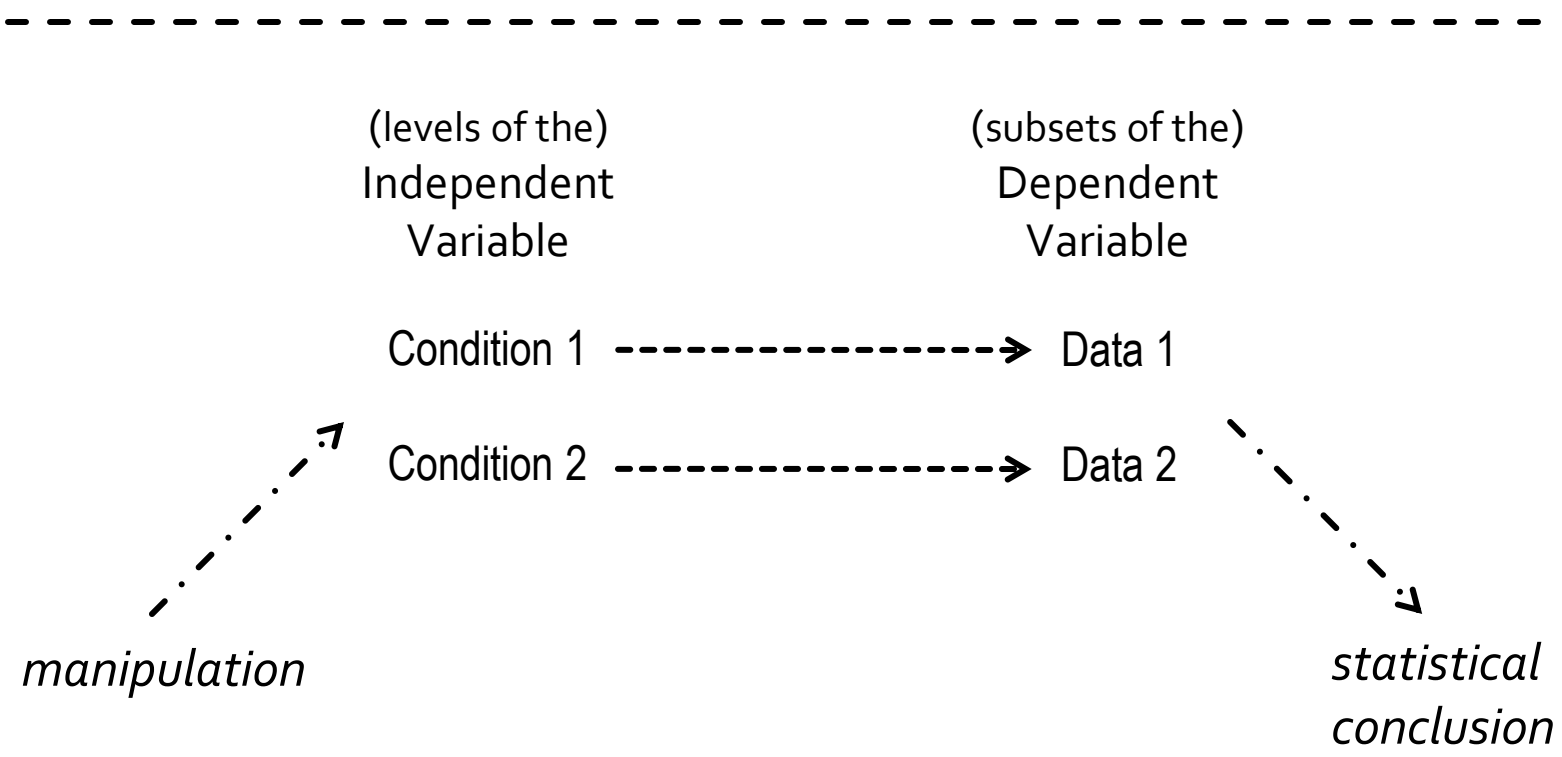
Summary Slide for Experiments



Classes of Variables

- 1) Manipulated – *things that are completely under the control of the experimenter and are set by the experimenter; things that do not depend in any way on the subject*

- 2) Measured – [everything else] *things that are at least partly determined by or built-in to the subject; things that cannot be completely controlled by the experimenter*

Types of Manipulated Variables

- 1) Situational – *features of the environment*
- 2) Task – *elements of what subjects are asked to do*
- 3) Instructional – *elements of how subjects are asked to do the task*

Note: these distinctions have no effect on design or analysis

Types of Measured Variables

- These two types are "fuzzy" – any particular measured variable is more-or-less of one type
- 1) stable / built-in / chronic / permanent

  - difficult to impossible to manipulate (ethically)

  these are often referred to as "subject variables"

- 2) labile / situational / acute / temporary

  - relatively easy to manipulate (ethically)

  these are sometimes called "data variables"

Ways that Variables are Treated

- 1) Potential Cause – *thing of interest that could (directly or indirectly) (help to) determine the value of another variable of interest*
- 2) Effect – *measured thing of interest (that could be influenced by the potential cause)*
- 3) Extraneous – *potential cause that is **not** of interest*

(strict definition of) "Experiment"

- has at least one manipulated variable acting as the potential cause of interest

  note that "variable" implies more than one level or setting, so there must be at least two conditions

  this is referred to as the "independent variable"

- has a labile measured variable acting as the potential effect

  this is referred to as the "dependent variable"

Internal Validity – unpacking the definition

- *the extent to which a significant IV-DV relationship is causal and not spurious*
- *…significant IV-DV relationship…*
  - = the data from the different conditions are different and it isn't just due to chance
- *…is causal…*
  - = the data from different conditions are different because of the planned difference between conditions
- *…and not spurious*
  - = as opposed to the data from different conditions being different for some other reason