

My title*

My subtitle if needed

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First sentence. Second sentence. Third sentence. Fourth sentence.

1 Introduction

You can and should cross-reference sections and sub-sections. We use R Core Team (2023) and (rohan?).

The remainder of this paper is structured as follows. Section 2....

2 Data

Some of our data is of penguins (?@fig-bills), from (palmerpenguins?).

Talk more about it.

And also planes (?@fig-planes). (You can change the height and width, but don't worry about doing that until you have finished every other aspect of the paper - Quarto will try to make it look nice and the defaults usually work well once you have enough text.)

Talk way more about it.

3 Model

The goal of our modelling strategy is twofold. Firstly,...

Here we briefly describe the Bayesian analysis model used to investigate... Background details and diagnostics are included in Appendix B.

*Code and data are available at: <https://github.com/peachvegetable/NBA-player-points>

3.1 Model set-up

Define y_i as the number of seconds that the plane remained aloft. Then β_i is the wing width and γ_i is the wing length, both measured in millimeters.

$$y_i | \mu_i, \sigma \sim \text{Normal}(\mu_i, \sigma) \quad (1)$$

$$\mu_i = \alpha + \beta_i + \gamma_i \quad (2)$$

$$\alpha \sim \text{Normal}(0, 2.5) \quad (3)$$

$$\beta \sim \text{Normal}(0, 2.5) \quad (4)$$

$$\gamma \sim \text{Normal}(0, 2.5) \quad (5)$$

$$\sigma \sim \text{Exponential}(1) \quad (6)$$

We run the model in R (R Core Team 2023) using the `rstanarm` package of (`rstanarm?`). We use the default priors from `rstanarm`.

3.1.1 Model justification

We expect a positive relationship between the size of the wings and time spent aloft. In particular...

We can use maths by including latex between dollar signs, for instance θ .

4 Results

Our results are summarized in `?@tbl-modelresults`.

5 Discussion

5.1 First discussion point

If my paper were 10 pages, then should be be at least 2.5 pages. The discussion is a chance to show off what you know and what you learnt from all this.

5.2 Second discussion point

5.3 Third discussion point

5.4 Weaknesses and next steps

Weaknesses and next steps should also be included.

Appendix

```
analysis_data <- read_parquet("../data/analysis_data/analysis_data.parquet")

predictors <- c("g", "gs", "mp", "fg_percent", "x3p_percent",
               "x2p_percent", "e_fg_percent", "ft_percent",
               "orb", "drb", "trb", "ast", "stl", "blk", "tov", "pf")

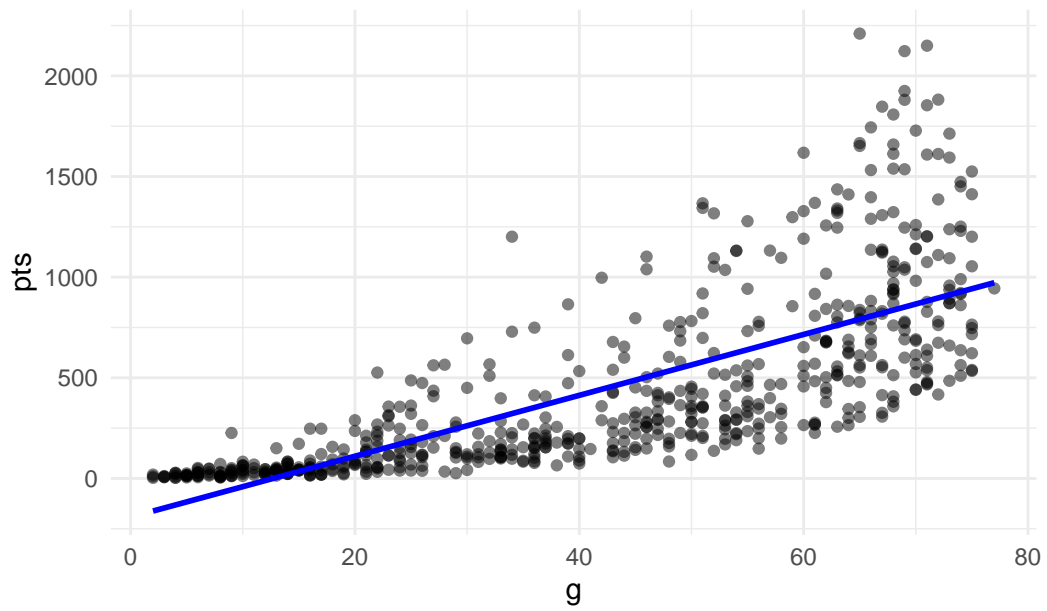
for (predictor in predictors) {
  p <- ggplot(analysis_data, aes_string(x = predictor, y = "pts")) +
    geom_point(alpha = 0.5) +
    geom_smooth(method = "lm", se = FALSE, color = "blue") +
    ggtitle(paste("Points vs", predictor)) +
    theme_minimal()

  print(p)
}
```

Warning: `aes_string()` was deprecated in ggplot2 3.0.0.
i Please use tidy evaluation idioms with `aes()`.
i See also `vignette("ggplot2-in-packages")` for more information.

