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Goal Contagion: Perceiving Is for Pursuing

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Six studies examined the goal contagion hypothesis, which claims that individuals may automatically adopt and pursue a goal that is implied by another person's behavior. Participants were briefly exposed to behavioral information implying a specific goal and were then given the opportunity to act on the goal in a different way and context. Studies 1–3 established the goal contagion phenomenon by showing that the behavioral consequences of goal contagion possess features of goal directedness: (a) They are affected by goal strength, (b) they have the quality of goal appropriateness, and (c) they are characterized by persistence. Studies 4–6 show that people do not automatically adopt goals when the observed goal pursuit is conducted in an unacceptable manner, because the goal will then be perceived as unattractive. The results are discussed in the context of recent research on automatic goal pursuits.

The fact that social animals, and especially humans, go beyond the information given to grasp other animals' goals fascinates researchers from many different disciplines, perhaps because this ability allows people to flexibly adjust to their social surroundings. Although realizing that someone is trying to be nice to one is informative, understanding the goal behind this behavior is much more so (e.g., the person may be trying to obtain a favor, wants to collaborate, has a sexual interest, etc.). Others' goals tell us a lot about the motivational reasons for their behavior, and these, in turn, may determine our own goal-directed actions toward them. Specifically, in everyday social encounters, an appreciation of the goals that guide others' actions allows one to entertain similar goals and to try to attain them for oneself—for the sake of personal as well as social needs (Byrne & Russon, 1998; Tomasello, Kruger, & Ratner, 1993).

Sometimes, the goals of others are readily accessible to the perceiver because they are communicated explicitly. More often than not, however, goals are not explicitly conveyed. This may result from the actors' interest in keeping their goals to themselves, from constraints that limit communication, or even from the fact that people frequently pursue their goals unconsciously and hence are not in a position to report on them (Bargh, 1990; Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001, Study 2). In such cases, the adoption of the goals of others seems thwarted, which is particularly unfortunate in cases where adoption is beneficial or even necessary to get along with others (e.g., when a negotiation partner pursues the goal of cooperation). Thus, because several limitations—such as lack of explicit communication or lack of awareness—may hinder one's ability to adopt the goals of other people, we wondered whether humans are capable of adopting the goals of others automatically (i.e., without conscious intent and awareness).

Previous research has suggested that people readily infer goals from behaviors (e.g., Heider, 1958; Meltzoff & Moore, 1996). Furthermore, recent evidence suggests that people can infer goals automatically, without conscious intent and awareness (Hassin & Aarts, 2003). However, the downstream behavioral consequences of the readiness to infer goals from behaviors have hitherto received only little theoretical analysis and empirical attention. The present research attempted to close this gap by studying whether, and under what circumstances, the tendency to encode people's actions in terms of goals causes individuals to automatically pursue these goals themselves and thus exhibit automatic goal contagion. Before we present the idea of goal contagion in more detail, however, we briefly address some general issues pertaining to the conceptualization of goals and the process of goal pursuit.

Inferring Goals From the Behavior of Others

The notion that behavior implies information about the goals that guide it has interested researchers in several areas in psychology. Classic work on the perception of causality in adults as well

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as more recent research on infants and monkeys has suggested that primates, humans included, encode animated behavior and self-propelled motion of objects in terms of goals (Gergely, Nadasdy, Csibra, & Biro, 1995; Hauser, 1999; Heider, 1958; Heider & Simmel, 1944; Michotte, 1963; Uller & Nichols, 2000). Heider and Simmel (1944) showed that adults attribute causal mental properties (such as goals) to geometric shapes as long as they move in a particular social interactive way. These kinds of interpretations are said to occur immediately and effortlessly and seem to be the natural default of the human cognitive system.

Furthermore, research on goal-based explanations of action has shown that people perceive others' behaviors as goal directed and readily understand the goals that are served by these behaviors (Leddo, Abelson, & Gross, 1984; McClure, Lalljee, & Jaspars, 1991; see review by McClure, 2002). A commonly used paradigm in this research presents participants with scenarios in which a main character performs a certain behavior and then asks participants to rate how likely it was that certain goals induced this behavior. Research of this kind has shown, for instance, that actions (unless they are too extreme or too difficult) are explained in terms of specific goals rather than preconditions (such as skills) that allow these actions to occur.

Vallacher and Wegner's (1987; Wegner & Vallacher, 1986) action identification theory is a framework that is more closely related to our current concerns. A central theme in this theory is that actions (e.g., making a phone call when coming home from work) can be identified at various levels of abstraction. Specifically, if an action is identified at high level of abstraction (e.g., contacting a friend), the goal it serves becomes highly accessible. If, however, an action is identified at a low level of abstraction (e.g., using the phone), then more specific action-related features become accessible. Vallacher and Wegner have shown that when both low-level and high-level identifications are possible, the high-level identity tends to become prevalent (Vallacher & Wegner, 1987, p. 5).

These lines of research suggest, then, that people conceive of actions (consciously or not) in terms of the goals they imply. Indeed, in a recent series of experiments Hassin and Aarts (2003) showed that the perception of another's actions causes one to infer the implied goal without conscious intent and awareness of the inference itself (for similar accounts within the realms of trait and causal inferences, see Hassin, Bargh, & Uleman, 2002; Uleman, 1999).

Goals and Automaticity

A goal is a mental representation of a desired state that may pertain to a behavior (e.g., to engage in a puzzle task, to work hard) or an outcome (e.g., to own money, to be proud of oneself; summaries by Carver & Scheier, 1998; Gollwitzer & Moskowitz, 1996). Goals are thought to guide organisms to select and persist in activities that are instrumental in attaining these goals (Bindra, 1974; Dickinson & Balleine, 2002; Geen, 1995; Pervin, 1989; Toates, 1986). The idea that behavior is propelled by the search for desired states was emphasized early on by the expectancy–value approach to motivation (Atkinson, 1974; Tolman, 1932), in which goal-directed activity is predicted to occur if a person assigns positive valence to an expected state and thus desires to reach it.

Most goal theories emphasize the role of conscious choice in the adoption of goals and the role of conscious guidance of the pursuit of set goals (e.g., Ajzen, 1991; Bandura, 1986; Deci & Ryan, 1985; Gollwitzer, 1990; Locke & Latham, 1990). These theories assume that goal adoption, no matter whether assigned or self-set goals are at issue, is accompanied by a conscious decision and that goal striving (i.e., the initiation and maintenance of goal-directed action) is characterized by conscious intent and monitoring. According to these views, then, goal setting and goal striving benefits from (or is at least associated with) conscious involvement.

Recently, this traditional view of goals as primarily conscious regulators of behavior has been challenged. Goals, it has been argued, can also be automatically put in place by situational cues, and they can then guide goal-directed behavior without a person's awareness of them (Aarts & Dijksterhuis, 2000; Bargh, 1990; Bargh & Gollwitzer, 1994). Central to the idea of automatic goal pursuit is the assumption that goals are mentally represented in hierarchically ordered knowledge structures (Aarts & Dijksterhuis, 2000; Bargh & Gollwitzer, 1994; Kruglanski et al., 2002). The representations of individual goals are assumed to include the context, the goal, and actions as well as means that may aid goal pursuit.

There are two steps to the process by which automatic goal pursuits are said to emerge. First, recurrent and consistent pursuit of a goal on perception of a specific (social) situation is thought to strengthen the link between the situation and the goal. Second, repeated execution of certain actions when attempting to achieve a goal strengthens the goal–action association. Because the mental representations of the situation, goal, and respective goal-directed actions are interconnected, perception of the situation may directly and automatically activate the representation of the related goal and the connected goal-directed actions. As a consequence, the person starts striving for the goal without being aware of doing so.

Recent empirical work used conceptual priming procedures to test whether goals can indeed be activated and pursued automatically (e.g., Bargh et al., 2001; Chartrand & Bargh, 1996; Hassin, in press). This research has established that the priming of goals (e.g., high performance) via exposure to words such as *succeed*, *strive*, *win*, and so forth, exerts an unconscious influence on action in a subsequent goal-relevant situation (e.g., word search or anagram tasks) in the sense that better test scores are achieved. Recently, it has been shown that such goals and resultant actions may also be directly primed by covert exposure to names of significant others who are strongly associated with these goals (Fitzsimons & Bargh, 2003; Shah, 2003).

