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Preferences and beliefs in behavior and the brain

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Appendices _____

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References

- Aaldering, H., & Böhm, R. (2020). Parochial versus universal cooperation: Introducing a novel economic game of within-and between-group interaction. *Social Psychological and Personality Science*, 11(1), 36-45.
- Abraham, A., Pedregosa, F., Eickenberg, M., Gervais, P., Mueller, A., Kossaifi, J., Gramfort, A., Thirion, B., & Varoquaux, G. (2014). Machine learning for neuroimaging with scikit-learn. *Frontiers in Neuroinformatics*, 8(FEB), 14. <https://doi.org/10.3389/FNINF.2014.00014/BIBTEX>
- Abu-Akel, A. (2003). A neurobiological mapping of theory of mind. *Brain Research Reviews*, 43(1), 29–40. [https://doi.org/10.1016/S0165-0173\(03\)00190-5](https://doi.org/10.1016/S0165-0173(03)00190-5)
- Abu-Akel, A., & Shamay-Tsoory, S. (2011). Neuroanatomical and neurochemical bases of theory of mind. *Neuropsychologia*, 49(11), 2971-2984.
- Adolphs, R., Damasio, H., Tranel, D., Cooper, G., & Damasio, A. R. (2000). A role for somatosensory cortices in the visual recognition of emotion as revealed by three-dimensional lesion mapping. *Journal of Neuroscience*, 20(7), 2683–2690.
- Amodio, D. M. (2014). The neuroscience of prejudice and stereotyping. *Nature Reviews Neuroscience*, 15(10), 670–682. <https://doi.org/10.1038/nrn3800>
- Amodio, D., & Cikara, M. (2021). The social neuroscience of prejudice. *Annual Review of Psychology*, 72, 439-469.
- Andreoni, J., & Petrie, R. (2004). Public goods experiments without confidentiality: a glimpse into fund-raising. *Journal of Public Economics*, 88(7-8), 1605-1623.
- Aron, A. R., Robbins, T. W., & Poldrack, R. A. (2004). Inhibition and the right inferior frontal cortex. *Trends in Cognitive Sciences*, 8(4), 170-177.
- Ashraf, N., Bohnet, I., & Piankov, N. (2006). Decomposing trust and trustworthiness. *Experimental Economics*, 9(3), 193-208.
- Balconi, M., & Canavesio, Y. (2014). High-frequency rTMS on DLPFC increases prosocial attitude in case of decision to support people. *Social Neuroscience*, 9(1), 82-93.
- Balliet, D., Parks, C., & Joireman, J. (2009). Social value orientation and cooperation in social dilemmas: A meta-analysis. *Group Processes & Intergroup Relations*, 12(4), 533-547.
- Balliet, D., Tybur, J. M., & Van Lange, P. A. (2017). Functional interdependence theory: An evolutionary account of social situations. *Personality and Social Psychology Review*, 21(4), 361-388.
- Balliet, D., Wu, J., & De Dreu, C. K. W. (2014). Ingroup Favoritism in

- Cooperation: A Meta-Analysis. *Psychological Bulletin*, 140(6), 1556–1581.
- Barclay, P. (2016). Biological markets and the effects of partner choice on cooperation and friendship. *Current Opinion in Psychology*, 7, 33–38.
- Baron, J. (1995). Blind justice: Fairness to groups and the do-no-harm principle. *Journal of Behavioral Decision Making*, 8(2), 71–83.
- Bates, D., Maechler, M., Bolker, B., & Walker, S. (2015). Fitting Linear Mixed-Effects Models Using lme4. *Journal of Statistical Software*, 67(1), 1–48.
- Baumgartner, T., Knoch, D., Hotz, P., Eisenegger, C., & Fehr, E. (2011). Dorsolateral and ventromedial prefrontal cortex orchestrate normative choice. *Nature Neuroscience*, 14(11), 1468–1474.
- Baumgartner, T., Schiller, B., Rieskamp, J., Gianotti, L. R. R., & Knoch, D. (2014). Diminishing parochialism in intergroup conflict by disrupting the right temporo-parietal junction. *Social Cognitive and Affective Neuroscience*, 9(5), 653–660. <https://doi.org/10.1093/SCAN/NST023>
- Becker, G. M., DeGroot, M. H., & Marshak, J. (1964). Measuring utility by a single-response sequential method. *Behavioral science*, 9(3), 226–232.
- Behzadi, Y., Restom, K., Liau, J., & Liu, T. T. (2007). A component based noise correction method (CompCor) for BOLD and perfusion based fMRI. *NeuroImage*, 37(1), 90–101. <https://doi.org/10.1016/J.NEUROIMAGE.2007.04.042>
- Berg, J., Dickhaut, J., & McCabe, K. (1995). Trust, reciprocity, and social history. *Games and Economic Behavior*, 10(1), 122–142. <https://doi.org/10.1006/GAME.1995.1027>
- Bickart, K.C., Wright, C.I., Dautoff, R.J., Dickerson, B.C., & Barrett, L.F. (2011). Amygdala volume and social network size in humans. *Nature Neuroscience*, 14(2), 163–164.
- Blakemore, S. J. (2008). The social brain in adolescence. *Nature Reviews Neuroscience*, 9(4), 267–277.
- Böhm, R., Rusch, H., & Baron, J. (2020). The psychology of intergroup conflict: A review of theories and measures. *Journal of Economic Behavior & Organization*, 178, 947–962.
- Bonini, F., Burle, B., Liégeois-Chauvel, C., Régis, J., Chauvel, P., & Vidal, F. (2014). Action monitoring and medial frontal cortex: Leading role of supplementary motor area. *Science*, 343(6173), 888–891.
- Boorman, E. D., Behrens, T. E., Woolrich, M. W., & Rushworth, M. F. (2009). How green is the grass on the other side? Frontopolar cortex and the evidence in favor of alternative courses of action. *Neuron*, 33(6), 733–743.
- Bornstein, G. (2003). Intergroup Conflict: Individual, Group, and Collective Interests. *Personality and Social Psychology Review*, 7(2), 129–145.

