

# Why framing should be all about the impact of goals on cognitions and evaluations

*Siegwart M. Lindenberg*

In this contribution, I argue that the heart of framing effects lies in the effects that are exerted by goals on cognitive and evaluative processes. Framing is not just a person's »definition of the situation«, but is also a selective relationship between person and situation: it thus has a strong impact on who you are at that moment, what you like and dislike, what you know, what you see, what you ignore, and what affects you and what leaves you cold. For high-level goals, framing effects are often automatic; they are not a matter of direct choice but are subject to a complex process of self-regulation in which one frame may be apriorily stronger than another (think of problems of self-discipline) and in which »mixed motives« (combination of foreground and background goals) play a vital role. For sociology, the crucial fact is that this process of self-regulation is largely a social product (including the evolution of the brain under social circumstances). Sociology's microfoundations would have to unfold its genesis and functioning. Quite contrary to the assumptions of »natural« rationality in microeconomics and SEU (Subjective Expected Utility) theory, this view of self-regulation thus leads to the assumption of »social« rationality.

Let me begin by voicing the highest praise for Hartmut Esser. The gargantuan synthesis presented in his monumental work on the General and Special Foundations of Sociology is without its equal in the contemporary literature of sociology and one would have to look to Parsons for something that would even approach such a broad synthesis. I voice this praise not entirely without some personal satisfaction. I believe that few people have the luck I had to have virtually all of my ideas that I take some pride in taken up by Hartmut Esser, and in many cases he made them much more systematic than I had ever done. I left Germany more than forty years ago and yet, many of my ideas are alive and well in this country: from RREEMM to social production functions, from bridge assumptions and bridge hypotheses to the method of decreasing abstraction, from rules of

transformation and bastard theories to framing, each has its place, and for that I am very grateful.

There is, however, one thing I am less enthusiastic about, and that is what Hartmut Esser did with framing. In his 1990 article on habits and frames (Esser 1990) in which he began his framing career, he presented two mechanisms for which he wanted to demonstrate that they can be reconstructed in terms of SEU: habits and frames. For habits, he used an SEU reconstruction of Simon's satisficing by Riker and Ordeshook, combined with Heiner's theory of predictable behavior. For framing, he used my framing (discrimination) model. Two important things happened in this paper. First, the wish to show that both habits and frames were actually within the bounds of rationality crystallized in the conviction that this is tantamount to being reconstructible in terms of SEU. From then on, to be able to reconstruct processes in SEU had acquired a very high priority on Esser's theoretical research agenda. Second, in building on this paper, he decided to take his reconstruction of habits as the prototype on how to proceed with both habits and frames. In this way, framing was grafted onto the SEU reconstruction of habits and thus had to follow the same formalism.

It turned out that for framing, this formalism was a bed of Procrustes. Two very important ingredients did not fit into the formalism and were therefore left by the wayside, banned to the fringe of verbal rhetoric surrounding the overall model: the framing effect of goals, and the dynamics of foreground and background goals. This »cleansing« became definite when a few years later, Esser brought in one of the many dual process theories (the MODE-Model by Fazio 1990) in order to shore up the model by research in cognitive social psychology (see Esser 1996). It was no accident that he chose a dual process model that is all about routine versus non-routine processing rather than, say, automatic versus controlled, or impulsive versus reflective behavior (see Kruglanski/Orehek 2007; Strack/Deutsch 2004). Fazio's model also invites close attention to attitude strength (wherever that may come from), rather than to the situational cues that trigger frames. Bringing in Fazio's model was both the consequence and the reinforcement of the primacy of the habit model onto which Esser had grafted framing processes. From then on, the individual and social worlds were thought to be primarily linked by the »match versus mismatch« of mental models of the individual with those of the »objective« world. If there is a match, processing will be automatic (i.e., habits reign), if

there is a mismatch, reflective/calculating behavior will ensue. All that is left with regard to goals is the standard assumption that people's major goal is to maximize utility. This is an unfortunate move, because it neglects the architecture of mental processes that generates the necessity to consider framing effects in the first place. In the next section, I will discuss this architecture in some more detail.

## Brief overview of the theory of goal-framing

### Modularity and goals

It is by now fairly well established that the architecture of mental processes is (semi)modular. By this I mean that mental processes are organized with functional specificity (Barret/Kurzban 2006) rather than as general problem solvers. For example, there are modules that have been hardwired during the course of evolution, such as face recognition, and modules that are acquired, such as word recognition and habits. Face recognition and object recognition use different regions in the brain; they are functionally independent and information is processed differently (see Kanwisher et al. 1997). But social life is rife with uncertainty and sudden changes and requires forms of modularity that are flexible and sensitive to changing situations. Indeed, there are such flexible modules. They are governed by goals that are activated (focal) and consist of *selective activation* of cognitive processes and evaluations for functionally specific purposes (Gollwitzer/Bargh 1996; Kruglanski/Köpetz 2009; Marsh et al. 1998, Förster et al. 2005). For example, if one is hungry, attention will be selectively directed to things that appear to be edible, one is particularly sensitive to information that has to do with eating and food, the memories and chunks of knowledge that are activated pertain to eating and food (how it tastes, where to find it, how to prepare it etc.) (see Schachter 1968). So *the first lesson* is that, rather than being general problem solvers and dealing with the full range of preferences and constraints, people are made to be momentarily rather one-sided by the goal that is focal at the moment. A focal goal, in turn, can activate subgoals as well as hard- and softwired (i.e., learned) submodules. For example, the goal to act appropriately can activate the subgoal to be honest as well as the hardwired submodule of face-recognition and the softwired, script-driven submodule of shaking hands. The submodules are in the ser-

vice of goal achievement. Thus, if we want to trace effects of modularity, we had better concentrate on the effects of goals.

#### Foreground/background goals

The flexibility created by goal-modules over and above wired modules is still quite limited. It is enhanced by a very important feature in the architecture of mental processes: the influence of background goals. For example, when one is hungry, there also may be health concerns about what one eats. Health goals are then not focal but may be active in the background, fine-tuning one's attention to low-fat foods (see Kruglanski et al. 2002; Shah/Kruglanski 2002). The *second lesson* is that the importance of background goals can hardly be overestimated. It is background goals that make modularity porous (and in that sense »semi«modular), that make »mixed motives« the rule rather than the exception, and that create much of the dynamics of goal stability and change. For example, conformity to norms can be weakened by the cost of norm conformity. Thus, if the goal to act appropriately is focal, it can be weakened by contrary background goals, such as the goal not to lose valuable resources. Conversely, to stay in the example just given, conformity to norms can be strengthened by the warm, glowing feeling of doing good. In that case, the goal to act appropriately is strengthened by the background goal to improve the way one feels at the moment. Note that in both examples, the goal to act appropriately remains focal and thus influences much of the selectivity of the cognitive processes. In order to have an effect, situational cues that pertain to a background goal will have to be much stronger than cues that pertain to the foreground goal. In short, the grip of the focal goal on the cognitive processes is strengthened or weakened by the background goals.