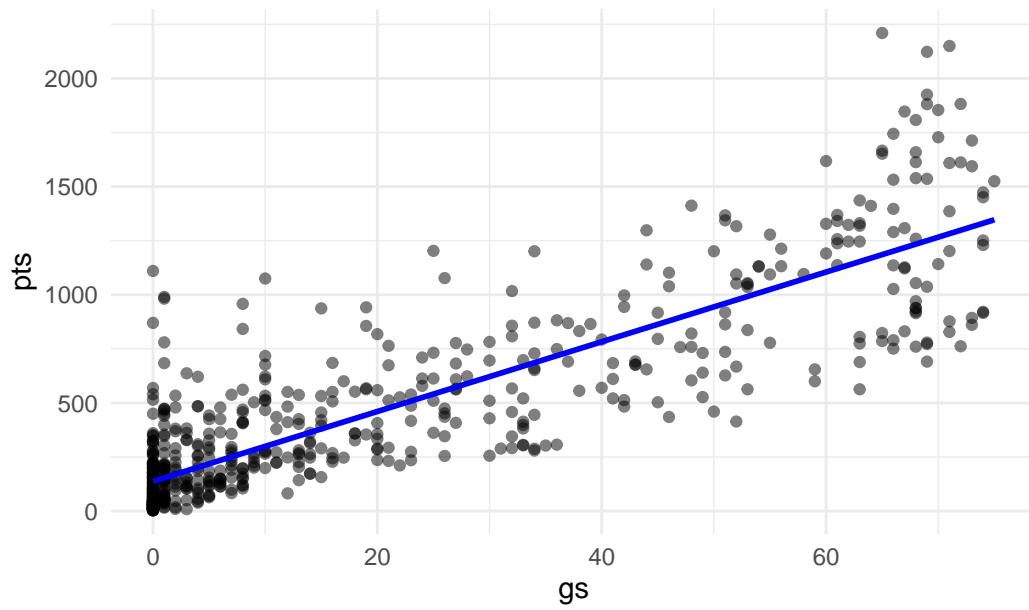
`geom_smooth()` using formula = 'y ~ x'

Points vs g



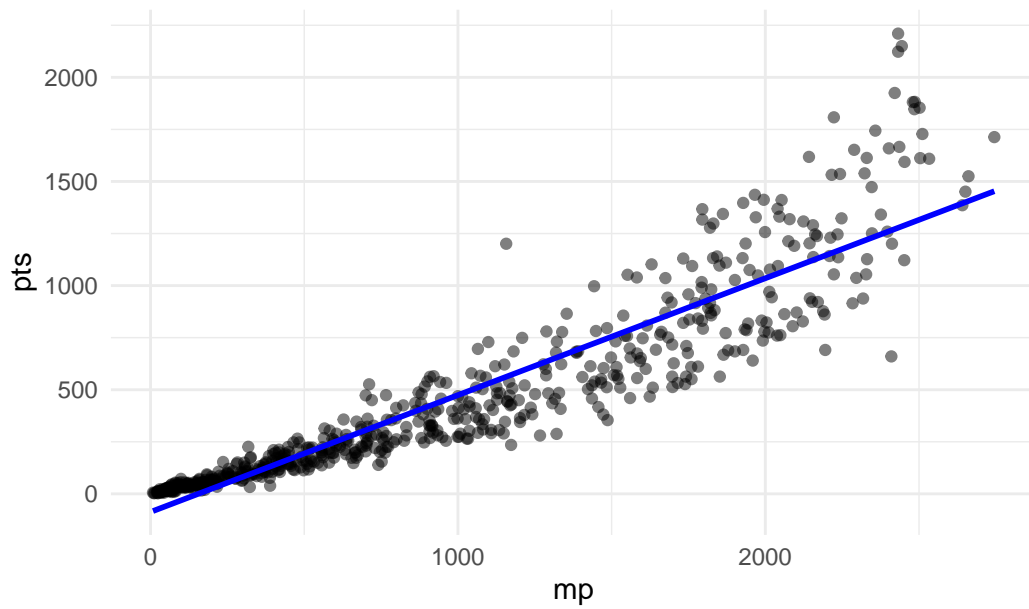
``geom_smooth()`` using formula = 'y ~ x'

