# Tables

*Heterogeneity in direct replications in psychology and its association with effect size*

## Table 1

**Effect size $\rho_{xy}$ and its heterogeneity as a function of true effect size and measurement reliability.**

| | $\rho_{xy} = 0$ | $\rho_{xy} = .3$ | $\rho_{xy} = .5$ |
|---|---|---|---|
| $\sqrt{R_{xx'}} \times \sqrt{R_{yy'}} = .6$ | 0 | 0.18 | 0.30 |
| $\sqrt{R_{xx'}} \times \sqrt{R_{yy'}} = .7$ | 0 | 0.21 | 0.35 |
| $\sqrt{R_{xx'}} \times \sqrt{R_{yy'}} = .8$ | 0 | 0.24 | 0.40 |

*Note:*
Values in cells are observed effect sizes arising from the true effect size $\rho_{xy}$ and measurement reliabilites $\sqrt{R_{xx'}} \times \sqrt{R_{yy'}}$. Code to reproduce table: osf.io/kf6pt/

## Table 2

**Pre-registered multi-lab replication projects**

| RP | Paper | k | Countries | Effects | Participants |
|---|---|---|---|---|---|
| ML1 | Klein, R. A., Ratliff, K. A., Vianello, M., Adams, R. B., Jr., Bahn?k, S., Bernstein, M. J., . . . Nosek, B. A. (2014). Investigating variation in replicability: A "many labs" replication project. | 36 | 10 | 16 | 5975 |
| ML3 | Ebersole, C. R., Atherton, O. E., Belanger, A. L., Skulborstad, H. M., Allen, J. M., Banks, J. B., ... & Brown, E. R. (2016). Many Labs 3: Evaluating participant pool quality across the academic semester via replication. | 21 | 2 | 10 | 2845 |
| RRR1 | Alogna, V. K., Attaya, M. K., Aucoin, P., Bahn?k, S., Birch, S., Birt, A. R., ... & Buswell, K. (2014). Registered replication report: Schooler and engstler-schooler (1990). | 32 | 10 | 1 | 4117 |
| RRR2 | Alogna, V. K., Attaya, M. K., Aucoin, P., Bahn?k, S., Birch, S., Birt, A. R., ... & Buswell, K. (2014). Registered replication report: Schooler and engstler-schooler (1990). | 23 | 8 | 1 | 2442 |
| RRR3 | Eerland, A., Sherrill, A. M., Magliano, J. P., Zwaan, R. A., Arnal, J. D., Aucoin, P., ... & Crocker, C. (2016). Registered replication report: Hart & Albarrac?n (2011). | 12 | 2 | 3 | 1187 |
| RRR4 | Hagger, M. S., Chatzisarantis, N. L., Alberts, H., Anggono, C. O., Batailler, C., Birt, A. R., ... & Calvillo, D. P. (2016). A multilab preregistered replication of the ego-depletion effect. | 23 | 10 | 1 | 2872 |
| RRR5 | Cheung, I., Campbell, L., LeBel, E. P., Ackerman, R. A., Aykutoglu, B., Bahn?k, S., ... & Carcedo, R. J. (2016). Registered Replication Report: Study 1 from Finkel, Rusbult, Kumashiro, & Hannon (2002). | 16 | 5 | 2 | 2071 |
| RRR6 | Wagenmakers, E. J., Beek, T., Dijkhoff, L., Gronau, Q. F., Acosta, A., Adams Jr, R. B., ... & Bulnes, L. C. (2016). Registered Replication Report: Strack, Martin, & Stepper (1988). | 17 | 8 | 1 | 1894 |
| RRR7 | Bouwmeester, S., Verkoeijen, P. P., Aczel, B., Barbosa, F., B?gue, L., Bra?as-Garza, P., ... & Evans, A. M. (2017). Registered Replication Report: Rand, Greene, and Nowak (2012). | 21 | 12 | 1 | 3596 |
| RRR8 | O'Donnell, M., Nelson, L., McLatchie, N. M., & Lynott, D. J. (2017). Registered Replication Report: Dijksterhuis & van Knippenberg (1998) | 23 | 13 | 1 | 4493 |

*Note:*
For studies with several effects the number of participants is the average across effects, rounded to the closest whole number. Participant numbers are those used for primary analyses by original authors (i.e., after exclusions). RP = Replication Project, k = no. primary studies, ML = Many Labs, RRR = Registered Replication Report. Code to reproduce table: osf.io/kf6pt/

