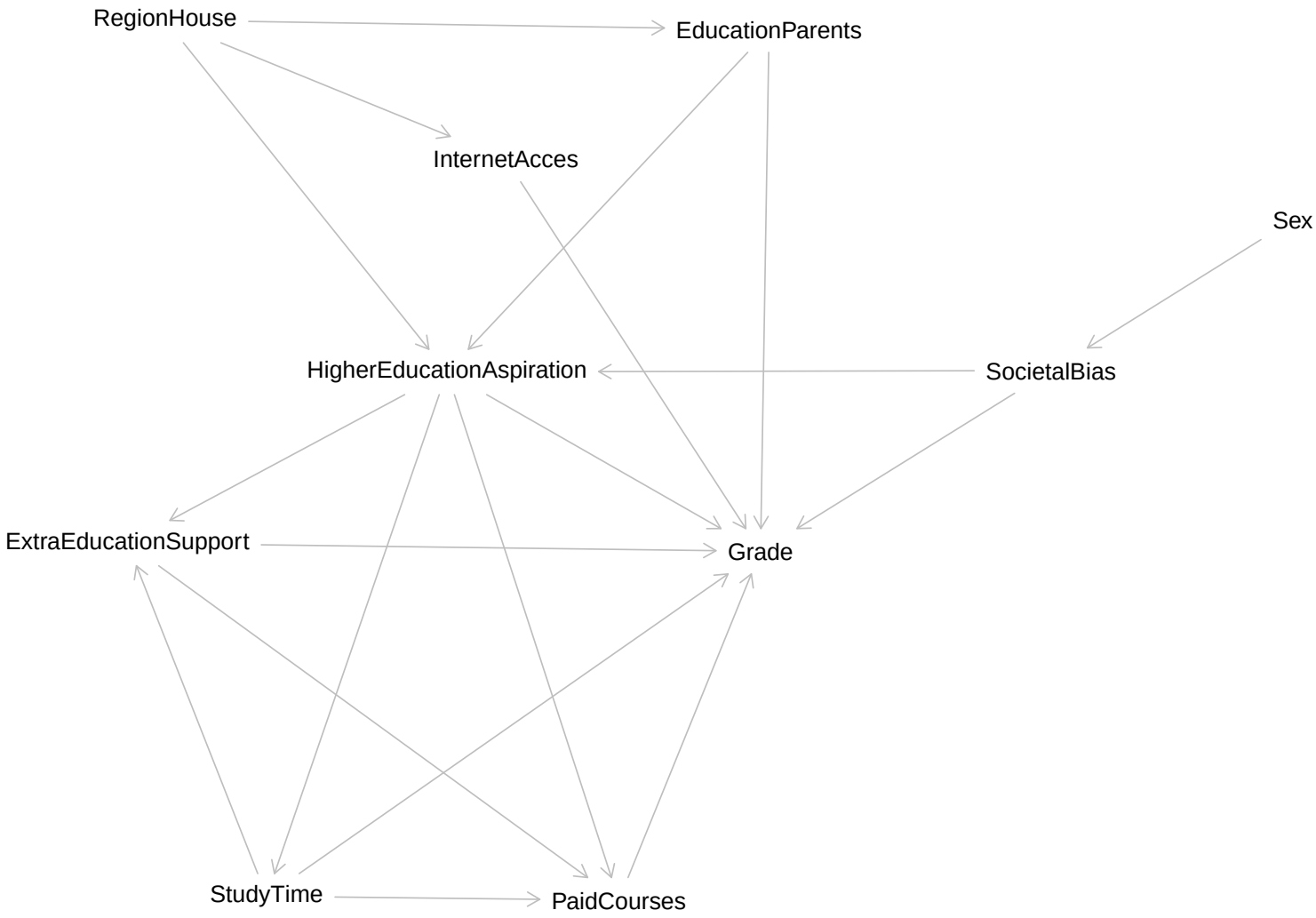
What are we going to see

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

Defining the Problem

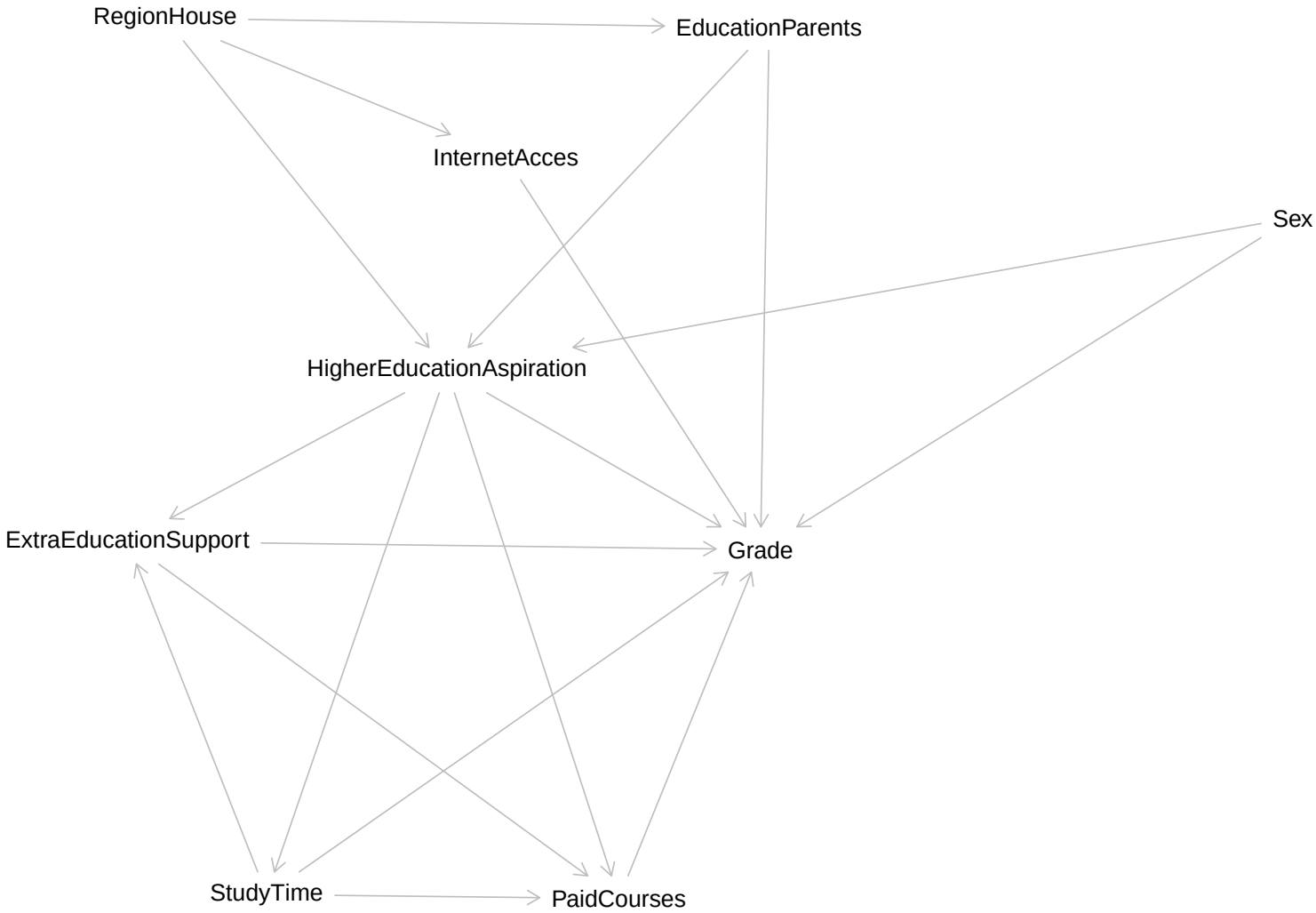
- Mathematics is on of THE fundamental school subject...
- ...yet, it is stereotypically seen as boring and difficult.
- In this demo we explore what influences school performance in Math
- ... and possible intervention paths we could use.
- As outcome variable we take the end of year grade in Mathematics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