Points vs gs



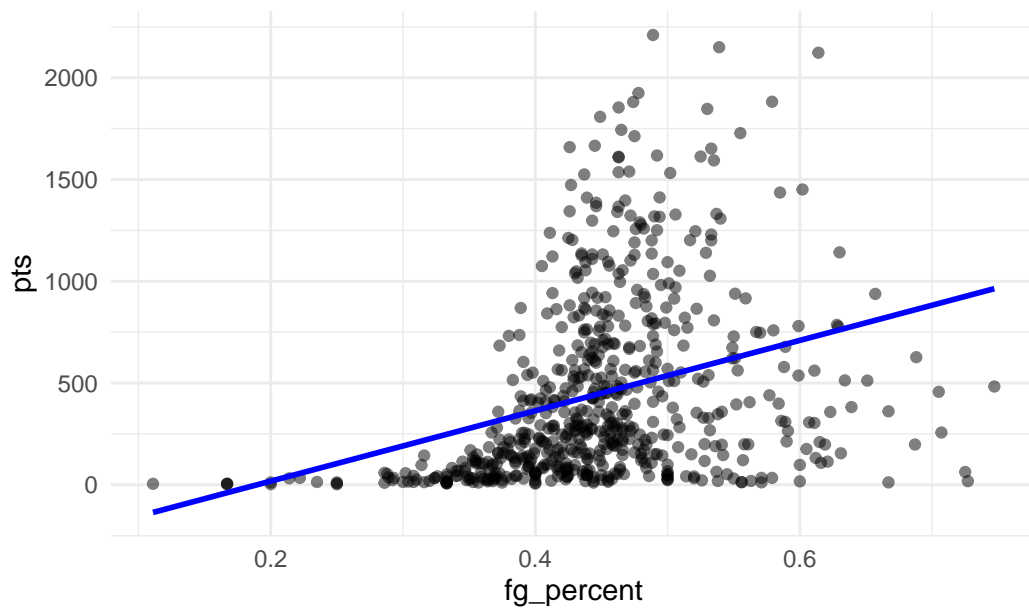
``geom_smooth()`` using formula = 'y ~ x'

Points vs mp



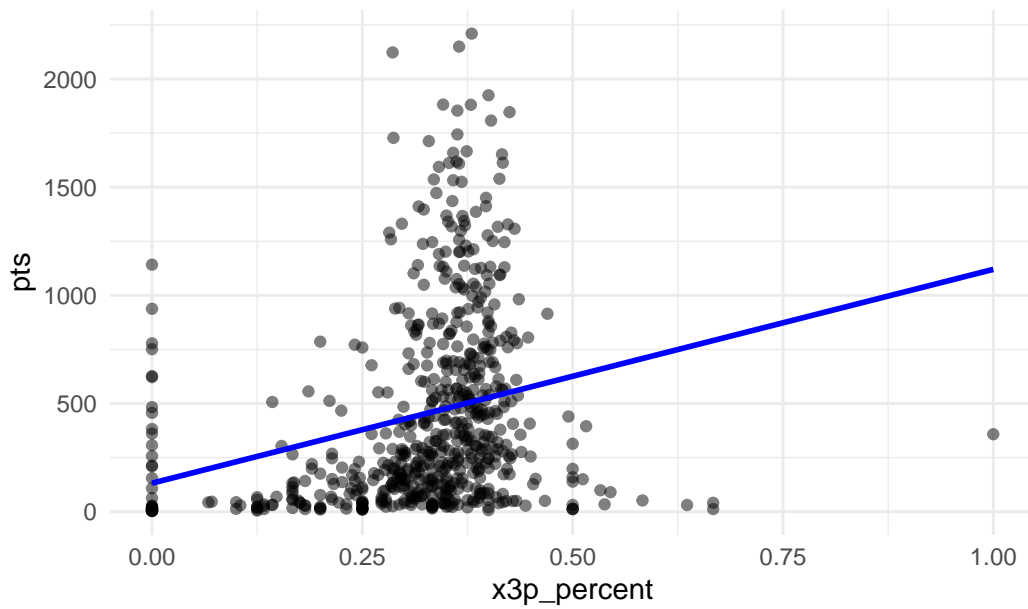
``geom_smooth()`` using formula = 'y ~ x'

