ToOoOlTiPs: An R Package for Customizable Tooltips in Interactive Graphics

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Abstract An abstract of less than 150 words.

1 Introduction

Interactive data graphics provides plots that allow users to interact them. One of the most basic types of interaction is through tooltips, where users are provided additional information about elements in the plot by moving the cursor over the plot.

This paper will first review some R packages on interactive graphics and their tooltip implementations. A new package **ToOoOlTiPs** that provides customized tooltips for plot, is introduced. Some example plots will then be given to showcase how these tooltips help users to better read the graphics.

2 Background

Some packages on interactive graphics include **plotly** (Sievert 2020) that interfaces with Javascript for web-based interactive graphics, **crosstalk** (Cheng and Sievert 2021) that specializes cross-linking elements across individual graphics. The recent R Journal paper **tsibbletalk** (Wang and Cook 2021) provides a good example of including interactive graphics into an article for the journal. It has both a set of linked plots, and also an animated gif example, illustrating linking between time series plots and feature summaries.

3 Customizing tooltip design with ToOoOlTiPs

ToOoOlTiPs is a packages for customizing tooltips in interactive graphics, it features these possibilities.

4 A gallery of tooltips examples

The **palmerpenguins** data (Horst, Hill, and Gorman 2020) features three penguin species which has a lovely illustration by Alison Horst in Figure 1.

Table 1 prints at the first few rows of the `penguins` data:

Figure 2 shows an plot of the penguins data, made using the **ggplot2** package.

```
penguins %>%
  ggplot(aes(x = bill_depth_mm, y = bill_length_mm,
             color = species)) +
  geom_point()
```

Table 1: A basic table

species	island	bill_length_mm	bill_depth_mm	flipper_length_mm	body_mass_g	sex	year
Adelie	Torgersen	39.1	18.7	181	3750	male	2007
Adelie	Torgersen	39.5	17.4	186	3800	female	2007
Adelie	Torgersen	40.3	18.0	195	3250	female	2007
Adelie	Torgersen	NA	NA	NA	NA	NA	2007
Adelie	Torgersen	36.7	19.3	193	3450	female	2007
Adelie	Torgersen	39.3	20.6	190	3650	male	2007

