Replication Project:
The Curse of Knowledge in Reasoning about False Beliefs

Originally Conducted by Susan Birch and Paul Bloom

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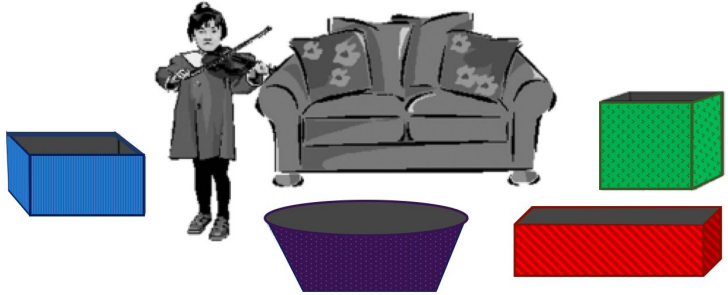
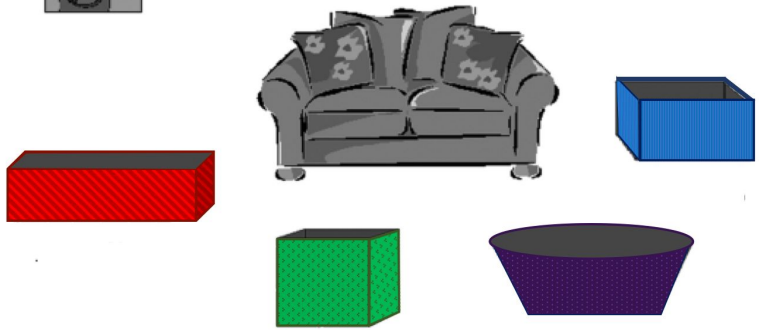
This is Vicki. She finishes playing her violin and puts it in the blue container. Then she goes outside to play.



While Vicki is outside playing, her sister, Denise, moves the violin to another container.

Then, Denise rearranges the containers in the room until the room looks like the picture below.



When Vicki returns, she wants to play her violin. What are the chances Vicki will first look for her violin in each of the above containers?

Original study

- Birch and Bloom implemented a between-subjects design
- n ~ 52 college students per condition (45% male)
    - Ignorance
    - Knowledge-plausible
- Yale University students were asked to report on the percent probability that Vicki would check in each of the following containers following the displacement

Claims

Target aim

“[participants] assigned significantly higher probabilities to the red container than did subjects in the ignorance conditions”

Exploratory aims

“[participants] assigned significantly lower probabilities to the blue container than did subjects in the ignorance condition”

No statistically significant differences between the purple and green containers

TABLE 1

Mean Probability Judgments That Vicki Will Look in Each of the Containers

Container	Condition		
	Ignorance	Knowledge-plausible	Knowledge-implausible
Blue (where the violin was originally)	71% (26%)	59% (27%)	73% (29%)
Red (occupies the location where the violin was originally)	23% (22%)	34% (25%)	19% (21%)
Purple (occupies a location different from where the violin was originally)	2% (5%)	3% (5%)	6% (16%)
Green (occupies a location different from where the violin was originally)	3% (7%)	4% (7%)	3% (5%)

Note. Standard deviations are given in parentheses.

Pilot B

Mean Probability Judgments That Vicki Will Look in Each of the Containers

N = 6	Condition	
Container	Ignorance	Knowledge-plausible
Blue	35.3% (30.8%)	68.3% (33.3%)
Red	31.7% (19.0%)	31.7% (33.3%)
Purple	22.0% (19.1%)	0.0% (0.0%)
Green	0.0% (0.0%)	18.7% (16.9%)

MTurk sample

Conducted this survey via MTurk

- Final sample consisted of 73 participants (n = 63% male)