Points vs fg_percent



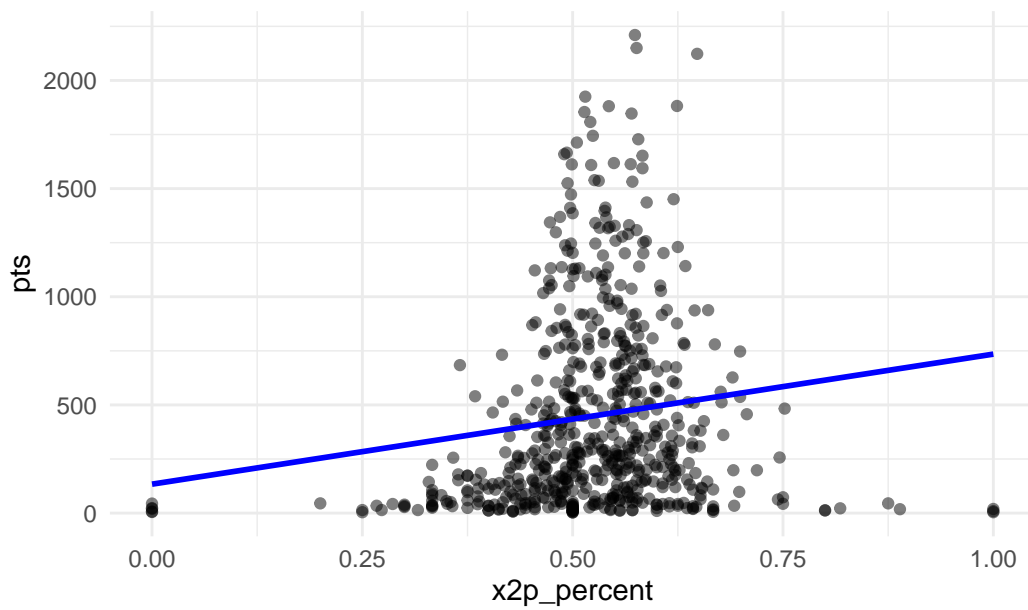
``geom_smooth()`` using formula = 'y ~ x'

Points vs x3p_percent

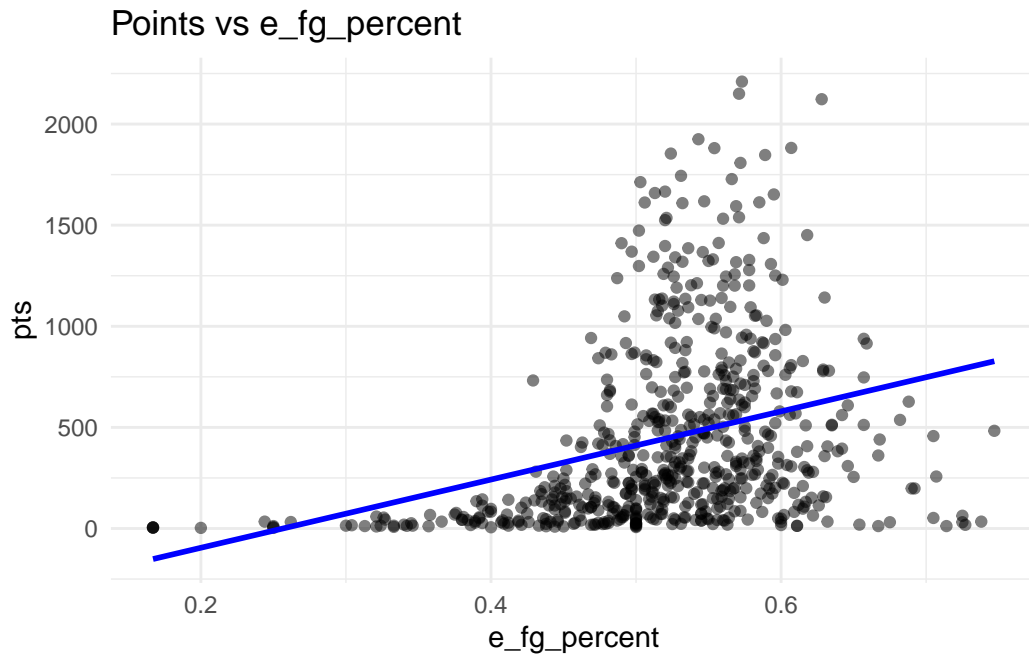


```
`geom_smooth()` using formula = 'y ~ x'
```

