

Many Labs 2

Investigating Variation in Replicability across Sample and Setting

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LIP/PC2S

Université Grenoble Alpes

2018-12-12 (updated: 2018-12-12)

Many Labs 2

Replication Crisis

Replication Crisis

From cause for concern...

Replication Crisis

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Open access, freely

Essay

Why Most Published Research Findings Are False

John P. A. Ioannidis

Journal of Personality and Social Psychology
2011, Vol. 100, No. 3, 407–425

© 2011 American Psychological Association
0022-3514/11/\$12.00 DOI: 10.1037/a0021524

Feeling the Future: Experimental Evidence for Anomalous Retroactive Influences on Cognition and Affect

Daryl J. Bem
Cornell University

False-Positive Psychology: Undisclosed Flexibility in Data Collection and Analysis Allows Presenting Anything as Significant

Joseph P. Simmons¹, Leif D. Nelson², and Uri Simonsohn¹

¹The Wharton School, University of Pennsylvania, and ²Haas School of Business, University of California, Berkeley

Replication Crisis

...to evidence of a problem...

- [redacted] (OSC, 2015)
 - ~40/100 studies replicated
- [redacted] (Camerer et al., 2018)
 - 13/21 replicated
- [redacted]

Replication Crisis

...to addressing the problem

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- What we know:
 - It's easy to fool yourself with data ($p < .05$).

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- What we don't know:
 - Very much about replication.

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- What we don't know:
 - Very much about replication.
 - Must improve understanding to inform solutions

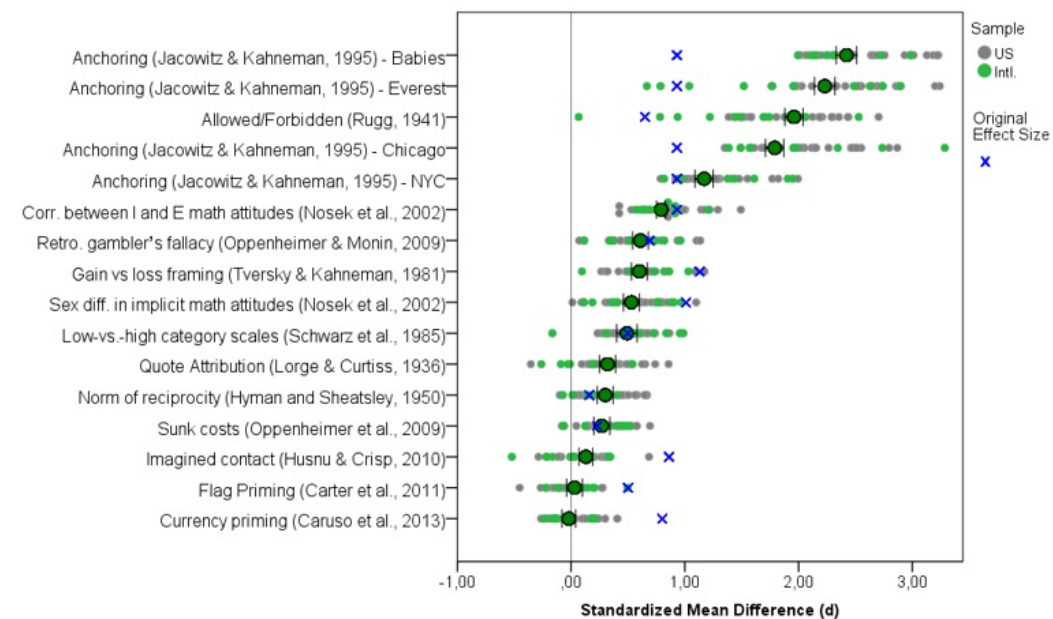
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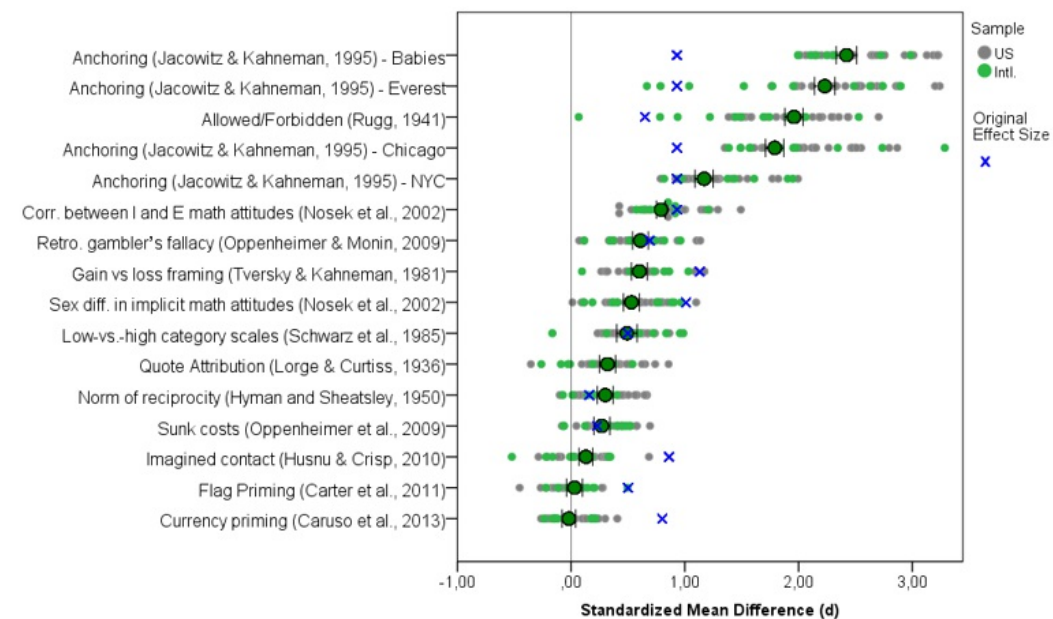
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 - 36 labs
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 - Little variation between samples