- Botvinick, M. M., Braver, T. S., Barch, D. M., Carter, C. S., & Cohen, J. D. (2001). Conflict monitoring and cognitive control. *Psychological Review*, 108(3), 624-652.
- Bowles, S. (2009). Did warfare among ancestral hunter-gatherers affect the evolution of human social behaviors? *Science*, 324(5932), 1293-1298.
- Bradley, A., Lawrence, C., & Ferguson, E. (2018). Does observability affect prosociality? *Proceedings of the Royal Society B: Biological Sciences*, 285(1875), 20180116.
- Bressler, S. L., & Menon, V. (2010). Large-scale brain networks in cognition: emerging methods and principles. *Trends in Cognitive Sciences*, 14(6), 277-290.
- Buchsbaum, B. R., Greer, S., Wei-Li, C., & Berman, K. F. (2005). Meta-analysis of neuroimaging studies of the Wisconsin card-sorting task and component processes. *Human Brain Mapping*, 25(1), 35– 45.
- Buckner, R. L., Andrews-Hanna, J. R., & Schacter, D. L. (2008). The brain's default network: anatomy, function, and relevance to disease. *Annals of the New York Academy of Sciences*, 1124(1), 1-38.
- Cabeza, R., Ciaramelli, E., & Moscovitch, M. (2012). Cognitive contributions of the ventral parietal cortex: an integrative theoretical account. *Trends in Cognitive Sciences*, 16(6), 338-352.
- Carlo, G., & Randall, B. A. (2002). The Development of a Measure of Prosocial Behaviors for Late Adolescents. *Journal of Youth and Adolescence*, 31(1), 31–44.
- Carrington, S. J., & Bailey, A. J. (2009). Are there theory of mind regions in the brain? A review of the neuroimaging literature. *Human Brain Mapping*, 30(8), 2313–2335.
- Carter, C. S., & van Veen, V. (2007). Anterior cingulate cortex and conflict detection: An update of theory and data. *Cognitive, Affective, & Behavioral Neuroscience*, 7(4), 367–379. <https://doi.org/10.3758/CABN.7.4.367>
- Chen, F., & Fischbacher, U. (2016). Response time and click position: cheap indicators of preferences. *Journal of the Economic Science Association*, 2(2), 109-126.
- Choi, H.J., & Kim, D. (2018). Coup, riot, war: How political institutions and ethnic politics shape alternative forms of political violence. *Terrorism and Political Violence*, 30, 718-739.
- Christov-Moore, L., Sugiyama, T., Grigaityte, K., & Iacoboni, M. (2017). Increasing generosity by disrupting prefrontal cortex. *Social Neuroscience*, 12(2), 174–181.
- Churchwell, J. C., & Yurgelun-Todd, D. A. (2013). Age-related changes in

insula cortical thickness and impulsivity: Significance for emotional development and decision-making. *Developmental Cognitive Neuroscience*, 6, 80-86.

- Cikara, M. (2021). Causes and consequences of coalitional cognition. In *Advances in Experimental Social Psychology* (Vol. 64, pp. 65–128). Academic Press. <https://doi.org/10.1016/BS.AESP.2021.04.002>
- Cikara, M., Botvinick, M. M., & Fiske, S. T. (2011). Us versus them: Social identity shapes neural responses to intergroup competition and harm. *Psychological Science*, 22(3), 306–313. https://doi.org/10.1177/0956797610397667/ASSET/IMAGES/LARGE/10.1177_0956797610397667-FIG2.JPEG
- Cikara, M., van Bavel, J. J., Ingbreetsen, Z. A., & Lau, T. (2017). Decoding “Us” and “Them”: Neural representations of generalized group concepts. *Journal of Experimental Psychology: General*, 146(5), 621–631. <https://doi.org/10.1037/XGE0000287>
- Coricelli, G., Fehr, D., & Fellner, G. (2004). Partner Selection in Public Goods Experiments. *Journal of Conflict Resolution*, 48(3), 356-378.
- Cuesta, J. A., Gracia-Lazaro, C., Ferrer, A., Moreno, Y., & Sánchez, A. (2015). Reputation drives cooperative behaviour and network formation in human groups. *Scientific Reports*, 5(1), 1-6.
- Cushman, F., Gray, K., Gaffey, A. & Mendes, W.B. (2012). Simulating murder: The aversion to harmful action. *Emotion*, 12, 2-7.
- Darwin, C. (1859). *On the Origin of Species*. London: John Murray.
- De Dreu, C. K. W., & Gross, J. (2019). Revisiting the form and function of conflict: Neurobiological, psychological, and cultural mechanisms for attack and defense within and between groups. *Behavioral and Brain Sciences*, 42, e116. <https://doi.org/10.1017/S0140525X18002170>
- De Dreu, C. K. W., Gross, J., Fariña, A., & Ma, Y. (2020). Group Cooperation, Carrying-Capacity Stress, and Intergroup Conflict. *Trends in Cognitive Sciences*, 24(9), 760–776. <https://doi.org/10.1016/j.tics.2020.06.005>
- De Dreu, C. K. W., Pliskin, R., Rojek-Giffin, M., Méder, Z., & Gross, J. (2021). Political games of attack and defence. *Philosophical Transactions of the Royal Society B*, 376(1822), 20200135.
- De Dreu, C. K.W., & Van Lange, P. A. (1995). The impact of social value orientations on negotiator cognition and behavior. *Personality and Social Psychology Bulletin*, 21(11), 1178-1188.
- De Dreu, C. K.W., Gross, J., & Reddmann, L. (2022). Environmental stress increases out-group aggression and intergroup conflict in humans. *Philosophical Transactions of the Royal Society B*, 377(1851), 20210147.
- De Dreu, C. K.W., Gross, J., Fariña, A., & Ma, Y. (2020). Group cooperation,