M_{age} = 33.44; *sd* = 8.78

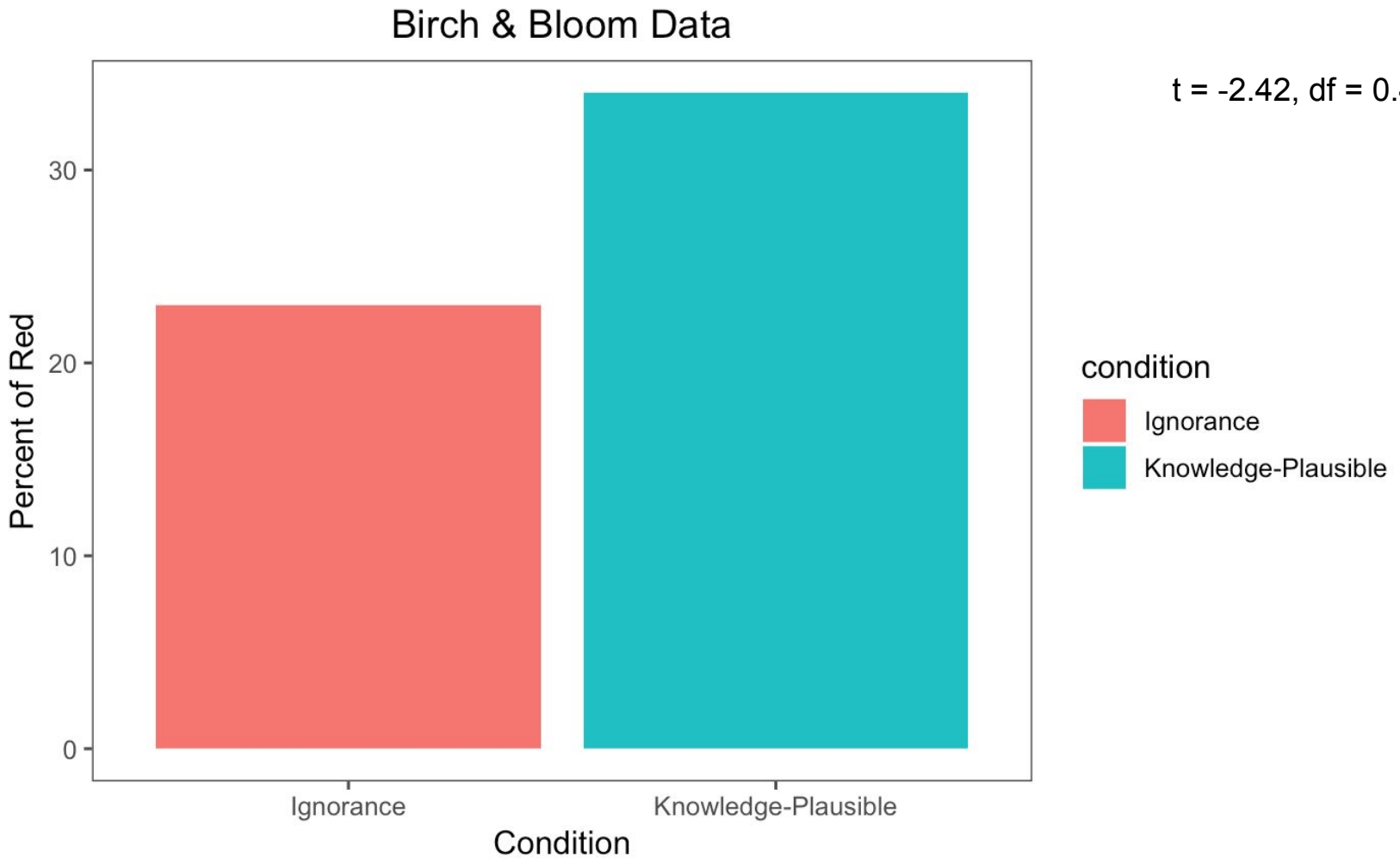
Ignorance (n = 38) knowledge-plausible (n = 35)