#### The goal-frames

There are many goals, and they differ not only in substance but also in inclusiveness. It is the inclusiveness that determines the reach of the modularity: the more inclusive, the wider the range of modularity. One could leave it to the context under study to deal with specific goals and their triggers. However, given the potential for one-sidedness due to modularity ef-

fects, it is advisable to search for the most inclusive goal-driven modules. What might they be? There is no room to go into more detail (see Lindenberg 2009, and Lindenberg in print). In a nutshell, the reasoning behind the particular selection within goal-framing theory is as follows. There seems to be a top goal that influences all others: to improve one's condition. This goal has long been recognized and it leads to the importance of curiosity, reference points, status quo effects and satiation. Given modularity, it is clear that individuals cannot aim at an »overall« improvement of their condition. Rather, attempts at improvement will be as one-sided as the most inclusive goals dictate. From an evolutionary point of view, the most inclusive goal modules will have evolved around the most important fault lines for adaptive behavior of humans living in groups. The first such fault line is that of the individual versus the collective. Individuals can seek improvement as individuals or as members of a group, with very different subgoals and submodules. The second fault line is short-term versus longer-term, which pertains especially to improvement of the individual condition. This leads to three overarching goals that generate a high level of modularity: a goal »to improve the way one feels right now« (a hedonic goal, individual, short-term), a goal »to guard and improve one's resources« (a gain goal, individual, longer-term), and a goal to »act appropriately« (a normative goal, collective, mostly with linked shorter- and longer-term aspects). The difference between a hedonic goal and a gain goal is not about need satisfaction versus resources but about short-term and longer-term. It so happens that satisfaction of need will generally pull towards the short term, while improving one's resources will pull towards the longer term. However, there are also hedonic aspects of resources, such as a sense of control or reduction fear. Thus people may also get impatient about money. This seems to have a neurological basis. Different areas in the brain are used when people choose short-term over longer-term, even when money is involved (see McClure et al. 2004).

A focal goal together with these cognitive and evaluative consequences is called a »goal-frame«, indicating that the goal creates a frame within which all other processes take place. Goal-framing is thus the same as the (semi)modularity brought about by goals. Which of the three goals is focal (i.e., is the goal-frame) is not open to an individual's deliberate choice but depends on internal and external cues that trigger the goal. These three goals are so important that they are likely to be chronically accessible. This means that if one of them is focal, the other two are in the background,

increasing or decreasing the strength of the focal goal. The *third lesson* thus is that there are three overarching goal-modules and that they are likely to govern much of the dynamics of (semi)modularity.

#### Different a priori strength

The three overarching goal-frames are apriorily not equally strong. Due to the role of emotions and the direct link to needs, the hedonic goal-frame will be apriorily the strongest, meaning that it will win out in competition with the other two, unless the others are supplied with extra stabilizing background goals. The normative goal-frame will apriorily be the weakest. Unless one is the victim of the treatment by others, acting appropriately is furthest removed from direct consequences for the individual, yet it asks sacrifices from the individual. Thus, unaided, the normative goal-frame would be easily displaced by a gain goal or by a hedonic goal (see Lindenberg 2009). The gain goal-frame will be in between the hedonic and the normative goal-frames in terms of a priori strength. In the gain goal-frame, there are direct consequences for the individual, but they are removed in time, and many of the consequences have to do with instrumental means that are less apt to mobilize emotions.

The a priori ordering of goal-frames in terms of strength can be changed thanks to the workings of background goals that weaken or strengthen a goal-frame. The *fourth lesson* is that for sociology, a prime task is to unravel the social and institutional conditions under which the a priori strength of the three goal-frames is changed. For example, much of Max Weber's work can be interpreted as an analysis of legal, religious, and technological developments that made and kept dominant a gain goal-frame in Western societies but at the same time limited its strength by means of normative concerns in the background. Much of Durkheim's work is concerned with the question of what stabilizes a normative goal-frame (such as rituals, being socially integrated, common socialization in schools), what might happen if that stabilization fails (depression, suicide), and why it might fail (division of labor, individualization, dominating gain-goal).

### Self-regulation

Modularity, even if it is porous, creates much one-sidedness. People may get into trouble with their health resources if they remain in a hedonic goal-frame and overeat. Or they lie, cheat and obfuscate because for them, gain in terms of money or status seems so important that they cannot stick to norms. The social surroundings may not supply sufficient supports for preventing or dealing with one-sidedness. On the contrary, advertisements may urge people to eat more, to borrow money and/or to spend money on expensive clothes, cars, and houses. Organizations may stimulate status competition, and society as a whole may judge success in terms of money. Even the environment of evolutionary adaptation long ago is not likely to have created conditions that would eliminate the dangers of one-sidedness. Living in groups and being dependent on groups, people will have had to be able to control their anger and aggression, will have had to get themselves to make sacrifices for the common good that they would rather have avoided etc. (Barkley 2004; Leary/Buttermore 2003). Basic abilities of self-regulation to deal with one-sidedness will have evolved under selective pressures. Given that people cannot simply choose a particular goal-frame, what are these basic abilities? From the point of view of goal-modularity, self-regulation will at times involve the flexible change of goal-frames and, at other times, the situational maintenance of a weaker goal-frame against disturbing and stronger goals (see also Spinrad et al. 2006). An important aspect of self-regulation is emotion regulation. Emotions such as fear or anger make it difficult to sustain a gain or a normative goal-frame and they can be socially very disruptive. Emotion regulation is a crucial element of social competence (see Denham et al 2003; Schultz et al. 2001). Not showing emotions when it is called for (say, when your mother dies) is socially also inadequate. Some people have managed to stabilize their normative goal-frame to such an extent that they have to plan times for hedonic experiences (see Kivetz/Simonson 2002).

Various strategies are open for self-regulating. First of all, because goal-frames are highly sensitive to environmental influences, people learn that some environments will be more supportive of a particular goal-frame and others less so. They can anticipate this influence and act accordingly. There is escape or avoidance. For example, if someone does not want to be sucked into a hedonic goal-frame he can avoid going to a party where this is likely to happen. There is also seeking or provoking supportive influence

of a particular goal-frame. For example, people can seek the company of others who are likely to help them uphold a gain or normative goal-frame, by, say, joining a club, working in the library, going to church, going to a classical concert and listening together with others, rather than listening alone to a CD at home, etc. There is also the possibility to have others reward one and thereby strengthen one's self-regulatory resources (in a gain goal-frame) through impression management as described by Goffman (1959). One can ask: what behavior makes a good impression and is rewarded by confirmation from others? It is the display of good self-regulation, of not blowing one's top, of not crying out loud, of taking care of one's own resources, etc.

Yet another important tool of self-regulation is engaging significant others. Being attached to significant others that stand for particular goals will help one hold on to the same goal. The significant others help uphold goals even when they are only psychologically present (see Baldwin et al. 1990; Fitzsimons/Bargh 2003; and Shah 2003). Finally, individuals can also bind themselves through private and public commitments, including self-rewards and punishments. In that sense, people make »private institutions« that regulate behavior by imposing constraints. Elster (1989) describes a whole array of ways this is done, as does Schelling (1984). The *fifth lesson* we can learn from this is that self-regulation is a crucial companion ability to the (semi)modularity of goal pursuit. In a way, self-regulation is the heart of human rationality. It involves self-monitoring, self-reflection, goal-directedness, and a keen awareness of the many modules that work beyond the direct reach of the will. However, it is much dependent on social circumstance, such as the ability to escape certain influences and to seek others or the ability to attach oneself to significant others that actually help one deal with the one-sidedness of modularity, to have stable institutional constraints, etc. Being hampered in one's ability to regulate goal-frames can have severe long-term consequences in terms of occupational downward mobility, erratic work lives, and problematic partner-relationships (see Caspi et al. 1987).

