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Online First Publication, December 1, 2014. <http://dx.doi.org/10.1037/pspi0000001>

CITATION

Dong, P., Dai, X., & Wyer, R. S., Jr. (2014, December 1). Actors Conform, Observers React: The Effects of Behavioral Synchrony on Conformity. *Journal of Personality and Social Psychology*. Advance online publication. <http://dx.doi.org/10.1037/pspi0000001>

Actors Conform, Observers React: The Effects of Behavioral Synchrony on Conformity

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Engaging in synchronous behavior can induce a more general disposition to copy others, which increases the tendency to conform to others' preferences in an unrelated choice situation. In contrast, observing others perform synchronous behavior can induce psychological reactance and decrease conformity to others' preferences. Five experiments confirmed these different effects and circumscribed the conditions in which they occurred. Actors typically focus their attention on the goal to which their synchronous behavior is directed, inducing a copying-others mindset that generalizes to later situations. In contrast, observers focus on the actors' behavior independently of the goal to which it pertains. Consequently, they become sensitive to the restrictions on freedom that synchronous behavior requires and experience reactance. However, changing the relative attention that actors and observers pay to these factors can reverse the effects of the actors' synchronous behavior on conformity.

Keywords: synchrony, conformity, actor–observer difference, reactance

Synchronous behavior (i.e., behavior that matches others' actions in time; Hove & Risen, 2009) pervades many aspects of daily life. Soldiers march in step; choir members sing in unison; dancers perform the same actions simultaneously. In some situations, we personally engage in this behavior. In other situations, we merely observe it. In either case, synchronous behavior might seem unlikely to influence our judgments and decisions in situations that are quite unrelated to this behavior. In fact, however, this influence occurs. Moreover, the influence can be either positive or negative, depending on whether we actually perform the synchronous behavior or merely observe it.

Why is this so? There are several possible answers to this question. In some cases, synchronous behavior can induce feelings of group cohesiveness (Haidt, 2007), and these feelings, in turn, can increase conformity to the individuals with whom one has interacted (Crane & Platow, 2010; Terry & Hogg, 1996). As our findings indicate, however, engaging in synchronous behavior might activate a more general disposition to copy others that affects judgments and decisions in a later situation independently of any feelings of social connectedness that might accompany it. At the same time, being required to copy others' behavior, which restricts individuals' freedom of movement, can elicit psycholog-

ical reactance (Brehm, 1966), motivating persons to reassert their individuality by not conforming. These two dispositions, which have conflicting implications for the adoption of others' preference in an unrelated decision task, occur to different degrees in persons who engage in synchronous behavior and those who only observe it. Five experiments confirmed these opposing effects and circumscribed the conditions in which they occur.

Our predictions were guided in part by evidence that actor–observer differences in perspective can affect the aspects of a situation to which individuals are likely to attend. Jones and Nisbett (1971) postulated that people are likely to focus their attention on the aspects of a situation that are salient to them from the perspective they consider it. Thus, actors' attention in a situation is directed outward, on the goal to which their behavior is relevant and the instrumentality of this behavior in attaining this goal. In contrast, people who observe the actors are likely to focus on the actors' behavior independently of the goal to which it is directed.

In the conditions we investigated, these considerations suggest that when actors have an externally imposed objective of behaving in synchrony with others, they focus their attention on this objective and the effectiveness of their behavior (copying others' actions) in attaining it. As we elaborate presently, concepts activated by performing this goal-directed behavior may induce a behavioral mindset (Wyer & Xu, 2010; Wyer, Xu, & Shen, 2012) that, once activated, increases conformity to others' behavior in other, unrelated situations. Furthermore, people's focus on the goal to which their behavior is directed is likely to decrease the feelings of being restricted that they might experience if they thought about their behavior per se.

In contrast, individuals who only observe synchronous behavior may not be concerned with the goal to which the actors' behavior is directed. Therefore, they are more likely to focus their attention on the actors' behavior itself independently of this goal. To this

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This research was supported by Research Grants Council of Hong Kong Grants GRF 443012 (CUHK), 443710 (CUHK), 640011, 452813, 493113, and CUHK Business School Direct Grant Allocation 2070488.