Automatic Goal Contagion

On the basis of the automatic goals literature, we argue here that the perception of goal-implying behaviors may activate representations of goals outside of conscious awareness. We propose that these activated mental representations will lead to actual goal-directed behavior. The interconnected nature of goals and means should allow for this process to go on without being assisted or accompanied by conscious involvement. Thus, we suggest that automatic processes that begin with the perception of another's behavior may lead to what we call *goal contagion*: the automatic adoption and pursuit of goals that others are perceived to strive for.

Recent research in developmental psychology has provided initial support for the idea of goal contagion. One such line of experimentation is Meltzoff's (1995; Meltzoff & Moore, 1996) work on the imitation of simple goal-directed manual action patterns. Thus, Meltzoff examined whether preverbal infants who watched an adult perform a series of actions with an object would reenact what the adult actually did or what she tried to do. So, for example, 18-month-old infants watched an experimenter who repeatedly tried to place a ring over a stick; in one group the experimenter succeeded, whereas in the other she never did. When the participants were allowed to use the ring and the stick, the toddlers who saw the unsuccessful experimenter were as likely to complete the target action as the toddlers from the successful group.

Although suggestive, these results are not conclusive in regard to goal contagion: The children in these studies used exactly the same means in the same setting, and hence it is not clear whether they simply relied on motor activity available in their behavioral repertoire to directly imitate the target action or whether they were acting on the goal to attain the end state itself (for a discussion of these topics, see, e.g., Gergely, Bekkering, & Király, 2002).

Further circumstantial evidence for the idea of goal contagion was obtained by Chen, Schechter, and Chaiken (1996), who examined whether goals that result from thinking about concrete behaviors can alter the expression of attitudes. Participants in their studies were asked to take the perspective of another person, who performed behaviors that were either related to an accuracy goal or to an ingratiation goal. The perspective-taking session took 12 min, after which participants engaged in a discussion with another person. As predicted, participants who had been exposed to ingratiation goal scenarios were more likely to express attitudes that were consistent with the partner's opinion than those exposed to accuracy goal scenarios. Suspicion probes showed that participants were not aware of these effects, suggesting that automatic goal contagion may have occurred. However, because participants were explicitly instructed to take another's perspective, it is unclear how automatic goal contagion actually was. Furthermore, given the relatively large amount of time devoted to imagining oneself in another person's shoes, it is unclear whether goal contagion effects occur on the mere exposure to behavioral information or whether they require much more effortful processes (Albrecht, O'Brien, Mason, & Myers, 1995).

The Present Research

The present research consisted of two parts. In the first part, we report three studies examining the goal contagion hypothesis that individuals may automatically take on a goal implied by another person's behavior by striving for this goal themselves. In the second part, we report three studies that address the question of whether people always automatically take on implied goals or whether there are boundary conditions to such goal contagion. Specifically, on the basis of the idea that people would not set unattractive goals for themselves (Ajzen, 1991; Gollwitzer, 1990; Locke & Latham, 1990), we examined whether goal contagion is less likely to occur when others' goal pursuits unfold in a socially unacceptable way that renders the implied goal less desirable.

Part 1: Testing Various Features of Goal Directedness After Goal Contagion

The first set of three studies aimed to demonstrate goal contagion by examining whether the behavioral effects of goal contagion evidence features of goal directedness (e.g., Gollwitzer & Moskowitz, 1996; Tolman, 1925). More precisely, we tried to establish that the behavioral effects of goal contagion are sensitive to goal strength (i.e., are more pronounced when a respective high need increases the incentive value of the goal state; Study 1), have the quality of appropriateness (i.e., make use of good opportunities to reach the goal and shun bad ones; Study 2), and have the quality of persistence (i.e., linger on over time; Study 3).

The studies used two different goals: the goal of earning money and that of seeking casual sex. Furthermore, in all of the studies, the participants were exposed to goal-directed actions of a protagonist presented in a specific setting in a written scenario and then tested for goal contagion in a behavioral setting that allowed for actual striving toward the goal, but striving that required a different behavioral expression than the one displayed by the protagonist. This switch to a different form of goal-directed action is crucial because it rules out behavioral mimicry (i.e., mimicking the presented actions) as an alternative explanation of the results.

Study 1: Goal Contagion and Goal Strength of Earning Money

The first study served as an initial test of the goal contagion hypothesis. To test this hypothesis, participants read one of two short behavioral scenarios. The two scenarios are very similar in that the main actor, who planned a future vacation with friends, engaged in a lengthy behavior prior to this vacation. In the goal condition, the actor went to work on a farm (implying, but never explicitly mentioning, the goal of earning money); in the control condition, the actor volunteered in his community.

After participants had read the scenarios on a computer screen, a message appeared on the screen informing participants that the experimental session was almost completed but that they had to perform another short (mouse-click) task. The message also informed participants that if sufficient time were left, they would be invited to participate in a final task in which it was possible to earn money. Two measures were used to assess goal contagion. First, strong goals cause people to seek opportunities (in this case, the final task) that allow them to meet their goals. Accordingly, we assessed how quickly participants removed this message from the computer screen (an action they had to perform in order to arrive at the final task that allowed them to make money). The stronger the participants' goal to make money, the faster they should erase this message. Second, strong goals also cause people to exert much effort (Heckhausen, 1991; Wicklund & Gollwitzer, 1982; Wright, 1996). Such effort-enhancing effects of goals become particularly evident when a person has to deal with time constraints that require an acceleration in performance to reach the goal (Aarts et al., 2003; Freedman & Edwards, 1988; Latham & Locke, 1975; Payne, Bettman, & Luce, 1996). Therefore, we used the speed with which participants performed the mouse-click task as a measure of effort to reach the goal of making money.

The assumption that goal contagion rather than mere concept activation has occurred implies that the behavioral effects of

perceiving the goal-directed actions of another person show features of goal directedness. Accordingly, in the present study we analyzed whether variables that affect goal strength produce stronger goal contagion effects. One effective way of varying goal strength is to give relevant success or failure feedback, as has been done in recent research on the projection of implicit and explicit goals on others (Kawada, Oettingen, Gollwitzer, & Bargh, 2004). In the present study, we took a different route. We simply assessed participants' need for money, assuming that making money has a higher incentive value for people with a strong rather than a weak need for money. As a consequence (Atkinson, 1974; Gollwitzer, 1990), goal strength and thus the consequences of goal contagion should be more pronounced in high need for money participants than in low need for money participants.

Method

Participants and design. Eighty-three (27 male, 56 female) Dutch undergraduates (mean age 20.58 years) participated in the study and were randomly assigned to either the control or making money goal condition. Gender did not have a main effect, nor did it interact with the other factors, and hence is not discussed any further.

Procedure. On arrival at the laboratory, participants were told that they would take part in research conducted by different research teams. Furthermore, participants were told that the first part of the study consisted of several tasks that were designed by a research team that was allowed to use the laboratory for only 10 min and that their tasks would be stopped after 10 min had elapsed. Participants were then ushered into separate cubicles and asked to work on two consecutive tasks: the goal manipulation task and the behavior assessment task. The computer program provided all the necessary instructions.

Goal manipulation task. After some general instructions about the computer program, participants were given a reading task. Participants were told that a short story would be presented on the screen for 30 s and that they should try to read it within the allotted time. The story described a few behaviors of a man named Johan, who was planning a vacation with friends. Two slightly different stories were used: One was designed to imply the goal of earning money, whereas the other served as a control. Both scripts consisted of five sentences, and most of the behaviors described in them were identical (as was the total number of words; see Appendix). Once participants had read the story, they were asked to indicate whether they were able to complete the reading within the allotted time. Responses to this question showed that all participants read the whole story.

We had conducted a pilot test to confirm that the experimental story indeed evoked the goal of earning money. Thirty-nine students randomly received one of the two stories and then answered the question, "What is the actor trying to do?" (cf. Vallacher & Wegner, 1987). Because there was only one line below the question, the participants wrote down just one answer to it. Two raters assessed whether the evoked inferences referred to the goal of earning money (the inter-rater agreement was 1.00). In the goal condition, 90.0% (18/20) of the participants referred to this goal, whereas only 5.3% (1/19) did so in the control condition, $\chi^2(1, N = 39) = 33.20$, $p < .001$.