- Carrying-Capacity Stress, and Intergroup Conflict. *Trends in Cognitive Sciences*, 24, 760-776.
- De Dreu, C. K., Weingart, L. R., & Kwon, S. (2000). Influence of social motives on integrative negotiation: A meta-analytic review and test of two theories. *Journal of Personality and Social Psychology*, 78(5), 889-905.
- De Dreu, C. K.W., & Triki, Z. (2022). Intergroup conflict: origins, dynamics and consequences across taxa. *Philosophical Transactions of the Royal Society B*, 377(1851), 20210134.
- De Dreu, C. K.W., Giacomantonio, M., Giffin, M. R., & Vecchiato, G. (2019). Psychological constraints on aggressive predation in economic contests. *Journal of Experimental Psychology: General*, 148(10), 1767-1781.
- De Dreu, C. K.W., Gross, J., Méder, Z., Giffin, M., Prochazkova, E., Krikeb, J., & Columbus, S. (2016). In-group defense, out-group aggression, and coordination failures in intergroup conflict. *Proceedings of the National Academy of Sciences of the United States of America*, 113, 10524-10529.
- De Dreu, C.K.W. (2010). Social value orientation moderates in-group love but not out-group hate in competitive intergroup conflict. *Group Processes and Intergroup Relations*, 13, 701 – 713.
- Decety, J. (2010). The neurodevelopment of empathy in humans. *Developmental neuroscience*, 32(4), 257-267.
- Declerck, C. H., & Bogaert, S. (2008). Social value orientation: related to empathy and the ability to read the mind in the eyes. *The Journal of Social Psychology*, 148(6), 711-726.
- Derrfuss, J., Brass, M., Neumann, J., & von Cramon, D. Y. (2005). Involvement of the inferior frontal junction in cognitive control: meta-analyses of switching and stroop studies. *Human Brain Mapping*, 25(1), 22-34.
- Destrieux, C., Fischl, B., & Halgren, E. (2010). Automatic parcellation of human cortical gyri and sulci using standard anatomical nomenclature. *NeuroImage*, 53(1), 1-15.
- Donaldson, P. H., Rinehart, N. J., & Enticott, P. G. (2015). Noninvasive stimulation of the temporoparietal junction: A systematic review. *Neuroscience & Biobehavioral Reviews*, 55, 547–572. <https://doi.org/10.1016/J.NEUBIOREV.2015.05.017>
- Draganski, B., Gaser, C., Busch, V., Schuierer, G., Bogdahn, U., & May, A. (2004). Changes in grey matter induced by training. *Nature*, 427(6972), 311-312.
- Duncan, J., & Owen, A. M. (2000). Common regions of the human frontal lobe recruited by diverse cognitive demands. *Trends in Neurosciences*, 23(10), 475-483.

- Efferson, C., Roca, C. P., Vogt, S., & Helbing, D. (2016). Sustained cooperation by running away from bad behavior. *Evolution and Human Behavior*, 37(1), 1-9.
- Eklund, A., Nichols, T. E., & Knutsson, H. (2016). Cluster failure: Why fMRI inferences for spatial extent have inflated false-positive rates. *Proceedings of the National Academy of Sciences*, 113(28), 7900-7905.
- Engelmann, J. B., Meyer, F., Ruff, C. C., & Fehr, E. (2019). The neural circuitry of affect-induced distortions of trust. *Science Advances*, 5(3). <https://doi.org/10.1126/SCIADV.AAU3413>
- Emonds, G., Declerck, C. H., Boone, C., Seurinck, R., & Achten, R. (2014). Establishing cooperation in a mixed-motive social dilemma. An fMRI study investigating the role of social value orientation and dispositional trust. *Social Neuroscience*, 9(1), 10-22.
- Emonds, G., Declerck, C. H., Boone, C., Vandervliet, E. J., & Parizel, P. M. (2011). Comparing the neural basis of decision making in social dilemmas of people with different social value orientations, a fmri study. *Journal of Neuroscience, Psychology, and Economics*, 4(1), 11-24.
- Esteban, O., Markiewicz, C. J., Blair, R. W., Moodie, C. A., Isik, A. I., Erramuzpe, A., Kent, J. D., Goncalves, M., DuPre, E., Snyder, M., Oya, H., Ghosh, S. S., Wright, J., Durnez, J., Poldrack, R. A., & Gorgolewski, K. J. (2019). fMRIPrep: a robust preprocessing pipeline for functional MRI. *Nature Methods*, 16(1). <https://doi.org/10.1038/s41592-018-0235-4>.
- Fan, Y., Duncan, N. W., de Greck, M., & Northoff, G. (2011). Is there a core neural network in empathy? An fMRI based quantitative meta-analysis. *Neuroscience and Biobehavioral Reviews*, 35(3), 903-911.
- Farrow, T. F., Zheng, Y., Wilkinson, I. D., Spence, S. A., William Deakin, J. F., Tarrier, N., . . . Woodruff, P. W. (2001). Investigating the functional anatomy of empathy and forgiveness. *Neuroreport*, 12(11), 2433-2438.
- Fehr, E., & Camerer, C. F. (2007). Social neuroeconomics: the neural circuitry of social preferences. *Trends in Cognitive Sciences*, 11(10), 419-427.
- Fehr, E., & Schmidt, K. M. (1999). A theory of fairness, competition, and cooperation. *The Quarterly Journal of Economics*, 114(3), 817-868. <http://qje.oxfordjournals.org/>
- Fehr, E., & Schmidt, K. M. (2006). The economics of fairness, reciprocity and altruism—experimental evidence and new theories. In S. C. Kolm, & J. M. Ythier, *Handbook of the economics of giving, altruism and reciprocity: Foundations* (Vol 1, pp. 615-691). Elsevier.
- Fett, A. K. J., Shergill, S. S., Joyce, D. W., Riedl, A., Strobel, M., Gromann, P. M., & Krabbendam, L. (2012). To trust or not to trust: the dynamics

- of social interaction in psychosis. *Brain*, 135(3), 976–984. <https://doi.org/10.1093/BRAIN/AWR359>
- Fiedler, S., Glöckner, A., Nicklisch, A., & Dickert, S. (2013). Social Value Orientation and information search in social dilemmas: An eye-tracking analysis. *Organizational Behavior and Human Decision Processes*, 120(2), 272-284.
- Filiz-Ozbay, E., & Ozbay, E. Y. (2014). Effect of an audience in public goods provision. *Experimental Economics*, 17(2), 200-214.
- Fischl, B., & Dale, A. M. (2000). Measuring the thickness of the human cerebral cortex from magnetic resonance images. *Proceedings of the National Academy of Sciences*, 97(20), 11050-11055.
- Fischl, B., Sereno, M. I., Tootell, R. B., & Dale, A. M. (1999). High-resolution intersubject averaging and a coordinate system for the cortical surface. *Human Brain Mapping*, 8(4), 272-284.
- Fonov, V., Evans, A., McKinstry, R., Alml, C., & Collins, D. (2009). Unbiased nonlinear average age-appropriate brain templates from birth to adulthood. *NeuroImage*, 47. [https://doi.org/10.1016/s1053-8119\(09\)70884-5](https://doi.org/10.1016/s1053-8119(09)70884-5)
- Forsythe, R., Horowitz, J. L., Savin, N. E., & Sefton, M. (1994). Fairness in simple bargaining experiments. *Games and Economic Behavior*, 6(3), 347–369. <https://doi.org/10.1006/GAME.1994.1021>
- Frässle, S., Aponte, E. A., Bollmann, S., Brodersen, K. H., Do, C. T., Harrison, O. K., Harrison, S. J., Heinzle, J., Iglesias, S., Kasper, L., Lomakina, E. I., Mathys, C., Müller-Schrader, M., Pereira, I., Petzschner, F. H., Raman, S., Schöbi, D., Toussaint, B., Weber, L. A., ... Stephan, K. E. (2021). TAPAS: An Open-Source Software Package for Translational Neuromodeling and Computational Psychiatry. *Frontiers in Psychiatry*, 12. <https://doi.org/10.3389/FPSYT.2021.680811>
- Freedman, D., & Lane, D. (1983). A nonstochastic interpretation of reported significance levels. *Journal of Business and Economic Statistics*, 1(4), 292-298.
- Fujino, J., Tei, S., Itahashi, T., Aoki, Y. Y., Ohta, H., Kubota, M., Hashimoto, R. ichiro, Takahashi, H., Kato, N., & Nakamura, M. (2020). Role of the right temporoparietal junction in intergroup bias in trust decisions. *Human Brain Mapping*, 41(6), 1677. <https://doi.org/10.1002/HBM.24903>
- Galinsky, A. D., Maddux, W. W., Gilin, D., & White, J. B. (2008). Why It Pays to Get Inside the Head of Your Opponent The Differential Effects of Perspective Taking and Empathy in Negotiations. *Psychological Science*, 19(4), 378–384.

