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Social mindfulness and social hostility

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Economic games often assume that people see what the other wants, and that cooperation brings about substantial costs. We examine social mindfulness and social hostility, relatively non-costly actions, that require a social mind, and that may have profound effects on others. Four propositions delineate the causes, workings, and consequences of social mindfulness and social hostility. The broad take-home message is that it often takes only a small gesture to promote and perhaps restore trust and cooperation (social mindfulness) or an equally small gesture to signal the wish to keep distance or spite the other (social hostility). Either way, it is not only outcomes that matter, but also the thought that counts.

Addresses

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Human cooperation is often used as a broad umbrella for the study of all behavior involving giving and taking, sharing and keeping, and trust and distrust. Theoretically rooted in classic and contemporary formulations of game theory and social decision making, it has benefited from insights from evolutionary science, economics, mathematics, psychology, neuroscience, political science, and more. Methodologically, it has been captured in experimental games (or economic games) rooted in game theory, such as public good dilemmas, resource dilemma, dictator game, ultimatum bargaining game, and the trust game. Clear strengths of these games are the strong focus on behavior rather than attitudes or self-reported behavior, the precision of the operationalization of abstract concepts (such as forgiveness, trust, or behavioral altruism), and the possibility to study motives that would cause ethical or practical complexities in other methodological approaches (for motives such as aggression or revenge, see Ref. [1]).

At the same time, the broad literature on human cooperation has also been somewhat cornered by its own

methodology by adopting two implicit assumptions that do not do justice to the variety of everyday interpersonal situations, even if many resemble social dilemmas. The first assumption is that cooperation should always involve a substantial material cost. This is evident in the prototypical prisoner's dilemma, where cooperation often entails a cost to the self that is quite substantial, even relative to the benefit it provides to the other [2]. Yet in everyday life, what often matters is sharing 'resources' that often are not tangible and not very costly at all. For example, the common desire to be recognized and appreciated can easily be fulfilled by a relatively cost-free compliment. Small gestures like this often have profound benefits.

A second claim that does not accord with reality is that people always see what others want. This is structurally embedded in most economic games; participants usually receive explicit information about their own and other's outcomes or payoffs (exceptions are economic games with incomplete information or noise [3–5]). However, in many everyday situations, people do not always consciously recognize ('see') what others want, how much they want it, or even that they are interdependent. Another's preferences may go by unseen because in many situations our attention is focused on our own needs and wishes. For example, people blocking the aisle in a grocery store are often unaware that they are slightly frustrating to those who have to wait.

The broader point is that one needs to see another's preferences to be able to act upon them, at least intentionally. Sometimes human cooperation is simply hindered by the fact that people do not see that they can. With that in mind, the study of cooperation may benefit from a new approach that takes into account that many social solutions do not need big investments, and that a lot depends on the current mindset with which people approach one another. In this brief review, we want to share our initial insights, experience, and knowledge about a new line of research on *social mindfulness* that we started five years ago.

Conceptualization and definition

Social mindfulness is being thoughtful of others in the present moment, and considering their needs and wishes before making a decision. This we operationalized as 'making other-regarding choices involving both skill and will to act mindfully toward other people's control over outcomes' ([6•], p. 86). An example would be a situation where John and Richard enter a pub for a beer. The bartender says that he usually has Budweiser and

Miller on tap, but today he unfortunately has only a single pint of Miller left. If John wants to be polite, he'll just order a Bud, so Richard has still something to choose from. Straight-out ordering the Miller without consulting Richard first would actually take this option away.

This example illustrates two important points. First, socially mindful behavior does not necessarily require big sacrifices. In fact, it often concerns relatively mundane costs, but spending these is still seen and appreciated by the second person. This addresses the first limitation of research on social dilemmas and economic games, where the absolute size of the costs exceeds the benefits for the second person [1].

Second, social mindfulness involves a 'social mind' that recognizes the needs and wishes of others in the present moment. Without this, people may not even see the others' preferences. The kind of prosocial behavior associated with social mindfulness requires that people (a) see what others may want, and (b) act accordingly. If people do not notice the option of being socially mindful, they are unlikely to act socially mindful beyond chance. However, being consistently unmindful may also be the result of *social hostility*, or the flip side of social mindfulness.

While social mindfulness implies an above-chance tendency of choosing the non-unique option, social hostility implies an above-chance tendency to take the unique option, thereby limiting the other person's options. As such, in this paradigm, social mindfulness and social hostility represent two opposing orientations, with indifference in between. Whereas social mindfulness and social hostility are directional, *indifference* means that people exhibit a tendency toward randomness in choosing the unique or non-unique option, which could be intentional or not.