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extent, they may be particularly sensitive to the constraints on freedom that copying others' actions requires, and this can increase their concern about potential restrictions on their own freedom of action (Andreoli, Worchel, & Folger, 1974). These feelings may motivate them to affirm their individuality by conforming less to others' judgments and decisions in a later situation than they would otherwise.

On the basis of these considerations, we expected that engaging in synchronous behavior would increase the likelihood of conforming to others' judgments and decisions in a later, unrelated situation, whereas observing other persons engage in this behavior would typically have the opposite effect. We further expected that the difference between actors' and observers' reactions to synchronous behavior could be eliminated or reversed by introducing situational factors that change the relative attention that individuals pay to (a) the actors' behavior per se and (b) the goal of this behavior. In the following sections, we review the theoretical and empirical bases for these predictions and present five experiments that confirm their validity.

Theoretical Background

Goals Versus Goal-Directed Behavior

Goals and the means of attaining them are cognitively linked. Kruglanski et al. (2002) postulated that plan-goal schemas exist in memory, each composed of a goal concept along with a series of behavioral concepts that refer to the actions involved in attaining the goal. The concepts that compose a schema vary in abstractness but can be activated by situation-specific features that exemplify them. As Kruglanski et al. (2002) noted, a behavioral concept might be part of more than one plan and thus might be relevant to the attainment of more than one goal. For example, copying others might be part of a plan for getting social approval, a plan for getting a correct answer to an exam question, and, in the research we report, a plan to achieve synchronous behavior.

It is important to distinguish between the goal of synchronous behavior and the actions that are required in order to attain it (attending to and copying others). The goal concept is activated by external demands, and the behavior concepts that compose the plan (copying others, etc.) are activated spontaneously in the course of pursuing this goal. Although this distinction is subtle, it becomes important in conceptualizing the different effects of synchronous behavior on judgments and decisions, as noted in the next two sections.

The Effect of Behavioral Mindsets

Engaging in synchronous behavior can often give rise to a sense of group cohesiveness (Ehrenreich, 2006; Haidt, 2007; Hove & Risen, 2009; Paladino, Mazzurega, Pavani, & Schubert, 2010; Wiltermuth, 2012; Wiltermuth & Heath, 2009). Wiltermuth and Heath (2009) demonstrated in several experiments that people who have behaved in synchrony with one another show stronger cooperation and social attachment in subsequent tasks, even at the cost of personal profit. Hove and Risen (2009) also found that behaving in synchrony increases participants' sense of attachment to the group.

In these studies, however, participants' feelings of affiliation were directed toward the same individuals with whom they had behaved in synchrony. For instance, Wiltermuth (2012) showed that participants who acted in synchrony with a confederate were more likely than other participants to comply with the confederate's request to administer a noise blast to another group of participants. Thus, feelings of emotional connectedness with the confederate mediated the relationship between synchrony and compliance with his or her request. It is unclear from this research whether engaging in synchronous behavior would influence actions in subsequent, unrelated situations in which different persons are involved who have no knowledge about the actors' past behavior.

Nevertheless, a conceptualization of behavioral mindsets proposed by Wyer and Xu (2010) suggests that this influence can indeed occur. This conceptualization is based in part on (a) the effects of knowledge accessibility (Förster & Liberman, 2007; Higgins, 1996; Wyer, 2008) and in part on (b) Kruglanski et al.'s (2002) analysis of the mental representation of goals, as noted earlier. To reiterate, a behavior-related concept can be contained in several plans, each of which pertains to a different goal. Consequently, if pursuing one goal activates concepts that are also part of a plan for attaining a different goal, these concepts, once accessible in memory, are likely to be applied in deciding how to pursue this latter goal as well (for a more formal statement of this process, see Wyer et al., 2012).