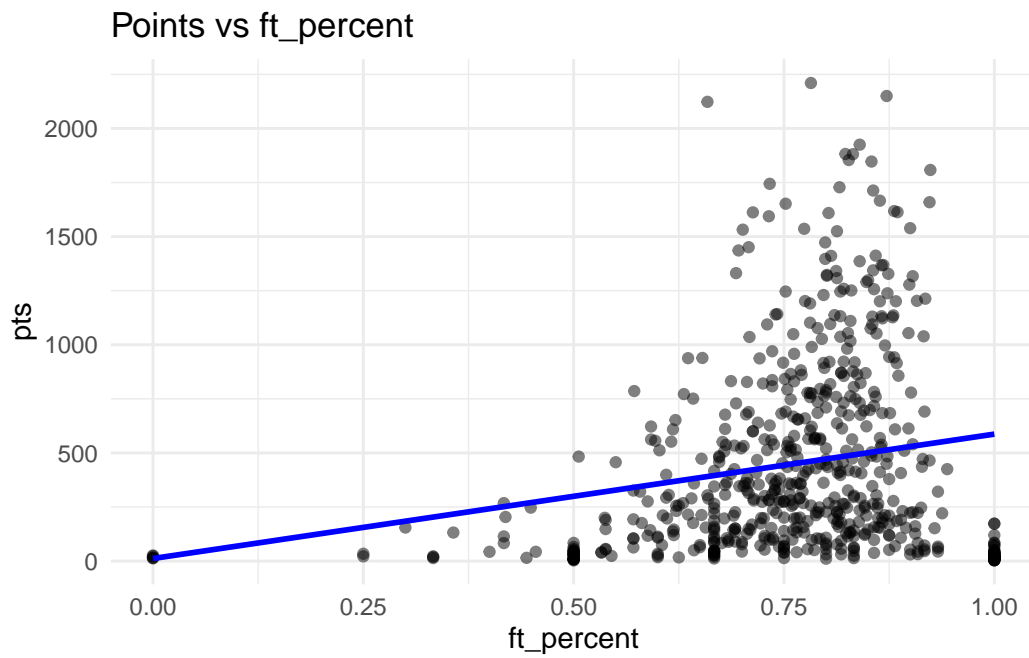
Points vs x2p_percent



```
`geom_smooth()` using formula = 'y ~ x'
```

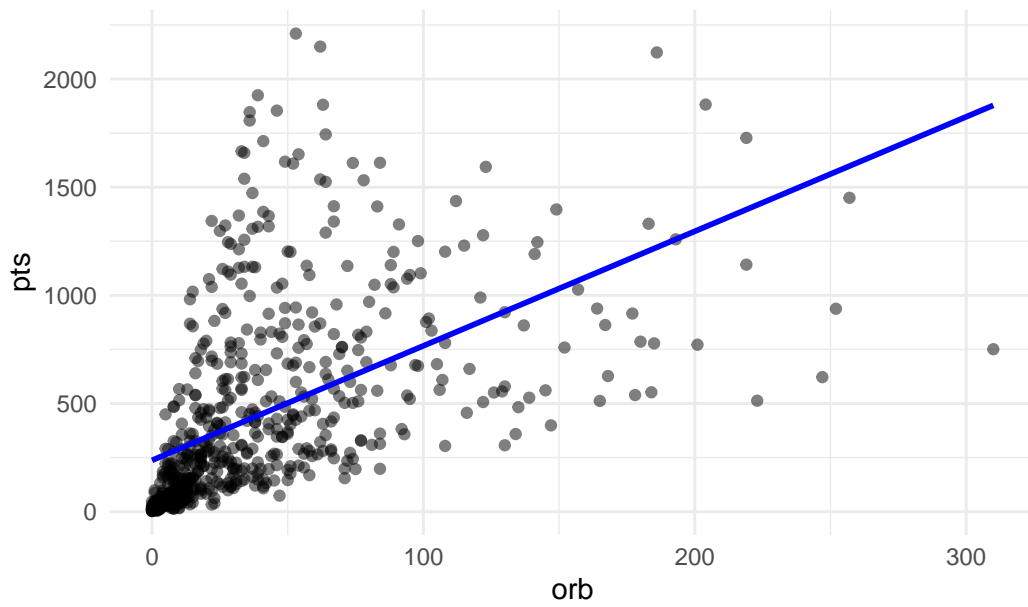


```
`geom_smooth()` using formula = 'y ~ x'
```



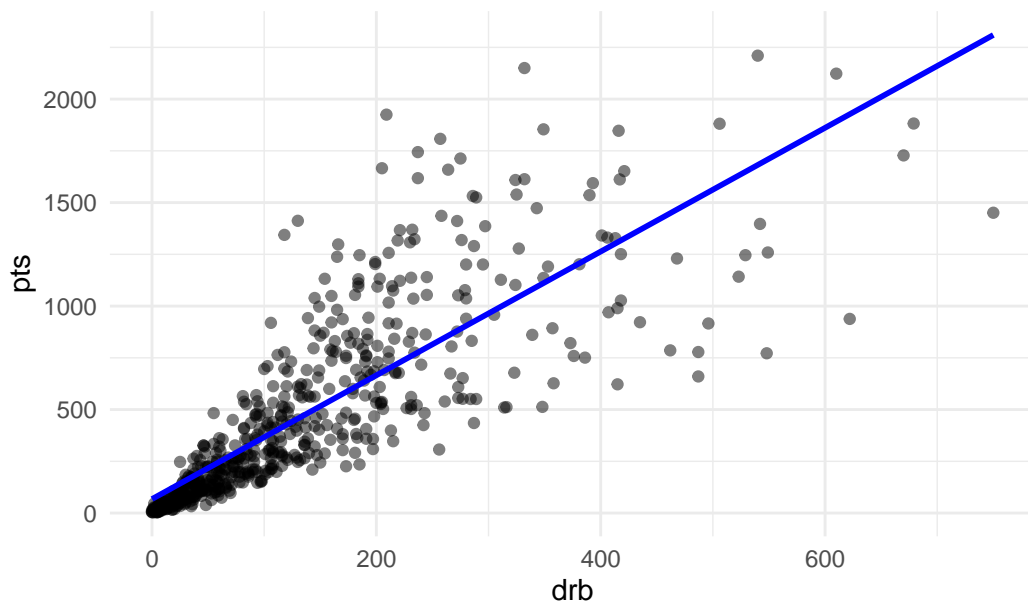
```
`geom_smooth()` using formula = 'y ~ x'
```


