

Research Article

USING NONCONSCIOUS BEHAVIORAL MIMICRY TO CREATE AFFILIATION AND RAPPORT

Jessica L. Lakin and Tanya L. Chartrand

The Ohio State University

Abstract—Nonconscious behavioral mimicry occurs when a person unwittingly imitates the behaviors of another person. This mimicry has been attributed to a direct link between perceiving a behavior and performing that same behavior. The current experiments explored whether having a goal to affiliate augments the tendency to mimic the behaviors of interaction partners. Experiment 1 demonstrated that having an affiliation goal increases nonconscious mimicry, and Experiment 2 further supported this proposition by demonstrating that people who have unsuccessfully attempted to affiliate in an interaction subsequently exhibit more mimicry than those who have not experienced such a failure. Results suggest that behavioral mimicry may be part of a person's repertoire of behaviors, used nonconsciously, when there is a desire to create rapport.

Nonconscious behavioral mimicry occurs when an individual unwittingly imitates the behaviors of another person (Chartrand & Bargh, 1999; Chartrand & Jefferis, in press; Chartrand, Maddux, & Lakin, in press). This mimicry has been attributed to a perception-behavior link (Chartrand & Bargh, 1999; Dijksterhuis & Bargh, 2001); seeing a person engage in a behavior activates that behavioral representation, which then makes the perceiver more likely to engage in that behavior him- or herself. Although the perception-behavior link provides one explanation for the occurrence of mimicry behavior (one for which there is much evidence; see Dijksterhuis & Bargh, 2001), other factors may also affect the likelihood of behavioral mimicry.

Nonconscious mimicry is related to rapport and liking (Lakin, Jefferis, Cheng, & Chartrand, in press). Rapport between two people increases behavioral mimicry (Bavelas, Black, Lemery, & Mullett, 1986; La France, 1979; La France & Broadbent, 1976; Schefflen, 1964), and mimicry also increases rapport. Chartrand and Bargh (1999) demonstrated the latter relation in a study in which half of the participants were mimicked by a confederate and the other half were not. Participants who were mimicked reported liking the confederate more than those who were not, and said that the interaction was more smooth and harmonious. Mimicry built affiliation, liking, and rapport between people.

Building on this finding, the current research explored whether people, without intention or awareness, "use" mimicry to their advantage. Because goals activate behavioral strategies and plans of action that help people pursue those goals (Aarts & Dijksterhuis, 2000; Gollwitzer, 1990; Heckhausen, 1991), we hypothesized that individuals will mimic another person more when they have a goal to affiliate than when they do not. The goal will activate affiliative behaviors—including the tendency to mimic—that will help in accomplishing this goal. Given the link between mimicry and liking, this "strategy" should be successful in creating the desired affiliation (Chartrand & Bargh, 1999).

Address correspondence to Jessica L. Lakin, Department of Psychology, The Ohio State University, 1885 Neil Ave., Columbus, OH 43210; e-mail: lakin.6@osu.edu.

EXPERIMENT 1

In our initial test of this idea, some participants were given a goal to affiliate (through explicit experimental instructions or nonconsciously through subliminal priming), and others were given no goal. Because past research had shown that goals can be activated nonconsciously and then pursued without awareness or intent (Bargh, 1990; Bargh, Gollwitzer, Lee-Chai, Barndollar, & Trötschel, 2001; Chartrand & Bargh, 1996, 2002), we expected both conscious and nonconscious goals would lead to goal-directed behaviors. We included both types of goals in Experiment 1 to see if, in this case, they would lead to differences in subsequent mimicry.¹

After being assigned to a goal condition, participants were video-recorded while observing a person who was touching her face. These recordings were coded to determine the extent to which participants touched their own faces. Those with no goal were expected to show some mimicry, as predicted by the perception-behavior link. However, those with a conscious or nonconscious affiliation goal were expected to mimic even more.

Method

Participants

Sixty-one introductory psychology students participated for course credit.