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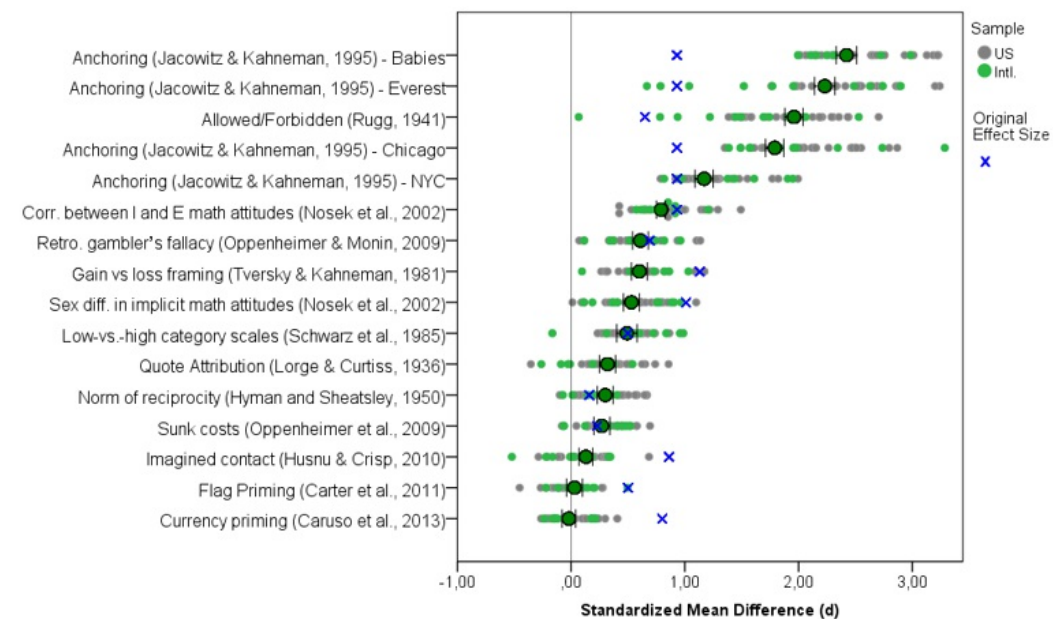
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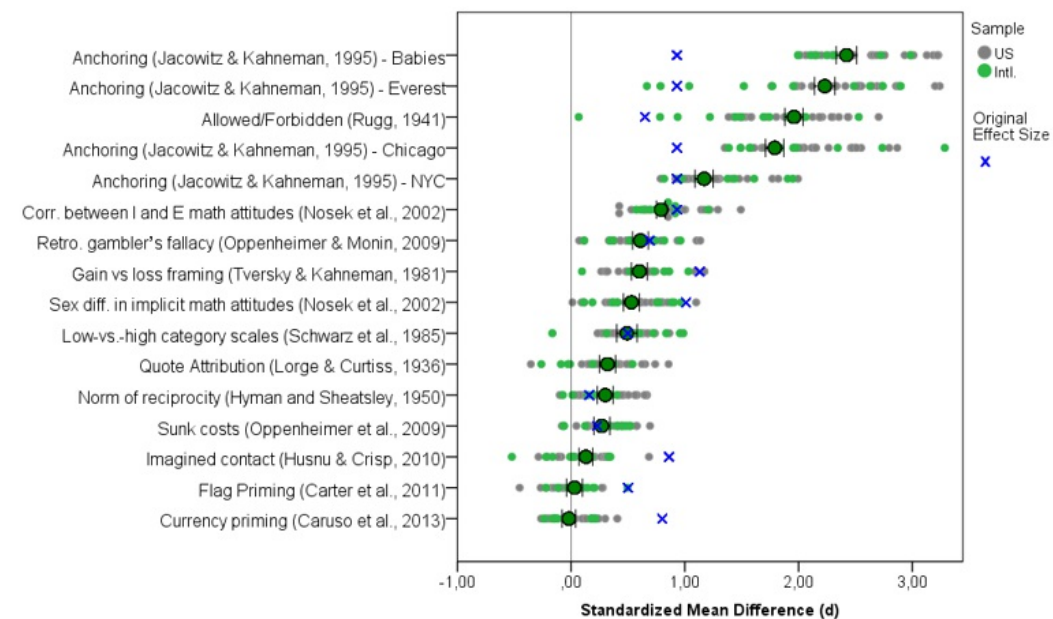
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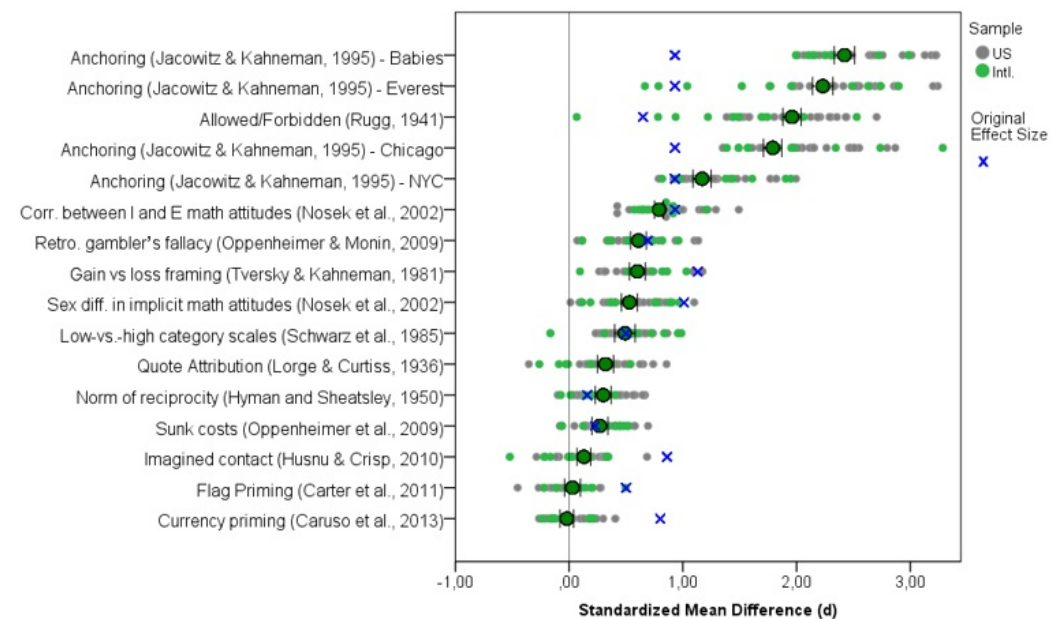