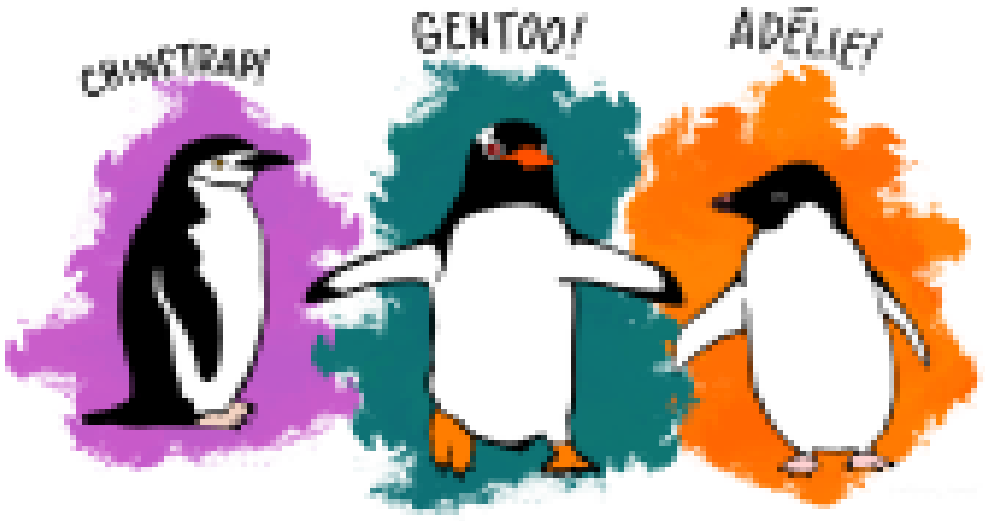

Figure 1: Artwork by allison_horst

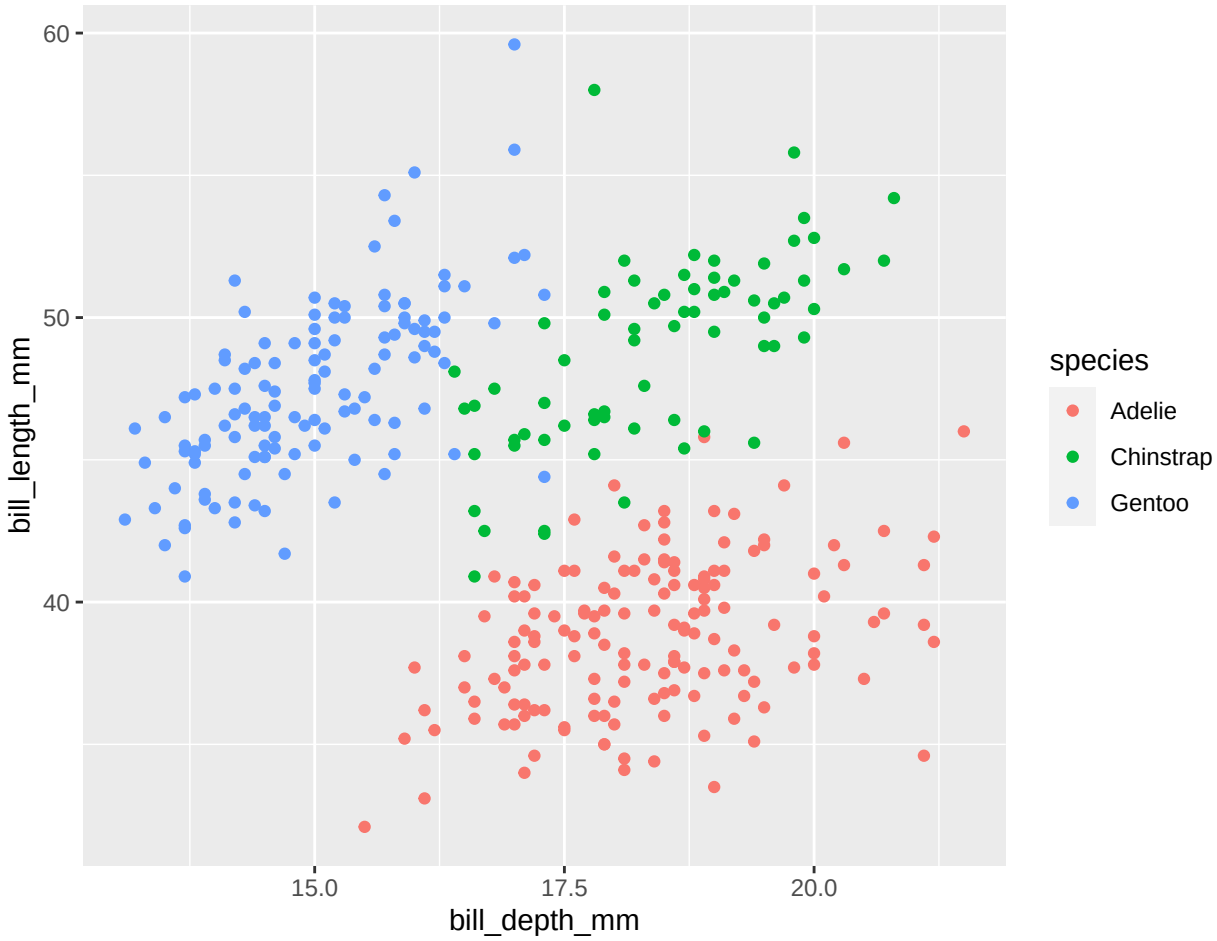

Figure 2: A basic non-interactive plot made with the ggplot2 package on palmer penguin data. Three species of penguins are plotted with bill depth on the x-axis and bill length on the y-axis. Visit the online article to access the interactive version made with the plotly package.

5 Summary

We have displayed various tooltips that are available in the package **ToOoOlTiPs**.

References

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Sievert, Carson. 2020. *Interactive Web-Based Data Visualization with r, Plotly, and Shiny*. Chapman; Hall/CRC. https://plotly-r.com.

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