Procedure

Participants were told that they were completing several unrelated experiments, the first of which was a test of visual acuity (actually a subliminal priming task). We followed the priming procedure used by Chartrand and Bargh (1996; see also Bargh & Chartrand, 2000): Participants were seated at a computer and randomly assigned to one of three conditions (nonconscious affiliation goal, conscious affiliation goal, no goal). In the nonconscious-affiliation-goal condition, participants were primed with four words related to the concept of affiliation: *affiliate*, *friend*, *partner*, and *together*; 80 trials were presented, with the four words each appearing 20 times in a random order. The stimulus words for the conscious-affiliation-goal and no-goal conditions were *neutral* and *background*; 80 trials were presented, with the two words each appearing 40 times in a random order.

All instructions were presented on the computer. Participants read that the researchers were interested in how quickly and accurately people respond to visual stimuli, and that they should indicate on

1. Although activation of primed traits and stereotypes quickly dissipates, primed goals increase in activation until they are achieved (Bargh et al., 2001). This suggests that after a person is primed with a goal, goal-directed behaviors are likely to occur even if there is a delay between the priming and the situation in which the goal-directed behaviors are measured.

which side of the screen brief flashes of light appeared. Participants then placed their index fingers on two keys labeled “left” and “right,” and completed six practice trials. After the practice trials, the actual task began.

In the second phase of the experiment, participants completed a memory task in which they were supposed to remember the behaviors of another participant and the order in which they occurred. They then watched a “live feed” of the other participant (actually a confederate videotaped earlier) performing four mundane clerical tasks in an adjoining room: filing papers, answering the phone, stapling papers, and typing at the computer. For participants in the explicit-goal condition only, the experimenter then added that they would soon be interacting with the person next door on a cooperative task for which it was very important to get along and work together well.

After receiving these instructions, all participants watched the confederate, who was touching her face during and between clerical tasks. While participants watched the tape, they were surreptitiously videotaped, and independent coders who were blind to the study’s purpose and participants’ conditions later measured the amount of face touching that occurred.

Debriefing

Following this phase of the experiment, participants completed a thorough debriefing that probed for (a) general suspicions, (b) what they thought the flashes were during the vigilance task, and (c) whether they noticed any particular mannerisms exhibited by the confederate (Bargh & Chartrand, 2000).

None of the participants accurately guessed the purpose of the experiment, or how the tasks were related. Although most participants reported that they saw jumbled letters or characters during the vigilance task, a few believed they had seen words, but they could not guess what the words were. When directly asked about the mannerisms of the confederate, no participants mentioned the face touching, suggesting that they did not consciously mimic the confederate. Because of a videotape malfunction, 8 participants expressed suspicions that the “other participant” was not actually performing the tasks next door during the experimental session. The data from these participants were excluded from the analyses, leaving 53 participants.

Results and Discussion

Interjudge reliability

Two independent judges coded the amount of time participants spent touching their faces while watching the videotape. One judge coded 100% of the tapes, and the other coded 55% of the tapes. Interjudge reliability for these 29 participants was highly significant, $r(28) = .98, p < .001$. We therefore averaged the two judges’ estimates of participants’ face touching for the twice-coded participants to form a single index. For the remaining participants, the single judge’s estimates of face touching were used as the primary dependent measure.

Mimicry measure

A between-subjects, one-way analysis of variance (ANOVA) was conducted with goal (nonconscious, conscious, no goal) as the independent variable and time spent face touching (seconds/minute) as the

dependent variable. The predicted main effect of goal was marginally significant, $F(1, 52) = 2.53, p = .09$. However, because we were predicting no differences in mimicry between two of the three groups, the most appropriate analysis was planned comparisons to test our a priori hypothesis that participants with a conscious or nonconscious affiliation goal would mimic more than those without such a goal.

Planned comparisons revealed that goal condition had a significant impact on amount of mimicking. Participants in the conscious-affiliation-goal condition exhibited significantly more face touching ($M = 13.13$) than did no-goal participants ($M = 5.12$), $F(1, 36) = 4.50, p = .04, \eta^2 = .11$. Participants in the nonconscious-affiliation-goal condition also touched their faces significantly more ($M = 14.50$) than did no-goal participants, $F(1, 29) = 5.26, p = .03, \eta^2 = .16$. Finally, participants mimicked to a similar degree in the two affiliation-goal conditions, $F < 1$, indicating that having either a nonconscious or conscious affiliation goal led to the same increase in behavioral mimicry. These results provide the first demonstration that having an affiliation goal, regardless of how it becomes active, increases mimicking behavior. Experiment 1 also demonstrates that it is not necessary for a person to be physically present to be mimicked.