So far, we have been measuring social mindfulness under the logic of having to choose between a unique and a multiplied product (see Figure 1). We acknowledge that social mindfulness is a much broader concept, and there will be 'many roads leading to Rome.' We see our recently developed paradigm as a promising start, however, because this paradigm combines the benefits of many economic games (behavioral, precise, and efficient) with overcoming some of their limitations. It allows us to enter a world of interdependence that involves low-cost prosociality in conjunction with the necessary social mind to look at actual socially mindful behavior. The same reasoning applies to social hostility.

Propositions

In the next section, we will share four evidence-based propositions, or relatively general principles. As with nearly any scientific proposition, these principles undoubtedly will be subject to scientific revision, refinement, and progress. We hope indeed that they will inspire

future research and theorizing; whether they confirm, refine, or falsify our propositions.

Proposition 1.

Social mindfulness and social hostility represent basic orientations

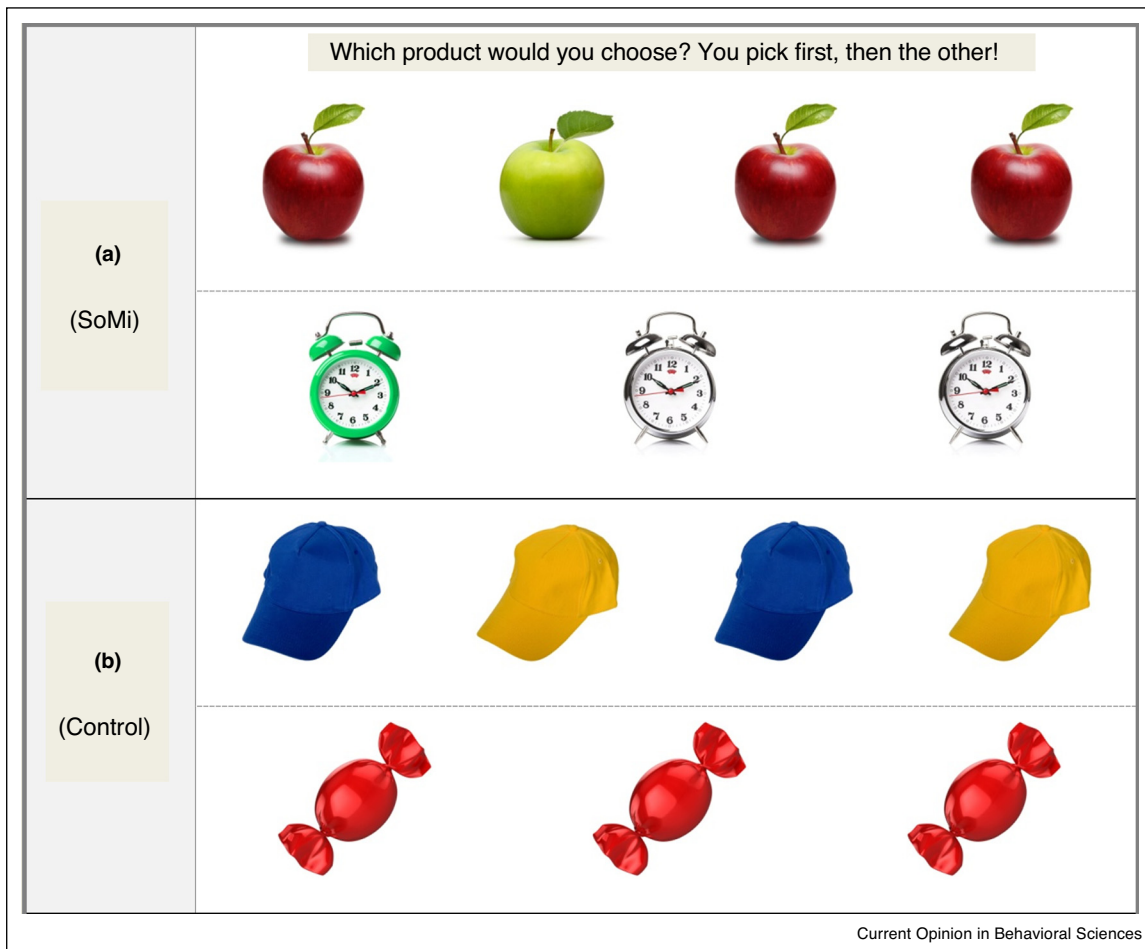
The concept of 'basic orientation' is meant as a description of a motivational state. It is located within a person (as personality variable), but can also be activated by relational (e.g., who the other is) or contextual variables (e.g., social norms communicated in a situation). Yet, social mindfulness is not only a motivational state. It is also closely linked to activating a social mind with clear cognitive components and neurological substrates. As such, it is also possible, if not likely, that social mindfulness can be affected by variables linked to cognitive control, such as cognitive load or time pressure, and is connected to executive control. And finally, this state should also be meaningfully connected to affect or guided by specific emotions.