Behavior assessment task. After the reading task, participants learned that the first part of the experiment was almost completed. They were also told that they had one more task to perform and that if sufficient time was left they could earn additional income (no specific amount was mentioned) in a simple final task. All of this information was presented in a message that appeared on the screen (the message consisted of 42 words, using three sentences). In order to continue, participants were asked to erase the message from the screen. After erasing it, they performed a task that requested participants to click on various boxes that appeared on the screen.

Two measures served as our dependent variables. First, the seeking of opportunities to attain the goal was operationalized as the time it took participants to erase the instructions. Second, effort of goal pursuit (or *energization*; Wright, 1996) was operationalized in terms of participants' speed of their clicking responses to the presented boxes. After this mouse-click task, participants completed an awareness check that assessed their conscious motivation to move toward the final task that allowed them to earn money. They were asked to indicate on a 10-point scale ranging from 1 (*not at all*) to 10 (*absolutely*) whether it was their intention to work quickly on the previous task.

Participants then took part in a lottery where they had to choose a number between 1 and 100. Participants were told that once the experiment was conducted, a winning number would be chosen randomly, and that participants who had chosen the same number would gain €20 (approximately $20 US).

Measuring need for money. Next, participants took part in an unrelated filler study (i.e., an inventory of performing daily activities) that was allegedly conducted by another research team. At the end of this presumed study (which took about 20 min), sociodemographic data were collected, and one of the items measured financial status. Specifically, participants completed the question, "Do you have enough money to run your current daily life?" They could respond with "yes" ($n = 30$) or "no" ($n = 53$).[1] This measure was evenly distributed across the goal and the control conditions, $\chi^2(1, N = 83) = 0.69$, *ns*, indicating that participants' reports were not affected by the goal manipulation. Accordingly, we used this measure to categorize participants into two groups: those with low versus high need for money.

Debriefing. Finally, participants were thoroughly debriefed. The funneled debriefing indicated that none of the participants realized the true nature of the study. It is especially important to note that participants were not aware of the nature of the goal manipulation task and of the relationship between the different parts of the study. Thus, if goal effects occurred, they seem to have operated outside of participants' conscious awareness (Bargh & Chartrand, 2000).

Results and Discussion

Seeking an opportunity. Participants' speed of erasing the instructions from the screen were subjected to a 2 (goal: control vs. money) × 2 (need for money: low vs. high) between-participants analysis of variance (ANOVA). The analysis showed that participants in the goal condition were slightly faster than those in the control condition (*M*s = 9.15 s and 10.88 s, respectively), $F(1, 79) = 2.95$, $p < .09$. The main effect of need for money was not significant ($F < 1.12$). As hypothesized, a significant Goal × Need interaction emerged, $F(1, 79) = 5.32$, $p < .03$, suggesting that goal contagion was stronger for the high than for the low need for money participants (Table 1). An analysis of the simple effects corroborated that participants who were high in need for money were faster in the money goal condition than in the control condition, $F(1, 80) = 11.07$, $p < .001$; no such effect emerged for participants who were low in their need for money ($F < 1$).

Effort. Participants' speed of responding in the mouse-click task was subjected to a 2 (goal: control vs. money) × 2 (need for money: low vs. high) between-participants ANOVA. First, participants in the goal condition were somewhat faster than those in the

[1] We did not measure financial status at the beginning of the experiment because this measurement, in itself, may serve as goal priming (cf. Bargh & Chartrand, 2000).

Table 1
Goal Contagion as a Function of Need for Money and Goal to Make Money (Study 1)

Measure	Low need		High need	
	Control goal	Making money goal	Control goal	Making money goal
Goal measures				
Seeking an opportunity				
M	10.23	10.67	11.18	8.12
SD	4.12	3.21	3.81	2.07
Effort				
M	119.91	120.01	121.96	111.01
SD	15.98	13.71	12.56	11.97
Awareness rating				
M	3.92	3.82	4.64	4.96
SD	1.71	2.51	2.78	3.08

Note. Means in the first two rows relate to speed of taking action (in seconds).

control condition (*M*s = 114.69 s and 121.31 s, respectively), $F(1, 79) = 3.14$, $p < .08$. The main effect of need for money was not significant ($F < 1.35$). The hypothesized interaction effect was marginally significant, $F(1, 79) = 3.36$, $p < .07$. However, the simple effects confirmed our hypothesis: Participants who were high in need for money worked faster in the money goal condition than in the control condition, $F(1, 80) = 8.82$, $p < .01$; no such effect emerged for participants with a low need for money ($F < 1$).

Awareness rating. Goal and control participants' reports on how fast they aimed to work on the mouse-click task were not different from each other in the low and high need for money groups, as was revealed by a nonsignificant interaction effect between the goal and the need for money factors ($F < 1$; see Table 1).

We further examined the statistical relations between the awareness check and both the measure of seeking an opportunity and the effort measure. As it turned out, there were no significant correlations between the awareness check and these measures ($r = .10$ and $r = .03$, respectively; *p*s > .39). Of importance, analyses of covariance (ANCOVAs) on these dependent measures that used the awareness check as a covariate yielded the same pattern of results as the ANOVAs reported above. Taken together, these results indicate that there is no association between consciously experienced striving for the goal of making money in the final test and the actual goal-directed behavior resulting from the goal manipulation (Bargh et al., 2001; Fitzsimons & Bargh, 2003).

The results of Study 1 support the goal contagion hypothesis. Specifically, the contagion effects on measures of seeking an opportunity and effort (energization) show that perceiving another person's goal-related behavior leads observers to pursue this goal in a subsequent context even if this new context requires pursuing the goal in a different way. Apparently, participants adopted a goal and did not just mimic the behaviors of the protagonist. It is important to note that these behavioral effects were dependent on goal strength: They only emerged for participants who had a high need for making money and thus were sensitive to the incentive value of the goal (i.e., earning money). Moreover, this effect is automatic in the sense that no explicit instructions or conscious intent were required to encode and effectuate the goal after perceiving the behavior of the other person, as was revealed by the awareness check on participants' intentions to act on the goal and the postexperimental debriefing procedure.

Study 2: Goal Contagion and Goal Appropriateness of Seeking Casual Sex

Study 2 served two main purposes. First, we attempted to replicate the goal contagion effect in a different domain: the goal of seeking casual sex. Second, we wanted to provide further support for the idea that goal contagion indeed results from activated goals (rather than mere behavior) by showing that implied goals lead to goal-directed activity only when the subsequent target stimulus (i.e., the situation at hand) is appropriate for the goal.

Participants in this study were exposed to behaviors of a male actor that either implied the goal of seeking casual sex with a woman or not. We used only male participants because previous research has shown that there are substantial differences between men and women in terms of the desirability of this goal (Clark & Hatfield, 1989; Ickes, 1993; Smith, 1990). Men consider casual sex more often than women, and they more readily think of it as desirable. Thus, they are more prone to act on the goal than women (for a discussion of possible explanations for these sex differences, see Leitenberg & Henning, 1995).

To measure the effects of goal contagion on subsequent goal-directed activity, participants were asked to provide feedback on a task they had performed earlier, a task that was allegedly developed by either a female or a male undergraduate. Help is used here as a dependent variable because several studies have shown that heterosexual men know that offering help is instrumental in attaining casual sex and that they behave accordingly (Baumeister & Tice, 2001; Buss, 1988; Canary & Emmers-Sommer, 1997; Downey & Damhave, 1991). Thus, in the current experimental setting, giving help was the offered behavioral route or means to serve the goal of attaining sex.

Because goal pursuit is qualified by appropriateness and thus makes use of good opportunities to act and shuns bad ones (e.g., Aarts, Dijksterhuis, & De Vries, 2001; Gollwitzer & Moskowitz, 1996; Tolman, 1925), we expected automatic goal contagion—in the form of more helping—when the (alleged) undergraduate requesting feedback was a woman but not when the undergraduate was a man.[2]

Before presenting the method and results of Study 2, we first report the results of two pilot studies. The first checked on whether male Dutch students indeed inferred the goal of casual sex from the actor's actions as described in our goal versus control scenarios. The second examined whether male Dutch students associated helping women with attaining casual sex.

[2] In the present experiments, we obviously did not examine whether or not our male participants were able to actually reach the goal of having an intimate encounter. We aimed solely to demonstrate that inference of the implied goal is capable of automatically activating ways of behaving that are known to be instrumental to attaining the goal, thereby revealing goal contagion.