EXPERIMENT 2

Experiment 1 provided initial support for the hypothesis that people nonconsciously mimic others to create rapport in interpersonal situations. Experiment 2 was an attempt to make an even stronger case for this conclusion. We identified a situation in which there is even more pressure to create rapport with an unknown person: recent failure at an affiliation goal. If a person has an affiliation goal and has recently failed in an attempt to satisfy it, then substantial mimicry should occur with a new interaction partner, so that the person can accomplish the goal and recover from the recent failure.

In Experiment 2, participants were given either a nonconscious affiliation goal or no goal. We used the conservative subliminal priming technique to induce an affiliation goal in Experiment 2 because (a) there were no differences between the conscious- and nonconscious-goal conditions in Experiment 1, and (b) subliminally priming the affiliation goal ensures that participants are not aware that they have a desire to affiliate (and hence are not aware that such a goal is affecting their behavior).

After being primed with an affiliation goal or not, participants were led to succeed or fail at that goal. Behavioral mimicry in a subsequent interaction was then measured, although in a slightly different manner than in Experiment 1. First, mimicry behavior occurred in a face-to-face interaction, so participants were mimicking an actual confederate rather than a person on a videotape. Second, Experiment 2 examined foot shaking instead of face touching. These changes were made in order to generalize the results of Experiment 1 to different contexts and dependent measures.

Even though we were priming a general goal to affiliate (as opposed to a goal to affiliate with a particular person), we expected participants to pursue this goal in the first situation that presented itself. An interaction with a fellow student would be a perfect opportunity. For participants who failed in their first attempt to satisfy the primed affiliation goal, the unresolved goal would remain active, and therefore continue to influence their behaviors in a subsequent interaction (Carver & Scheier, 1998, 1999). We therefore predicted an increase in mimicry in this condition. This pattern of results would be particularly interesting because it would imply that people nonconsciously adjust

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their behavioral strategies to accomplish goals they are not even aware they have. For participants who succeeded in their first attempt to satisfy the primed affiliation goal, the goal would be less active in a subsequent interaction; the drive would be reduced, and goal-directed behaviors would be expected to decrease (Carver & Scheier, 1998, 1999). Consequently, we predicted that the amount of mimicry in this condition would be similar to that observed among participants in the no-goal condition (in which some mimicry would still occur because of the perception-behavior link).

Method

Participants

Forty-seven introductory psychology students participated for course credit.

Procedure

Participants were told that they were completing several unrelated experiments, the first of which was a test of visual acuity (actually the same subliminal priming task as in Experiment 1). Participants received all instructions via the computer, and were randomly assigned to one of the two priming conditions (affiliation goal or no goal).

In the second phase of the experiment, participants were told that they would be involved in a study concerning the differences between on-line and face-to-face interviews. They conducted two interviews with other students (actually confederates), and then answered questions about each interview. The first interview was conducted on-line, and the participants sent questions to the confederate using real-time chat software. The second interview was conducted with a different confederate in person.

Unbeknownst to the participants, answers to the questions in both interviews were scripted. In the on-line interview, the first confederate (C1, who was blind to goal condition) responded to questions in a friendly or an unfriendly manner, thereby manipulating success and failure at the affiliation goal (if one existed). In the face-to-face interview, the second confederate (C2, a different person than C1, blind to goal condition and success/failure condition) responded to questions in a neutral manner.

C2 shook her foot the entire time she was with each participant. Participants were covertly videotaped while waiting for C2 to arrive (as a baseline measure) and during the interaction with C2 (as a measure of mimicry). Although there was no baseline measure in Experiment 1, one was included in Experiment 2 to show that mimicry effects would be obtained even when controlling for individual differences in the behavioral measure. The primary dependent variable was the percentage of time a participant shook his or her feet while interacting with C2, covarying out the amount of foot shaking that occurred during the baseline period.

After interacting with both confederates, participants completed a questionnaire evaluating the two interviews. Participants were asked how successful each interview was and whether they noticed anything strange or awkward during the interviews. Measures of liking for each of the confederates were also included (e.g., "How likable [or friendly] was the person you interviewed?" "Would you like to spend more time with the person you interviewed?"). Each item was answered on a 9-point scale, with higher numbers indicating a more favorable evaluation. These ratings were collapsed into a composite measure of liking for C2.

