2B – Associations between 2 categorical variables

**CONSTRUCT A TWO-WAY FREQUENCY TABLE (CONTINGENCY TABLE)**

The following data compares gun control opinions of country people and city people. Construct a two-way frequency table with the explanatory variable as the columns and the response variable as the rows:

*Do opinions on gun control (“for” or “against”) depend on people’s residence (“city” or “country”)?*

EV: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ RV: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Survey results: 32 country people are for gun control

30 city people are for gun control

26 country people are against gun control

12 city people are against gun control

|  |  |  |
| --- | --- | --- |
|  | EV: | |
| RV: |  |  |
|  |  |  |
|  |  |  |
| Total |  |  |

NOTE: Sometimes there can be more than two categories for the explanatory

variable, which would require more columns in the table.

**CONVERT TO A PERCENTAGED TWO-WAY FREQUENCY TABLE**

Calculate the column percentages, as these relate to the explanatory variable

|  |  |  |
| --- | --- | --- |
|  | EV: | |
| RV: |  |  |
|  |  |  |
|  |  |  |
| Total |  |  |

2B – Associations between 2 categorical variables

**WRITE A BRIEF REPORT ABOUT THE PERCENTAGED TWO-WAY TABLE**

Fill out the blanks below to create an example of how to write these reports:

*A person’s attitude to gun control is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ with their place of residence. In this*

*sample of \_\_\_\_\_\_\_ people, a higher percentage of \_\_\_\_\_\_\_\_\_\_\_\_ people (\_\_\_\_\_\_ %) were for gun*

*control than \_\_\_\_\_\_\_\_\_\_\_\_\_ people (\_\_\_\_\_\_ %).*

Sometimes the percentages will work out to be very similar so you will have to re-word the report and replace “associated” with “not associated”. Use the following percentage data from a survey of 200 students to create an example report:

|  |  |  |
| --- | --- | --- |
|  | EV: Year Level | |
| RV: Should mobile phones be banned in  cinemas? | Year 10 | Year 12 |
| Yes | 87.9% | 86.8% |
| No | 12.1% | 13.2% |
| Total | 100% | 100% |

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**REPRESENT THE DATA USING A PARALLEL SEGMENTED BAR CHART**

Usually you will be provided with the chart and you will have to analyse it and possibly write a report by finding the relevant percentages.

The EV is on the horizontal axis and the percentage frequency scale is on the vertical axis.

If you have to construct one of these charts, use Mathematica. Have a look through the gun control example in your Chapter 2 Mathematica notebook.