## Goal-framing at work

In the following I would like to go through a variety of empirical evidence with a dual purpose: to flesh out with empirical research some important points of the theory, and to show the relevance of this theory for grasping social processes. Much evidence is experimental, and laboratory situations are not always close to real life. However, I am dealing with rather basic processes that are less influenced by cultural diversity, and in addition, in what I will report, there is much cumulative experimental evidence which points to very robust processes. Needless to say, in an overview like this, I can only deal with a limited number of issues and examples.

### Sensitivity to cues

It is well-known that hungry people buy more food than originally intended (Gilbert et al. 2002). This shows that the focal goal »to eat«, makes people more impatient about having food close by. However, if a hedonic goal-frame, rather than a domain-specific module, is indeed overarching, there should be a wider effect than that. If a cue triggers a hedonic goal-frame, people should also get more impatient about things *unrelated* to the cue. This also seems to be the case. For example, Van den Bergh et al. (2008) showed that when men are exposed to sexy cues (pictures of sexy women), they also get more impatient about monetary rewards, candy bars, and soda pop. This is far from trivial. It means that people who are surrounded by hedonic cues will have a more difficult time self-regulating their gain and normative goal-frames. They are more likely to buy things they cannot afford, to be aggressive when they don't get what they want, and to procrastinate in their work, etc. Just how realistic this effect is can be gleaned from a field experiment we conducted to test the sensitivity of the normative goal-frame to signs that others do not conform to norms (Keizer et al. 2008). We placed a very noticeable envelope with a transparent window in a public mailbox, but we did it in such a way that it stuck out and people walking by (or posting a letter) could clearly see what was inside. What they could see was a five-Euro bill peeking through the window of the envelope. The question was: how many people who passed the mailbox would go so far as to take the envelope with them. If they left it, or if they pushed it into the mailbox, it was counted as ok, but if they took

it with them, it was counted as stealing. What we varied was just a small detail: in one condition, we left the mailbox as it was. In another condition, we covered it with graffiti. The assumption was that graffiti would create the impression of an environment with people who do not care much about general social norms. This would presumably weaken the normative goal-frame of the passersby. The results showed that without graffiti, 13 per cent of all passersby (N=151) took the envelope and that with graffiti, this percentage more than doubled (27 per cent). Could it be that the people read the graffiti quite differently, namely as a sign that the police do not enforce laws around here and that one could steal with impunity? In order to test that possibility, we repeated the »temptation« condition, not with graffiti but with trash around the mailbox (N=163), which we assumed would indicate the same lack of concern for general social norms in this environment. Since the antilittering ordinance in Groningen (where the experiment was conducted) is not enforced by the police, littering could not signal that stealing is tolerated by the police. The result of the second experiment corroborated the first finding and also the high magnitude of the effect (25 per cent with trash compared to the control condition of 13 per cent mentioned before). Thus, if one lives in an environment with many indicators of low concern for acting appropriately, there is a risk that self-regulation will be impaired simply because of disorder in the social environment.

There are also cues that tend to trigger a normative goal-frame automatically. The traditional sociological idea of internalized norms has a strong point. It does matter whether or not people do have internalized norms (Kochanska 2002). However, it is not enough. Because of goal-modularity, a normative goal-frame must be activated before it will influence behavior. With habits, it is the habitual means that will activate the goal (see Shah/Kruglanski 2003). Thus habits are important, but it is clear that even they are pegged to goals and that they are only one possible activator of goals. There are various cues that can activate a normative goal (i.e., make it cognitively more accessible). For example, the sheer presence of people in a given context will activate a normative goal (see Joly et al. 2008). This has direct relevance for the safety of inner cities at night, for parking garages, for long corridors in high-rise hotels, for bus stops when they are deserted, for trains when they are empty, for living alone. Entire classes of people can also be excluded from this cue function by excluding them from the category of humans. For example, Jews in the Third Reich

were progressively redefined by the authorities as subhuman with the result that, for many, their presence did not activate a normative goal-frame anymore (see Zimbardo 2007). Another cue that activates a normative goal-frame is the human gaze. For example, Haley and Fessler (2005) had people play a *dictator* game with an anonymous partner. In a dictator game, an offerer gets a certain amount of real or token money (from the experimenter) and is asked by the experimenter whether he or she is willing to share this money with another person (the recipient), and if so, how much the other person will get. Such a situation is ambiguous with regard to the social cues concerning the purpose, and extra cues are thus likely to have a strong impact. Haley and Fessler assumed that in the course of evolution people acquired a high sensitivity that increases the readiness to think of others when feeling observed (see also Milinski/Rockenbach 2007). Therefore, the authors had one dictator game condition with a neutral cue, and one with a pair of stylized eyes staring directly at the subject from the computer screen. The willingness to share the money with the other was dramatically higher in the eye condition (88 per cent in the eye condition compared to 55 per cent in the control condition), as was the average amount shared with the other (38 per cent of the endowment in the eye condition compared to 25 per cent in the control condition). Comparable results were found by Bohnet and Frey (1999). They made subjects who were paired by the experimenter for a dictator game stand up and look at each other before the game began. This had a drastic effect of increasing the size of the »share equally« group from 25 to 71 percent.

The activation of a normative goal-frame can also reliably be achieved by cues that indicate that people jointly produce something, including joint living (community). For example, Pillutla and Chen (1999) found that when people see a situation as a joint project, they will contribute considerably more to a collective good than people who see the situation as an »economic« one. Liberman et al. (2004) could reproduce such an effect just by labeling a social dilemma as either a »Community Game« or a »Wall Street Game«. An additional specific form of sensitivity to cues is the result of goal resonance (Lindenberg 2000), or contagion. Other people's goals act like a cue that activates one's own goals (Lindenberg 2000; Aarts et al. 2004). This effect is enhanced if the other seems very committed to the goal (Dik/Aarts 2007) and if the other is of a higher status (Cohen/Prinstein 2006). Thus, the goals of the people in one's social environment exert

a considerable influence on one's own goals. The goals, in turn, trigger modular responses.