Debriefing

When participants were finished with the evaluation questionnaire, they completed a thorough debriefing (as in Experiment 1). No participants accurately guessed the purpose of the experiment, how the tasks were related, or the words that were seen during the vigilance task (if they thought words were presented). Three participants expressed suspicions about the veracity of the cover story, and 2 participants commented on the foot-shaking behavior of C2. The data from these participants were excluded from the analyses, as were the data from 2 participants whose interactions with C2 were not recorded because of a malfunction in recording equipment. Thus, 40 participants remained in the analysis.

Results and Discussion

Interjudge reliability

Two independent judges coded the amount of time each participant spent shaking his or her feet during the baseline and while interacting with C2. Interjudge reliability was highly significant for both the baseline period, $r(39) = .84, p < .001$, and the mimicry period, $r(39) = .90, p < .001$. We therefore averaged the two judges' estimates of participants' foot shaking at each time point to form a baseline index and a mimicry index.

Manipulation checks

To establish the validity of the success/failure manipulation, we analyzed participants' ratings of the on-line interview. Results indicated that this manipulation was successful. Participants who received friendly responses in this interview thought it went more smoothly ($M = 7.00$), and that the interviewee was more friendly ($M = 6.90$), in a better mood ($M = 7.05$), and more likable ($M = 6.62$), than did participants who received unfriendly responses ($M_s = 5.32, 5.21, 5.00$, and 5.16 , respectively), all $p_s < .01$.

Mimicry measure

Participants who had an affiliation goal and experienced failure in the on-line interaction were expected to be the most likely to mimic the behavior of the confederate in the face-to-face interaction. Therefore, a 2 (goal: affiliation goal vs. no goal) \times 2 (on-line condition: success vs. failure) between-subjects analysis of covariance was conducted on the mimicry index (with foot shaking during the baseline period as the covariate). In addition to a reliable covariate effect, there was a significant main effect for on-line condition, $F(1, 35) = 5.89, p = .02, \eta^2 = .14$, which was qualified by a significant interaction between goal and on-line condition, $F(1, 35) = 3.93, p = .05, \eta^2 = .10$ (see Fig. 1). Simple effects tests revealed that in the no-goal condition, the percentage of time spent mimicking the confederate did not differ by on-line condition, $F < 1$; however, for participants primed with an affiliation goal, the percentage of time spent mimicking the confederate was greater for those who failed ($M = 58$) than those who succeeded ($M = 28$), $F(1, 14) = 8.29, p = .01, \eta^2 = .37$.

These results suggest that having a nonconscious affiliation goal leads people to engage in behaviors that accomplish that goal. If an individual succeeds at affiliating, then goal activation, and therefore goal-directed behavior, decreases. However, if an individual fails,