Recent evidence shows that social mindfulness is positively correlated with individual differences in prosocial orientation, as assessed with a series of decomposed games (self-other allocations economic games; the slider measure [7]), $.20 < r < .40$, as well as self-reports of empathy, perspective-taking and the assessments of humility and honesty that address complementary forms of prosocial personality. The correlations, especially with the self-reports, are reliable but modest in size, $.15 < r < .30$, which we regard as good from the measurement perspective (some similarity, convergent validity) as well as from a conceptual point of view (some more uniqueness, divergent validity).

Evidence indicates that relational variables also impact social mindfulness and hostility. People are more mindful of their friends than of strangers [8]. Also, research uncovered that people are more mindful of strangers with a trustworthy than with an untrustworthy face [6**]. What is most novel, perhaps, is that another person can activate social hostility. In an online study we asked people to bring to mind people that would elicit intense feelings of dislike 'even when only thinking of this person' [9]. Such a disliked person elicited significantly less social mindfulness than a random stranger. Also, under such conditions, the number of socially unmindful choices tends to be larger than the number of socially mindful choices. This indicates that quite a number of participants exhibited consistent forms of social unmindfulness, conceptualized as social hostility. Similar levels of social hostility were obtained among high-level young soccer players when asked to think of a player from a rival club.

Social hostility could reflect an active desire to frustrate the other person by blocking goal pursuit, but a somewhat

Figure 1



Four example trials from the SoMi paradigm. In a dyadic setting (the participant and someone else), participants are asked to choose one of the products that are shown onscreen: 'What if each of you could take one of these products?' Depending on the design of the experiment, the usual instruction is that they are the first to choose, followed by the other. The ratio of products to choose from varies between one unique versus two identical (i.e., multiplied), and one unique versus three identical products. Control trials offer two versus two or three identical products. The paradigm consists of 24 trials in total, divided over 12 experimental (panel A) and 12 control trials (panel B), using 12 separate categories of products. The 24 trials are offered in fully randomized order, with the products randomly placed on a horizontal line. Each category of products is used twice, divided over the trials in such a way that all products are part of an experimental as well of a control trial; if it is offered once in a 3-structure, it will also be part of a 4-structure. Social mindfulness is calculated as the proportion of socially mindful choices in the experimental trials (0–1). See also www.socialmindfulness.nl.

more lenient interpretation may be that it leaves little doubt in signaling distance and disinterest in the other person. Still, this leaves open the possibility that aggression, escalated conflict, and feelings of dislike and hate can be rooted in relatively subtle actions such as social hostility – by which people might feel excluded, neglected, and disrespected.

Proposition 2.

General norms favor social mindfulness over social hostility

It is normative to behave cooperatively in a prisoner's dilemma, to share the resources in an ultimatum bargaining

or dictator game, and to contribute to public good dilemmas. Across these various games, cooperation is viewed as appropriate and moral, while non-cooperation tends to be viewed as inappropriate and immoral [10]. This normative frame might guide our expectations of others' behavior (e.g., people expect far more cooperation from others who are seen as honest [11]) and heuristic interpretations of others' behavior or situations [12].

Given that cooperative action in these economic games brings along substantial costs, we suggest that it is even more normative to cooperate in situations of social mindfulness. Why not be forthcoming if the costs of doing so

are trivial — and the benefits for the other quite substantial? But reversely, it may be more accurate to note that acting unmindfully runs counter to norms. Behaving in line with accepted social norms is appreciated and expected, but violating such norms does catch the eye and is disapproved in most situations. Ultimately, it only takes little to signal liking or respect.

When thinking about norms, it may be good to make a distinction between descriptive norms (guided by what most people do) and injunctive norms (guided by what most people approve of Ref. [13]). In our research, we have seen that with strangers most people tend to behave somewhat socially mindful, often choosing the non-unique option at least 60% of the times. Across various studies in which we studied age ranges from 20 to 50, we have also seen that these percentages might be slightly higher as people are older [9]. This result is consistent with earlier evidence showing more prosociality as people are older [14]. But importantly, perhaps it also becomes somewhat more normative, in an injunctive sense, to disapprove of social unmindfulness as people are older.

Proposition 3.

Consistent social mindfulness and social hostility partially involve conscious processing

We already noted that social mindfulness and social hostility can be conceptualized as basic orientations that reflect motivational states as well as a cognition and affect. Cognition is important, because it is intrinsically related to the concept of social mindfulness and social hostility; both take a social mind. The logic that ‘one needs to see it to be able to act upon it’ underlies both. There is not much research on these processes, but we fully expect that social mindfulness and social hostility will be undermined by competing sources of attention (cognitive load), time pressure, or alternative sources of distraction that conflict with executive functioning that enables people ‘to see’ the consequences of one’s actions for others. Interestingly, at present there is debate as to whether cooperation in economic games is deliberative or more automatic (see Ref. [15]). We suggest that social mindfulness and social hostility must involve cognition (‘to see it’), and therefore are unlikely to be completely automatic; some executive functioning is required. It clearly awaits future research to address this proposition for social mindfulness and social hostility.