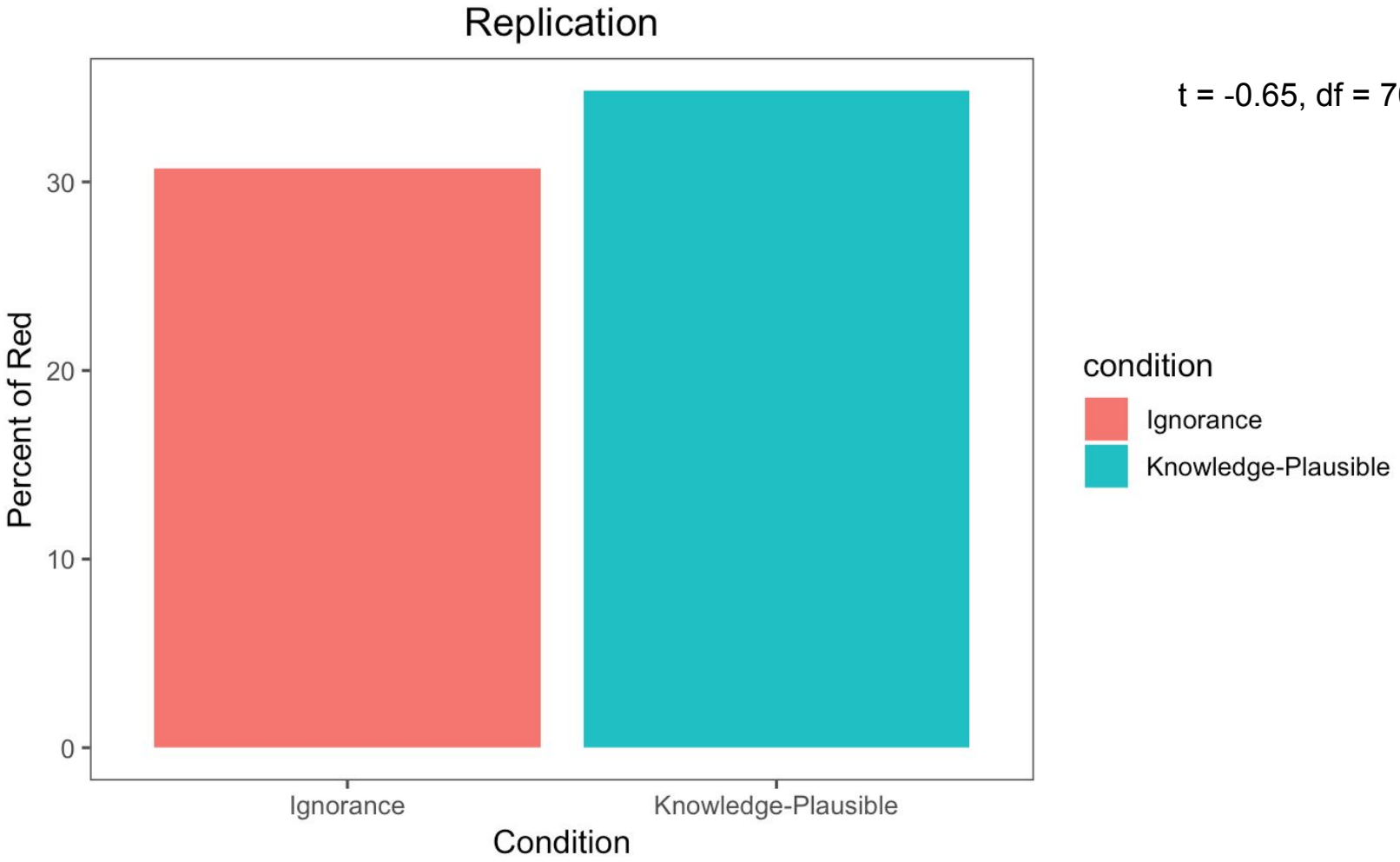
Exclusion criteria

- Color blindness (n = 6)
- Did not complete high school (n = 1)

Mean Probability Judgments That Vicki Will Look in Each of the Containers

N = 73	Condition	
Container	Ignorance	Knowledge-plausible
Blue	56.53 (36.11%)	49.69 (30.84%)
Red	30.74 (29.35%)	34.83 (24.33%)
Purple	12.29 (18.95%)	11.46 (18.75%)
Green	9.37 (14.29%)	10.17 (16.81%)


Birch & Bloom Data
30
20
10
0
Percent of Red
Ignorance
Knowledge-Plausible
Condition
t = -2.42, df = 0.47, p = .017
condition
Ignorance
Knowledge-Plausible


Replication
Percent of Red
30
20
10
0
Ignorance
Knowledge-Plausible
Condition
t = -0.65, df = 70.25, p = .518
condition
Ignorance
Knowledge-Plausible

Failed attention check
Reported <100 n = 1
Reported >100 n = 4

After attention check

- Blue container: **(t = 1.00, df = 65.20, p = .321)**

  (t = 0.87, df = 70.61, p = .386)

- Red container: **(t = -1.09, df = 65.74, p = .282)**

  (t = -0.65, df = 70.25, p = .518)

- Purple container: **(t = -0.30, df = 62.31, p = .764)**

  (t = 0.19, df = 70.63, p = .851)

- Green container: **(t = -0.19, df = 59.95, p = .849)**

  (t = -0.22, df = 67.04, p = .827)

Differences from the original sample

- Conducted via MTurk rather than in person
- Greater proportion of males
- Participants were significantly older
- Potential differences in educational attainment

Conclusions

- The target finding (the red container reported probability percent) from Birch and Bloom's *The Curse of Knowledge in Reasoning About False Beliefs* did not replicate
- An exploratory finding (the blue container reported probability percent) from the author's article also did not replicate
- However, we also found that there were no significant differences between reported probability percents across the purple and green containers