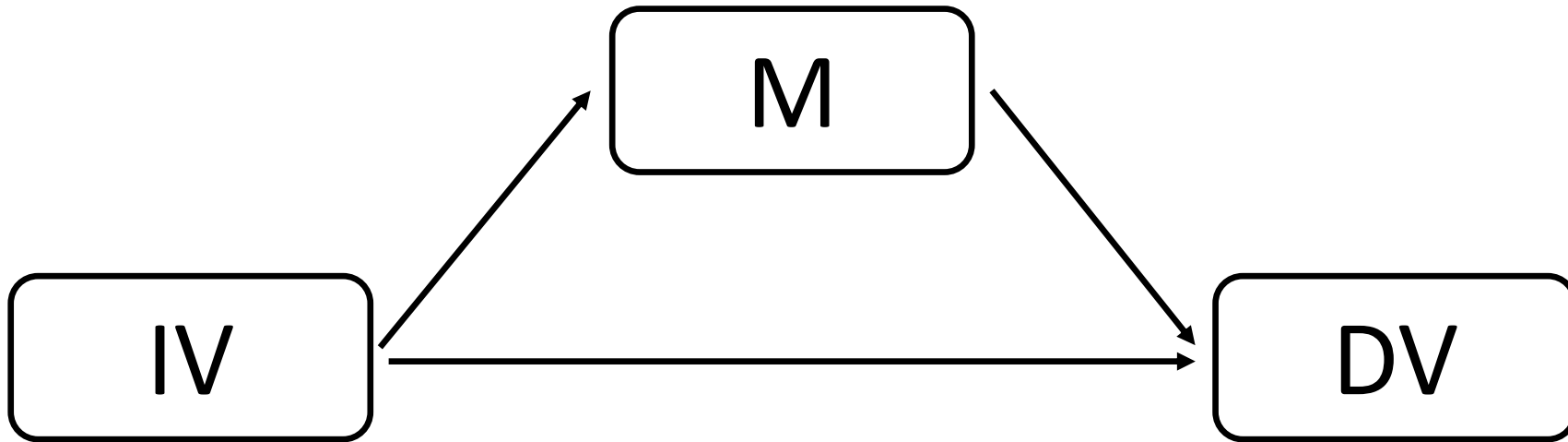


Total Effect and Indirect Effect

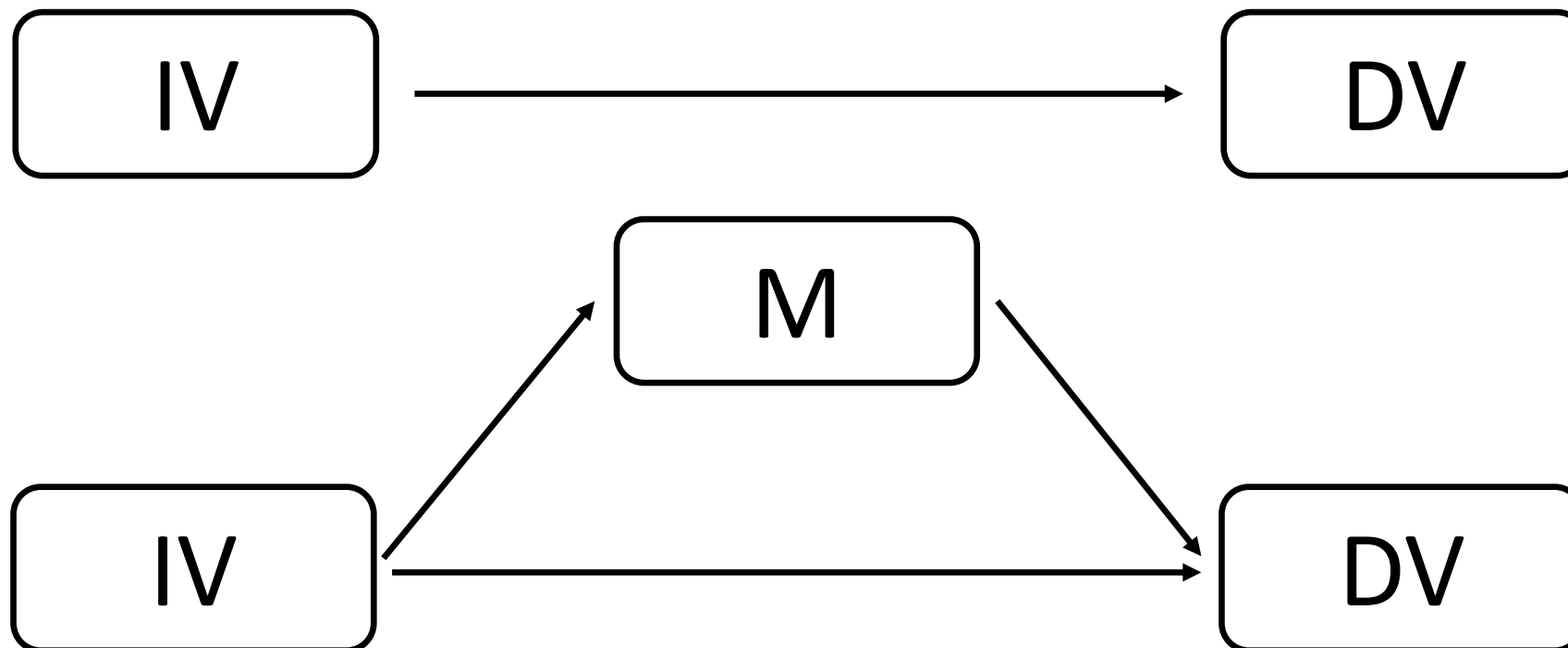


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Basic Idea of Mediation

- An observed relationship between an independent variable (IV, or X) and a dependent variable (DV, or Y).
- Mediator (M): Trying to explain that observed relationship.