Proposition 4.

Social mindfulness promotes trust, closeness, and cooperation, whereas social hostility promotes distrust, distance, and spite

In Proposition 2, we already outlined that it should be normative to act in a socially mindful manner — or at least not to act unmindfully. We have conducted two comparable studies that addressed these issues ([6**], Study 2a and

b). We compared judgments regarding (a) a person who chose the non-unique object twice, (b) a person who chose the unique and the non-unique object, and (c) a person who chose the unique object twice. Both studies revealed that the first two persons were viewed as quite nice and trustworthy. But the person who opted for the unique object twice was viewed as far less nice, less trustworthy, and more selfish than the other two. Although presumably it is normative to behave socially mindful, it seems that people do give each other the benefit of the doubt. The plausible explanation is that people might come to understand that the other person has not ‘seen’ it (yet). Pursuing this reasoning further, it is quite possible that people see another person’s random choices — some random mixture of choosing the unique and non-unique object — as caused by the actor not seeing it, rather than in terms of bad intent. Still, it can be a signal conveying ‘indifference.’

When comparing these results to research on social dilemmas, we see that observers are more lenient, and perhaps more forgiving, of a socially unmindful choice than of a non-cooperative choice. In social dilemmas, many people assign great importance to a single non-cooperative choice, and respond non-cooperatively. An interesting question is, of course, which model is more accurate: The one suggested by social dilemma research or the one suggested by social mindfulness research. We think the latter, the reason being that everyday life is strongly colored by misty clouds (or noise), which is why leniency or a benefit-of-the-doubt-approach is probably functional and common in daily interactions [4,5]. But still, if people exhibit social hostility — social unmindfulness with high consistency — initial doubts can be replaced with greater confidence. Future research could assess at what point people replace leniency with distrust and hostility.

Concluding remarks

However subtle, social mindfulness and social hostility refer to behavior that can have profound consequences for interpersonal relations. Social mindfulness is likely to promote trust and cooperation, whereas social hostility is likely to promote distrust, distance, or even aggression. Moreover, it focuses on a domain of situations, and hence a domain of social behavior, that has been largely overlooked in the extant literature on social dilemmas and other economic games. The same holds for the notion that it often takes a social mind to see that we can behave in a socially mindful manner. The broad take-home message is that it often only takes a small gesture to promote and perhaps restore trust and cooperation, or undermine them and inspire even aggression. Either way, it is not only the outcomes that matter. It is also the thought that counts.

Conflict of interest statement

Nothing declared.