Points vs orb



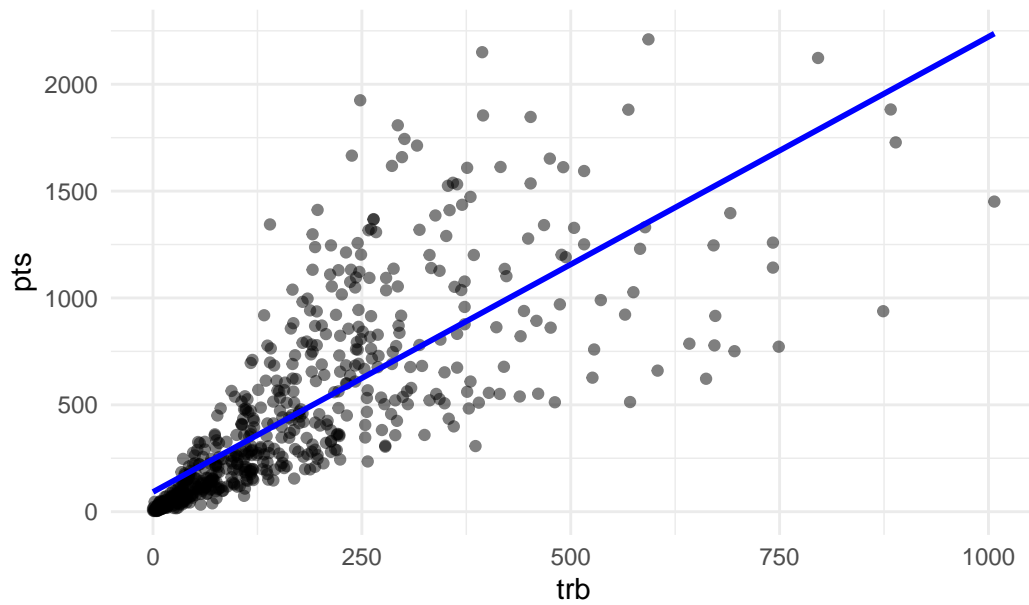
```
`geom_smooth()` using formula = 'y ~ x'
```

Points vs drb



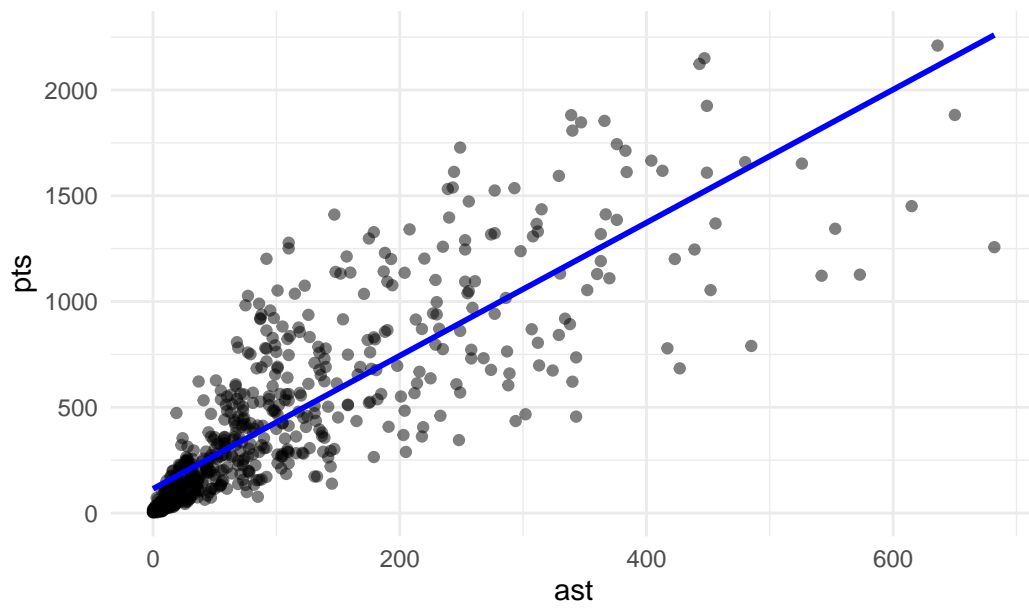
```
`geom_smooth()` using formula = 'y ~ x'
```