### Background goal effects

Of course, the activation of a normative goal-frame does not mean that people will remain in such a goal-frame. In fact, we would assume that the a priori stronger hedonic and gain goals would displace the cost for appropriate behavior (in terms of effort or money) unless the normative goal-frame is additionally stabilized. But if this frame switches from normative to, say, gain happens, then the normative goal does not vanish but is pushed into the background, from where it will still have some influence. Consider the following example in which I use the data of a modified ultimatum game experiment by Straub and Murnighan (1995). In an ultimatum game there is an offerer and a responder. The offerer can divide a certain amount of money and the responder must accept or reject the offer. The offerer got the money (rather than earned it) and the situation is one of sharing, so that it is likely to trigger a normative goal-frame in most subjects. However, Straub and Murnighan changed one important aspect of the standard game. The responder did not know how much money the offerer got to divide, thus he could not judge whether or not an offer was fair. If the offerer is actually in a gain goal-frame and only offers a fair share in order to have the offer accepted by the responder, then he would exploit this asymmetry in information and offer very little to the responder. If, on the other hand, he is in a normative goal-frame, he would offer a fair share even under such conditions. The results show that when it costs the offerer 50 cents to offer an equal split (compared to keeping everything), he also offers according to what is normatively appropriate behavior (an equal split), even though the responder does not know what the size of the pie actually is. As the cost of an equal split increases to 2.50 US dollar, the offerer offers a little less. He deviates 10 per cent from the equal split (i.e., he offers 40 per cent on average), which is still quite close to equality. The offers decrease to about 30 per cent deviation from an equal split as the price of an equal split increases to 25 US dollar, and then remain fairly stable, even as the price goes up further. Why does the deviation from an equal split not keep going up, following the price increase? The most likely interpretation of this pattern is that as the price goes up, for most subjects,

the normative concerns of sharing move from the foreground to the background but still exert some influence from the background in tempering the unbridled effect of a gain goal-frame («Don't let the poor guy go home with nothing.»). Thus, not only goal-frames but also the influence of background goals on behavior needs to be considered. Modularity is porous.

### Sanctions

Because the normative goal-frame is the apriorily weakest, it tends to decay quite rapidly if nothing is done to shore it up. This has been amply demonstrated (Andreoni 1988; Fehr/Gächter 2000; 2002). The gain and hedonic goals in the background weaken the normative goal-frame, as appropriate behavior asks for sacrifices (such as effort or money). A sociologically very prominent means to stabilize a normative goal-frame is sanctions. For example, Fehr and Gächter (2000) showed that sanctions immediately reverse the decay of cooperation. However, the question arises as to what sanctions have to do with goal-framing. Standard microeconomic theory would have predicted just as well that sanction will go against free-riding, and the decay effect may be nothing but a learning experience of the subjects of how the game works (Palfrey/Prisbrey 1997). Yet, to the contrary, evidence shows that the way sanctions work seems to be very sensitive to goal-framing effects. For example, Fehr and Rockenbach (2003) found that when sanctions are interpreted as supporting private gain, they reduce the willingness to cooperate if the punishment is not severe enough. By contrast, when sanctions are interpreted as supporting the group, they promote «altruistic» cooperation. Fehr and Rockenbach conclude by saying that their finding «is in contrast to prevailing approaches in economics, biology, and behavioral ecology, which predict cooperation-enhancing effects of sanctions, regardless of the moral legitimacy or purpose of each sanction» (p. 140).

That this difference is indeed due to goal-framing can be seen from an experiment by Lindenberg and Steglich (forthcoming). Here subjects have been experimentally manipulated to take on a gain or a normative goal-frame in a social dilemma situation. The dependent variable was the amount of contribution to the collective good. There was a sanction for not contributing, but it changed from one iteration to the next. In a sequence of eleven choice-situations in which subjects had to decide how

much to give to the collective good, the punishment (identified as »cost«) for not contributing went progressively up from zero to an amount that would make contributing the dominant strategy. We predicted that the level of cooperation for subjects in a gain goal-frame would increase with the increasing cost for not contributing, and that the contribution of subjects in a normative goal-frame would start high and remain high (as rising sanctions counteract the decay effect and progressively indicate the social value of contributing, signaled by the increasing sanctions). We indeed found this pattern. For subjects in a gain goal-frame, contributions rose with the size of the sanctions, and for subjects in a normative goal-frame, contributions started high and stayed high, with little sensitivity to the size of sanctions.

Next, we investigated the effect of decreasing sanctions. We expected that as sanctions decreased, contributions by subjects in a gain goal-frame would also decrease. However, for subjects in a normative goal-frame the reaction would be different. Because people in a normative goal-frame are not very sensitive to sanctions, there should be little effect of decreasing sanctions at first. However, for people in a normative goal-frame sanctions that continue to decrease are likely to signal that the social value of the expected behavior is deemed low, leading people to abandon the normative goal-frame in favor of a gain goal-frame. For example, if the punishment for not paying one's taxes was progressively reduced (*ceteris paribus*), or, more realistically, if the tax authorities were so overburdened that tax returns are rarely checked, people would eventually feel that paying one's taxes had changed from an obligatory to a discretionary act. This boils down to a »demoralization« of paying taxes. We found strong support for this conjecture. Subjects in a gain goal-frame decreased their contribution steadily as sanction size decreased, but subjects in a normative goal-frame remained high in their contribution at first and then (around the 7<sup>th</sup> iteration) abruptly changed to the pattern of those in a gain goal-frame. In short, the way sanctions work depends very much on the goal-frame in which people perceive the situation. It is simply not so that people will react to the carrot and the stick irrespective of the goal-frame they are in. Nor is it true that people are chronically in a gain goal-frame. The interesting lesson to be learned from goal-framing effects of sanctions is that people in a normative goal-frame do not let their behavior be guided by sanctions, but the stability of their normative goal-frame does depend on the stability of sanctions. For institutional design this bears a clear message.

Institutions need to boost a normative goal-frame, but they also need to stabilize that frame with a sanctioning regime, or else they will be confronted with insurmountable problems of surveillance (see Lindenberg 1992).

### Relational signaling

In organizations, it is important to generate a commitment by employees to the goals of the organization. How can this be achieved? There are theories in economics that are based on the idea of »efficiency wages«. These incentive theories assume that workers who have highly paid jobs are more committed to working hard and to their company because they are afraid of being dismissed if they are caught shirking or not doing their best, thereby losing a wage advantage difficult to find elsewhere. Empirical support for these theories has been plagued by the use of proxies and mixed results. For example, Rebitzer (1995), and Groshen and Krueger (1990) used intensity of supervision as an inverse proxy for commitment and found the expected negative relationship between wages and supervision intensity for American nurses. However, this relationship was insignificant or even positive for three other occupational groups they studied. There is some more indirect evidence for a link between wage premiums and commitment. For example, Cappelli and Chauvin (1991), and Weakliem and Frenkel (1993) did find that plants that pay a wage premium have fewer disciplinary dismissals, and Wadwhani and Wall (1991) showed that more productive companies are more likely to pay a generous wage. However, these studies did not show that it was the fear of being dismissed that created commitment (see also Leonard 1987). Other studies by economists that are based on a dyadic »gift exchange« rather than on fear of dismissal seem to come to more consistent findings (Akerlof/Yellen 1990; Fehr et al. 1998). This is a considerable advance. However, the economic gift exchange models do not explain why reciprocity with regard to the wage gift sometimes applies and sometimes does not. In other words, an offered advantage is often exploited rather than reciprocated, so that the addition of a »taste for reciprocity« will not explain when it will be the one or the other.

