**VARIABLE TYPES**

*Observational Units* have common *characteristics.* A *variable* is a characteristic that can take on different *values. Variable Types* describe the different types of values that can appear for a specific variable.

 **Categorical** (aka Nominal) – values are names or words. [[1]](#footnote-1) They have no properties of numbers.

 **Binary** - a categorical variable that can only take two values.

**Ordinal** – Categorical values [[2]](#footnote-2)that

1) Have a natural ordering, and for which

2) The order is relevant to the context of the study.

Quantitative integer values can be treated as ordinal if the range of values is limited.

**Quantitative** – Numerical values[[3]](#footnote-3)

 **Integer** – Quantitative values can only be represented by whole numbers

**Continuous** – Scale variables: any numbers that can be split or represented by a decimal.

Examples:

**Categorical**: colors (red, green, blue, etc), names of people, types of bread, names of trees, names of diseases.

**Binary**: Yes/No, Good/Bad, In/Out, Went Out/Stayed Home

 **Ordina**l: grade, Likert scales, age in years between 4 and 8, car size,

 **Quantitative**:

**Integer**: whole number quantities(# of cars, # of donuts), age in years between 1 and 30, hour of day

 **Scale**: any measurement(height, weight, volume, speed, etc), precise time

|  |  |  |
| --- | --- | --- |
| **Book** | **Class** | **SPSS** |
| Categorical  | Categorical (Nominal) | Nominal |
|  Binary |  Binary |  |
| Categorical | Ordinal | Ordinal |
| Quantitative | Quantitative |  |
|  |  Integer |  |
|  |  Continuous | Scale |

1. Note that the name may also be a number. zip code, phone number, serial number. Serial number represents an order, but it is likely irrelevant to the study and is just used as an identification. [↑](#footnote-ref-1)
2. Ordinal values often have a name that is assigned a number, like 7 for 7th grade. It may also be just a number. [↑](#footnote-ref-2)
3. The converse if footnote 1 is not true, quantitative values cannot take names. [↑](#footnote-ref-3)