Points vs trb



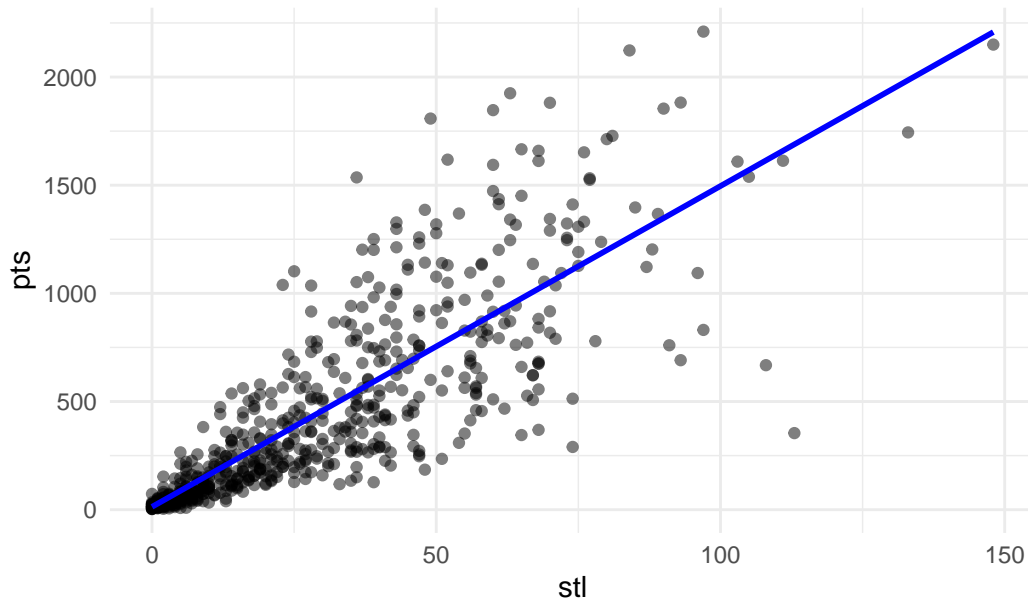
``geom_smooth()`` using formula = 'y ~ x'

Points vs ast



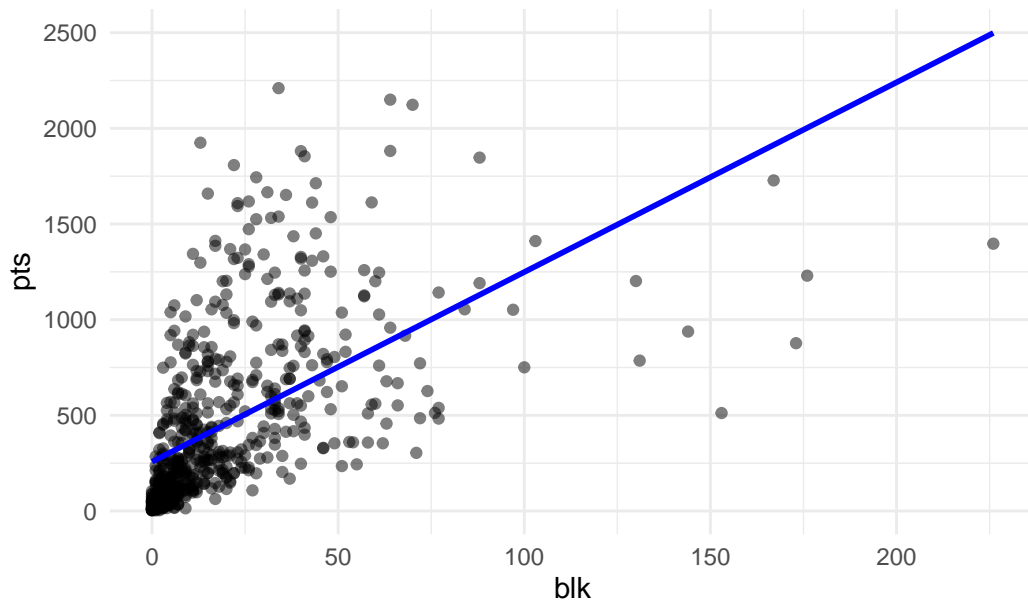
``geom_smooth()`` using formula = 'y ~ x'