There is now a model that does spell out the conditions under which higher wages would be reciprocated with higher commitment by the em-

ployees. It is the model of *relational signaling*, which is based on the model of goal-framing (see Lindenberg 1998; 2003). The basic idea is that the employee tries to read the employer's behavior as signals that betray his goal-frame (so-called *relational signals*). If the employer is in a gain goal-frame also with regard to the employer/employee relationship, then he will act opportunistically vis-à-vis the employee. If profit-making dictates that he exploit the employee, he will do so. Goal contagion will lead the employee to also be in a gain goal-frame and to act opportunistically when he can get away with it. In jobs in which the performance level is difficult to measure, a gain goal-frame of the employee thus leads to lower commitment. In this light, higher wages are not a »gift« to the individual employee. Rather, the higher wages are an important signal that stands for the employer's commitment to a good relationship with the employee and to the norms that govern such a relationship (with a normative goal-frame in situations where the relationship is central, such as sharing risks, protecting rights etc.). This leads to testable hypotheses and to clear differences of this relational approach from both the economic incentives approach and the idea that a gift to a worker is reciprocated by the worker, even if it is not a relational signal. For both the incentive approach and the dyadic gift exchange approach, it is the wage of the individual worker that should create commitment. For the relational signaling approach, relational concern by the employer should show up first and foremost in the wages paid to *all* employees. Generally, the worker cannot interpret his own wages as a relational signal because it is not clear whether the employer is acting out of a specific relational concern or for some strategic reason (such as creating an obligation that can be claimed later for as of yet unspecified services). An employer who wishes to use individual wages as a relational signal must embed them in an array of other, clear relational signals, such as intrinsic rewards, the quality of co-worker and worker-supervisor relations, and promotion expectations.

We tested these expectations with data from a survey of manufacturing plants by Lincoln and Kalleberg (1990) in two matched regions in the United States (the Indianapolis area) and in Japan (the Atsugi region). The results are clearly in favor of the relational signaling approach. In Japan, it is only the firm's wage level that creates commitment. Individual wages have no effect at all. In the United States, the firm's wage level also has a strong relation to commitment, but there is also a smaller though still significant effect of individual wages on commitment. As expected, the indi-

vidual wage effect vanishes when we control for the embedding of individual wages in other relational signals. This clearly confirms the hypothesis that if employers wish to use individual wages as a relational signal, this will work for commitment only if the employer also shows clear relational signals in other areas (such as the ones mentioned above). A big difference between the United States and Japan is that in the former, individual wages are seemingly used in concert with other relational signals, whereas in Japan this is not the case.

#### Mental models and marriage: the dynamics of small decisions

Within a goal-frame, mental models are activated, but which ones those are depends on the subgoals that are activated along with the goal-frame. For predicting the resulting behavior, it makes a big difference which mental models are being activated. Here, things can be more complex than simply assuming relational scripts. A prominent example is Esser's model of marriage (Esser 2001). He assumes that a couple interacts in marriage on the basis of a »marriage frame« and the mental model the partners have of a marriage relationship. The actions of the other are then presumably judged by the fit with the mental model. If there is a fit, behavior will be basically routine. If it does not fit, a partner will start reflecting on the relationship and possibly look for alternatives. This is a good example of how the overemphasis on routine versus non-routine processing and the underemphasis on the modular effect of goals can lead to a model that missed most of the important processes. Esser's account of marriage neglects not just the entire problem of one-sided behavior and the self-regulatory corrections made for it (»managing the relationship«), it also disregards the possibility that not all activities in marriage are governed by mental models of the relationship: and that is likely to have important consequences. Let me illustrate this with a study we conducted on what factors determine marital happiness (Doorten et al. forthcoming).

From the point of view of one-sided decisions, it makes sense to distinguish between big decisions and small ones (Lindenberg 2008). Small decisions are decisions that are presumed to be of little consequence (such as deciding to stay 15 minutes longer at work), whereas large decisions are weighty decisions, presumed to make a big difference (such as buying a car). The mental models involved should be different with regard to the

attention paid to consequences. In marriage, there are decisions that pertain to the couple and are thus likely governed by the goal to act appropriately. But some of them are large, and some are small. Large decisions are those that considerably affect the resources and thus the relationship itself, such as where to live, how to arrange and share space in the house, whether and how much a partner works, big expenses such as buying a car or a house etc. The mental models used in making such decisions should contain the model of the partner relationship as a central element. The goal that governs these interactions is one of balancing individual interests with shared views of what the partner relationship entails. It is a subgoal in a normative goal-frame. A good example is the decision to retire, which is likely to be considered by both husband and wife to be a »couple phenomenon« (Kim/Moen 2002). Small decisions, by contrast, are decisions of everyday life together, such as who should do the dishes or who should attend to a child with a cold. Such decisions are not likely to be governed by the mental model of the relationship but rather by a mechanism of *expectation states* in which experience and stereotypical notions lead to expectations about who can fulfill certain tasks better (Berger 1974). The goals in such situations pertain to attending to joint tasks in such a way that they are best served, considering the differing competences of the partners. This is also a subgoal in a normative goal-frame, but it does not pertain to a mental model of the relationship. Real and stereotypical expectations about competencies have important cumulative consequences. The woman is usually considered more competent at many household tasks (contributing to the maintenance of the family and the relationship, such as household work, childcare and organizing time together as a couple) so that the cumulative effect of small decisions leads to differences in task assignment that had never been negotiated or agreed on as a package but that more or less simply »happened« (West/Zimmerman 1987). The important point about this cumulative effect is that the task distribution also affects the dependence on the relationship. Through the cumulative small decisions, the woman is liable to invest more time and effort in aspects that are specific to the relationship, aspects that have value only within the present relationship and would be of no benefit outside a relationship or in a different one. These *relationship-specific investments* (see England/Stanek Kilbourne 1990) are contrasted by *portable investments*, investments that contribute to partners' own human or social capital, such as a career or friends of one's own. They make partners more independent of the relationship. Through the

cumulative effects of small decisions, the husband usually has more portable investments than does the wife. In short, these path dependencies created by small decisions are the result of goal-framing effects in which small decisions are not affected by mental models of the relationship itself, although these cumulatively have a great effect on the relationship.

One way to test that is to look at the consequences for marital happiness. Marital happiness should depend for both women and men on the protection of the specific investments. For the woman, marital happiness should depend mostly on the quality of the relationship with her partner, and for the man, mostly on work outside the home (an important source of the portable investment) and on the support from his partner in connection with worries and practical matters (helping him to establish portable investments). We tested this for different phases of the life course in a sample of 2,853 couples from the NKPS (Netherlands Kinship Panel Study) data set (a large-scale data collection among a representative sample of the Dutch population on the subject of family solidarity), looking at four different stages of married life: pre-parental, child-rearing, empty nest, and retirement (see Doorten et al. forthcoming). We found, as expected, that in the pre-parental stage (where the cumulative effect of small decisions has not yet materialized), input into household work is much more equal and marital happiness depends for both mostly on perceived support. In the other stages, the major determinant of marital happiness for women was the quality of their relationship with their partner (support, shared activities), while for men it was having paid work (voluntary work in retirement) and getting support on health related matters and practical things from their partner. The woman's share of household work had no significant effect on marital happiness in any stage.