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References

- Van Lange PAM, Joireman J, Parks CD, Van Dijk E: **The psychology of social dilemmas: a review.** *Organ Behav Hum Decis Process* 2013, **120**:125-141 <http://dx.doi.org/10.1016/j.obhdp.2012.11.003>.
- Kelley HH, Holmes JG, Kerr NL, Reis HT, Rusbult CE, Van Lange PAM: *An Atlas of Interpersonal Situations.* Cambridge: Cambridge University Press; 2003, .
- Fudenberg D, Tirole J: *Game Theory.* Cambridge: MIT Press; 1991, .
- Nowak MA, Sigmund K: **Tit-for-tat in heterogeneous populations.** *Nature* 1992, **355**:250-253 <http://dx.doi.org/10.1038/355250a0>.
- Van Lange PAM, Ouwerkerk JW, Tazelaar MJA: **How to overcome the detrimental effects of noise in social interaction: the benefits of generosity.** *J Pers Soc Psychol* 2002, **82**:768-780 <http://dx.doi.org/10.1037/0022-3514.82.5.768>.
- Van Doesum NJ, Van Lange DAW, Van Lange PAM: **Social mindfulness: skill and will to navigate the social world.** *J Pers Soc Psychol* 2013, **105**:86-103 <http://dx.doi.org/10.1037/a0032540>.
This article is the first to introduce the concept of social mindfulness. It reports several studies showing that people can be instructed to be socially mindful, that consistent forms of socially unmindful behavior undermines trust, that people are more socially mindful to others with trustworthy faces, and that social mindfulness correlates with empathy, social value orientation, and perspective-taking.
- Murphy RO, Ackermann KA, Handgraaf MJJ: **Measuring social value orientation.** *Judgm Decis Mak* 2011, **6**:771-781 <http://dx.doi.org/10.2139/ssrn.1804189>.
- Van Doesum NJ: *The Nearness of You: Preliminary Studies in Social Mindfulness.* (Unpublished master's thesis) the Netherlands: VU University Amsterdam; 2011, .
- Van Doesum NJ, Righetti F, Van Prooijen JW, Verburgh L, Visserman ML, Van Lange PAM: *Between Friends and Foes: Mindful Rivalry and the Dynamics of Social Mindfulness.* VU University Amsterdam; 2014. Unpublished manuscript.
- Weber JM, Kopelman S, Messick DM: **A conceptual review of decision making in social dilemmas: applying a logic of appropriateness.** *Pers Soc Psychol Rev* 2004, **8**:281-307 http://dx.doi.org/10.1207/s15327957pspr0803_4.
- Van Lange PAM, Kuhlman DM: **Social value orientations and impressions of partner's honesty and intelligence: a test of the might versus morality effect.** *J Pers Soc Psychol* 1994, **67**:126-141 <http://dx.doi.org/10.1037/0022-3514.67.1.126>.
- De Dreu CK, Boles TL: **Share and share alike or winner take all? The influence of social value orientation upon choice and recall of negotiation heuristics.** *Organ Behav Hum Decis Process* 1998, **76**:253-276 <http://dx.doi.org/10.1006/obhd.1998.2806>.
- Cialdini R: **The focus theory of normative conduct.** In *Handbook of Theories of Social Psychology*, vol. 2. Edited by Van Lange PAM, Kruglanski AW, Higgins ET. New York: Sage; 2012:295-312.
- Van Lange PAM, Otten W, De Bruin EMN, Joireman JA: **Development of prosocial, individualistic, and competitive orientations: theory and preliminary evidence.** *J Pers Soc Psychol* 1997, **73**:1330-1344 <http://dx.doi.org/10.1037/0022-3514.73.4.733>.
- Rand D, Greene JD, Nowak M: **Spontaneous giving and calculated greed.** *Nature* 2012, **489**:427-430 <http://dx.doi.org/10.1038/nature11467>.
- Vuolevi JHK, Van Lange PAM: **Beyond the information given: the power of the belief in self-interest.** *Eur J Soc Psychol* 2010, **40**:26-34 <http://dx.doi.org/10.1002/ejsp.711>.

Further reading

- Balliet D, Mulder LB, Van Lange PAM: **Reward, punishment, and cooperation: a meta-analysis.** *Psychol Bull* 2011, **137**:594-614 <http://dx.doi.org/10.1037/a0023489>.
- Balliet D, Van Lange PAM: **Trust, conflict, and cooperation: a meta analysis.** *Psychol Bull* 2013, **139**:1090-1112 <http://dx.doi.org/10.1037/a0030939>.
- Balliet D, Van Lange PAM: **Trust, punishment, and cooperation across 18 societies: a meta-analysis.** *Perspect Psychol Sci* 2013, **8**:363-379 <http://dx.doi.org/10.1177/1745691613488533>.
- Barefoot JC, Maynard KE, Beckham JC, Brummett BH, Hooker K, Siegler IC: **Trust, health, and longevity.** *J Behav Med* 1998, **21**:517-626 <http://dx.doi.org/10.1023/A:1018792528008>.
- Batson CD: *Altruism in Humans.* New York: Oxford University Press; 2011, .
This book provides a review of research on altruism, with a strong emphasis on empathy as a key root of altruism. The conclusion, based on at least three decades of research, is that altruistic motivation does exist, and that it can be triggered by situational manipulations of empathy, such as observing a person's suffering or receiving information about another person's misfortune.
- Bekkers R: **Trust and volunteering: selection or causation? Evidence from a 4 year panel study.** *Polit Behav* 2012, **32**:225-247 <http://dx.doi.org/10.1007/s11109-011-9165-x>.
- Boyd R, Richerson PJ: **Culture and the evolution of human cooperation.** *Philos Trans R Soc-B* 2009, **364**:3281-3288 <http://dx.doi.org/10.1098/rstb.2009.0134>.
- Buchan NR, Grimalda G, Wilson R, Brewer M, Fatas E, Foddy M: **Globalization and human cooperation.** *Proc Natl Acad Sci U S A* 2009, **106**:4138-4142 <http://dx.doi.org/10.1073/pnas.0809522106>.
- Buchan NR, Johnson EJ, Croson RTA: **Let's get personal: an international examination of the influence of communication, culture, and social distance on other regarding preferences.** *J Econ Behav Organ* 2006, **60**:373-398 <http://dx.doi.org/10.1016/j.jebo.2004.03.017>.
- Caporael LR, Dawes RM, Orbell JM, van de Kragt AJC: **Selfishness examined: cooperation in the absence of egoistic incentives.** *Behav Brain Sci* 1989, **12**:683-699 <http://dx.doi.org/10.1017/S0140525X00025292>.
- Carter NL, Weber M: **Not Pollyannas: higher generalized trust predicts lie detection ability.** *Soc Psychol Pers Sci* 2010, **1**:274-279 <http://dx.doi.org/10.1177/1948550609360261>.
- Cook KS, Hardin R, Levi M: *Cooperation Without Trust?* New York: Russell Sage Foundation; 2005, .
- Crone EA, Will GJ, Overgaauw S, Güroğlu B: **Social decision-making in childhood and adolescence.** In *Social Dilemmas: New Perspectives on Reward and Punishment.* Edited by Van Lange PAM, Rockenbach B, Yamagishi T. New York: Oxford University Press; 2013.
- Crockett MJ, Clark L, Tabibnia G, Lieberman MD, Robbins TW: **Serotonin modulates behavioral reactions to unfairness.** *Science* 2008, **320**:1739 <http://dx.doi.org/10.1126/science.1155577>.
- Cushman FA: **The neural basis of morality: not just where, but when.** *Brain* 2014, **137**:974-975 <http://dx.doi.org/10.1093/brain/awu049>.
- Decety J, Batson CD: **Social neuroscience approaches to interpersonal sensitivity.** *Soc Neurosci* 2007, **2**:151-157 <http://dx.doi.org/10.1080/17470910701506060>.
- de Waal FBM, Suchak M: **Prosocial primates: selfish and unselfish motivations.** *Philos Trans R Soc-B* 2010, **365**:2711-2722 <http://dx.doi.org/10.1098/rstb.2010.0119>.