Preliminary Studies for Study 2

Pilot 1. Thirty-two male students read a short scenario in which a male actor named Bas meets a former female college friend at a bar. Two slightly different stories were used: One was designed to imply the goal of seeking casual sex (referred to as the sex goal condition), whereas the other served as a control condition (the stimulus materials used for the two conditions are presented in the Appendix). Participants were randomly assigned to read one of the two stories and were asked to answer the question, "What is the actor trying to do?" Each participant provided only one answer, and two raters assessed whether the inferences referred to the sex goal (e.g., "He was trying to get her into bed!"). The inter-rater agreement was .94, and disagreements were resolved in discussion. In the sex goal condition, 87.5% (14/16) of the participants referred to the goal, whereas only 18.8% (3/16) did so in the control condition, $\chi^2(1, N = 32) = 16.74$, $p < .001$.

Pilot 2. Fifty-two male students read a scenario that was similar to the experimental setup of Study 2. The story revolved around a (male) student called Rob who was seeking casual sex with a woman. According to the story, Rob participated in a study, and he was asked to provide feedback about a task that was designed by Karin, a female undergraduate. Participants were randomly assigned to one of three helping conditions. In the no-help condition, Rob told Karin that he had no time to offer feedback. In the little-help condition, Rob told Karin that there was a typo in the task. In the moderate-help condition, Rob told Karin that there was a typo in the task and provided a few suggestions about how else she could improve the task. After having read the scenarios, all participants were asked to assess the likelihood that Karin would go out with Rob (on a 9-point answer scale ranging from *not at all* to *absolutely*). These likelihood estimates were lowest in the no-help condition ($M = 3.58$, $SD = 1.68$), somewhat higher in the little-help condition ($M = 5.11$, $SD = 1.66$), and higher still in the moderate-help condition ($M = 6.29$, $SD = 1.23$). A planned between-participants ANOVA revealed a significant linear effect, $F(1, 50) = 24.84$, $p < .001$.

To sum up, then, these two pilot studies suggest that male Dutch students infer the goal of seeking casual sex from the goal scenario used in Study 2. Furthermore, they also show that helping in a situation as set up in Study 2 (see below) is perceived as a viable route to attaining the goal of having casual sex.

Method

Participants and design. Forty-eight Dutch heterosexual male students (mean age 20.50 years) participated in the study in exchange for 6 Dutch guilders (approximately $2.50 US). They were randomly assigned to one of the four conditions of a 2 (goal: control vs. sex) × 2 (target: male vs. female) between-participants design.

Procedure. Participants were told that they would take part in research conducted by different research teams and that they had to perform several tasks. Participants worked in separate cubicles on three consecutive tasks: A mouse-click task, a goal manipulation task, and a behavior assessment task. The computer program provided all the instructions.

Mouse-click task. The first task was allegedly a "Computer Skills Task." Participants were told that we were interested in people's ability to handle a computer mouse. Two specific mouse-click tasks were designed. In the first, participants had to click the mouse as fast as possible on boxes that moved on the screen in different paths. Each path had a starting point and an end point. In total, participants had to work on 10 different paths. In the second task, participants were instructed to click on a specific box that randomly appeared at different locations on the screen. In total, 10 boxes had to be clicked on. Both tasks were designed to be rather easy and boring, so that participants would not be too enthusiastic about providing feedback (thus preventing ceiling effects; see *Behavior assessment task* below).

Goal manipulation task. Next, participants engaged in a reading task that followed the same procedure as Study 1. They were asked to read either the sex goal version or the control version.

Behavior assessment task. After completing the reading task, participants learned that the study was almost over but that one of the researchers would like to get feedback about a task they had performed earlier, namely the Computer Skills Task. In the female target condition, participants were told that this task was designed by an undergraduate called Ellen van Doorn. In the male target condition, the task was allegedly designed by an undergraduate called Edwin van Doorn. Participants were asked to give their feedback by typing it into the computer. To ensure that participants did not think that they had met the experimenter, both conditions stressed that the undergraduate was not present at the lab during the study. This ruled out possible preexisting differences in liking.

Two dependent measures were used to assess the degree of helping: (a) the total number of words written in the feedback and (b) the time participants invested in giving feedback. The latter was measured (in seconds) from the onset of the request to type in the feedback until the time participants pushed the "Enter" key to submit their feedback.

After participants had completed the feedback task, they were debriefed and paid. As in the previous study, the debriefing indicated that participants did not realize the true nature of the study, nor were they aware of the relationship between the reading task and the feedback task. Furthermore, participants did not spontaneously express thoughts about the goal associated with the behavior described in the script when they were asked to reflect on the script.

Results and Discussion

The number of words and seconds devoted for feedback ($r = .76$, $p < .001$) were first standardized (using *z* scores) and then averaged. This composite measure of helping was subjected to a 2 (goal: control vs. sex) × 2 (target: male vs. female) ANOVA. The analysis revealed a significant Goal × Target interaction, $F(1, 44) = 6.67$, $p < .02$. No other effects were reliable (Table 2). Planned comparisons revealed that sex goal participants helped more than control participants if the alleged experimenter was a

Table 2
Goal Contagion as a Function of Interaction of Target and Goal (Study 2)

	Effort in helping	
Goal	*M*	*SD*
	Female target	
Control	−0.37	0.34
Sex	0.67	1.16
	Male target	
Control	0.06	1.17
Sex	−0.26	0.59

Note. Scores indicate number of words and time in seconds (averaged via *z* scores).

woman, $F(1, 45) = 6.72$, $p < .02$. No such effects occurred in the male target condition ($F < 1.05$, *ns*).[3]

The results of Study 2, then, replicate and extend those of Study 1. First, a goal implied by another person's behavior is automatically contagious: Male participants who were exposed to another male's wooing efforts were more inclined to pursue this goal themselves in the form of providing help to a woman. Second, this enhancement in goal pursuit occurred only if participants were asked to help a woman but not when they were asked to help a man. In other words, participants in the sex goal did not offer more help in general; they only exerted more effort to help if they could help someone that they might woo (for related findings about sex goals and target appropriateness, see Neuberg, Kenrick, Maner, & Schaller, in press). Furthermore, the situation in which the participants' goal pursuit was observed was very different than the one described in the scenario, and the available means to goal attainment were also different. This feature of the experimental paradigm, together with the differential pattern as to the appropriateness of the target, rules out behavioral priming as an alternative explanation for the results.

Study 3: Goal Contagion and Goal Persistence in Seeking Casual Sex

Study 3 examined another characteristic of goal pursuit: persistent activation over time (Tolman, 1925). Examining persistence is important for two reasons. First, it typifies goal pursuit in general and hence should characterize goal contagion effects. Second, persistence may rule out an alternative explanation for the results of Study 2. Specifically, it may be that reading the sex goal scenario activates not only the goal of having casual sex but also concepts describing the proper behaviors toward women. Activated concepts of this kind may potentially allow participants to construe the experimental situation in terms of various ways of treating women nicely, and this construal, in turn, could bring with it more helping behavior (Bargh et al., 2001).

If the results of the previous study are indeed the result of a nonmotivational, pure cognitive effect of this sort, then they should be rather short-lived, because the activation of semantic concepts is known to decline rapidly (e.g., Higgins, 1996; Wyer & Srull, 1986). To take just one example, Wilson and Capitman (1982) asked male students to carefully read a booklet containing a boy-meets-girl scenario, which was designed to make friendly behavior toward females highly accessible. Participants then met a female confederate, and the researchers examined how friendly the male students were. The results showed that immediately thereafter, primed participants behaved in a friendlier manner toward the female confederate. As it turned out, however, a filler task of only 4 min eliminated this effect completely.

Bargh et al. (2001) stressed the importance of examining the effects of temporal delay as a tool for differentiating between goal-directed action and semantic priming–construal effects. On the basis of the theory of dynamics of action (Atkinson & Birch, 1970), they suggested that goal-directed action tendencies remain active or may even increase (rather than decrease) in strength over time until the goal is attained. And indeed, they showed that goal-priming effects increased over a period of 5 min (Bargh et al., 2001, Experiment 3).

Study 3 extended our previous research by examining whether goal contagion reveals this recently established persistence property of automatic goal pursuit. Study 3 used the same stimuli and procedures of Study 2, with a slight modification. In addition to participants for whom immediate measurements of the dependent variables were taken (no-delay condition), other participants performed a 5-min filler task that was unrelated to the sex goal and were only then asked to provide feedback (delay condition). If the assumed goal contagion effects observed in Study 2 were actually caused by semantic priming only, then they should have declined rapidly. If, however, the perception of the behavior of the presented actor indeed activated the respective goals, according to the Bargh et al. (2001) findings, the effects should have increased over time.

