

# **An Example R Markdown Document**

(A Subtitle Would Go Here if This Were a Class)

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Where, 22 April, 2020

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# Outline

Pop Songs and Political Science

# Pop Songs and Political Science

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# Sheena Easton and Game Theory

Sheena Easton describes the following scenario for her baby:

1. Takes the morning train
2. Works from nine 'til five
3. Takes another train home again
4. Finds Sheena Easton waiting for him

# R Stuff

```
# A tibble: 10 x 10
  carat cut      color clarity depth table price      x      y      z
  <dbl> <ord>    <ord> <ord>  <dbl> <dbl> <int> <dbl> <dbl> <dbl>
1 0.23 Ideal    E     SI2    61.5   55   326  3.95  3.98  2.43
2 0.21 Premium  E     SI1    59.8   61   326  3.89  3.84  2.31
3 0.23 Good     E     VS1    56.9   65   327  4.05  4.07  2.31
4 0.290 Premium  I     VS2    62.4   58   334  4.2   4.23  2.63
5 0.31 Good     J     SI2    63.3   58   335  4.34  4.35  2.75
6 0.24 Very Good J     VVS2    62.8   57   336  3.94  3.96  2.48
7 0.24 Very Good I     VVS1    62.3   57   336  3.95  3.98  2.47
8 0.26 Very Good H     SI1    61.9   55   337  4.07  4.11  2.53
9 0.22 Fair     E     VS2    65.1   61   337  3.87  3.78  2.49
10 0.23 Very Good H     VS1    59.4   61   338  4     4.05  2.39
```

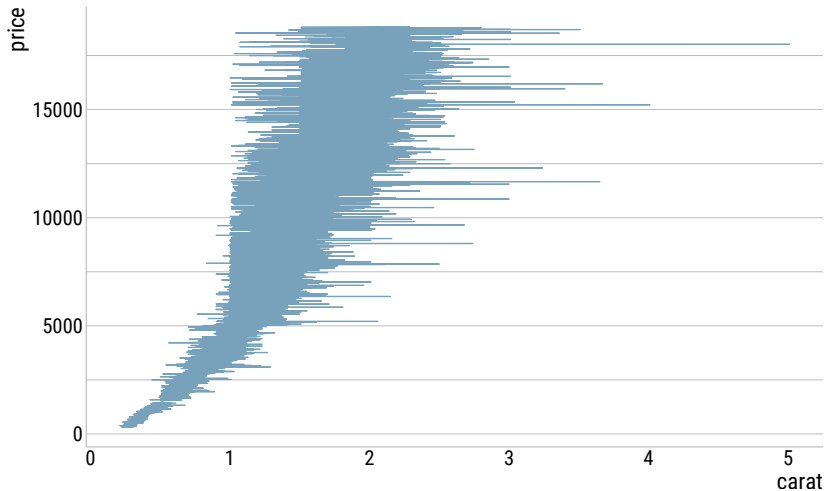
# R Stuff cont'd

Some text to compare font sizes on this slide.

```
library(psych)
desc <- as.data.frame(describeBy(d$price, d$color, mat = T, digits = 2))
kable(desc, booktabs = T) %>%
  kable_styling(latex_options = "scale_down")
```

	item	group1	vars	n	mean	sd	median	trimmed	mad	min	max	range	skew	kurtosis	se
X11	1	D	1	6775	3169.95	3356.59	1838.0	2457.57	1657.55	357	18693	18336	2.10	4.67	40.78
X12	2	E	1	9797	3076.75	3344.16	1739.0	2349.98	1537.46	326	18731	18405	2.17	4.89	33.79
X13	3	F	1	9542	3724.89	3784.99	2343.5	2974.69	2274.31	342	18791	18449	1.75	2.82	38.75
X14	4	G	1	11292	3999.14	4051.10	2242.0	3245.61	2277.27	354	18818	18464	1.50	1.72	38.12
X15	5	H	1	8304	4486.67	4215.94	3460.0	3755.13	3683.52	337	18803	18466	1.38	1.45	46.26
X16	6	I	1	5422	5091.87	4722.39	3730.0	4332.86	4067.51	334	18823	18489	1.16	0.42	64.13
X17	7	J	1	2808	5323.82	4438.19	4234.0	4721.87	4088.27	335	18710	18375	1.03	0.28	83.75

# Plot



# Rick Astley's Re-election Platform

Rick Astley's campaign promises:

- Never gonna give you up.
- Never gonna let you down.
- Never gonna run around and desert you.
- Never gonna make you cry.
- Never gonna say goodbye.
- Never gonna tell a lie and hurt you.

Are these promises (if credible) sufficient to secure re-election?



# Rick Astley and Median Voter Theorem

Whereas these pledges conform to the preferences of the **median voter**, we expect Congressman Astley to secure re-election.

# Caribbean Queen and Operation Urgent Fury

Billy Ocean released “Caribbean Queen” in 1984.

- Emphasized sharing the same dream
- Hearts beating as one

“Caribbean Queen” is about the poor execution of Operation Urgent Fury.

- Echoed JCS chairman David Jones’ frustrations with military establishment.

Billy Ocean is advocating for what became the Goldwater-Nichols Act.