DAG - The Full Causal Pentagram



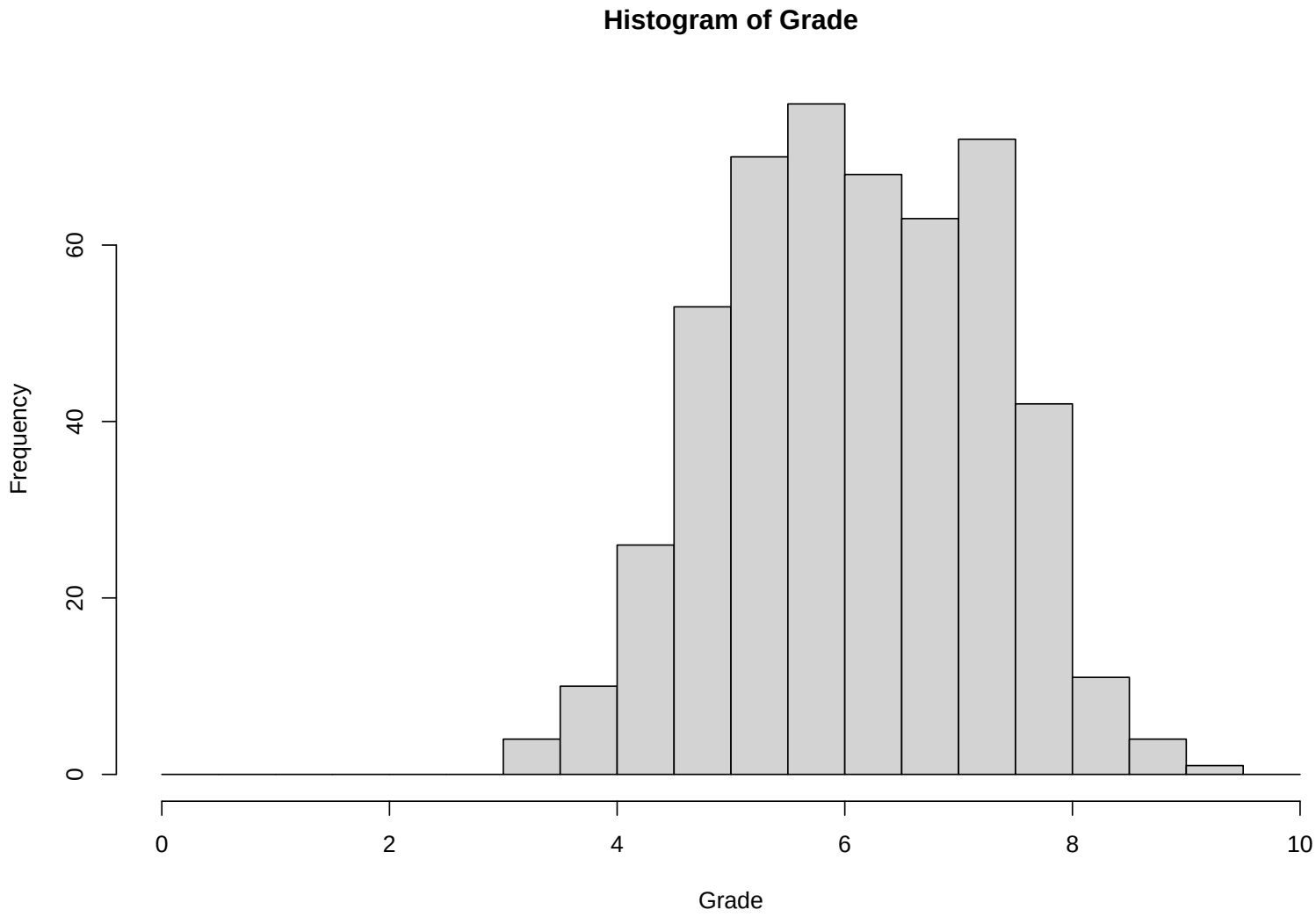
The unmeasured variable SocietalBias explains how Sex affects Grade and HigherEducationAspiration. However, since Sex is only a 'Mechanism', we can remove it from the DAG and simplify it.

DAG - The (slightly simplified) Causal Pentagram



Simulate data

simulated grades distribution



#Retrieve these direct effects using BRMS

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## Running MCMC with 6 parallel chains...
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