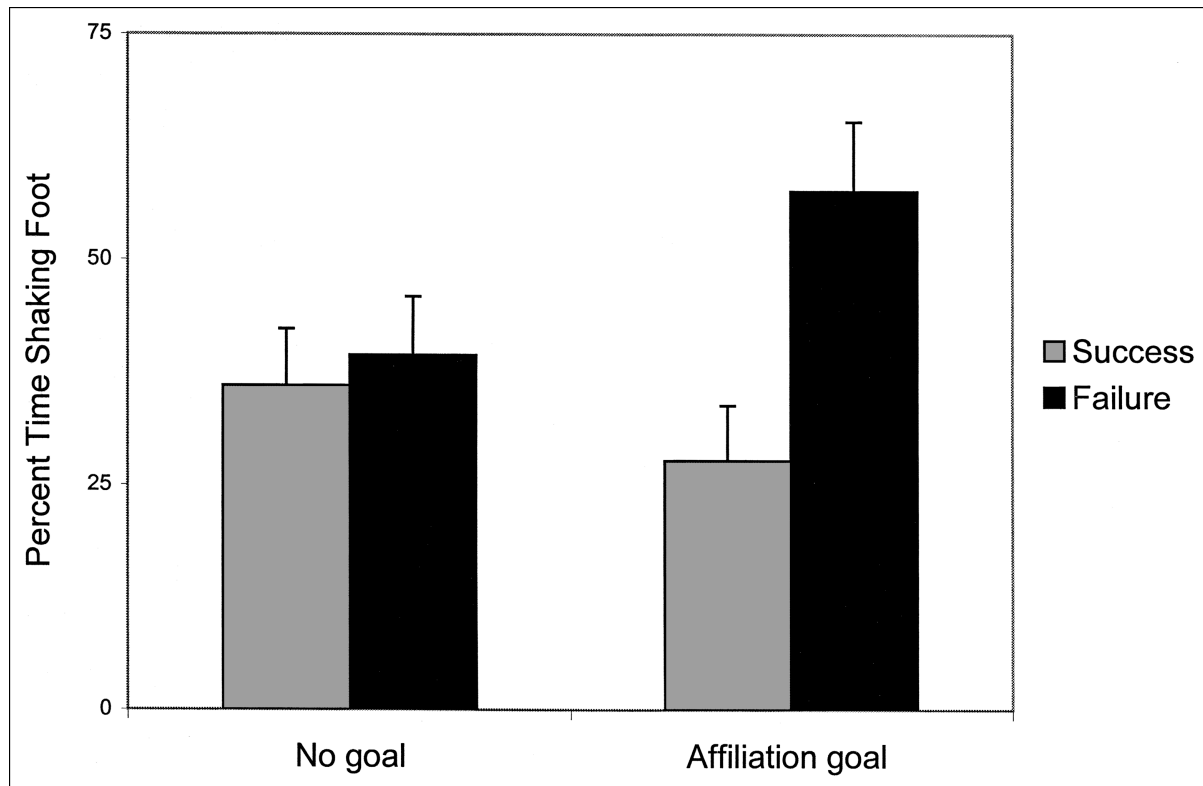


Fig. 1. Results from Experiment 2: Mean percentage of time spent foot shaking during the second interview as a function of goal condition (affiliation goal vs. no goal) and on-line condition (success vs. failure).

steps are taken to increase the likelihood that the goal will be accomplished in a second attempt. In this case, increased mimicry of a second interaction partner occurred.

Liking measures

A 2 (goal: affiliation goal vs. no goal) \times 2 (on-line condition: success vs. failure) between-subjects ANOVA was conducted on the composite measure of participants' liking for C2. This analysis revealed a significant interaction, $F(1, 36) = 4.16, p = .05, \eta^2 = .10$. In the no-goal condition, liking for the confederate did not differ by on-line condition (success $M = 6.37$, failure $M = 5.87$), $F < 1.1$; however, in the affiliation-goal condition, liking for the confederate was greater in the failure condition ($M = 7.24$) than in the success condition ($M = 6.20$), $F(1, 15) = 3.30, p = .09, \eta^2 = .18$.

How successful were participants at affiliating? After completing each face-to-face interview, C2 provided ratings of her interaction with that participant (i.e., "How comfortable were you with the participant?" "How smoothly did your interaction go with the participant?" and "How likable was the participant?"). Each item was answered on a 9-point scale, with higher numbers indicating a more favorable evaluation. A composite measure of liking for participants was created from these ratings. A 2 (goal: affiliation goal vs. no goal) \times 2 (on-line condition: success vs. failure) between-subjects ANOVA conducted on this composite measure revealed a significant interaction, $F(1, 36) = 4.26, p = .05, \eta^2 = .11$. In the no-goal condition, liking for par-

ticipants did not differ by on-line condition (success $M = 7.27$, failure $M = 7.04$), $F < 1$; however, in the affiliation-goal condition, liking for participants was greater in the failure condition ($M = 7.79$) than in the success condition ($M = 7.13$), $F(1, 15) = 10.43, p = .006, \eta^2 = .41$. Taken together, the results of these two sets of analyses suggest that the increased mimicry of participants who had an affiliation goal and initially failed paid off. After the interaction, participants liked the second confederate more, and the second confederate liked them more.

GENERAL DISCUSSION

The results from the current experiments suggest that mimicking people's behaviors is one way to affiliate with other people and create rapport and liking. Just as is the case with other types of nonconscious goals (e.g., Bargh et al., 2001), a goal to affiliate can be automatically pursued. Moreover, behavioral mimicry is a nonconscious strategy that one uses to accomplish this goal. Thus, there are two automatic aspects of this process—the nonconscious activation and pursuit of an affiliation goal, and the nonconscious use of mimicry as a strategy to attain that goal. According to the debriefing in Experiment 2, participants did not (a) know they had an affiliation goal (because it was subliminally primed), (b) realize they "failed" at any goal, (c) notice the foot-shaking behaviors of the second confederate, (d) recognize that their behavior was affected by the behavior of their interaction partner, or (e) realize that their liking for the second confederate was affected by behaviors that occurred during the interaction.