- Gallagher, H. L., & Frith, C. D. (2003). Functional imaging of ‘theory of mind’. *Trends in Cognitive Sciences*, 7(2), 77-83.
- Gallo, E., & Yan, C. (2015). The effects of reputational and social knowledge on cooperation. *Proceedings of the National Academy of Sciences*, 112(12), 3647-3652.
- Gangopadhyay, P., Chawla, M., Dal Monte, O., & C Chang, S. W. (2021). Prefrontal–amygdala circuits in social decision-making. *Nature Neuroscience*, 24, 5–18. <https://doi.org/10.1038/s41593-020-00738-9>
- Glimcher, P. W., Dorris, M. C., & Bayer, H. M. (2005). Physiological utility theory and the neuroeconomics of choice. *Games and Economic Behavior*, 52(2), 213–256. <https://doi.org/10.1016/j.geb.2004.06.011>
- Glover, G., Li, T., ... D. R. M. A. O. J. of, & 2000, undefined. (2000). Image-based method for retrospective correction of physiological motion effects in fMRI: RETROICOR. *Wiley Online Library*. [https://onlinelibrary.wiley.com/doi/abs/10.1002/15222594\(200007\)44:1%3C162::AID-MRM23%3E3.0.CO;2-E](https://onlinelibrary.wiley.com/doi/abs/10.1002/15222594(200007)44:1%3C162::AID-MRM23%3E3.0.CO;2-E)
- Glowacki, L., Isakov, A., Wrangham, R. W., McDermott, R., Fowler, J. H., & Christakis, N. A. (2016). Formation of raiding parties for intergroup violence is mediated by social network structure. *Proceedings of the National Academy of Sciences*, 113(43), 12114-12119.
- Gorgolewski, K., Burns, C. D., Madison, C., Clark, D., Halchenko, Y. O., Waskom, M. L., & Ghosh, S. S. (2011). Nipype: A flexible, lightweight and extensible neuroimaging data processing framework in Python. *Frontiers in Neuroinformatics*, 5. <https://doi.org/10.3389/fninf.2011.00013>
- Greenwald, A. G., McGhee, D. E., & Schwartz, J. L. K. (1998). Measuring Individual Differences in Implicit Cognition: The Implicit Association Test. *Journal of Personality and Social Psychology*, 74(6), 1464–1480.
- Greve, D. N., & Fischl, B. (2009). Accurate and robust brain image alignment using boundary-based registration. *NeuroImage*, 48(1). <https://doi.org/10.1016/j.neuroimage.2009.06.060>
- Gross, J., & De Dreu, C. K. W. (2019a). The rise and fall of cooperation through reputation and group polarization. *Nature Communications*, 10(1), 1-10.
- Gross, J., & De Dreu, C. K. W. (2019b). Individual solutions to shared problems create a modern tragedy of the commons. *Science Advances*, 5(4), eaau7296.
- Gross, J., De Dreu, C. K.W., & Reddmann, L. (2022). Shadow of conflict: How past conflict influences group cooperation and the use of punishment. *Organizational Behavior and Human Decision Processes*, 171, 104152.

- Gross, J., Faber, N. S., Kappes, A., Nussberger, A. M., Cowen, P. J., Browning, M., ... & De Dreu, C. K.W. (2021). When helping is risky: The behavioral and neurobiological trade-off of social and risk preferences. *Psychological Science*, 32(11), 1842-1855.
- Gross, J., Méder, Z. Z., De Dreu, C. K. W., Romano, A., Molenmaker, W. E., & Hoenig, L. C. (2023). The evolution of universal cooperation. *Science Advances*, 9(7). <https://doi.org/10.1126/sciadv.add8289>
- Gul, F., & Pesendorfer, W. (2011). The Case for Mindless Economics. In *The Foundations of Positive and Normative Economics: A Hand Book*. Oxford University Press. <https://doi.org/10.1093/ACPROF:OSO/9780195328318.003.0001>
- Güth, W., Schmittberger, R., & Schwarze, B. (1982). An experimental analysis of ultimatum bargaining. *Journal of Economic Behavior & Organization*, 3(4), 367–388. [https://doi.org/10.1016/0167-2681\(82\)90011-7](https://doi.org/10.1016/0167-2681(82)90011-7)
- Haas, B. W., Ishak, A., Anderson, I. W., & Filkowski, M. M. (2015). The tendency to trust is reflected in human brain structure. *NeuroImage*, 107, 175-181.
- Haber, S. N., & Knutson, B. (2009). The Reward Circuit: Linking Primate Anatomy and Human Imaging. *Neuropsychopharmacology*, 35(1), 4–26. <https://doi.org/10.1038/npp.2009.129>
- Hackel, L. M., Zaki, J., & van Bavel, J. J. (2017). Social identity shapes social valuation: evidence from prosocial behavior and vicarious reward. *Social Cognitive and Affective Neuroscience*, 12(8), 1219–1228. <https://doi.org/10.1093/SCAN/NSX045>
- Hamilton, W. D. (1964). The genetical evolution of social behaviour. *Journal of Theoretical Biology*, 7(1), 1–16. [https://doi.org/10.1016/0022-5193\(64\)90038-4](https://doi.org/10.1016/0022-5193(64)90038-4)
- Hare, T. A., Camerer, C. F., & Rangel, A. (2009). Self-control in decision-making involves modulation of the vmPFC valuation system. *Science*, 324(5927), 646-648.
- Hare, T. A., O’Doherty, J., Camerer, C. F., Schultz, W., & Rangel, A. (2008). Dissociating the Role of the Orbitofrontal Cortex and the Striatum in the Computation of Goal Values and Prediction Errors. *The Journal of Neuroscience*, 28(22), 5623–5630. <https://doi.org/10.1523/JNEUROSCI.1309-08.2008>
- Haruno, M., Kimura, M., & Frith, C. D. (2014). Activity in the nucleus accumbens and amygdala underlies individual differences in prosocial and individualistic economic choices. *Journal of Cognitive Neuroscience*, 26(8), 1861-1870.
- Hein, G., Silani, G., Preuschoff, K., Batson, C. D., & Singer, T. (2010). Neural