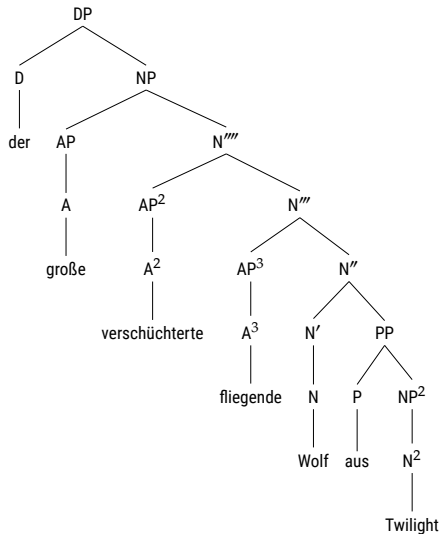
- Wanted to take advantage of **economies of scale**, resolve **coordination problems** in U.S. military.

# The Good Day Hypothesis

We know the following about Ice Cube's day.

1. The Lakers beat the Supersonics.
2. No helicopter looked for a murder.
3. Consumed **Fatburger** at 2 a.m.
4. Goodyear blimp: "Ice Cube's a pimp." Heim & Kratzer (1998)
5. (Posner 1980, Hintikka 1969, Gries 2013, Grice 1989, Groenendijk & Stokhof 1984)

# The Good Day Hypothesis



# The Good Day Hypothesis

Colorless green ideas sleep furiously

(Noam Chomsky)

## Functional Application (FA)

H&K:49

Wenn  $\alpha$  ein verzweigender Knoten ist,  $\{\beta, \gamma\}$  die Menge von  $\alpha$ 's Töchtern ist und  $\llbracket \beta \rrbracket$  eine Funktion ist, dessen Domäne  $\llbracket \gamma \rrbracket$  enthält, dann  $\llbracket \alpha \rrbracket = \llbracket \beta \rrbracket(\llbracket \gamma \rrbracket)$ .

# Semantics

## (1) Lexikoneinträge

$$\llbracket \text{not} \rrbracket = \lambda p \in D_t . p = 0$$

$$\llbracket \text{Carla} \rrbracket = \text{Carla}$$

$$\llbracket \text{invite} \rrbracket = \lambda x \in D_e . [\lambda y \in D_e . y \text{ lädt } x \text{ ein}]$$

$$\llbracket \text{a} \rrbracket = \lambda f \in D_{\langle e, t \rangle} . [\lambda g \in D_{\langle e, t \rangle} . \text{es gibt ein } x, \text{ sodass } f(x) = 1 \text{ und } g(x) = 1]$$

$$\llbracket \text{politician} \rrbracket = \lambda x \in D_e . x \text{ ist ein Politiker}$$

# The Good Day Hypothesis

This leads to two different hypotheses:

- $H_0$ : Ice Cube's day is statistically indistinguishable from a typical day.
- $H_1$ : Ice Cube is having a good (i.e. greater than average) day.

These hypotheses are tested using archival data of Ice Cube's life.

1. Color:  $F(6, 53905) = 103.61, MSE = 15,216,972.28, p < .001, \hat{\eta}_G^2 = .011$
2. Cut:  $F(4, 53905) = 144.40, MSE = 15,216,972.28, p < .001, \hat{\eta}_G^2 = .011$
3. Color:Cut:  $F(24, 53905) = 4.53, MSE = 15,216,972.28, p < .001, \hat{\eta}_G^2 = .002$

Table 1: Test Table

Effect	$F$	$df_1$	$df_2$	$MSE$	$p$	$\hat{\eta}_G^2$
Color	103.61	6	53905	15,216,972.28	< .001	.011
Cut	144.40	4	53905	15,216,972.28	< .001	.011
Color $\times$ Cut	4.53	24	53905	15,216,972.28	< .001	.002



# All Code

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# All The Code I Used

```
d <- diamonds
head(diamonds, 10)
library(psych)
desc <- as.data.frame(describeBy(d$price, d$color, mat = T, digits = 2))
kable(desc, booktabs = T) %>%
  kable_styling(latex_options = "scale_down")
ggplot(d, aes(x = carat, y = price)) +
  stat_summary(fun.y = mean, geom = "line", color = mygreen) +
  theme_maik()
diamonds$id <- 1:length(diamonds$carat)

fit <- aov_ez("id", "price", between = c("color", "cut"), data = diamonds)
```

- Grice, H. Paul. 1989. *Studies in the way of words*. Cambridge, MA: Harvard University Press.
- Gries, Stefan T. 2013. *Statistics for linguistics with R: a practical introduction*. Berlin: de Gruyter Mouton.
- Groenendijk, Jeroen & Martin Stokhof. 1984. *Studies on the semantics of questions and the pragmatics of answers*. University of Amsterdam dissertation.
- Heim, Irene & Angelika Kratzer. 1998. *Semantics in generative grammar*. Oxford: Blackwell.
- Hintikka, Jaakko. 1969. Semantics for propositional attitudes. In *Models for modalities*, 87–111. Dordrecht: Springer.
- Posner, Roland. 1980. Semantics and pragmatics of sentence connectives in natural language. In John R Searle, Ferenc Kiefer & Manfred Bierwisch (eds.), *Speech act theory and pragmatics*, 168–203. Dordrecht: Reider.