Method

Participants and design. Sixty-five Dutch heterosexual male undergraduates (mean age 21.20 years) participated in the study in exchange for six Dutch guilders (approximately $2.50 US). They were randomly assigned to one of the four conditions of a 2 (goal: control vs. sex) × 2 (delay: none vs. 5 min) between-participants design.

Experimental task and procedure. These were identical to Study 2 with two exceptions. First, we only used the female target condition. Second, the dependent variables were either immediately assessed (no-delay condition) or after a delay of 5 min (delay condition). As a filler task, participants in the delay condition were asked to draw figures that were presented on a computer screen. As in Study 2, the dependent variables were the number of words and seconds devoted to giving feedback.

Auxiliary questions. After the last task (i.e., giving feedback) had been performed by participants, the following questions were administered. First, as an additional dependent variable, participants were asked to indicate whether they were willing to take part in future research conducted by the same (female) student. This item was accompanied by a 7-point response scale that ranged from 1 (*not at all*) to 7 (*very much*).

To further examine whether goal contagion is accompanied by respective conscious intentions, participants completed the following two questions: "Did you aim to provide feedback in order to help the undergraduate student?" and "How important was it for you to provide feedback to the undergraduate student?" Both items were rated on 7-point answer scales ranging from 1 (*not at all*) to 7 (*absolutely*).

After participants had completed the questionnaire they were debriefed and paid. As in the previous studies, the debriefing indicated that participants did not realize the true nature of the study and were not aware of the relationship between the reading task and the feedback task. Furthermore, none of the participants indicated that the reading task had influenced their responses in the feedback task.

Results

Giving help. The number of words and seconds devoted to giving feedback were standardized and averaged ($r = .76$, $p < .001$). This composite score of helping was subjected to a 2 (goal: control vs. sex) × 2 (delay: none vs. 5 min) between-factors ANOVA. Replicating the previous results, our goal manipulation

[3] In this study, as well as in Studies 3 and 4, we analyzed effects on the number of words and seconds separately. These analyses showed that the effects on both measures followed the same pattern as on the composite measure. For the sake of simplicity, we report the effects on the composite measure.

yielded a main effect, $F(1, 61) = 4.63$, $p < .04$; participants in the sex goal condition offered more help than participants in the control condition. This effect was not qualified by an interaction with the delay factor, indicating that the goal contagion effect stayed stable over time ($F < 1$). The main effect of delay was also nonsignificant ($F < 1$).

An ANOVA on the reported willingness to participate in future studies revealed a marginally significant main effect of goal, $F(1, 61) = 3.29$, $p < .08$ (Table 3). Participants in the sex goal condition were slightly more willing to take part in future research than control participants. No other effects were reliable (Fs < 1).

Awareness ratings. There were no differences in participants' conscious intentions to help (Fs < 1), nor were there differences in the rated importance of helping (Fs < 1; see Table 3). Furthermore, there was no significant correlation between the intention to help and the actual effort invested in helping ($r = .17$, *ns*), and there was also no reliable correlation between importance and effort ($r = .12$, *ns*). An ANCOVA that examined goal contagion with conscious intention and felt importance of helping as covariates yielded the same pattern of results as the ANOVA reported above for the composite score of investment in giving feedback and the willingness to participate in future research; main effect of goal, $F(1, 59) = 5.36$, $p < .03$, and $F(1, 59) = 3.99$, $p = .05$, respectively.

Discussion

The results indicate that goal contagion did not disappear after a 5-min delay period, thus indicating persistence. We did not find an increase in goal-related activity over time, as reported by Bargh et al. (2001). One simple reason for this may be that not all goals increase in strength over time. For example, when a goal is already at a very high level of accessibility at the moment of instigation, there may be less room for further increases in goal strength. In the present study, we used a different goal (of seeking casual sex) than in the Bargh et al. study (which used an achievement goal), and it may have been the case that there was less room to increase the strength of the goal of seeking sex after having been activated on the perception of another person's actions implying this goal.

Furthermore, an increase in goal strength (i.e., an enhanced tendency to strive for the goal) over time is more likely to occur under certain circumstances. Atkinson and Birch (1970; Birch, Atkinson, & Bongert, 1975), for instance, postulated that goals typically gain strength as a result of prolonged exposure to the instigation of the goal (e.g., when people start working on the goal but no feedback is available on progress with respect to goal attainment). The Bargh et al. (2001) study may have met this prerequisite: Their filler task (completing a family tree within 5 min) was somewhat achievement related, but it provided no clear feedback on whether one moved toward meeting an achievement goal or not. In the current study, however, the filler task was completely unrelated to the activated sex goal. Under such circumstances, it seems likely that the tendency to strive for the goal should not change over time if no other forces come into play. This idea concurs with recent investigations into the persistent activation of intentions in memory (Marsh, Hicks, & Bink, 1998; Marsh, Hicks, & Bryan, 1999; Maylor, Darby, & Della Sala, 2000; for a possible neuroscientific account for this effect, see Curtis & D'Esposito, 2003).

Finally, participants' responses to the postexperimental questionnaire showed that their conscious intentions and the rated importance of helping were neither affected by the different treatments nor related to the actual amount of helping. In addition, the statistical analyses (ANCOVAs) showed that conscious intention and felt importance of helping did not play a mediational role in goal contagion. Lastly, participants did not indicate any awareness of the true nature of the study, nor did they suspect that the different tasks were related. Thus, the data strongly support our contention that goal contagion runs outside of people's conscious awareness.

Table 3
Goal Contagion as a Function of Delay and Goal (Study 3)

Measure	No delay		Delay	
	Control goal	Sex goal	Control goal	Sex goal
Effort in helping				
Words and time (*z* scores)				
M	−0.14	0.16	−0.38	0.31
SD	0.69	0.89	0.38	1.37
Willingness to participate				
M	4.94	5.59	4.87	5.18
SD	1.06	1.18	1.13	0.88
Awareness ratings				
Intention to help				
M	4.56	4.47	4.80	4.59
SD	0.89	1.07	1.08	0.87
Importance of helping				
M	4.81	4.65	4.87	4.71
SD	0.91	0.93	0.99	1.11

Part 2: Perceiving Goals in a Negative Light as a Boundary Condition to Goal Contagion

So far, the results of three studies support our goal contagion hypothesis by showing that the behavioral consequences of observing goal-implying actions performed by another person have features of goal-directedness on the side of the perceiver: They are affected by goal strength (Study 1), have the quality of target appropriateness (Study 2), and are characterized by persistence (Study 3).

Humans show hypersensitivity to negative social and behavioral information (e.g., Dijksterhuis & Aarts, 2003; Pratto & John, 1991). Exposing people to negative goal-related cues can easily spoil the appreciation of a given goal (Baumeister, Bratslavsky, Finkenhauer, & Vohs, 2001; Rozin & Royzman, 2001). Research on evaluative conditioning has indicated that goal stimuli can easily become less attractive when these stimuli are paired with negative information (De Houwer, Thomas, & Baeyens, 2001). The literature on goal assignment has further illustrated that it is difficult to talk people into adopting goals if these are not presented in the most positive light possible (Locke & Latham, 1990; Oettingen & Gollwitzer, 2001). That is, the way or context in which a goal is suggested may easily cause people to perceive the given goal in a negative light, thus rendering it unattractive or undesirable. These findings suggest, then, that the perception of

another person's goal-implying behaviors will not always lead to goal contagion: When the goal pursuit is perceived as less positive, goal contagion may be less likely to occur. In the second set of studies, we explored this issue by testing whether people fail to automatically adopt goals implied by others when the observed goal pursuit looks less attractive and desirable.