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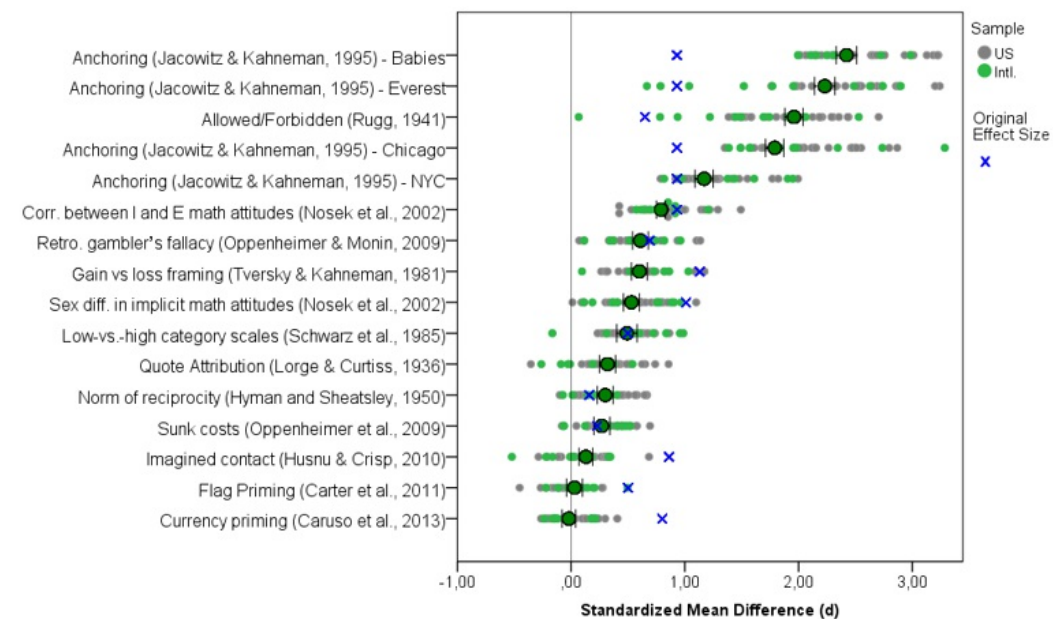
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- Also: [redacted] (IJzerman et al.), [redacted], [redacted], [redacted], [redacted], [redacted], [redacted], [redacted], [redacted], [redacted]