- Responses to Ingroup and Outgroup Members' Suffering Predict Individual Differences in Costly Helping. *Neuron*, 68(1), 149–160. <https://doi.org/10.1016/J.NEURON.2010.09.003>
- Hoffman, E., McCabe, K., & Smith, V. (2008). Reciprocity in ultimatum and dictator games: An introduction. In *Handbook of experimental economics results* (Vol. 1, pp. 411–416). [https://doi.org/10.1016/S1574-0722\(07\)00046-7](https://doi.org/10.1016/S1574-0722(07)00046-7)
- Hughes, B. L., Ambady, N., & Zaki, J. (2017). Trusting outgroup, but not ingroup members, requires control: neural and behavioral evidence. *Social Cognitive and Affective Neuroscience*, 12(3), 372–381. <https://doi.org/10.1093/scan/nsw139>
- Hung, J., Wang, X., Wang, X., & Bi, Y. (2020). Functional subdivisions in the anterior temporal lobes: a large scale meta-analytic investigation. *Neuroscience & Biobehavioral Reviews*, 115, 134–145.
- Hutton, C., Josephs, O., Stadler, J., Featherstone, E., Reid, A., Speck, O., Bernarding, J., & Weiskopf, N. (2011). The impact of physiological noise correction on fMRI at 7 T. *NeuroImage*, 57(1), 101–112. <https://doi.org/10.1016/J.NEUROIMAGE.2011.04.018>
- Isik, L., Koldewyn, K., Beeler, D., & Kanwisher, N. (2017). Perceiving social interactions in the posterior superior temporal sulcus. *Proceedings of the National Academy of Sciences*, 114(43), E9145–E9152.
- Jenkinson, M., Bannister, P., Brady, M., & Smith, S. (2002). Improved optimization for the robust and accurate linear registration and motion correction of brain images. *NeuroImage*, 17(2). [https://doi.org/10.1016/S1053-8119\(02\)91132-8](https://doi.org/10.1016/S1053-8119(02)91132-8)
- Kanagaretnam, K., Mestelman, S., Nainar, K., & Shehata, M. (2009). The impact of social value orientation and risk attitudes on trust and reciprocity. *Journal of Economic Psychology*, 30(3), 368–380.
- Kasper, L., Bollmann, S., Diaconescu, A. O., Hutton, C., Heinzle, J., Iglesias, S., Hauser, T. U., Sebold, M., Manjaly, Z. M., Pruessmann, K. P., & Stephan, K. E. (2017). The PhysIO Toolbox for Modeling Physiological Noise in fMRI Data. *Journal of Neuroscience Methods*, 276, 56–72. <https://doi.org/10.1016/J.JNEUMETH.2016.10.019>
- Kennerley, S. W., Walton, M. E., Behrens, T. E., Buckley, M. J., & Rushworth, M. F. (2006). Optimal decision making and the anterior cingulate cortex. *Nature Neuroscience*, 9(7), 940–947.
- Kerns, J. G., Cohen, J. D., MacDonald, A. W., Cho, R. Y., Stenger, V. A., & Carter, C. S. (2004). Anterior cingulate conflict monitoring and adjustments in control. *Science*, 303(5660), 1023–1026.
- Kitayama, S., Yanagisawa, K., Ito, A., Ueda, R., Uchida, Y., & Abe, N. (2017).

- Reduced orbitofrontal cortical volume is associated with interdependent self-construal. *Proceedings of the National Academy of Sciences*, 114(30), 7969-7974.
- Klein, A., Ghosh, S. S., Bao, F. S., Giard, J., Häme, Y., Stavsky, E., Lee, N., Rossa, B., Reuter, M., Chaibub Neto, E., & Keshavan, A. (2017). Mindboggling morphometry of human brains. *PLoS Computational Biology*, 13(2). <https://doi.org/10.1371/journal.pcbi.1005350>
- Knoch, D., Pascual-Leone, A., Meyer, K., Treyer, V., & Fehr, E. (2006). Diminishing Reciprocal Fairness by Disrupting the Right Prefrontal Cortex. *Science*, 314(5800), 829–832. <https://www.science.org>
- Koechlin, E., & Hyafil, A. (2007). Anterior prefrontal function and the limits of human decision-making. *Science*, 318(5850), 594-598.
- Kragel, P. A., Kano, M., Van Oudenhove, L., Ly, G. H., Dupont, P., Rubio, A., ... Nichols. (2018). Generalizable representations of pain, cognitive control, and negative emotion in medial frontal cortex. *Nature Neuroscience*, 21(2), 283–289.
- Krueger, F., McCabe, K., Moll, J., Kriegeskorte, N., Zahn, R., Strenziok, M., Heinecke, A., & Grafman, J. (2007). Neural correlates of trust. *Proceedings of the National Academy of Sciences of the United States of America*, 104(50), 20084–20089. https://doi.org/10.1073/PNAS.0710103104/SUPPL_FILE/10103FIG10.PDF
- Kuznetsova, A., Brockhoff, P. B., & Christensen, R. H. (2017). lmerTest Package: Tests in Linear Mixed Effects Models. *Journal of Statistical Software*, 82(13), 1-26.
- Lamm, C., Decety, J., & Singer, T. (2011). Meta-analytic evidence for common and distinct neural networks associated with directly experienced pain and empathy for pain. *NeuroImage*, 54(3), 2492–2502.
- Levy, D., & Glimcher, P. (2012). The root of all value: a neural common currency for choice. *Current Opinion in Neurobiology*, 22(6), 1027–1038.
- Lewis, P. A., Roozbeh, R., Brown, R., Roberts, N., & Dunbar, R. (2011). Ventromedial prefrontal volume predicts understanding of others and social network size. *NeuroImage*, 57(4), 1624–1629.
- Liebrand, W. B. (1984). The effect of social motives, communication and group size on behaviour in an N-person multi-stage mixed-motive game. *European journal of social psychology*, 14(3), 239-264.
- Liebrand, W. B., & McClintock, C. G. (1988). The ring measure of social values: a computerized procedure for assessing individual differences in information processing and social value orientation. *European Journal of Personality*, 2(3), 217-230.
- Liu, X., Hairston, J., Schrier, M., & Fan, J. (2011). Common and distinct