33. Dunn EW, Aknin LB, Norton MI: **Spending money on others promotes happiness.** *Science* 2008, **319**:1687-1688 <http://dx.doi.org/10.1126/science.1150952>.
34. Dunning D, Anderson JE, Schlosser T, Ehlebracht D, Fetchenauer D: **Trust at zero acquaintance: more a matter of respect than expectation of reward.** *J Pers Soc Psychol* 2014, **107**:122-141 <http://dx.doi.org/10.1037/a0036673>.
 Many scientists assume that trust promotes cooperation. This article shows that this is not necessarily always true. Trust can also serve the function of showing respect, even with strangers. Trust is considered to act as a norm. It is what people think they should do. And this may quite independent of how they behave themselves.
35. Fehr E, Gächter S: **Altruistic punishment in humans.** *Nature* 2002, **415**:137-140 <http://dx.doi.org/10.1038/415137a>.
36. Fehr E, Gintis H: **Human motivation and social cooperation: experimental and analytical foundations.** *Ann Rev Sociol* 2007, **33**:43-64 <http://dx.doi.org/10.1146/annurev.soc.33.040406.131812>.
37. Fetschenhauer D, Dunning D: **Do people trust too much or too little?** *J Econ Psychol* 2009, **30**:263-276 <http://dx.doi.org/10.1016/j.joep.2008.04.006>.
38. Gächter S, Herrmann B, Thöni C: **Culture and cooperation.** *Philos Trans R Soc-B* 2010, **365**:2651-2661 <http://dx.doi.org/10.1098/rstb.2010.0135>.
 This paper shows that culture has a substantial influence on cooperation, above and beyond individual differences or group-level differences. Culture matters for cooperation, especially when actors operate in environments where they can punish each other.
39. Halevy N, Bornstein G, Sagiv L: **"In-group love" and "out-group hate" as motives for individual participation in intergroup conflict. A new game paradigm.** *Psychol Sci* 2008, **19**:405-411 <http://dx.doi.org/10.1111/j.1467-9280.2008.02100.x>.
40. Henrich J, Ensminger J, McElreath R, Barr A, Barrett C, Bolyanatz A, Cardenas JC, Gurven M, Gwako E, Henrich N, Lesorogol C, Marlowe F, Tracer D, Ziker JP: **Markets, religion, community size, and the evolution of fairness and punishment.** *Science* 2010, **327**:1480-1484 <http://dx.doi.org/10.1126/science.1182238>.
 This papers examines 15 diverse populations and provide original evidence that fairness and prosociality are not only determined by an innate psychology, but also by norms and institutions that have emerged over the course of human history.
41. Henrich J, McElreath R, Barr A, Ensminger J, Barrett C, Bolyanatz A, Cardenas JC, Gurven M, Gwako E, Henrich N, Lesorogol C, Marlowe F, Tracer D, Ziker J: **Costly punishment across human societies.** *Science* 2006, **312**:1767-1770 <http://dx.doi.org/10.1126/science.1127333>.
42. Herrmann B, Thöni C, Gächter S: **Antisocial punishment across societies.** *Science* 2008, **319**:1362-1367 <http://dx.doi.org/10.1126/science.1153808>.
43. Joireman J, Kamdar D, Daniels D, Duell B: **Good citizens to the end? It depends: empathy and concern with future consequences moderate the impact of a short-term time horizon on organizational citizenship behaviors.** *J Appl Psychol* 2006, **91**:1307-1320 <http://dx.doi.org/10.1037/0021-9010.91.6.1307>.
44. Kerr NL, Rumble AC, Park E, Ouwerkerk JW, Parks CD, Gallucci M, Van Lange PAM: **How many bad apples does it take to spoil the whole barrel? Social exclusion and toleration for bad apples.** *J Exp Soc Psychol* 2009, **45**:603-613 <http://dx.doi.org/10.1016/j.jesp.2009.02.017>.
45. Kim H, Markus HR: **Deviance or uniqueness, harmony or conformity? A cultural analysis.** *J Pers Soc Psychol* 1999, **77**:785-800 <http://dx.doi.org/10.1037/0022-3514.77.4.785>.
46. Klapwijk A, Van Lange PAM: **Promoting cooperation and trust in noisy situations: the power of generosity.** *J Pers Soc Psychol* 2009, **96**:83-103 <http://dx.doi.org/10.1037/a0012823>.
47. Kollock P: **"An eye for an eye leaves everybody blind": cooperation and accounting systems.** *Am Sociol Rev* 1993, **58**:768-786 Stable URL: <http://www.jstor.org/stable/2095950>.