Perceived goal pursuits may be rendered less desirable in numerous ways. For example, many adults have mixed feelings about one-night stands: They clearly do see the good aspects of them, but the bad ones may loom large as well. The movie *Fatal Attraction* (Jaffe & Lyne, 1987) revolves around such an affair between a man (Michael Douglas) and a woman (Glenn Close). When Douglas treats the affair as a one-night stand, Close terrorizes him and his family. Therefore, this movie may render the goal of seeking casual sex much less desirable—for both men and women (albeit temporarily). How does it do so? It seems that it heightens the salience of the possible negative consequences of casual sex. It makes it clear that the equation may be a little fun now, lots of trouble later. Note that the movie renders affairs of this kind less desirable despite probabilities for having an affair with such a woman that are so low that they make the story irrelevant for the recipient.[4]

Another way of altering the desirability of a perceived goal pursuit is by changing its social acceptability. This implies that it is important to differentiate between others' goals and the way or context in which these goals are pursued. Thus, when one observes another person's behavior that implies a generally favorable goal, but this goal is enacted in a way that makes its pursuit unacceptable, one may (temporarily) lose interest in the goal. For instance, seeing how others take advantage of the poor and the sick in order to make money may make this goal less attractive and thus may reduce goal contagion. In the previous studies, social acceptability was not an issue: The observed behavior implied a relatively desired state in a socially acceptable and rather ordinary context. But what happens if a goal pursuit one perceives in another person is unacceptable—for instance, if the actor woos a woman while being seriously committed to another relationship? In cases of this sort, the fact that the observed goal of seeking casual sex is acted on in a less acceptable manner may cast doubt on its desirability (Margolin, 1989; Posner & Silbaugh, 1996; Stearns, 1999). As in the *Fatal Attraction* example described above, the desirability of seeking casual sex may drop, and this even in people who are not engaged in a serious relationship.

In Studies 4–6, we set out to investigate this potential boundary condition to goal contagion: People may not automatically adopt goals implied by others' behaviors if these are conducted in a way that renders the goal less attractive. More specifically, we examined the question of whether an observed goal pursuit (i.e., seeking casual sex) that unfolds in a socially less acceptable way (i.e., is associated with being unfaithful) fails to be contagious, even though the person is favorable toward the goal in general. Goals that are pursued in a socially unacceptable way by the actor become less contagious to the observer, we argue, because the observer now perceives the observed goal pursuit in a negative light, thus making it less desirable.

To examine these hypotheses, we slightly modified the scenario described in Studies 2 and 3 in a way that made it clear that the protagonist was already engaged in a serious relationship (this should render the goal of casual sex less acceptable; Cramer, Abraham, Johnson, & Manning, 2001; Lawson & Samson, 1988; Margolin, 1989). Notice that our test was rather subtle but also strong, because we only changed the context in which the goal is pursued, thus holding the observed goal pursuit itself constant. Study 4 examined our contention that goals that are pursued under socially unacceptable circumstances become noncontagious. Studies 5 and 6 explored two possible mechanisms that may underlie the expected decrease in goal contagion in the unacceptable condition: (a) reduced desirability of the implied goal (Study 5) and (b) multiple goal activation that renders the implied goal less accessible (Study 6).

Study 4: Observed Unacceptable Goal Pursuits and Goal Contagion

In Study 4, we examined the hypothesis that perceiving a goal that is being pursued in an unacceptable way makes the goal itself less contagious. This study also measured two more variables to rule out potential alternative explanations of our previous results. First, we measured whether the different scenarios led to differences in how much participants imagined themselves performing the behaviors they read about. As research on this topic has shown, imagining performing a behavior enhances the likelihood of actually engaging in it (C.A. Anderson, 1983; Taylor, Pham, Rivkin, & Armor, 1998). Differences in positive feelings toward the actor may also provide an account of why goal contagion occurred in the previous studies; accordingly, we measured the perceived likability of the main actor described in the scenario.

Method

Pilot: Testing for social acceptability. Thirty heterosexual Dutch male undergraduates (mean age 20.80 years) were randomly assigned to the control, acceptable, or unacceptable condition (see Appendix). Participants were asked to read the scenario and to rate the acceptability of the protagonist's purposes on a 10-point scale from 1 (*unacceptable*) to 10 (*acceptable*) and their relative approval of these purposes (1 = *disapprove*, 10 = *approve*). The two items were averaged ($r = .77$, $p < .001$) into a score of acceptability. An ANOVA on the acceptability ratings yielded a significant effect of condition, $F(2, 27) = 13.65$, $p < .001$. Inspection of the means shows that participants in the unacceptable condition perceived the actions as less acceptable ($M = 4.00$, $SD = 2.04$) than participants in the acceptable condition ($M = 7.65$, $SD = 1.16$), $F(1, 27) = 19.63$, $p < .001$, and in the control condition ($M = 7.80$, $SD = 2.04$), $F(1, 27) = 21.28$, $p < .001$. There was no significant difference between the control and the acceptable conditions ($F < 1$). These results clearly indicate that seeking casual sex is perceived as much less acceptable when that goal is being pursued by a person who is committed to another relationship than when the same person is not engaged in another relationship.

Participants and design. Seventy-two Dutch heterosexual male undergraduates (mean age 19.90 years) participated in the study in exchange for 6 Dutch guilders (approximately $2.50 US). They were randomly assigned to the different conditions.

Experimental task and procedure. On arrival at the laboratory, participants were seated in individual cubicles behind a computer. The computer program provided all of the various instructions. The task and procedure were identical to those used in Studies 2 and 3. Participants first performed the mouse-click task and were then asked to read either the control, the

[4] We thank Edward Hirt for suggesting this example.

acceptable, or the unacceptable scenario. Finally, they were asked to give the (female) experimenter feedback.

Immediately after the feedback task, participants rated the extent to which they imagined themselves performing the behavior exhibited by the actor while they read the script; thereafter, they indicated how much they liked him. Both items were accompanied by 10-point answer scales that ranged from 1 (*not at all*) to 10 (*very much*). Finally, participants were debriefed and paid. As in the first three studies, the debriefing revealed that participants did not realize the true nature of the study and were not aware of the relationship between the reading task and the feedback task. Furthermore, none of the participants indicated that the reading task had influenced their responses in the feedback task.

Results and Discussion

Giving help. The number of words and seconds invested in providing feedback were standardized and averaged ($r = .78$, $p < .001$). This composite score of helping was subjected to a one-factor (condition: control vs. acceptable vs. unacceptable) ANOVA that yielded a significant difference between conditions, $F(2, 69) = 5.85$, $p < .01$.

Planned comparisons revealed that participants in the acceptable condition helped the female experimenter more than participants in the control and the unacceptable conditions, $F(1, 69) = 8.54$, $p < .01$, and $F(1, 69) = 8.99$, $p < .01$, respectively. There was no significant difference between the control and the unacceptable conditions ($F < 1$; Table 4). Thus, the results indicate that perceiving a goal pursuit performed in a manner that makes it unacceptable does not lead to goal contagion.

The role of imagination and liking. The imagination and liking measures explored alternative explanations for our results. We first conducted separate ANOVAs using condition as the independent variable and imagination and liking as dependent variables. Next, we performed separate ANCOVAs with the two measures as covariates.

There were no reliable differences between conditions with respect to the level of imagination of performing the behavior of the protagonist ($F < 1$; Table 4). Furthermore, an ANCOVA using imagination as a covariate yielded the same results as the ANOVA reported above, $F(2, 68) = 5.83$, $p < .01$.

There were reliable differences in liking of the protagonist, $F(2, 69) = 3.16$, $p < .05$ (Table 4). As could have been expected, the protagonist was less liked in the unacceptable condition than in the control condition, $F(1, 69) = 5.47$, $p < .03$, and the acceptable condition, $F(1, 69) = 3.86$, $p < .06$. There were no differences in liking between the control and acceptable conditions ($F < 1$). Apparently, the protagonist is liked less when he is disloyal to his relationship. However, testing the effects of the acceptable condition on helping in comparison to the control and the unacceptable conditions by planned contrasts that used liking as a covariate yielded the same results as reported above: The acceptable condition differed from the control and the unacceptable conditions, $F(1, 68) = 9.38$, $p < .01$, and $F(1, 68) = 6.41$, $p < .02$, respectively; there was no difference between the control and the unacceptable conditions ($F < 1$). This suggests that likability of the protagonist does not qualify as a critical source of our goal contagion effects.[5]

In sum, the data of Study 4 indicate that goal contagion vanishes when the situation renders the implied goal unacceptable. These data support our contention that people do not automatically adopt goals that are pursued in an unacceptable manner.