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Conditions of Mediation

- Based on Baron & Kenny (1986), there are three sets of regression:
- (1) $X \rightarrow Y$ (c needs to be significant, generally speaking.)

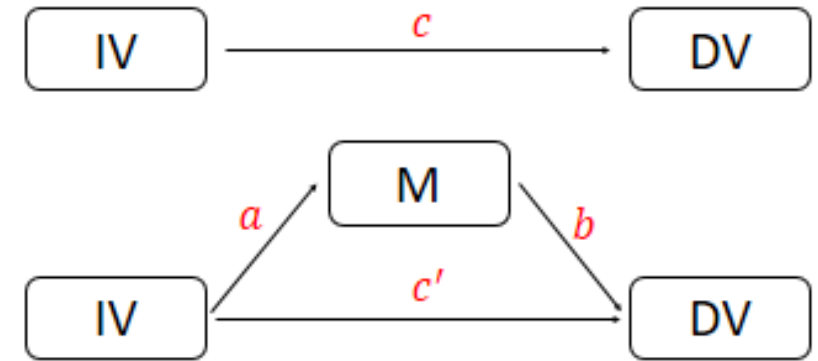
$$Y = cX$$

- (2) $X \rightarrow M$ (a needs to be significant.)

$$M = aX$$

- (3) $X + M \rightarrow Y$ (b needs to be significant.)