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- Question: Will psychology studies replicate when they're repeated in contexts and samples very different from the original?
- Goal: Replicate many different studies all around the world and compare if they vary based on the sample of data collection.
- Replicated 28 studies
 - Selected for impact, diversity of content, possibility for variation
 - Split across two study "packages" due to length
 - Computerized in Qualtrics
 - Randomized study order, presented back-to-back

Many Labs 2 Hsee example



Coats range from \$100-\$1000

Your friend buys you a \$110 coat



Scarves range from \$10-\$100

Your friend buys you a \$90 scarf

How generous was your friend?

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- Administer identical study package across as many diverse samples as possible

Many Labs 1 Map



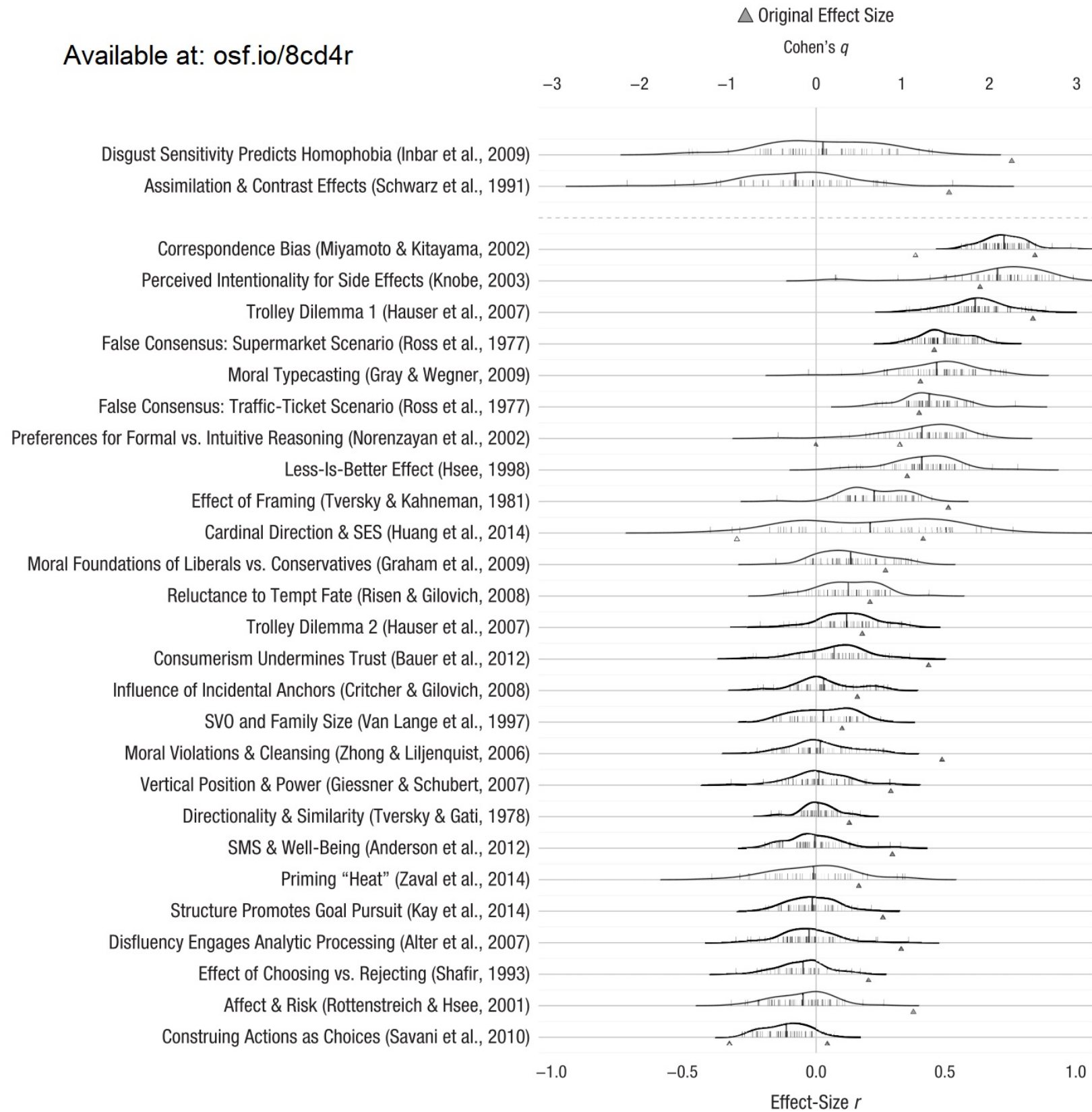
Many Labs 2 Map



Many Labs 2

- 125 samples (each study administered in 60+)
- 36 countries, translated into 16 languages
- 15,305 participants total

Available at: osf.io/8cd4r



Many Labs 2 Results

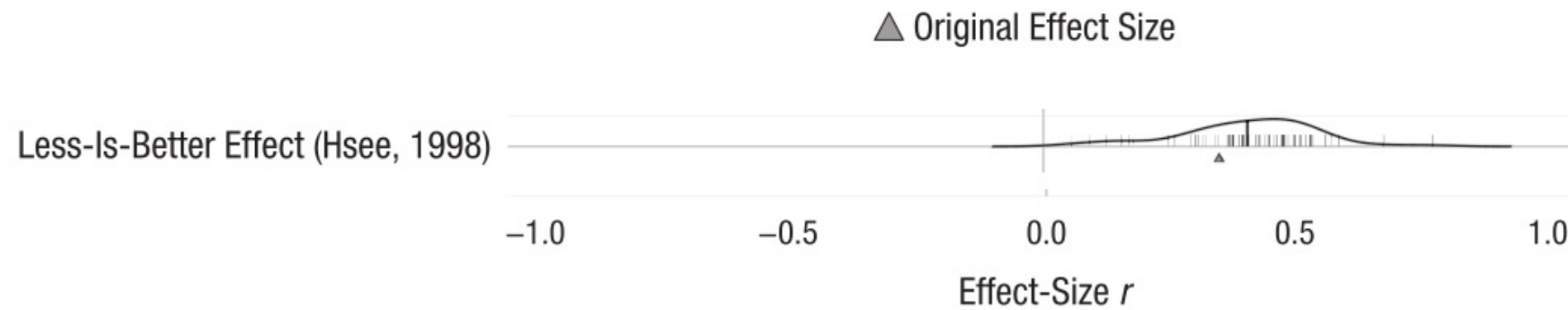
Many Labs 2 Results

- 14/28 successful replications
 - $p < .0001$, non-trivial effect size, same direction as original
 - One additional weakly supported: $p = .03$

