ggplot2

CHAPTER 4: BUILD A PLOT LAYER BY LAYER

Outline

- Geometric objects (geoms)
- Statistical transformations (stats)
- Position adjustments
- Combining geoms and stats

Geometric objects (geoms)

- Control the type of plot that you create
- Table 4.2 (page 56) contains all geoms available in ggplot2. Some of these include: boxplot, contour, errorbar, and many others.
- Each geom has a set of aesthetics that it understands, and a set that are required for drawing.
- For example, a **point** a point requires **x** and **y position**, and understands **colour**, **size** and **shape** aesthetics.

Statistical transformations (stats)

- A statistical transformation, or **stat**, transforms the data, typically by summarising it in some manner.
- A stat takes a dataset as input and returns a dataset as output, and so a stat can add new variables to the original dataset.
- For example, to make histograms we can use **stat_bin,** which will produce:
  - count, the number of observations in each bin
  - density, the density of observations in each bin (percentage of total / bar width)
  - x, the centre of the bin
- Table 4.3 (page 57) contains the default stats and aesthetics.
- Table 4.4 (page 58) contains the stats available in ggplot2.

Position adjustments

- Position adjustments apply minor tweaks to the position of elements within a layer.
- Normally used with discrete data.
- Possible adjustments:
  - **dodge**: Adjust position by dodging overlaps to the side
  - **fill**: Stack overlapping objects and standardise have equal height
  - **identity:** Don't adjust position
  - **Jitter:** Jitter points to avoid overplotting
  - **stack:** Stack overlapping objects on top of one another

Combining geoms and stats

- Example: Use same stats underlying a histogram (the **bin** stat), but use different geoms to display the results: the **area** geom and the **point** geom.
- Example: mixed effect models using Oxboys data