This last point is extra corroboration for the goal-framing effect of small decisions. A larger share of the household work is not experienced by the woman as having lost out in a power struggle about who has to do the work. It has simply grown to be that way and as long as there are support and shared activities, the relationship-specific investment is secured and one can be satisfied with one's marriage. Thus even though men and women may have the same mental model of the relationship, what makes them happy in that relationship after the pre-parental stage depends on goal-frame-driven processes that create different sources of satisfaction. Conversely, these different sources also indicate potential sources of trouble, possibly leading to divorce. For the woman, it is a lack of perceived

personal support and joint activities; for the man, it is a lack of perceived support regarding worries and practical matters and a loss of outside sources of status (work).

Increasing risk of divorce for younger cohorts in the early stages of marriage is used by Esser as indirect evidence for his model. In former times, he argues, women were more willing to suffer in silence rather than to get a divorce, while now they act more on the basis of their mental models of a marriage relationship and get out if there is a misfit. By contrast, we do not find that the marital happiness of older cohort couples is lower. Rather, what is likely to be going on is that the pre-parental stage is extended, putting a heavier burden for marital happiness on mutual support and creating a larger space for »big« decisions. In fact, because they diversify the source of happiness in marriage between men and women, the cumulative small decision effects actually have a net stabilizing effect on marriage.

#### Self-regulation

Finally, I would like to give a brief example of our work on self-regulation. Does self-regulatory ability really matter for subjective well-being? And if it does, does self-regulatory ability improve well-being by supporting the weaker goal-frames (gain and normative goal-frame)? We did an empirical study on elderly people with these questions in mind (Steuerink/Lindenberg 2008). What we found was that self-regulatory ability indeed varies between people, and people with a higher ability have a significantly higher level of subjective well-being. We also found two mediation effects: one that showed self-regulatory ability reduced physical deficits (meaning you take better care of your health, which is investment behavior), the other that showed self-regulatory capacity reduced social deficits (meaning you take better care of social obligations, which is behavior driven by a normative goal-frame).

For many, self-regulatory ability is likely to decline with old age because many elderly people have declining cognitive abilities (for example, memory capacity) and they lose progressively more of their significant others. If self-regulation is an ability, one should be able to find, at least in part, functional substitutes for the losses. This means that one could develop training programs for self-regulatory ability (see Steuerink et al. 2005). Given

that this ability is at the heart of rationality because it allows human beings to balance the one-sidedness of modularity, the possibility to influence it is indeed of high importance for the social sciences and it contrasts sharply with the idea in microeconomics that rationality is naturally given and that social circumstance can only affect whether people are collectively rational. Various studies (see, for example, Frieswijk et al. 2006; Kremers et al. 2006) have now shown that for elderly people this self-regulatory ability can indeed be trained in such a way that it does have more than short-term effects.

## Conclusion

Esser's work has created an unprecedented synthesis in sociology. There is, however, one area where his work has been less successful than it could have been: his framing model. It is the result of joining a habit model (based on Riker, Ordeshook and Heiner) and a framing model (based on Lindenberg) in such a way that the framing model is super-imposed on the habit model. This led to the logical selection of a strong emphasis on routine versus non-routine mental processing. Unfortunately, this distinction misses much of the punch of the achievements in cognitive sociology, cognitive social psychology, evolutionary theory and neuroscience. These achievements center on what may be called goal-driven semi-modularity. It is the effect of goals that makes any action more or less one-sided because goals create the selectivity of what we attend to, what information we are sensitive to, what chunks of knowledge (including scripts) are being activated, how things are being evaluated and how information is processed. For sociology, it is particularly important to focus on the overarching goals and their cognitive consequences (»goal-frames«) that make for broad behavioral modules, and to pay close attention (a) to the fact that the normative goal-frame needs more personal, social and institutional support than do the other overarching goals in order to be and remain dominant, and (b) to the fact that goal-modularity is porous, i.e., the goal-frames are not completely closed but open to the influence of background goals. In that sense, »mixed motives« are the rule rather than the exception. This fact offers the possibility that given the support through background goals, an a priori weaker goal-frame (such as the normative goal-frame) will be situa-

tionally stronger than, say, the short-term hedonic goal-frame. One cannot willfully choose a goal-frame. However, other people's goals have a strong influence on one's own goals (goal resonance or contagion), especially if these people are more committed and/or of higher status. This renders social environments very important for the goal-frames one is likely to hold. Finally, the one-sidedness created by goal-frames is checked by the individual's ability to self-regulate the balance of goal-frames by means of public commitment and self-reward, by selectively avoiding and seeking social environments that, through goal resonance or contagion, support one or the other goal-frame. Important for self-regulation is the attachment to certain significant others (especially to those that support a normative goal-frame). Self-regulation is heavily dependent on social circumstance, such as the ability to change social contexts, and to build and maintain attachment to significant others that are useful for self-regulation. Self-regulation of goal-frames (i.e., monitoring one's own goal achievement and reacting correctively to it) can be considered to be at the heart of human rationality.

## References

- Aarts, Henk/Gollwitzer, Peter M./Hassin, Ran R. (2004), »Goal contagion: perceiving is for pursuing«, *Journal of Personality and Social Psychology*, vol. 87, no. 1, pp. 23–37.
- Akerlof, George A./Yellen, Janet L. (1990), »The fair wage-effort hypothesis and unemployment«, *The Quarterly Journal of Economics*, vol. 105, no. 2, pp. 255–283.
- Andreoni, James (1988), »Why free ride? Strategies and learning in public goods experiments«, *Journal of Public Economics*, vol. 37, no. 3, pp. 291–304.
- Baldwin, Mark W./Carrell, Suzanne E./Lopez, David F. (1990), »Priming relationship schemas – my adviser and the pope are watching me from the back of my mind«, *Journal of Experimental Social Psychology*, vol. 26, no. 5, pp. 435–454.
- Barkley, Russell A. (2004), »Attention-deficit/hyperactivity disorder and self-regulation. Taking an evolutionary perspective on executive functioning«, in: Roy F. Baumeister/Kathleen D. Vohs (eds.), *Handbook of Self-regulation. Research, Theory, and Applications*, New York: Guilford Press, pp. 301–323.
- Barret, H. Clark/Kurzban, Robert (2006), »Modularity in cognition: framing the debate«, *Psychological Review*, vol. 113, no. 3, pp. 628–647.
- Berger, Joseph (1974), »Expectation states theory: a theoretical research program«, in: Joseph Berger/Thomas L. Connor/M. Hamit Fisek (eds.), *Expectation States Theory. A Theoretical Research Program*, Cambridge, Mass.: Winthrop Publishers, pp. 3–22.