## Table 3

**Heterogeneity across primary effects and statistical power of ten multi-lab replication projects, ordered with respect to estimated between studies variance ($\tau^2$).**

| RP | Effect | k | Effect type | Effect size estimate | $I^2$(%) | $I^2$ 95% CI | $\tau^2$ | $\tau^2$ 95% CI | Type I Error Rate & Statistical Power | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | Level of heterogeneity | | | |
| | | | | | | | | | Zero | Small | Medium | Large |
| RRR7 | Intuitive-cooperation | 21 | MD | -0.39 | 2.80 | [0.00, 39.28] | 0.83 | [0.00, 18.67] | 0.05 | 0.32 | 0.83 | 1.00 |
| RRR8 | Professor priming | 23 | MD | 0.14 | 17.32 | [0.00, 64.77] | 0.73 | [0.00, 6.44] | 0.05 | 0.34 | 0.83 | 1.00 |
| ML1 | Anchoring 3 - Everest | 36 | SMD. | 2.41 | 91.29 | [86.61, 95.23] | 0.48 | [0.30, 0.91] | 0.04 | 0.46 | 0.91 | 1.00 |
| ML1 | Allowed vs. forbidden | 36 | SMD. | 1.93 | 75.56 | [60.32, 85.46] | 0.25 | [0.12, 0.47] | 0.05 | 0.47 | 0.91 | 1.00 |
| ML1 | Anchoring 2 - Chicago | 36 | SMD. | 2.00 | 75.36 | [61.11, 87.15] | 0.13 | [0.07, 0.28] | 0.05 | 0.44 | 0.92 | 1.00 |
| ML1 | Anchoring 4 - Babies | 36 | SMD. | 2.53 | 64.67 | [45.67, 83.33] | 0.09 | [0.04, 0.24] | 0.05 | 0.47 | 0.92 | 1.00 |
| RRR3 | Grammar on intentionality | 12 | MD | -0.25 | 38.06 | [0.00, 85.72] | 0.05 | [0.00, 0.50] | 0.06 | 0.22 | 0.68 | 0.97 |
| ML1 | Quote Attribution | 36 | SMD. | 0.31 | 52.05 | [24.63, 76.25] | 0.03 | [0.01, 0.08] | 0.04 | 0.43 | 0.91 | 1.00 |
| ML1 | Low vs. high category scales | 36 | SMD. | 0.88 | 19.20 | [0.00, 49.95] | 0.02 | [0.00, 0.10] | 0.04 | 0.46 | 0.92 | 1.00 |
| ML1 | Anchoring 1 - NYC | 36 | SMD. | 1.21 | 40.23 | [10.62, 73.94] | 0.02 | [0.00, 0.10] | 0.05 | 0.45 | 0.92 | 1.00 |
| ML1 | Gender math attitude | 35 | SMD. | 0.57 | 28.06 | [0.00, 67.34] | 0.01 | [0.00, 0.07] | 0.05 | 0.44 | 0.90 | 1.00 |
| ML1 | Norm of reciprocity | 36 | SMD. | -0.36 | 17.21 | [0.00, 47.51] | 0.01 | [0.00, 0.04] | 0.05 | 0.43 | 0.91 | 1.00 |
| ML1 | Gambler's Fallacy | 36 | SMD. | 0.61 | 22.85 | [0.00, 69.16] | 0.01 | [0.00, 0.06] | 0.05 | 0.44 | 0.91 | 1.00 |
| ML1 | Imagined Contact | 36 | SMD. | 0.12 | 20.60 | [0.00, 62.50] | 0.01 | [0.00, 0.04] | 0.05 | 0.44 | 0.91 | 1.00 |
| ML3 | Subjective Distance interaction | 21 | r | 0.02 | 33.51 | [0.00, 76.78] | 0.00 | [0.00, 0.02] | 0.05 | 0.33 | 0.83 | 0.99 |
| ML1 | IAT correlation math | 35 | r | 0.39 | 40.05 | [3.93, 64.97] | 0.00 | [0.00, 0.01] | 0.05 | 0.40 | 0.91 | 1.00 |
| ML1 | Sunk Costs | 36 | SMD. | 0.29 | 9.18 | [0.00, 45.93] | 0.00 | [0.00, 0.02] | 0.05 | 0.44 | 0.91 | 1.00 |
| ML3 | Metaphor | 20 | r | 0.14 | 13.03 | [0.00, 57.02] | 0.00 | [0.00, 0.02] | 0.05 | 0.32 | 0.80 | 0.99 |
| ML3 | Credentials interaction | 21 | r | 0.02 | 24.03 | [0.00, 73.82] | 0.00 | [0.00, 0.02] | 0.05 | 0.30 | 0.81 | 1.00 |
| RRR1 | Verbal overshadowing 1 | 32 | RD | -0.03 | 12.23 | [0.00, 46.51] | 0.00 | [0.00, 0.01] | 0.06 | 0.38 | 0.90 | 1.00 |