Table 4
Goal Contagion as a Function of Acceptable Versus Unacceptable Conditions (Study 4)

Measure	Condition		
	Control	Acceptable	Unacceptable
Effort in helping			
Words and time (*z* scores)			
M	−0.24	0.51	−0.26
SD	0.88	1.08	0.65
Processing of other's behavior			
Imagination			
M	4.75	4.33	4.46
SD	2.67	1.86	2.28
Liking			
M	7.21	7.04	6.17
SD	1.47	1.16	1.90

Study 5: Observed Unacceptable Goal Pursuits and Effects on Perceived Goal Desirability

The findings of Study 4 corroborate the idea that goal contagion is less likely to occur when the implied goal is pursued in a negative way. However, we do not yet know whether inappropriate ways of pursuing a goal cause this very goal to be perceived as less attractive and desirable. Hence, Study 5 directly examined the hypothesis that goals that are pursued in an improper way become less desirable for the perceiver.

Method

Participants and design. Fifty-two Dutch heterosexual male undergraduates (mean age 21.25 years) participated in the study, receiving €2.50 (approximately $2.50 US) in return. They were randomly assigned to the control, acceptable, or unacceptable condition.

Procedure. Participants were told that they would take part in research conducted by different research teams and that they had to perform several tasks. The computer program provided all of the instructions.

Practice task on desirability responses. This task was designed to give participants practice in producing fast desirability responses. Thus, in this practice task, participants had to indicate whether or not they wanted to perform all kinds of activities (these activities were unrelated to the casual sex goal and the activities used in the second desirability response task; see below). Participants were instructed to respond as quickly as possible. This time pressure was applied to encourage participants to rely on immediate responding. Hence, it was stressed that they had to respond within 1.5 s (all activities consisted of two or three words, and pilot work showed that 1.5 s was just enough time to provide a desirability response). Participants pressed keys on the PC's keyboard marked "yes" (desirable) or "no"

[5] It may be argued that participants' helping behavior reflects the goal of being nice, motivated by a desire to contrast with the annoying or pushy behavior of the protagonist. This seems unlikely for two reasons. (a) Liking of the protagonist did not differ between the control and acceptable group, suggesting that the protagonist's behavior in the acceptable condition was not perceived as pushy. (b) If the pushiness of the protagonist motivated participants to be nice, they should have helped more in the unacceptable condition (in which liking was indeed less). This was not the case, however. We thank one of the reviewers for suggesting this possibility to us.

(undesirable). All activities appeared at the same location on the screen, preceded by a fixation point presented for 500 ms.

Goal manipulation task. Participants were then given the reading task used in the previous studies. They were exposed to the scenarios of the control, acceptable, or unacceptable conditions.

Desirability of the goal to seek casual sex. Immediately after the reading of the scenarios, participants were given the second desirability response task, in which they had to indicate their desire to perform eight specific activities. Among these activities were two goal-related activities that were randomly presented: "making a pass at someone" (in Dutch: *iemand versieren*) and "making love to someone" (in Dutch: *met iemand vrijen*). The other six activities were "solving a puzzle," "studying a book," "buying groceries," "drinking milk," "watching television," and "writing music." These goal-unrelated activities served as fillers and were selected on the basis of a pilot test ($N = 15$) that had revealed that, on average, 54% of our undergraduate sample wanted to perform these activities.

At the end of the experiment, participants were debriefed and paid. The debriefing indicated that participants did not realize the true nature of the study, nor did they suspect that the different tasks were related.

Results and Discussion

The dependent measure of interest was participants' desire to perform the two activities related to the sex goal. Accordingly, the average proportions of "yes" responses across the two goal-related activities were subjected to a one-factor (condition: control vs. acceptable vs. unacceptable) ANOVA. The analysis yielded a reliable effect of condition, $F(2, 49) = 4.93$, $p < .02$, such that desire to perform these activities was much lower in the unacceptable condition ($M = .63$, $SD = .40$) than in the acceptable condition ($M = .92$, $SD = .18$), $F(1, 49) = 8.40$, $p < .01$, and in the control condition ($M = .89$, $SD = .29$), $F(1, 49) = 6.69$, $p < .02$. The mean desirability of activities serving the casual sex goal did not differ between the acceptable and control conditions ($F < 1$). Finally, the mean of desirability responses for the goal-unrelated activities was .59, and there was no difference between conditions ($F < 1$).

In sum, these results confirm our hypothesis that if an observed pursuit of a goal unfolds in an unacceptable way, this will lead to a reduction in the attractiveness of this goal. Notice that the goal was very desirable in both the acceptable condition and in the control condition. It is in the unacceptable condition where attractiveness was reduced. The equal desirability of the goal in the control and acceptable conditions indicates that the observed goal-directed actions of the actor in the acceptable condition did not increase the desirability of casual sex itself. It appears then—in line with our goal contagion hypothesis—that it is solely the enhanced accessibility of the mental representation of the goal to seek casual sex that made participants in the acceptable condition of Study 4 exhibit behavior (i.e., giving help to the female experimenter) instrumental to attaining the casual sex goal.

Study 6: Ruling Out the Possibility of Multiple Goal Activation

One possible alternative explanation for the results of Study 4 is that participants who read the unacceptable scenario had many more goals activated than simply the goal of having casual sex. For example, it might be argued that in the unacceptable condition Bas was not only perceived as trying to achieve casual sex but also as having the goal of getting his girlfriend's attention, getting even with her, and so on. If this is indeed the case, then the lack of goal contagion in Study 4 may have resulted from multiple goal activation that reduced the activation level of the casual sex goal. Specifically, the unacceptable condition may have activated multiple goals that compete for attention, hence rendering the pursuit of casual sex less potent (cf. the fan effect proposed by J. R. Anderson, 1983, and recent work on the relation between multiple goal activation and effective goal pursuit by Shah, 2003). Study 6 attempted to test this alternative explanation by examining the goals that emerged in participants' minds in response to reading the different scenarios.

Method

Participants and design. Forty-eight Dutch heterosexual male undergraduates (mean age 20.89 years) participated in the study and were randomly assigned to the control, acceptable, or unacceptable condition. They received €2 (approximately $2.30 US) in return.

Experimental task and procedure. Participants were seated in separate cubicles behind a computer, and the computer program provided all of the instructions. Participants were asked to read the presented control, acceptable, or unacceptable scenario. After having read the presented scenario, participants were asked to answer the question, "What was the actor trying to do?" Participants wrote down their responses on a preprinted sheet that allowed them to list a maximum of five goals. After the study, participants were thanked and debriefed.

Participants' responses were coded by two blind judges, and the sex goal was given a score that was a function of its location in the list of responses of each participant. So, for example, if the sex goal appeared first in a list of five responses, it received a score of 5; if it appeared first in a list of four responses it received a score of 4; if it appeared third in a list of four responses it received a score of 2; and so on. The correlation between the two raters was .98, and disagreements were resolved in discussion.

To control for the number of entries, we divided this score by the total number of responses (for similar procedures to assess accessibility; e.g., Higgins, King, & Mavin, 1982). For example, if the sex goal was mentioned first in a list of five goals, or first in a list of four goals, the resultant score is 1.00; if it was mentioned third in a list of four goals, the score is .50; and so on. Thus, the goal accessibility measure can vary from 0 to 1, and higher scores denote higher accessibility (a score of 1.00 indicates that the sex goal is the most accessible goal or first one mentioned).

Results and Discussion

The mean number of goals was 3.77, and there were no differences between conditions ($F < 1$). Thus, the alternative explanation that there are differences in the sheer number of goals that acceptable and unacceptable scripts activate does not seem to hold. Other goals that were mentioned by participants mainly referred to social activities such as talking, drinking, and relaxing.

To examine the alternative explanation of differences in the activation level of the casual sex goal, we subjected the accessibility scores to an ANOVA that yielded a significant effect of condition, $F(2, 45) = 67.20$, $p < .001$. Not surprisingly, inspection of the means showed that none of the participants came up with the sex goal in the control condition. However, in the acceptable condition as well as the unacceptable condition, most participants listed the goal of seeking sex as the first one (Ms = .84 and .80, respectively), indicating that this goal was highly activated. The scores in the control condition indeed substantially differed from those in the acceptable and unacceptable conditions, $F(1, 45) = 105.30$, $p < .001$, and $F(1, 45) = 96.08$, $p < .001$, respectively. It

is important to note that there was no significant difference between the acceptable and the unacceptable conditions ($F < 1$).