48. Kosfeld M, Heinrichs M, Zak PJ, Fischbacher U, Fehr E: **Oxytocin increases trust in humans.** *Nature* 2005, **435**:673-676 <http://dx.doi.org/10.1038/nature03701>.
49. Lienard P: **Beyond kin: cooperation in a tribal society.** In *Social Dilemmas: New Perspectives on Reward and Punishment*. Edited by Van Lange PAM, Rockenbach B, Yamagishi T. New York: Oxford University Press; 2012.
 This chapter provides unique evidence form a tribal society showing that in the absence of central institutions, cooperation is governed not only by kin and friendship bonds, but also the institution of informal generation and age-set systems, which foster collective sanctioning (rather than individual sanctioning) and reinforcement of mutual monitoring.
50. McCullough ME, Kimeldorf MB, Cohen AD: **An adaptation for altruism? The social causes, social effects, and social evolution of gratitude.** *Curr Direct Psychol Sci* 2008, **17**:281-284 <http://dx.doi.org/10.1111/j.1467-8721.2008.00590.x>.
51. Mifune N, Hashimoto H, Yamagishi T: **Altruism towards in-group members as a reputation mechanism.** *Evol Hum Behav* 2010, **31**:109-117 <http://dx.doi.org/10.1016/j.evolhumbehav.2009.09.004>.
52. Miller DT, Ratner RK: **The disparity between the actual and assumed power of self-interest.** *J Pers Soc Psychol* 1998, **74**:53-62 <http://dx.doi.org/10.1037/0022-3514.74.1.53>.
 This classic paper has energized novel research on the issue that the belief in (rational) self-interest is quite pervasive, but not entirely accurate. The so-called myth of self-interest has recently been supported in very concrete interaction situations, in which people tend to fill in missing information with their belief in self-interest (see Vuolevi and Van Lange [75]). The myth of self-interest is a pervasive belief that can easily give rise to self-fulfilling prophecies, as our interactions are shaped by these beliefs.
53. Mischel W: **Self-control theory.** In *Handbook of Theories of Social Psychology*, vol. 2. Edited by Van Lange PAM, Kruglanski AW, Higgins ET. Thousand Oaks, CA: Sage; 2012:1-22.
54. Nannestad P: **What have we learned about generalized trust, if anything?** *Ann Rev Polit Sci* 2008, **11**:413-436 <http://dx.doi.org/10.1146/annurev.polisci.11.060606.135412>.
55. Nowak MA: **Five rules for the evolution of cooperation.** *Science* 2006, **314**:1560-1563 <http://dx.doi.org/10.1126/science.1133755>.
56. Nowak MA, Highfield R: *SuperCooperators.* New York: Free Press; 2011, .
57. Nowak MA, Sigmund K: **Evolution of indirect reciprocity.** *Nature* 2005, **437**:1291-1298 <http://dx.doi.org/10.1038/nature04131>.
 This classic paper provides one compelling answer to the evolution of cooperation. In addition to direct reciprocity, it may be that systems might promote tendencies toward helping is reciprocated not by the recipient, but by others. One key mechanism is reputation, social information that is quickly shared in social environments.
58. Piff PK, Kraus MW, Côté S, Cheng BH, Keltner D: **Having less, giving more: the influence of social class on prosocial behavior.** *J Pers Soc Psychol* 2010, **99**:771-784 <http://dx.doi.org/10.1037/a0020092>.
59. Poteete AR, Janssen MA, Ostrom E (Eds): *Working Together: Collective Action, the Commons, and Multiple Methods in Practice.* Princeton: Princeton University Press; 2010.
60. Reinders Folmer C, Klapwijk A, De Cremer D, Van Lange PAM: **One for all: what representing a group may do to us.** *J Exp Soc Psychol* 2012, **48**:1047-1056 <http://dx.doi.org/10.1016/j.jesp.2012.04.009>.
61. Righetti F, Finkenauer C, Finkel EJ: **Low self-control promotes the willingness to sacrifice in close relationships.** *Psychol Sci* 2013, **24**:1533-1540 <http://dx.doi.org/10.1177/0956797613475457>.
62. Rusbult CE, Van Lange PAM: **Interdependence, interaction, and relationships.** *Annu Rev Psychol* 2003, **54**:351-375 <http://dx.doi.org/10.1146/annurev.psych.54.101601.145059>.
63. Schneider IK, Konijn EA, Righetti F, Rusbult CE: **A healthy dose of trust: the relationship between interpersonal trust and health.** *Pers Relatsh* 2011, **78**:668-676 <http://dx.doi.org/10.1111/j.1475-6811.2010.01338.x>.