Points vs stl



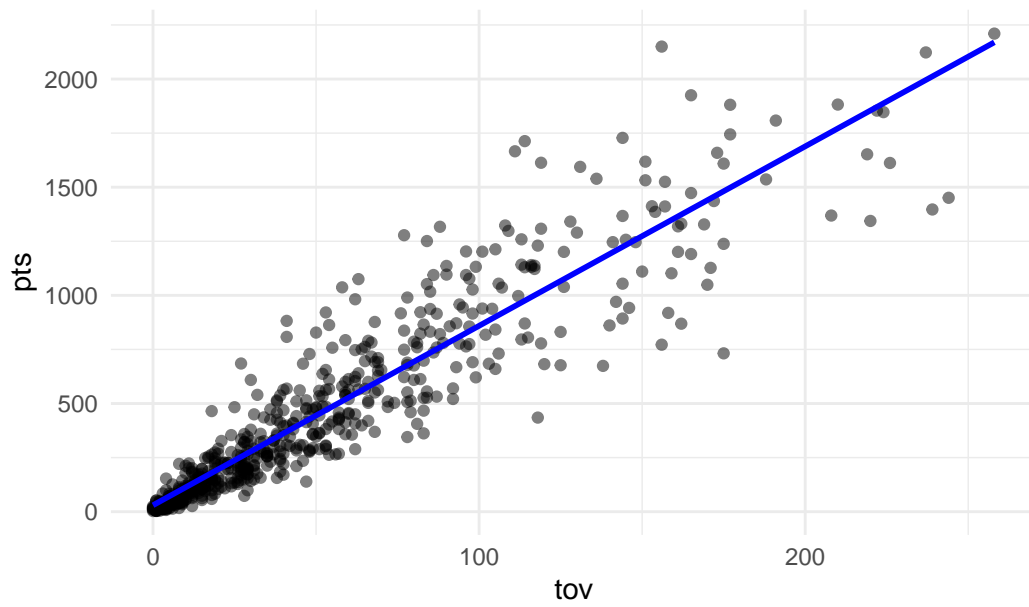
``geom_smooth()`` using formula = `'y ~ x'`

Points vs blk



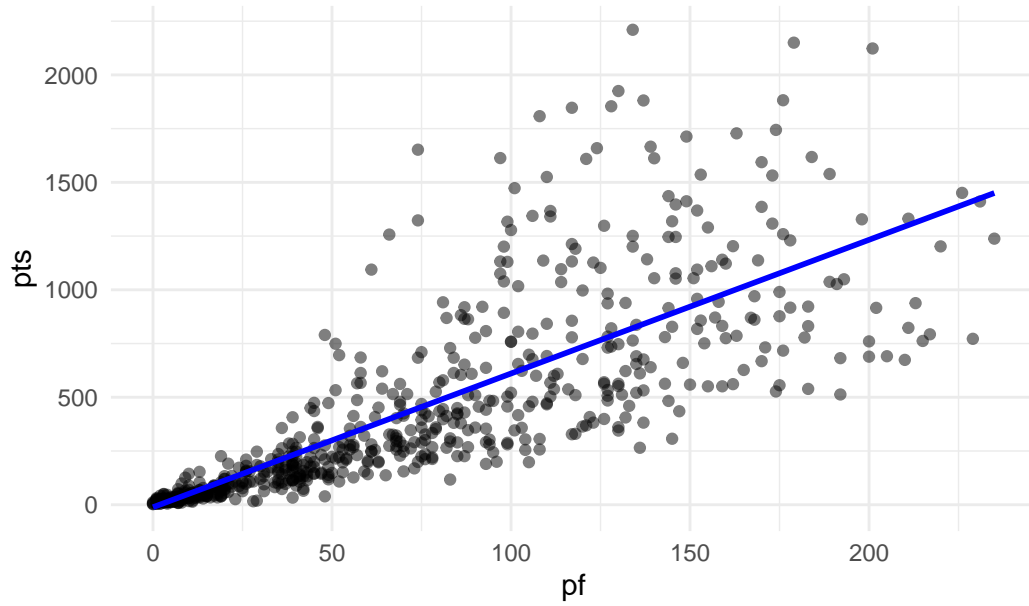
``geom_smooth()`` using formula = `'y ~ x'`

Points vs tov



``geom_smooth()`` using formula = `'y ~ x'`

Points vs pf



A Additional data details

B Model details

B.1 Posterior predictive check

In `?@fig-ppcheckandposteriorvsprior-1` we implement a posterior predictive check. This shows...

In `?@fig-ppcheckandposteriorvsprior-2` we compare the posterior with the prior. This shows...

B.2 Diagnostics

`?@fig-stanareyouokay-1` is a trace plot. It shows... This suggests...

`?@fig-stanareyouokay-2` is a Rhat plot. It shows... This suggests...

References

R Core Team. 2023. *R: A Language and Environment for Statistical Computing*. Vienna, Austria: R Foundation for Statistical Computing. <https://www.R-project.org/>.