- networks underlying reward valence and processing stages: A meta-analysis of functional neuroimaging studies. *Neuroscience and Biobehavioral Reviews*, 35(5), 1219-1236.
- Liu, Y., Li, S., Lin, W., Li, W., Yan, X., Wang, X., . . . Ma, Y. (2019). Oxytocin modulates social value representations in the amygdala. *Nature Neuroscience*, 22(4), 633-641.
- MacDonald, A. W., Cohen, J. D., Andrew Stenger, V., & Carter, C. S. (2000). Dissociating the role of the dorsolateral prefrontal and anterior cingulate cortex in cognitive control. *Science*, 288(5472), 1835–1838. <https://doi.org/10.1126/SCIENCE.288.5472.1835/ASSET/CC4BB8EB-58B9-4887-A3F3-99C57DAE167F/ASSETS/GRAPHIC/SE1908537001.JPEG>
- Maguire, E. A., Gadian, D. G., Johnsrude, I. S., Good, C. D., Ashburner, J., Frackowiak, R. S., & Frith, C. D. (2000). Navigation-related structural change in the hippocampi of taxi drivers. *Proceedings of the National Academy of Sciences*, 97(8), 4398-4403.
- Majolo, B., Vizioli, A.D., Martinez-Inigo, L., & Lehmann, J. (2010). Effects of group size and individual characteristics on intergroup encounters in primates. *International Journal of Primatology*, 41, 325-341.
- Mathew, S., & Boyd, R. (2011). Punishment sustains large-scale cooperation in prestate warfare. *Proceedings of the National Academy of Sciences*, 108(28), 11375-11380.
- McKenna, R., Rushe, T., & Woodcock, K. A. (2017). Informing the Structure of Executive Function in Children: A Meta-Analysis of Functional Neuroimaging Data. *Frontiers in human neuroscience*, 11, 154.
- Méder ZZ, De Dreu, C.K.W., Gross J. 2022. Equilibria of attacker–defender games. arXiv:2202.10072.
- Molenberghs, P., Cunnington, R., & Mattingley, J. B. (2012). Brain regions with mirror properties: A meta-analysis of 125 human fMRI studies. *Neuroscience and Biobehavioral Reviews*, 36(1), 341–349.
- Molenberghs, P., Johnson, H., Henry, J. D., & Mattingley, J. B. (2016). Understanding the minds of others: A neuroimaging meta-analysis. *Neuroscience & Biobehavioral Reviews*, 65, 276-291.
- Molenberghs, P., & Louis, W. R. (2018). Insights From fMRI Studies Into Ingroup Bias. *Frontiers in Psychology*, 9, 1–12. <https://doi.org/10.3389/fpsyg.2018.01868>
- Moll, J., de Oliveira-Souza, R., Bramati, I. E., & Grafman, J. (2002). Functional networks in emotional moral and nonmoral social judgments. *NeuroImage*, 16(3), 696-703.
- Morishima, Y., Schunk, D., Bruhin, A., Ruff, C. C., & Fehr, E. (2012). Linking brain structure and activation in temporoparietal junction to explain the

- neurobiology of human altruism. *Neuron*, 75(1), 73-79.
- Murphy, R. O., & Ackerman, K. A. (2014). Social value orientation: theoretical and measurement issues in the study of social preferences. *Personality and Social Psychology Review*, 18(1), 13-41.
- Murphy, R. O., Ackermann, K. A., & Handgraaf, M. J. J. (2011). Measuring Social Value Orientation. *Judgment and Decision Making*, 6(8), 771-781. <https://doi.org/10.1017/S1930297500004204>
- Nash, K., Gianotti, L. R., & Knoch, D. (2015). A neural trait approach to exploring individual differences in social preferences. *Frontiers in behavioral neuroscience*, 8, 458.
- Noë, R., & Hammerstein, P. (1994). Biological markets: supply and demand determine the effect of partner choice in cooperation, mutualism and mating. *Behavioral ecology and sociobiology*, 35(1), 1-11.
- Nowak, M. A., & Sigmund, K. (1998). Evolution of indirect reciprocity by image scoring. *Nature*, 393(6685), 573-577.
- Page, T., Putterman, L., & Unel, B. (2005). Voluntary Association in Public Goods Experiments: Reciprocity, Mimicry and Efficiency. *The Economic Journal*, 115(506), 1032-1053.
- Pan, J., Sawyer, K., McDonough, E. K., Slotpole, L., & Gansler, D. (2018). Cognitive, neuroanatomical, and genetic predictors of executive function in healthy children and adolescents. *Developmental neuropsychology*, 43(7), 535-550.
- Pletzer, J. L., Balliet, D., Joireman, J., Kuhlman, D. M., Voelpel, S. C., & Van Lange, P. A. (2018). Social value orientation, expectations, and cooperation in social dilemmas: a meta-analysis. *European Journal of Personality*, 32(1), 62-83.
- Power, J. D., Mitra, A., Laumann, T. O., Snyder, A. Z., Schlaggar, B. L., & Petersen, S. E. (2014). Methods to detect, characterize, and remove motion artifact in resting state fMRI. *NeuroImage*, 84. <https://doi.org/10.1016/j.neuroimage.2013.08.048>
- Quallo, M. M., Price, C. J., Ueno, K., Asamizuya, T., Cheng, K., Lemon, R. N., & Iriki, A. (2009). Gray and white matter changes associated with tool-use learning in macaque monkeys. *Proceedings of the National Academy of Sciences*, 106(43), 18379-18384.
- Rand, D. G., Greene, J. D., & Nowak, M. A. (2013). Spontaneous giving and calculated greed. *Nature*, 489(7416), 427-430.
- Rangel, A., & Hare, T. (2010). Neural computations associated with goal-directed choice. *Current Opinion in Neurobiology*, 20, 262-270. <https://doi.org/10.1016/j.conb.2010.03.001>
- Riccelli, R., Toschi, N., Nigro, S., Terracciano, A., & Passamonti, L. (2017).

