Prediction lines

Shade level

-1

0

1

Mean height (z-scores)

2

1

0

-1

-1.0

-0.5

0.0

0.5

1.0

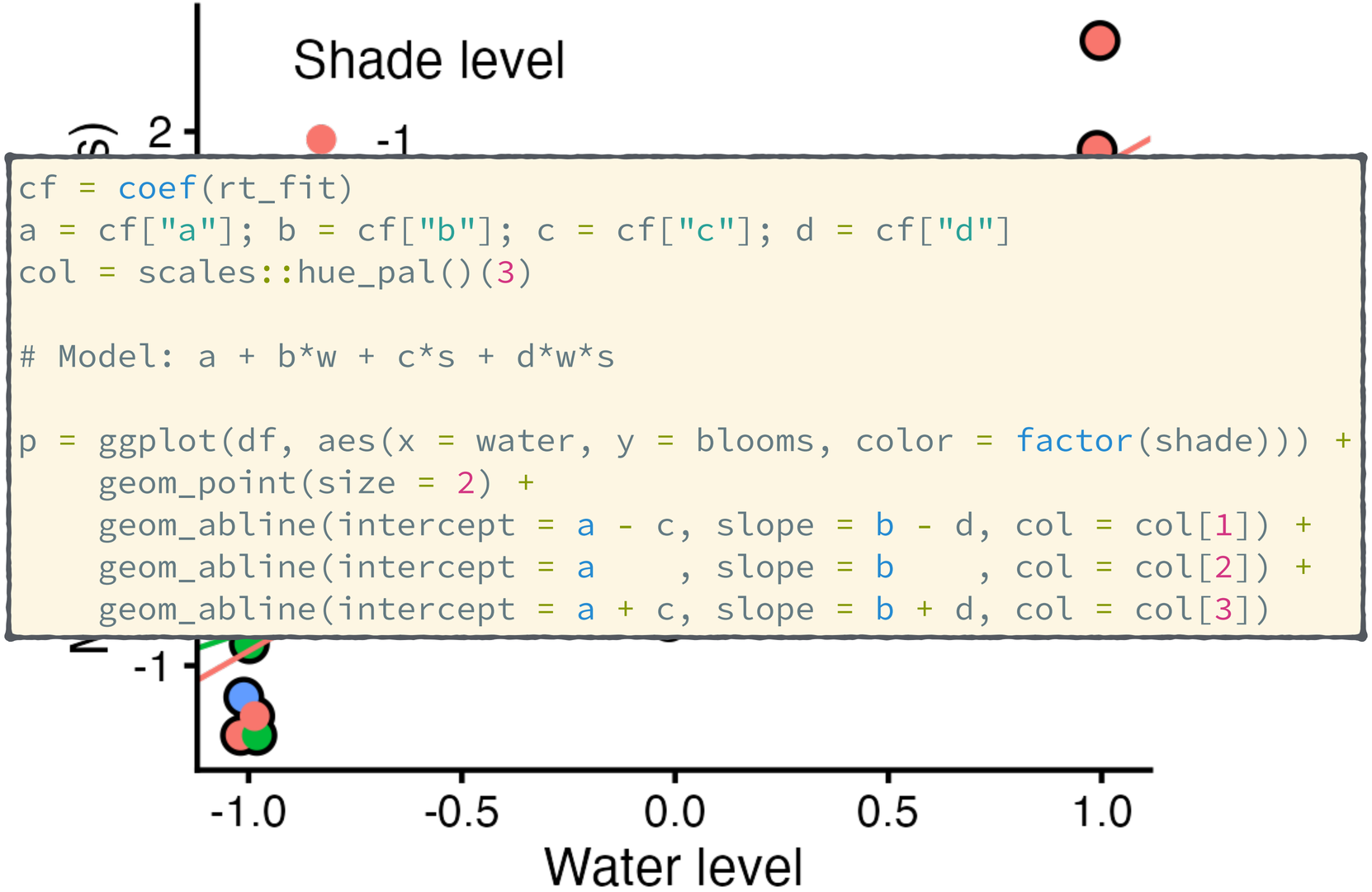
Water level

```r
cf = coef(rt_fit)
a = cf["a"]; b = cf["b"]; c = cf["c"]; d = cf["d"]
col = scales::hue_pal()(3)

# Model: a + b*w + c*s + d*w*s

p = ggplot(df, aes(x = water, y = blooms, color = factor(shade))) +
    geom_point(size = 2) +
    geom_abline(intercept = a - c, slope = b - d, col = col[1]) +
    geom_abline(intercept = a    , slope = b    , col = col[2]) +
    geom_abline(intercept = a + c, slope = b + d, col = col[3])
```

Prediction lines

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```

Summary

- Multiple linear models allow us to use more than one predictor in a linear model
- These models do a form of automatic **stratification**
  - **Ex:** difference in size for individuals of the same age, effect of treatment for individuals of the same size
- The objetive is to compare **like-to-like**

- Coefficients can and do change with the inclusion of more predictors
- Coefficient interpretation is hard, use plots, predictions, scaling and transformations to make models easier to interpret
- Next week, we talk about principled ways of choosing if a variable should be added to a model, stay tuned!