| ML3 | Availability | 21 | r | 0.04 | 0.51 | [0.00, 56.09] | 0.00 | [0.00, 0.01] | 0.05 | 0.34 | 0.83 | 1.00 |
| ML1 | Gain vs. loss framing | 36 | SMD. | -0.66 | 0.01 | [0.00, 55.57] | 0.00 | [0.00, 0.04] | 0.05 | 0.43 | 0.91 | 1.00 |
| ML3 | Power and Perspective | 21 | SMD. | 0.03 | 0.01 | [0.00, 57.17] | 0.00 | [0.00, 0.04] | 0.05 | 0.32 | 0.81 | 0.99 |
| RRR3 | Grammar on intention attribution | 12 | MD | 0.00 | 0.00 | [0.00, 70.62] | 0.00 | [0.00, 0.03] | 0.06 | 0.24 | 0.70 | 0.96 |
| ML3 | Conscientiousness and persistence | 21 | r | 0.02 | 0.00 | [0.00, 61.42] | 0.00 | [0.00, 0.01] | 0.05 | 0.29 | 0.79 | 1.00 |
| RRR3 | Grammar on detailed processing | 12 | MD | -0.10 | 0.00 | [0.00, 54.49] | 0.00 | [0.00, 0.06] | 0.06 | 0.24 | 0.70 | 0.97 |
| RRR5 | Commitment on neglect | 16 | MD | -0.05 | 0.00 | [0.00, 53.18] | 0.00 | [0.00, 0.04] | 0.06 | 0.28 | 0.74 | 0.99 |
| RRR4 | Ego depletion | 23 | SMD. | 0.00 | 0.00 | [0.00, 46.91] | 0.00 | [0.00, 0.03] | 0.05 | 0.32 | 0.85 | 1.00 |
| RRR6 | Facial Feedback hypothesis | 17 | MD | 0.03 | 0.00 | [0.00, 25.13] | 0.00 | [0.00, 0.03] | 0.06 | 0.27 | 0.77 | 0.99 |
| ML3 | Warmth Perceptions | 21 | SMD. | 0.01 | 0.00 | [0.00, 47.10] | 0.00 | [0.00, 0.03] | 0.04 | 0.37 | 0.91 | 1.00 |
| ML3 | Weight Embodiment | 20 | SMD. | 0.03 | 0.00 | [0.00, 29.97] | 0.00 | [0.00, 0.02] | 0.05 | 0.35 | 0.84 | 1.00 |
| ML1 | Flag Priming | 36 | SMD. | 0.02 | 0.00 | [0.00, 36.23] | 0.00 | [0.00, 0.01] | 0.05 | 0.43 | 0.90 | 1.00 |
| ML1 | Money Priming | 36 | SMD. | -0.02 | 0.00 | [0.00, 33.18] | 0.00 | [0.00, 0.01] | 0.05 | 0.44 | 0.91 | 1.00 |
| RRR5 | Commitment on exit | 16 | MD | -0.06 | 0.00 | [0.00, 17.44] | 0.00 | [0.00, 0.01] | 0.06 | 0.27 | 0.77 | 0.99 |
| RRR2 | Verbal overshadowing 2 | 23 | RD | -0.15 | 0.00 | [0.00, 32.36] | 0.00 | [0.00, 0.00] | 0.06 | 0.31 | 0.83 | 1.00 |
| ML3 | Elaboration likelihood interaction | 20 | r | 0.00 | 0.00 | [0.00, 18.62] | 0.00 | [0.00, 0.00] | 0.05 | 0.31 | 0.83 | 0.99 |
| ML3 | Stroop effect | 21 | r | 0.41 | 0.00 | [0.00, 13.61] | 0.00 | [0.00, 0.00] | 0.05 | 0.29 | 0.80 | 0.99 |

*Note:*

Effects were estimated in metafor using REML. The following effects are odds ratios transformed into standardized mean differences: 'Allowed vs. forbidden', 'Gain vs. loss framing', 'Norm of reciprocity', 'Low vs. high category scales'. RP = Replication Project, k = no. primary studies, CI = confidence intervals. Statistical power and type I error rates were simulated, where Zero = simulated type 1 error, and the other headers represent simulated power under small/medium/large heterogeneity ($I^2$ = 25/50/75%) respectively. SMD = Standardized Mean difference (Hedge's g), MD = Mean Difference, RD = Risk Difference, r = correlation. Code to reproduce table: osf.io/kf6pt/

[a] These effects were simulated as standardized mean differences