- Surface-based morphometry reveals the neuroanatomical basis of the five-factor model of personality. *Social Cognitive and Affective Neuroscience*, 12(4), 671-684.
- Roberts, G., Raihani, N., Bshary, R., Manrique, H. M., Fariña, A., Samu, F., & Barclay, P. (2021). The benefits of being seen to help others: indirect reciprocity and reputation-based partner choice. *Philosophical Transactions of the Royal Society B*, 376(1838), 20200290. <https://doi.org/10.1098/rstb.2020.0290>
- Rolls, E. T., & Grabenhorst, F. (2008). The orbitofrontal cortex and beyond: from affect to decision-making. *Progress in Neurobiology*, 86(3), 216-244.
- Romano, A., Balliet, D., Yamagishi, T., & Liu, J. H. (2017). Parochial trust and cooperation across 17 societies. *Proceedings of the National Academy of Sciences*, 114(48), 12702-12707.
- Ruff, C. C., & Fehr, E. (2014). The neurobiology of rewards and values in social decision making. *Nature Reviews Neuroscience*, 15, 549-562. <https://doi.org/10.1038/nrn3776>
- Sallet, J., Mars, R. B., Noonan, M. P., Andersson, J. L., O'Reilly, J. X., Jbabdi, S., . . . Rushworth, M. F. (2011). Social network size affects neural circuits in macaques. *Science*, 334(6056), 697-700.
- Samuni, L., Crockford, C., & Wittig, R.M. (2021). Group-level cooperation in chimpanzees is shaped by strong social ties. *Nature Communications*, 12, e539.
- Satterthwaite, T. D., Elliott, M. A., Gerraty, R. T., Ruparel, K., Loughhead, J., Calkins, M. E., Eickhoff, S. B., Hakonarson, H., Gur, R. C., Gur, R. E., & Wolf, D. H. (2013). An improved framework for confound regression and filtering for control of motion artifact in the preprocessing of resting-state functional connectivity data. *NeuroImage*, 64(1), 240-256. <https://doi.org/10.1016/j.neuroimage.2012.08.052>
- Saxe, R., & Kanwisher, N. (2003). People thinking about thinking people: the role of the temporo-parietal junction in "theory of mind". *Neuroimage*, 19(4), 1835-1842.
- Saxe, R., & Powell, L. J. (2016). It's the thought that counts: Specific brain regions for one component of theory of mind. *Psychological Science*, 17(8), 692-699.
- Schlaffke, L., Lissek, S., Lenz, M., Juckel, G., Schultz, T., Tegenthoff, M., . . . Brüne, M. (2015). Shared and nonshared neural networks of cognitive and affective theory-of-mind: a neuroimaging study using cartoon picture stories. *Human Brain Mapping*, 36(1), 29-39.
- Schurz, M., Radua, J., Aichhorn, M., Richlan, F., & Perner, J. (2014). Fractionating theory of mind: A meta-analysis of functional brain

- imaging studies. *Neuroscience and Biobehavioral Reviews*, 42, 9–34.
- Schurz, M., & Tholen, M. G. (2016). What brain imaging did (not) tell us about the Inferior Frontal Gyrus in theory of mind – A commentary on Samson et al., (2015). *Cortex*, 74, 329–333. <https://doi.org/10.1016/J.CORTEX.2015.08.011>
- Schurz, M., Tholen, M. G., Perner, J., Mars, R. B., & Sallet, J. (2017). Specifying the Brain Anatomy Underlying Temporo-Parietal Junction Activations for Theory of Mind: A Review using Probabilistic Atlases from Different Imaging Modalities. *Human Brain Mapping*, 38(9), 4788–4805.
- Shackman, A. J., Salomons, T. V., Slagter, H. A., Fox, A. S., Winter, J. J., & Davidson, R. J. (2011). The integration of negative affect, pain and cognitive control in the cingulate cortex. *Nature Reviews Neuroscience*, 12(3), 154.
- Shalvi, S., Handgraaf, M. J., & De Dreu, C. K. W. (2011). People avoid situations that enable them to deceive others. *Journal of Experimental Social Psychology*, 47(6), 1096–1106.
- Shamay-Tsoory, S. G., Aharon-Peretz, J., & Perry, D. (2009). Two systems for empathy: a double dissociation between emotional and cognitive empathy in inferior frontal gyrus versus ventromedial prefrontal lesions. *Brain*, 132(3), 617–627.
- Slonim, R., & Garbarino, E. (2008). Increases in trust and altruism from partner selection: Experimental evidence. *Experimental Economics*, 11(2), 134–153.
- Smith, S. M., & Nichols, T. E. (2009). Threshold-free cluster enhancement: Addressing problems of smoothing, threshold dependence and localisation in cluster inference. *NeuroImage*, 44(1), 83–98. <https://doi.org/10.1016/J.NEUROIMAGE.2008.03.061>
- Spreng, R. N., Mar, R. A., & Kim, A. S. (2009). The common neural basis of autobiographical memory, prospection, navigation, theory of mind, and the default mode: a quantitative meta-analysis. *Journal of Cognitive Neuroscience*, 21(3), 489–510.
- Sripada, C. S., Angstadt, M., Banks, S., Nathan, P. J., Liberzon, I., & Phan, K. L. (2009). Functional neuroimaging of mentalizing during the trust game in social anxiety disorder. *Neuroreport*, 20(11), 984–989. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2746411/pdf/nihms121762.pdf>
- Tajfel, H. (1970). Experiments in Intergroup Discrimination. *Scientific American*, 223(5), 96–103. <https://doi.org/10.2307/24927662>
- Telzer, E. H., Ichien, N., & Qu, Y. (2015). The ties that bind: Group membership shapes the neural correlates of in-group favoritism. *NeuroImage*, 115, 42–51. <https://doi.org/10.1016/J.NEUROIMAGE.2015.08.011>