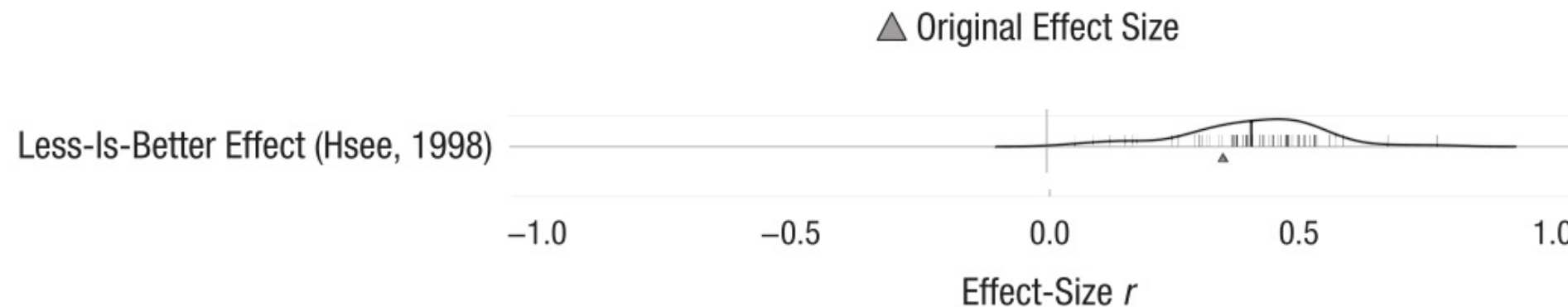
Many Labs 2 Results

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 - $p < .0001$, non-trivial effect size, same direction as original
 - One additional weakly supported: $p = .03$
- 21/28 had smaller effect size than original
 - Median original $d = 0.60$
 - Median replication $d = 0.15$

Many Labs 2 Heterogeneity

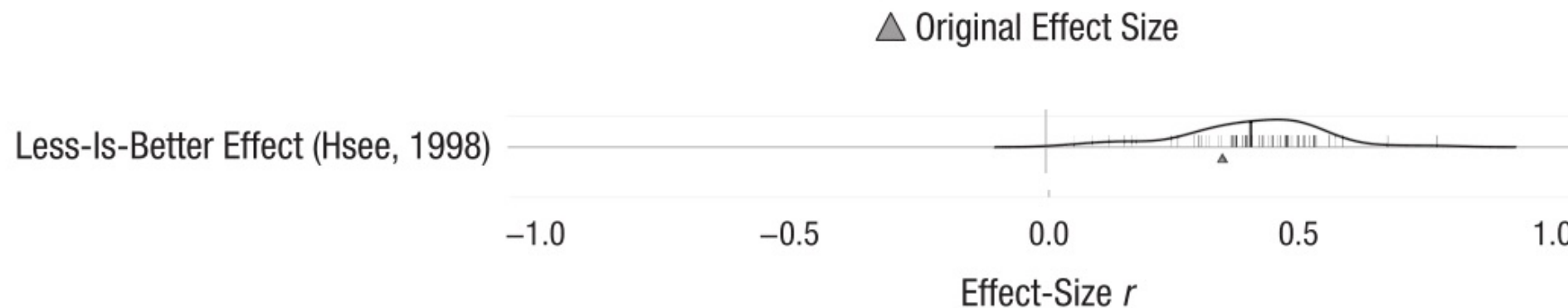


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- Q statistic: 11/28 had $p < .001$ (statistically significant heterogeneity)
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 - For 11 studies, observed variability across sites exceeded that which would be expected due to chance.
- However: 26/28 $\text{Tau} \leq 0.1$
 - Variability across sites existed, but only had a very small effect (except for 1 or 2 studies)

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 - Not reasonable to discount replications by default based on sample
 - Instead, test moderators empirically
- Replication rate aligns with other projects
 - Is this meaningful?
- Many studies replicate robustly (and robust replicability is a feasible goal)
 - Reinforces need for solutions to ensure replicability
- Open data: <https://osf.io/8cd4r/>
 - CC0, free use (any purpose)
 - We barely scratched surface

Thanks!