64. Simpson JA: **Psychological foundations of trust.** *Curr Direct Psychol Sci* 2007, **16**:264-268 <http://dx.doi.org/10.1111/j.1467-8721.2007.00517.x>.
65. Singer T, Seymour B, O'Doherty JP, Stephan KE, Dolan RJ, Frith CD: **Empathic neural responses are modulated by the perceived fairness of others.** *Nature* 2006, **439**:466-469 <http://dx.doi.org/10.1038/nature04271>.
66. Tazelaar MJA, Van Lange PAM, Ouwerkerk JW: **How to cope with "noise" in social dilemmas: the benefits of communication.** *J Pers Soc Psychol* 2004, **87**:845-859 <http://dx.doi.org/10.1037/0022-3514.87.6.845>.
67. Todorov A, Duchaine B: **Reading trustworthiness in faces without recognizing faces.** *Cognit Neuropsychol* 2008, **25**:395-410 <http://dx.doi.org/10.1080/02643290802044996>.
68. Vaish A, Carpenter M, Tomasello M: **Sympathy through affective perspective taking and its relation to prosocial behavior in toddlers.** *Dev Psychol* 2009, **45**:534-543 <http://dx.doi.org/10.1037/a0014322>.
69. Van Dijk E, De Kwaadsteniet EW, De Cremer D: **Tacit coordination in social dilemmas: the importance of having a common understanding.** *J Pers Soc Psychol* 2009, **96**:665-678 <http://dx.doi.org/10.1037/a0012976>.
70. Van Lange PAM: **Generalized trust: lessons from genetics and culture.** *Curr Direct Psychol Sci* 2015. (in press).
71. Van Lange PAM: **Does empathy trigger only altruistic motivation? How about selflessness and justice?.** *Emotion* 2008, **8**:766-774 <http://dx.doi.org/10.1037/a0013967>.
72. Van Lange PAM, Vinkhuyzen AAE, Posthuma D: **Genetic influences are virtually absent for trust.** *PLOS ONE* 2014, **9**:e93880 <http://dx.doi.org/10.1371/journal.pone.0093880>.
Many scientists have claimed that nearly anything is heritable. Indeed, political preferences, likelihood of divorce, and even religiosity is heritable. This paper uncovers that generalized trust does not seem to be heritable, a finding that is consistent with large cultural differences on trust.
73. Van Lange PAM, Schippers M, Balliet D: **Who volunteers in psychology experiments? An empirical review of prosocial motivation in volunteering.** *Pers Individ Diff* 2011, **51**:284-297 <http://dx.doi.org/10.1016/j.paid.2010.05.038>.
74. Van Vugt M, Hardy CL: **Cooperation for reputation: wasteful contributions as costly signals in public goods.** *Group Process Intergroup Relat* 2010, **13**:101-111 <http://dx.doi.org/10.1177/1368430209342258>.
76. Weber MJ, Murnighan JK: **Suckers or saviors? Consistent contributors in social dilemmas.** *J Pers Soc Psychol* 2008, **95**:1340-1353 <http://dx.doi.org/10.1037/a0012454>.
77. Yamagishi T: *Trust: The Evolutionary Game of Mind and Society.* • New York: Springer; 2011, .
This book provides a thoughtful review of research on trust. It discusses many issues, including the paradox of trust: When it is most difficult to trust — when there is a stronger conflict of interests in a situation — this is when trust is most needed to form a cooperative, well-functioning relationship.
78. Yamagishi T, Hashimoto H, Schug J: **Preferences versus strategies as explanations for culture-specific behavior.** *Psychol Sci* 2008, **19**:579-584 <http://dx.doi.org/10.1111/j.1467-9280.2008.02126.x>.