- Triki, Z., Levorato, E., McNeely, W., Marshal, J., & Bshary, R. (2019). Population densities predict forebrain size variation in the cleaner fish *Labroides dimidiatus*. *Proceedings of the Royal Society B*, 286(1915), 20192108.
- Tustison, N. J., Avants, B. B., Cook, P. A., Zheng, Y., Egan, A., Yushkevich, P. A., & Gee, J. C. (2010). N4ITK: Improved N3 bias correction. *IEEE Transactions on Medical Imaging*, 29(6). <https://doi.org/10.1109/TMI.2010.2046908>
- Van Beest, I., Van Dijk, E., De Dreu, C. K. W., & Wilke, H. A. (2005). Do-no-harm in coalition formation: Why losses inhibit exclusion and promote fairness cognitions. *Journal of Experimental Social Psychology*, 41(6), 609-617.
- Van Dijk, E., & De Dreu, C.K.W. (2021). Experimental games and social decision-making. *Annual Review of Psychology*, 72, 415-438.
- Van Lange, P. A. (1999). The pursuit of joint outcomes and equality in outcomes: an integrative model of social value orientation. *Journal of Personality and Social Psychology*, 77(2), 337-349.
- Van Overwalle, F. (2009). Social Cognition and the Brain: A Meta-Analysis. *Human Brain Mapping*, 30(3), 829-858.
- Van Overwalle, F., & Baetens, K. (2009). Understanding others' actions and goals by mirror and mentalizing systems: A meta-analysis. *NeuroImage*, 48(3), 564-584.
- Wang, J., Suri, S., & Watts, D. J. (2012). Cooperation and assortativity with dynamic partner updating. *Proceedings of the National Academy of Sciences*, 109(36), 14363-14368.
- Wedekind, C., & Milinski, M. (2000). Cooperation Through Image Scoring in Humans. *Science*, 288(5467), 850-852.
- Wenzel, M., Mummendey, A., & Waldzus, S. (2007). Superordinate identities and intergroup conflict: The ingroup projection model. *European Review of Social Psychology*, 18, 331-372. <https://doi.org/10.1080/10463280701728302>
- Wilson, D. S., & Wilson, E. O. (2007). Evolution: survival of the selfless. *New Scientist*, 196(2628), 42-46. [https://doi.org/10.1016/S0262-4079\(07\)62792-4](https://doi.org/10.1016/S0262-4079(07)62792-4)
- Winkler, A. M., Ridgway, G. R., Webster, M. A., Smith, S. M., & Nichols, T. E. (2014). Permutation inference for the general linear model. *NeuroImage*, 92, 381-397.
- Wittmann, M.K., Lockwood, P.L., & Rushworth, M.F.S. (2018). Neural mechanisms of social cognition in primates. *Annual Review of*

- Neuroscience*, 41, 99-118.
- Yamagishi, T., Takagishi, H., Fermin, A. d., Kanai, R., Li, Y., & Matsumoto, Y. (2016). Cortical thickness of the dorsolateral prefrontal cortex predicts strategic choices in economic games. *Proceedings of the National Academy of Sciences*, 113(20), 5582-5587.
- Yang, J., Zhang, H., Ni, J., De Dreu, C. K., & Ma, Y. (2020). Within-group synchronization in the prefrontal cortex associates with intergroup conflict. *Nature Neuroscience*, 23(6), 754-760.
- Yarkoni, T., Poldrack, R. A., Nichols, T. E., van Essen, D. C., & Wager, T. D. (2011). Large-scale automated synthesis of human functional neuroimaging data. *Nature Methods*, 8, <https://doi.org/10.1038/nMeth.1635>
- Zahn, R., Moll, J., Krueger, F., Huey, E. D., Garrido, G., & Grafman, J. (2007). Social concepts are represented in the superior anterior temporal cortex. *Proceedings of the National Academy of Sciences*, 104(15), 6430-6435.
- Zhang, Y., Brady, M., & Smith, S. (2001). Segmentation of brain MR images through a hidden Markov random field model and the expectation-maximization algorithm. *IEEE Transactions on Medical Imaging*, 20(1). <https://doi.org/10.1109/42.906424>
- Zhang, H., Gross, J., De Dreu, C.K.W., & Ma, Y. (2019). Oxytocin promotes coordinated out-group attack during intergroup conflict in humans. *eLife*, 8, e40698.

Chapter 2 - Supplementary Information

Table S1
Archetypal SVOs. Adapted from Murphy and Ackerman (2014).

Archetypal Social Value Orientations					
Self	Other	Orientation	Inferred Motivation	Weight on one's own outcome	Weight on other's outcome
25.6	25.6	Prosocial	Maximize the joint payoff / minimize the difference between payoffs	1	1
30	15	Individualistic	Maximize the payoff to oneself	1	0
25.6	4.4	Competitive	Maximize the positive difference between the payoff for oneself and the payoff for the other	1	-1
15	0	Sadistic	Minimize the other's payoff	0	-1
4.4	4.4	Sadomasochistic	Minimize the joint payoff or minimize the difference between payoffs	-1	-1
0	15	Masochistic	Minimize the payoff to oneself	-1	0
4.4	25.6	Martyr	Maximize the negative difference between the other's payoff and the payoff for oneself	-1	1
15	30	Altruistic	Maximize the other's payoff	0	1

Table S2

List of questions asked to participants to obtain a measure of their Social Value Orientation. Questions were asked in random order.

Question		Self	Other	Question		Self	Other
1	A	15	30	13	A	15	0
	B	18.9	29.5		B	11.1	0.5
2	A	18.9	29.5	14	A	11.1	0.5
	B	22.5	28		B	7.5	2
3	A	22.5	28	15	A	7.5	2
	B	25.6	25.6		B	4.4	4.4
4	A	25.6	25.6	16	A	4.4	4.4
	B	28	22.5		B	2	7.5
5	A	28	22.5	17	A	2	7.5
	B	29.5	18.9		B	0.5	11.1
6	A	29.5	18.9	18	A	0.5	11.1
	B	30	15		B	0	15
7	A	30	15	19	A	0	15
	B	29.5	11.1		B	0.5	18.9
8	A	29.5	11.1	20	A	0.5	18.9
	B	28	7.5		B	2	22.5
9	A	28	7.5	21	A	2	22.5
	B	25.6	4.4		B	4.4	25.6
10	A	25.6	4.4	22	A	4.4	25.6
	B	22.5	2		B	7.5	28
11	A	22.5	2	23	A	7.5	28
	B	18.9	0.5		B	11.1	29.5
12	A	18.9	0.5	24	A	11.1	29.5
	B	15	0		B	15	30

Figure S1