- Bohnet, Iris/Frey, Bruno S. (1999), »The sound of silence in prisoner's dilemma and dictator games«, *Journal of Economic Behavior and Organization*, vol. 38, no. 1, pp. 43–57.
- Cappelli, Peter/Chauvin, Keith (1991), »An inter-plant test of the efficiency wage hypothesis«, *The Quarterly Journal of Economics*, vol. 106, no. 3, pp. 769–787.
- Caspi, Avshalom/Elder, Glen H./Bem, Daryl J. (1987), »Moving against the world: life-course patterns of explosive children«, *Developmental Psychology*, vol. 23, no. 2, pp. 308–313.
- Cohen Geoffrey L./Prinstein, Mitchell J. (2006), »Peer contagion of aggression and health risk behavior among adolescent males: an experimental investigation of effects on public conduct and private attitudes«, *Child Development*, vol. 77, no. 4, pp. 967–983.
- Denham, Susanne A./Blair, Kimberly A./DeMulder, Elizabeth/Levitas, Jennifer/Sawyer, Katherine/Auerbach-Major, Sharon/Queenan, Patrick (2003), »Preschool emotional competence: pathway to social competence?«, *Child Development*, vol. 74, no. 1, pp. 238–256.
- Dik, Giel/Aarts, Henk (2007), »Behavioral cues to others' motivation and goal pursuits: the perception of effort facilitates goal inference and contagion«, *Journal of Experimental Social Psychology*, vol. 43, no. 5, pp. 727–737.
- Doorten, Ingrid/Knijjn, Trudie C. M./Dykstra, Pearl A./Lindenberg, Siegwart M. (forthcoming), »Marital happiness and gender inequality over the life course: the meaning of perceived equity, support and status structure« (under review).
- England, Paula/Stanek Kilbourne, Barbara (1990), »Markets, marriages and other mates: the problem of power«, in: Roger Friedland/A. F. Robertson (eds.), *Beyond the Marketplace: Rethinking Economy and Society*, New York: Aldine de Gruyter, pp. 163–188.
- Esser, Hartmut (1990), »Habits, »Frames« und »Rational Choice«: Die Reichweite von Theorien der rationalen Wahl (am Beispiel der Erklärung des Befragtenverhaltens)«, *Zeitschrift für Soziologie*, vol. 19, no. 4, pp. 231–247.
- (1996), »Die Definition der Situation«, *Kölner Zeitschrift für Soziologie und Sozialpsychologie*, vol. 48, no. 1, S. 1–34.
- (2001), »Ein nicht nur theoretisches Beispiel. Das Framing der Ehe und der Weg in die Scheidung«, in Hartmut Esser: *Soziologie. Spezielle Grundlagen*, vol. 6: *Sinn und Kultur*, Frankfurt a. M./New York: Campus, pp. 284–290.
- Elster, Jon (1989), *Nuts and Bolts for the Social Sciences*, Cambridge: Cambridge University Press.
- Fazio, Russell H. (1990), »Multiple processes by which attitudes guide behavior: the MODE-model as an integrative framework«, *Advances in Experimental Social Psychology*, vol. 23, pp. 75–109.
- Fehr, Ernst/Gächter, Simon (2000), »Cooperation and punishment in public goods experiments«, *American Economic Review*, vol. 90, no. 4, pp. 980–994.
- Fehr, Ernst/Gächter, Simon (2002), »Altruistic punishment in humans«, *Nature*, vol. 415, no. 6868, pp. 137–140.

- Fehr, Ernst/Rockenbach, Bettina (2003), »Detrimental effects of sanctions on human altruism«, *Nature*, vol. 422, no. 6928, pp. 137–140.
- Fehr, Ernst/Kirchsteiger, Georg/Riedl, Arno (1998), »Gift exchange and reciprocity in experimental markets«, *European Economic Review*, vol. 42, no. 1, pp. 1–34.
- Fitzsimons, Gráinne M./Bargh, John A. (2003), »Thinking of you: nonconscious pursuit of interpersonal goals associated with relationship partners«, *Journal of Personality and Social Psychology*, vol. 84, no. 1, pp. 148–164.
- Förster, Jens/Liberman, Nira/Higgins, E. Tory (2005), »Accessibility from active and fulfilled goals«, *Journal of Experimental Social Psychology*, vol. 41, no. 3, pp. 220–239.
- Frieswijk, Nynke/Steuerink, Nardi/Buunk, Bram P./Slaets, Joris P. J. (2006), »The effectiveness of a bibliotherapy in increasing the self-management ability of slightly to moderately frail older people«, *Patient Education and Counseling*, vol. 61, no. 2, pp. 219–227.
- Gilbert, Daniel T./Gill, Michael J./Wilson, Timothy D. (2002), »The future is now: temporal correction in affective forecasting«, *Organizational Behavior and Human Decision Processes*, vol. 88, no. 2, pp. 430–444.
- Goffman, Erving (1959), *The Presentation of Self in Everyday Life*, Garden City, NY.: Doubleday Anchor Books.
- Gollwitzer, Peter M./Bargh, John A. (1996) (eds.), *The Psychology of Action. Linking Cognition and Motivation to Behavior*, New York: Guilford Press.
- Groshen, Erica L./Krueger, Alan B. (1990), »The structure of supervision and pay in hospitals«, *Industrial and Labor Relations Review*, vol. 43, no. 3, pp. 134–146.
- Haley Kevin J./Fessler, Daniel M. T. (2005), »Nobody's watching? Subtle cues affect generosity in an anonymous economic game«, *Evolution and Human Behavior*, vol. 26, no. 3, pp. 245–256.
- Joly, Janneke F./Stapel, Diederik A./Lindenberg, Siegwart M. (2008), »Silence and table manners: when environments activate norms«, *Personality and Social Psychology Bulletin*, vol. 34, no. 8, pp. 1047–1056.
- Kanwisher, Nancy/McDermott, Josh/Chun, Marvin M. (1997), »The fusiform face area: a module in human extrastriate cortex specialized for face perception«, *Journal of Neuroscience*, vol. 17, no. 11, pp. 4302–4311.
- Keizer, Kees/Lindenberg, Siegwart M./Steg, Linda (2008), »The spreading of disorder«, *Science*, online vol. 322, n. 5905, <http://www.sciencemag.org/sciencexpress/recent.dtl>.
- Kim, Jungmeen E./Moen, Phyllis (2002), »Retirement transitions, gender, and psychological well-being: a life course, ecological model«, *Journal of Gerontology: Psychological Sciences*, vol. 57B, no. 3, pp. P212–P222.
- Kivetz, Ran/Simonson, Itamar (2002), »Self-control for the righteous: toward a theory of precommitment to indulgence«, *Journal of Consumer Research*, vol. 29, no. 2, pp. 199–217.
- Kochanska, Grazyna (2002), »Committed compliance, moral self, and internalization: a mediational model«, *Developmental Psychology*, vol. 38, no. 3, pp. 339–351.