Special thanks to co-leads Fred Hasselman, Michelangelo Vianello, and Brian Nosek + 186 other co-authors.

Questions/comments?

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<https://www.raklein.me>



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IDEX Université Grenoble Alpes

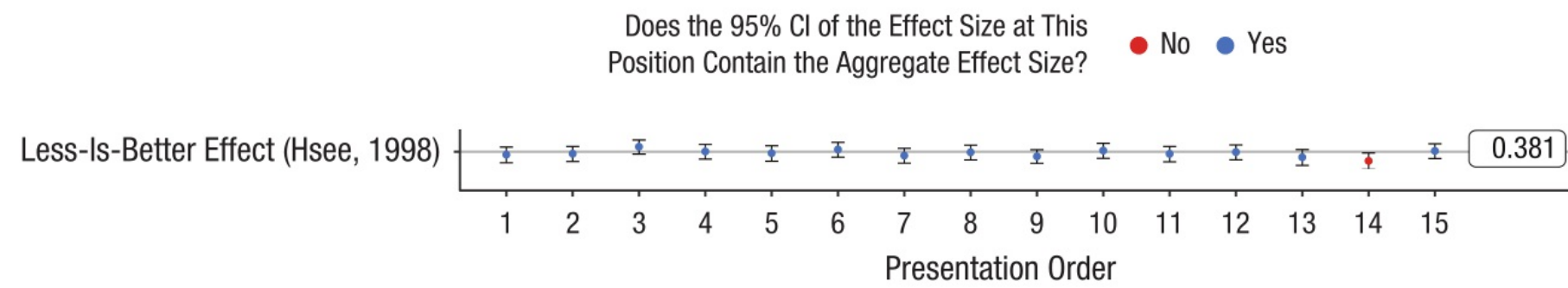




Table 3. Results of Heterogeneity Tests for Each of the 28 Effects

Effect	ES ^a	All samples (no moderators)					
		Tau	<i>Q</i>	<i>df</i>	<i>p</i>	<i>I</i> ²	
							Cohen's <i>q</i> effect size
Disgust sensitivity predicts homophobia (Inbar, Pizarro, Knobe, & Bloom, 2009)	0.05	.00	55.80	58.00	.56	3.00%	[0%, 30%]
Assimilation and contrast effects in question sequences (Schwarz, Strack, & Mai, 1991)	−0.07	.10	60.39	58.00	.39	15.00%	[0%, 33%]
							Cohen's <i>d</i> effect size
Correspondence bias (Miyamoto & Kitayama, 2002)	1.82	.00	235.65	57.00	< .001	65.00%	[46%, 73%]
Perceived intentionality for side effects (Knobe, 2003)	1.75	.14	631.72	58.00	< .001	93.00%	[92%, 97%]
Trolley Dilemma 1: principle of double effect (Hauser, Cushman, Young, Jin, & Mikhail, 2007)	1.35	.10	131.24	58.00	< .001	54.00%	[32%, 66%]
False Consensus: supermarket scenario (Ross, Greene, & House, 1977)	1.18	.00	65.54	58.00	.23	16.00%	[0%, 41%]
Moral typecasting (Gray & Wegner, 2009)	0.95	.10	203.30	59.00	< .001	73.00%	[62%, 83%]
False Consensus: traffic-ticket scenario (Ross et al., 1977)	0.95	.00	100.19	57.00	< .001	43.00%	[18%, 62%]
Preferences for formal versus intuitive reasoning (Norenzayan, Smith, Kim, & Nisbett, 2002)	0.86	.10	156.75	56.00	< .001	66.00%	[54%, 81%]
Less is better (Hsee, 1998)	0.78	.10	158.41	56.00	< .001	65.00%	[49%, 77%]
Effect of framing on decision making (Tversky & Kahneman, 1981)	0.40	.00	55.20	54.00	.43	6.00%	[0%, 36%]
Cardinal direction and socioeconomic status (Huang, Tse, & Cho, 2014)	0.40	.24	626.26	63.00	< .001	89.00%	[84%, 92%]
Moral foundations of liberals versus conservatives (Graham, Haidt, & Nosek, 2009)	0.29	.09	175.26	59.00	< .001	64.00%	[49%, 75%]
Reluctance to tempt fate (Risen & Gilovich, 2008)	0.18	.00	87.82	58.00	.01	36.00%	[6%, 54%]

