

# ToOoOlTiPs: An R package for Customizable Tooltips in Interactive Graphics

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**Abstract** An abstract of less than 150 words.

## 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.

## 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.

## Customizing tooltip design with ToOoOlTiPs

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

## A gallery of tooltips examples

Figure 1 shows an plot of the **palmerpenguins** data (Horst et al., 2020), made using the **ggplot2** package. This data features three penguin species which has a lovely illustration by Alison Horst in Figure 2.

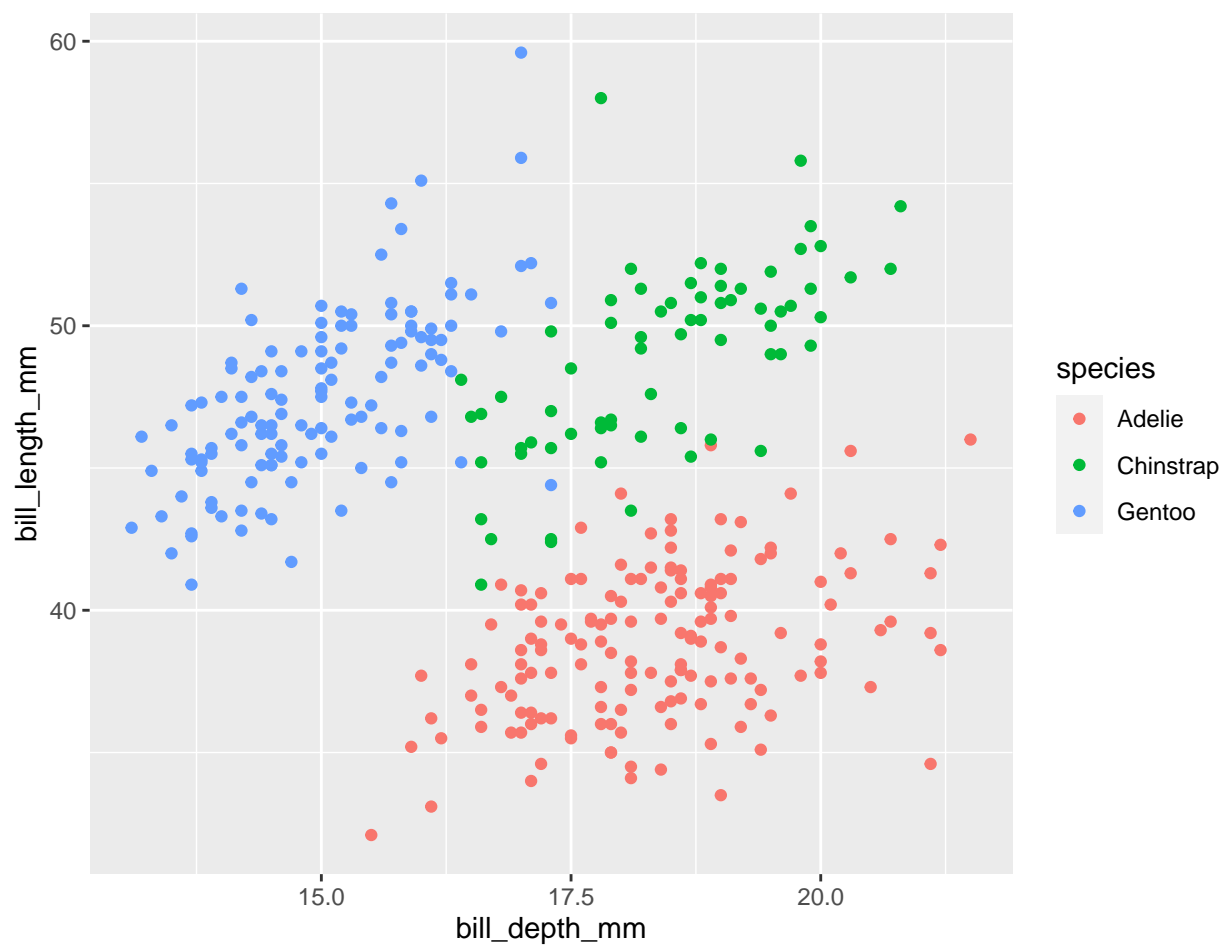
```
penguins %>%  
  ggplot(aes(x = bill_depth_mm, y = bill_length_mm,  
            color = species)) +  
  geom_point()
```

## Summary

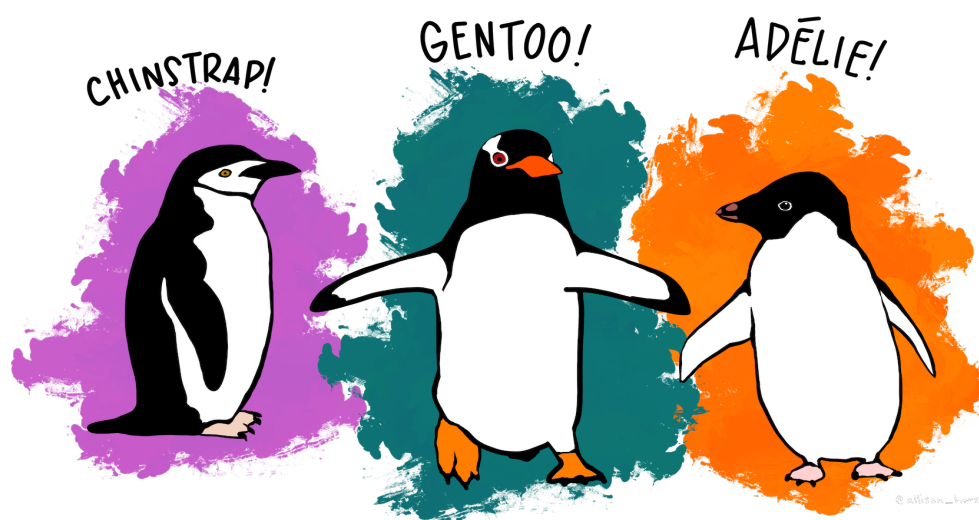
We have displayed various tooltips that are available in the package **ToOoOlTiPs**.

## Bibliography

- J. Cheng and C. Sievert. *crosstalk: Inter-Widget Interactivity for HTML Widgets*, 2021. URL <https://CRAN.R-project.org/package=crosstalk>. R package version 1.1.1. [p1]
- A. M. Horst, A. P. Hill, and K. B. Gorman. *palmerpenguins: Palmer Archipelago (Antarctica) penguin data*, 2020. URL <https://allisonhorst.github.io/palmerpenguins/>. R package version 0.1.0. [p1]



**Figure 1:** 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.



**Figure 2:** Artwork by allison\_horst

- C. Sievert. *Interactive Web-Based Data Visualization with R, plotly, and shiny*. Chapman and Hall/CRC, 2020. ISBN 9781138331457. URL <https://plotly-r.com>. [p1]
- E. Wang and D. Cook. Conversations in time: interactive visualisation to explore structured temporal data. *The R Journal*, 2021. doi: 10.32614/RJ-2021-050. URL <https://journal.r-project.org/archive/2021/RJ-2021-050/index.html>. [p1]

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