- Kremers, Ismay P./Steverink, Nardi/Albersnagel, Frans A./Slaets, Joris P.J. (2006), »Improved self-management ability and well-being in older women after a short group intervention«, *Aging and Mental Health*, vol. 10, no. 5, pp. 476–484.
- Kruglanski, Arie W./Köpetz, C. (2009, in print), »What is so special (and non-special) about goals? A view from the cognitive perspective«, in: G. B. Moskowitz/H. Grant (eds.), *The Psychology of Goals*, New York: Guilford Press.
- Kruglanski, Arie W./Orehek, Edward (2007), »Partitioning the domain of social inference: dual mode and system models and their alternatives«, *Annual Review of Psychology*, vol. 58, pp. 291–316.
- Kruglanski, Arie W./Shah, James Y./Fishbach, Ayelet/Friedman, Ron/Chun, Woo Y./Sleeth-Keppler, David (2002), »A theory of goal systems«, *Advances in Experimental Social Psychology*, vol. 34, pp. 331–378.
- Leary, Mark R./Buttermore, Nicole R. (2003), »The evolution of the human self: tracing the natural history of self-awareness«, *Journal for the Theory of Social Behaviour*, vol. 33, no. 4, pp. 365–404.
- Leonard, Jonathan S. (1987), »Carrots and sticks: pay, supervision, and turnover«, *Journal of Labor Economics*, vol. 5, no. S4, pp. S136–S152.
- Lieberman, Varda/Samuels, Steven M./Ross, Lee (2004), »The name of the game: predictive power of reputations versus situational labels in determining prisoner's dilemma game moves«, *Personality and Social Psychology Bulletin*, vol. 30, no. 9, pp. 1175–1185.
- Lincoln, James R./Kalleberg, Arne L. (1990), *Culture, Control and Commitment. A Study of Work Organization and Work Attitudes in the United States and Japan*, Cambridge: Cambridge University Press.
- Lindenberg, Siegwart M. (1992), »An extended theory of institutions and contractual discipline«, *Journal of Institutional and Theoretical Economics*, vol. 148, no. 2, pp. 125–154.
- (1998), »Solidarity: its microfoundations and macro-dependence. A framing approach«, in: Patrick Doreian/Thomas J. Fararo (eds.), *The Problem of Solidarity: Theories and Models*, Amsterdam: Gordon and Breach, pp. 61–112.
- (2000), »The extension of rationality: framing versus cognitive rationality«, in: Jean Baechler/François Chazel/Ramine Kamrane (eds.), *L'acteur et ses raisons. Mélanges en l'honneur de Raymond Boudon*, Paris: Presses Universitaires de France (PUF), pp. 168–204.
- (2003), »The cognitive side of governance«, *Research in the Sociology of Organizations*, vol. 20, pp. 47–76.
- (2008), »Social norms: what happens when they become more abstract?«, in: Andreas Diekmann/Klaus Eichner/Peter Schmidt/Thomas Voss (eds.), *Rational Choice: Theoretische Analysen und empirische Resultate*, Wiesbaden, VS Verlag für Sozialwissenschaften, pp. 63–82.

- (2009), »Social rationality and well-being«, in: Rafael Wittek/Tom A. B. Snijders/Victor Nee (eds.), *Handbook of Rational Choice Social Research*, New York: Russell Sage.
- (in print), »Social rationality, semi-modularity and goal-framing: what is it all about?«, *Analyse und Kritik*.
- Lindenberg, Siegwart M./Steglich, Christian (forthcoming), »Sanctions work the way you see them: money versus norms«.
- Marsh, Richard L./Hicks, Jason L./Bink, Martin L. (1998), »Activation of completed, uncompleted, and partially completed intentions«, *Journal of Experimental Psychology: Learning, Memory, and Cognition*, vol. 24, no. 2, pp. 350–361.
- McClure, Samuel M./Laibson, David I./Loewenstein, George/Cohen, Jonathan D. (2004), »Separate neural systems value immediate and delayed monetary rewards«, *Science*, vol. 306, n. 5695, pp. 503–507.
- Milinski, Manfred/Rockenbach, Bettina (2007), »Spying on others evolves«, *Science*, vol. 317, n. 5837, pp. 464–465.
- Palfrey, Thomas R./Prisbrey, Jeffrey E. (1997), »Anomalous behavior in public goods experiments: how much and why?«, *American Economic Review*, vol. 87, no. 5, pp. 829–846.
- Pillutla, Madan M./Chen, Xiao-Ping (1999), »Social norms and cooperation in social dilemmas: the effects of context and feedback«, *Organizational Behavior and Human Decision Processes*, vol. 78, no. 2, pp. 81–103.
- Rebitzer, James B. (1995), »Is there a trade-off between supervision and wages? An empirical test of the efficiency wage theory«, *Journal of Economic Behavior and Organization*, vol. 28, no. 1, pp. 107–129.
- Schachter, Stanley (1968), »Obesity and eating«, *Science*, vol. 161, n. 3843, pp. 751–756.
- Schelling, Thomas C. (1984), »The intimate contest for self-command«, in: Thomas C. Schelling, *Choice and Consequences. Perspectives of an Errant Economist*, Cambridge, Mass.: Harvard University Press, pp. 57–82.
- Schultz, David/Izard, Carrolle E./Ackerman, Brian P./Youngstrom, Eric A. (2001), »Emotion knowledge in economically disadvantaged children: self-regulatory antecedents and relations to social difficulties and withdrawal«, *Development and Psychopathology*, vol. 13, no. 1, pp. 53–67.
- Shah, James (2003), »Automatic for the people: how representations of significant others implicitly affect goal pursuit«, *Journal of Personality and Social Psychology*, vol. 84, no. 4, pp. 661–681.
- Shah, James Y./Kruglanski, Arie W. (2002), »Priming against your will: How accessible alternatives affect goal pursuit«, *Journal of Experimental Social Psychology*, vol. 38, no. 4, pp. 368–383.
- (2003), »When opportunity knocks: bottom-up priming of goals by means and its effect on self-regulation«, *Journal of Personality and Social Psychology*, vol. 84, no. 6, pp. 1109–1122.

- Spinrad, Tracy L./Eisenberg, Nancy/Cumberland, Amanda/Fabes, Richard A./Valiente, Carlos/Shepard, Stephanie A./Reiser, Mark/Losoya, Sandra H./Guthrie, Ivanna K. (2006), »Relation of emotion-related regulation to children's social competence: a longitudinal study«, *Emotion*, vol. 6, no. 3, pp. 498–510.
- Steuerink, Nardi/Lindenberg, Siegwart M. (2008), »Do good self-managers have less physical and social resource deficits and more well-being in later life?«, *European Journal of Ageing*, vol. 5, no. 3, pp. 181–190.
- Steuerink, Nardi/Lindenberg, Siegwart M./Slaets, Joris P. J. (2005), »How to understand and improve older people's self-management of wellbeing«, *European Journal of Ageing*, vol. 2, no. 4, pp. 235–244.
- Strack, Fritz/Deutsch, Roland (2004), »Reflective and impulsive determinants of social behavior«, *Personality and Social Psychology Review*, vol. 8, no. 3, pp. 220–247.
- Straub, Paul G./Murnighan, J. Keith (1995), »An experimental investigation of ultimatum games: information, fairness, expectations, and lowest acceptable offers«, *Journal of Economic Behavior and Organization*, vol. 27, no. 3, pp. 345–364.
- Van den Bergh, Bram/Dewitte, Siegfried/Warlop, Luk (2008), »Bikinis instigate generalized impatience in intertemporal choices«, *Journal of Consumer Research*, vol. 35, no. 1, pp. 85–97.
- Wadwhani, Sushil B./Wall, Martin (1991), »A direct test of the efficiency wage model using UK micro data«, *Oxford Economic Papers*, vol. 43, no. 4, pp. 529–548.
- Weakliem, David L./Frenkel, Stephen J. (1993), »Work discipline in contemporary capitalism: a test of efficiency wage theories«, *Research in Social Stratification and Mobility*, vol. 12, pp. 83–110.
- West, Candace/Zimmerman, Don H. (1987), »Doing gender«, *Gender and Society*, vol. 1, no. 2, pp. 125–151.
- Zimbardo, Philip G. (2007), *The Lucifer Effect: Understanding How Good People Turn Evil*, New York: Random House.