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Trolley Dilemma 2: principle of double effect (Hauser et al., 2007)	0.25	.00	60.40	59.00	.42	12.00%	[0%, 33%]
Consumerism undermines trust (Bauer, Wilkie, Kim, & Bodenhausen, 2012)	0.12	.00	63.78	53.00	.15	12.00%	[0%, 49%]
Influence of incidental anchors on judgment (Critcher & Gilovich, 2008)	0.04	.00	64.88	58.00	.25	6.00%	[0%, 43%]
Social value orientation and family size (Van Lange, Otten, De Bruin, & Joireman, 1997)	−0.03	.00	103.56	53.00	< .001	50.00%	[28%, 68%]
Moral violations and desire for cleaning (Zhong & Liljenquist, 2006)	0.00	.00	65.59	51.00	.08	22.00%	[0%, 52%]
Vertical position and power (Giessner & Schubert, 2007)	0.03	.00	62.87	58.00	.31	3.00%	[0%, 42%]
Directionality and similarity (Tversky & Gati, 1978)	0.01	.00	15.33	48.00	.99	0.00%	[0%, 0%]
Sociometric status and well-being (Anderson, Kraus, Galinsky, & Keltner, 2012)	−0.04	.00	55.09	58.00	.58	2.00%	[0%, 30%]
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Structure promotes goal pursuit (Kay, Laurin, Fitzsimons, & Landau, 2014)	−0.02	.00	33.95	51.00	.97	0.00%	[0%, 2%]
Disfluency engages analytic processing (Alter, Oppenheimer, Epley, & Eyre, 2007)	−0.03	.00	59.46	65.00	.67	0.00%	[0%, 27%]
Effect of choosing versus rejecting on relative desirability (Shafir, 1993)	−0.13	.00	51.67	40.00	.10	26.00%	[0%, 52%]
Affect and risk (Rottenstreich & Hsee, 2001)	−0.08	.00	50.75	59.00	.77	0.00%	[0%, 21%]
Construing actions as choices (Savani, Markus, Naidu, Kumar, & Berlia, 2010)	−0.18	.00	155.49	56.00	< .001	64.00%	[47%, 76%]

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Influence of incidental anchors on judgment (Critcher & Gilovich, 2008)	0.04	.00	64.88	58.00	.25	6.00% [0%, 43%]
Social value orientation and family size (Van Lange, Otten, De Bruin, & Joireman, 1997)	−0.03	.00	103.56	53.00	< .001	50.00% [28%, 68%]
Moral violations and desire for cleaning (Zhong & Liljenquist, 2006)	0.00	.00	65.59	51.00	.08	22.00% [0%, 52%]
Vertical position and power (Giessner & Schubert, 2007)	0.03	.00	62.87	58.00	.31	3.00% [0%, 42%]
Directionality and similarity (Tversky & Gati, 1978)	0.01	.00	15.33	48.00	.99	0.00% [0%, 0%]
Sociometric status and well-being (Anderson, Kraus, Galinsky, & Keltner, 2012)	−0.04	.00	55.09	58.00	.58	2.00% [0%, 30%]
Priming “heat” increases belief in global warming (Zaval, Keenan, Johnson, & Weber, 2014)	−0.03	.10	72.96	46.00	.01	37.00% [8%, 63%]
Structure promotes goal pursuit (Kay, Laurin, Fitzsimons, & Landau, 2014)	−0.02	.00	33.95	51.00	.97	0.00% [0%, 2%]
Disfluency engages analytic processing (Alter, Oppenheimer, Epley, & Eyre, 2007)	−0.03	.00	59.46	65.00	.67	0.00% [0%, 27%]
Effect of choosing versus rejecting on relative desirability (Shafir, 1993)	−0.13	.00	51.67	40.00	.10	26.00% [0%, 52%]
Affect and risk (Rottenstreich & Hsee, 2001)	−0.08	.00	50.75	59.00	.77	0.00% [0%, 21%]
Construing actions as choices (Savani, Markus, Naidu, Kumar, & Berlia, 2010)	−0.18	.00	155.49	56.00	< .001	64.00% [47%, 76%]