The results strongly indicate that male participants had the goal of seeking casual sex activated after observing actions that implied this goal, even when the goal was pursued in unacceptable circumstances. Furthermore, the acceptable and unacceptable conditions did not differ in terms of the number of goals listed, thus suggesting that a heightened number of activated goals and a lack of activation of the casual sex goal cannot explain the absence of goal contagion in the unacceptable condition of Study 4. In support of our line of thought, it seems to be the reduced desirability of the goal that prevented goal contagion.

General Discussion

The results of the present research lend support to the notion of goal contagion. Study 1 showed that participants who were high (vs. low) in need for money and who were exposed to behaviors that implied the goal of making money were more motivated to engage in a subsequent goal-relevant task and persevered more at it. In another test of goal contagion, male students who observed behaviors that implied the goal of seeking casual sex were more likely to subsequently help a woman—but not a man (Study 2). It is important to note that behavioral changes that resulted from goal contagion were manifested even after a delay of 5 min (Study 3). Taken together, these data make a strong case both for goal contagion in general and for the motivational nature of this phenomenon in particular: The behavioral consequences of goal contagion clearly carried features of goal directedness. These behavioral consequences were affected by goal strength (i.e., need for money), were characterized by goal appropriateness (i.e., men helping women but not men), and evidenced persistence over time (i.e., occurred even after a delay).

Furthermore, thorough debriefing and responses to postexperimental questionnaires indicated that the goal contagion process itself was automatic—the goals that were implied under socially acceptable circumstances were put into motion in the absence of conscious intent or awareness of the inferred goal and its pursuit (Aarts & Hassin, in press; Hassin & Aarts, 2003).

Studies 4–6 explored an important additional hypothesis, according to which goal contagion dissipates when the implied goal is pursued in a social context that renders it unacceptable. In Study 4 we found that goal contagion did not seem to occur when goals were pursued in an unacceptable manner (at least under the conditions specified in Study 4). Second, we found that when people perceived others pursuing a goal under unacceptable conditions, the goal became less desirable for the perceivers—even if it was generally favorable for them (Study 5). Lastly, the fact that goals that were pursued improperly were not contagious did not result from a competition with other goals evoked by the situation (Study 6). In line with investigations into the assignment of goals by others (Locke & Latham, 1990; Oettingen & Gollwitzer, 2001), then, these findings demonstrate that people do not always automatically adopt goals implied by others' actions: When observed goal pursuits unfold in an unacceptable way, the goal becomes negative or less desirable. In that case, goal contagion ceases to occur.

Conscious and Nonconscious Processes in Ceasing Goal Contagion

It may be questioned whether the processes underlying the reduced goal contagion effect in the socially unacceptable condition may still operate below consciousness or not. That is to say, did participants consciously decide not to adopt the implied goal? Let us briefly consider this issue in light of the results we obtained.

Our results in the acceptable condition strongly suggest that participants did not consciously decide to adopt and pursue the implied goal in the first place. The goal that was implied under socially acceptable circumstances led individuals to engage in goal-directed activity without conscious intent and awareness of the operation of this goal. Hence—logically and psychologically—it does not seem reasonable to assume that participants in the unacceptable condition decided not to do something that they were not aware of doing.

Still, it might be argued that participants became aware of the implied goal once that goal was suggested in light of unacceptable circumstances and that their deprecation of the implied goal caused them to (temporarily) perceive that goal as less desired, thereby blocking goal contagion. That is, as soon as a goal is categorized as unattractive, that goal no longer operates as a state one desires to attain and thus is not capable of directly shaping goal-directed activity. As our debriefing data suggest, participants do not have to be aware of these behavioral effects; the reduced desire in itself may suffice to moderate goal contagion. This raises the possibility that individuals have an effortless protection or blocking mechanism that makes them immune, so to speak, against adopting unattractive goals.

In sum, the present findings show that people can take on the goals implied by the behavior of others in a rather nonconscious manner. Furthermore, we found that goals that are pursued in a negative, socially unacceptable way by an actor become less desirable and less contagious to the observer. However, because participants may have been aware of the implied goal under these latter circumstances, the role of consciousness in the reduction of goal contagion is not unequivocally established in the present research. An important avenue for future research would therefore be to further analyze other circumstances that may reduce the goal contagion effect and to study the processes underlying these moderating effects.

Goal Contagion and Behavioral Mimicry

On first impulse, one may classify the current findings as an instance of (behavioral) imitation: Participants imitated actors whose actions were described in scripts. Behavioral mimicry results from the mere activation of action representations, and it may occur automatically because they rely on a common perceptual–motor mapping (see review by Meltzoff & Prinz, 2002).

It is our contention, though, that the findings reported herein go beyond conventional approaches and findings in the area of behavioral mimicry (e.g., Bavelas, Black, Lemery, & Mullett, 1986; Capella, 1981; Chartrand & Bargh, 1999). In the present studies, what is extracted from another person's behavior and adopted by the perceiver is not so much the concrete action but the goal or desired state that motivates this action. Thus, goal contagion is characterized by flexibility (or "docility," according to the termi-

nology suggested by Tolman, 1932), in the sense that the contagious and the contagioned use different behaviors to pursue the same goals (for further demonstrations of automatic flexibility, see Hassin, in press). Thus, when the protagonist in Study 1 pursued the goal of making money by working on a farm, participants in the lab worked faster on their tasks. Similarly, when the protagonist in Studies 2–4 pursued the goal of attaining casual sex by expressing the will to go up to a woman's apartment, participants in the lab offered more help to a female experimenter—unless the implied goal was framed and perceived in a negative light.

This take on the current findings, then, makes it clear that goal contagion cannot be considered a case of behavioral mimicry. What about the other direction, though? May one consider behavioral mimicry a case of goal contagion? We think that the answer to this question is negative, too, because adult humans—but also young infants and other animals—mimic actions that are not goal oriented. This is not to say, however, that the two do not interact or, more specifically, that mimicry cannot be enhanced or diminished by (mutual or exclusive) goals.

Concluding Remarks

Social animals are equipped with a highly sophisticated perceptual–cognitive system that renders others' behaviors very informative and useful. As the present research shows, on observing others' actions people may spontaneously adopt the goals that may account for these actions. By adopting goals from other people's actions, one learns how to achieve pleasure and avoid pain and how to attain specific incentives or satisfy basic needs. However, apart from providing relatively instant personal reinforcement, goal contagion also facilitates social functioning and coordination. By taking on the goals of others, people may become more similar in what they desire and strive for and hence in their plans for the future. Furthermore, in everyday social interactions, the flexibility of goal contagion allows people to entertain similar goals while performing different (it is hoped complementary) actions toward achieving them. This process seems a highly beneficial course of action, especially when persons are involved in a situation that calls for the completion of a mutual goal. We believe that the notion of goal contagion in general, and further explorations of this process in particular, may improve our understanding of how people and groups orchestrate their goals and behaviors without much conscious thought.

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Appendix

Stimulus Material for Goal Conditions in Studies (Translated From Dutch)

Control Condition (Study 1)

Johan has finished his exams. He is looking forward to his vacation. Johan is going on a car trip with his friends for 2 weeks. During his last vacation he also spent some time with his friends, and that was fun. However, he is going first to a community center in his village to work as a volunteer for a month.

Making Money Goal Condition (Study 1)

Johan has finished his exams. He is looking forward to his vacation. Johan is going on a car trip with his friends for 2 weeks. During his last vacation he also spent some time with his friends, and that was fun. However, he is going first to a farm in his village to work as an assistant for a month.

Control Condition (Studies 2–6)

Bas is meeting a former college friend called Natasha while having a beer in his favorite pub. They are having a chat, and Bas tells her about his new job. The atmosphere in the pub is great, and a lot of people have been showing up. At the end of the evening people start to dance. Bas looks at the dance floor from a distance, and thinks, "Isn't this a nice place to be?"

Casual Sex Goal (Acceptable) Condition (Studies 2–6)

Bas is meeting a former college friend called Natasha while having a beer in his favorite pub. They are having a chat, and Bas tells her about his new job. The atmosphere in the pub is great, and a lot of people have been showing up. At the end of the evening Bas walks Natasha home. When they arrive at her home, he asks her, "May I come in?"

Casual Sex Goal (Unacceptable) Condition (Studies 4–6)

Bas is meeting a former college friend called Natasha while having a beer in his favorite pub. They are having a chat, and Bas tells her about the upcoming birth of his child. The atmosphere in the pub is great, and a lot of people have been showing up. At the end of the evening Bas walks Natasha home. When they arrive at her home, he asks her, "May I come in?"

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