$$Y = c'X + bM$$



$$c = c' + ab$$

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Hypothetical Data

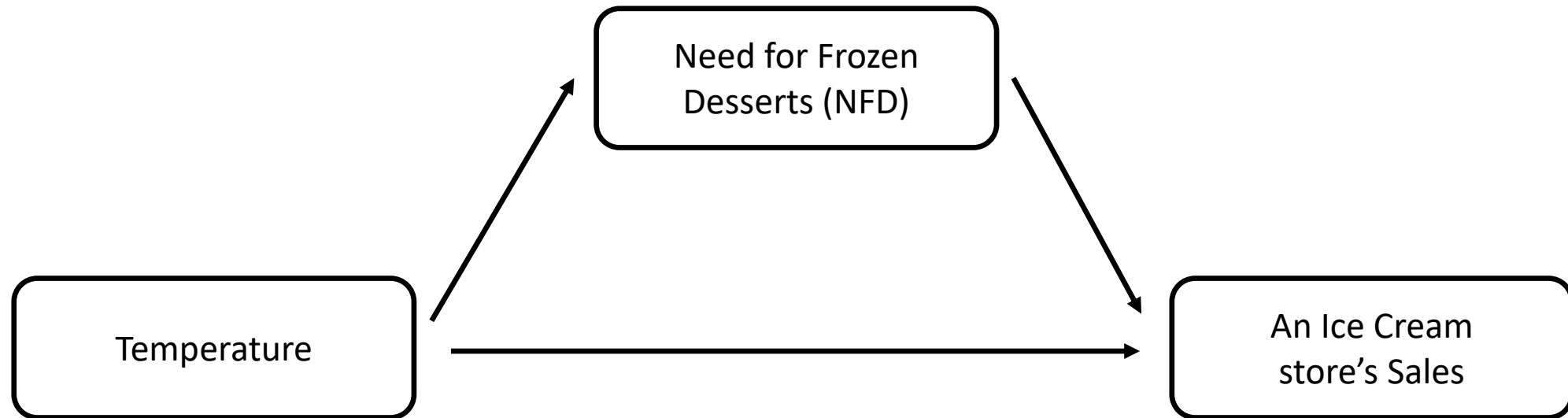
- **Note:** This data is generated via R programming (i.e., not real data). Please do **not** interpret the findings from a theoretical perspective.
- IV = Temperature
- DV = Sales
- Mediator = Need for Frozen Desserts (NFD)
 - How much do you want to have frozen desserts?
 - 0 = Not at all, 6 = Very much

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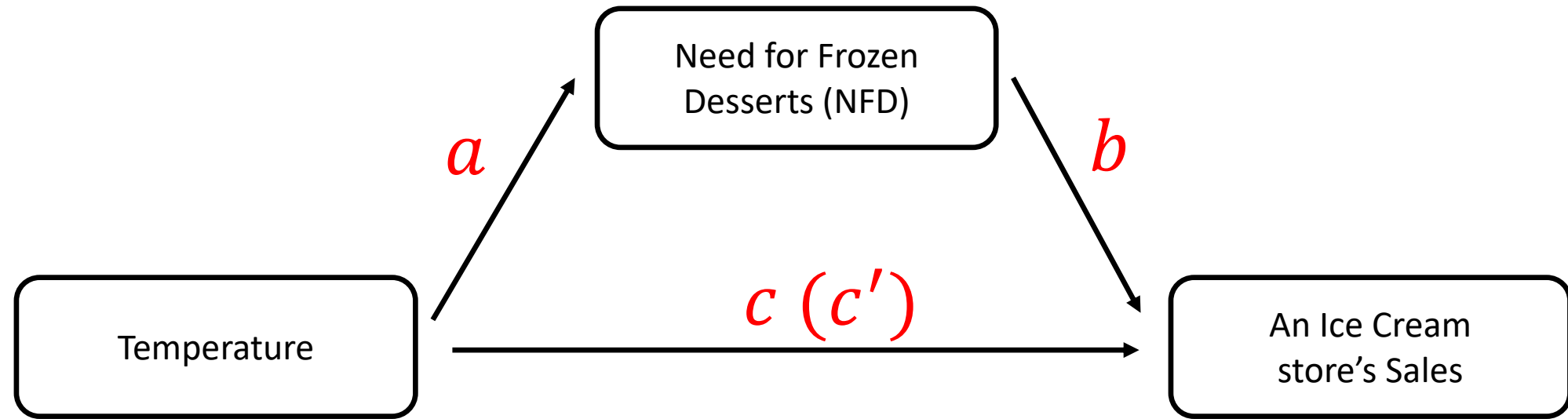
Example of Mediation

- The following is a hypothetical study.
 - Higher temperatures increase an ice cream store's sales.
 - This is because higher temperatures make people want to have frozen desserts, making them more likely to buy ice cream from the store



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Total Effect • (1) $X \rightarrow Y$

$$Y = cX$$

$$\text{Sales} = b_0 + c \text{ Temperature}$$

Indirect Effect: • (2) $X \rightarrow M$ (a needs to be significant.)

$$M = aX$$

$$\text{NFD} = b_0 + a \text{ Temperature}$$

• (3) $X + M \rightarrow Y$ (b needs to be significant.)

$$Y = c'X + bM$$

$$\text{Sales} = b_0 + c' \text{ Temperature} + b \text{ NFD}$$

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