Behavioral Mimicry and the Perception-Behavior Link

Nonconscious mimicry has been conceptualized as the result of an automatic link between perceiving a behavior and performing that behavior (Chartrand & Bargh, 1999). We have argued for a motivational factor that increases mimicry: the desire to affiliate. When this motivation is present (even at a nonconscious level), people are more likely to mimic the behaviors of interaction partners.

There are at least two possible reasons why the desire to affiliate increased mimicry in our studies. The first is that mimicry occurs only when a goal to affiliate is present, and is therefore not due to an automatic link between perceiving and behaving. Perhaps people mimic when they want to affiliate, and this desire is somewhat active in most social situations. The procedures in the current studies may have strengthened the desire to affiliate, thereby increasing mimicry. This explanation seems unlikely for several reasons. First, there is ample evidence to suggest that there is a perception-behavior link in both humans and animals (Dijksterhuis & Bargh, 2001). Second, in the initial experimental demonstration of nonconscious mimicry, Chartrand and Bargh (1999) were careful to reduce the desire to affiliate with the confederates, and significant mimicry still occurred. This suggests that the perception-behavior link can at least partially account for mimicry effects. The ultimate test of whether the perception-behavior link explains mimicry behavior would be to determine whether mimicry occurs if people do not want to affiliate with an interaction partner. Future research will need to explore this idea.

Alternatively, the increased mimicry in the present studies may have occurred because activating the desire to affiliate temporarily strengthened the perception-behavior link. Specifically, the desire to affiliate may cause people to pay more attention to what occurs in their social environments (i.e., they perceive more), which would result in a stronger relationship between perception and behavior. To the extent that this explanation is true, the perception-behavior link would mediate the effects demonstrated in the present studies. Although we did not measure attention to the social environment, future research could include these types of measures to explore this possibility.

Relationship Between Nonconscious and Conscious Mimicry

We have focused on behavioral mimicry that occurs without conscious awareness or intent, but people can also consciously mimic the behaviors of others. Just as the desire to affiliate leads to an increase in nonconscious behavioral mimicry, the desire to ingratiate leads to an increase in conformity, which may be conceptualized as a type of behavior matching (Jones & Pittman, 1982; Jones & Wortman, 1973). Specifically, the ingratiation literature demonstrates that one way to gain acceptance from an interaction partner is by conforming to that person's attitudes, opinions, and behaviors (Jones, 1965).

What is the relationship between this conscious mimicry and nonconscious mimicry? One similarity concerns when these strategies will be unsuccessful. If conformity is obvious or excessive, then it may have the undesired effect of alienating the interaction partner (Jones, Jones, & Gergen, 1963). Although this idea has not yet been empirically tested in the mimicry literature, we expect mimicking another person's behaviors would be unsuccessful in the same types of circumstances. If people become consciously aware that they are being mimicked (i.e., the mimicry has become excessive enough to be noticed), liking between interaction partners may not increase.

One difference between nonconscious and conscious mimicry concerns the type of behaviors analyzed. We explored the use of mimicking passive, simple behaviors as a way to create affiliation. Jones and his colleagues (Jones, 1965; Jones et al., 1963) typically discussed opinion and attitude conformity, which may be considered behavioral, but not in the same sense as the nonverbal behaviors that are typically used in nonconscious-mimicry research (e.g., face touching or foot shaking). Thus, these two literatures focus on different types of behaviors that are mimicked. In addition, when people try to ingratiate themselves with others, they are most likely aware of the strategies they use. They have a lay theory that suggests that conforming is one way to accomplish their objectives. In contrast, people seem to be completely unaware of the relationship between nonconscious mimicry and affiliation. Although we know of no empirical research that has explored this idea, we suspect that if people were explicitly asked about their lay theory, they might report that mimicking the passive behaviors of another person is tantamount to mocking him or her. This would certainly lead people attempting to affiliate to avoid consciously mimicking others.

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