Several studies exemplify this possibility. For instance, deciding which of two animals has more of a physical attribute can activate a "which-to-choose" mindset, increasing the likelihood of purchasing one of several snacks on sale after the experiment without considering the option of choosing nothing at all (Xu & Wyer, 2008). Individuals who have been induced to focus on global features of a stimulus acquire a general disposition to construe information in terms of abstract concepts that generalizes to a wide variety of unrelated situations (Förster & Dannenberg, 2010). Thinking about propositions with which one disagrees can stimulate one to refute the propositions' validity. Once concepts associated with this behavior become accessible in memory, they can induce a "counterarguing" mindset that decreases the influence of a persuasive message that one encounters later (Xu & Wyer, 2012). In each case, individuals were likely to be aware of the behavior they performed. However, they were less likely to be aware that the behavior they performed in attaining the first goal influenced the behavior they decided to apply in pursuing the second.

The situation we considered in the present research may also exemplify this phenomenon. The goal of behaving in synchrony may activate a plan-goal schema, concepts of which include the attention to and copying the behavior of others. Engaging in the behavior required to attain this goal may therefore activate general concepts associated with copying others and induce a "copying others" mindset, leading individuals to conform to others' opinions and behavior in a later situation in pursuit of a quite unrelated goal to which the concepts are also applicable.

The cognitive processes that underlie the impact of a mindset resemble those that underlie the effects of knowledge accessibility more generally (Förster & Liberman, 2007; Higgins, 1996; Wyer, 2008). However, the processes are unique in several respects. For one thing, the concepts that mediate the effects of a behavioral

mindset do not exist in isolation. Rather, they are contained in specific plan-goal schemas that are activated in the course of conscious goal-directed activity. In the present context, this means that a behavioral mindset would not be activated under conditions in which an individual's behavior occurs for reasons that are unrelated to the plan-goal schema in which a concept of the behavior is contained.

These considerations have general implications for the conditions in which the effects of a copying-others mindset are likely to be evident. As we have noted, the concept of copying others might be part of a plan to attain goals other than behavior synchrony (social approval, getting a correct answer, etc.). The pursuit of these goals could also induce a copying-others mindset, thereby affecting judgments and decisions in other situations. On the other hand, if individuals incidentally copy others' behavior in the course of pursuing a goal whose schema does not contain the concept of copying others, a copying-others mindset will not be activated and performing the behavior should have little effect. Moreover, even if copying others' behavior is relevant to the goal that individuals happen to be pursuing, a copying-others mindset may not have an effect unless individuals think about the instrumentality of their behavior in attaining this goal. If individuals' attention is drawn to their behavior per se, independently of its goal-relevance, other factors come into play. Reactance may be one of these factors.

Effects of Psychological Reactance

Consciously engaging in synchronous behavior requires individuals to sacrifice their freedom of action and subordinate their behavior to that of others. Restrictions on freedom can induce feelings of reactance (Brehm, 1966; Brehm & Brehm, 1981). According to reactance theory, people who feel that their freedom is threatened often attempt to reassert their individuality by engaging in behavior that distinguishes themselves from others and by resisting social pressure to conform. For example, a person's overly zealous attempts to convince a colleague to collaborate on a project can often decrease the colleague's motivation to do so. Similarly, an unsolicited recommendation to see a movie might decrease rather than increase the likelihood of seeing the movie (Fitzsimons & Lehmann, 2004). Moreover, when people perceive that a promotion is intended to control their consumption, they reassert their individuality by choosing alternatives that are incongruent with those the promotion advocates (Kivetz, 2005).

Situational factors can also induce reactance. For example, restricting personal space by requiring persons to sit close to others can motivate them to reassert their freedom by choosing more unique alternatives in a later choice task (Xu, Shen, & Wyer, 2012). The requirement to engage in synchronous behavior could have analogous effects. That is, if people feel that behaving synchronously threatens their freedom of action, they may reassert their individuality in a later situation by choosing actions that differ from those that others advocate or consider desirable.

Moreover, reactance not only can be activated by restrictions on one's own freedom but also can occur vicariously. Andreoli et al. (1974) found that merely seeing another person's freedom being threatened decreased participants' ratings of the desirability of stimuli that were ostensibly liked by others. This was true regardless of whether the observers expected to interact with the person

who imposed the threat. In the present context, this suggests that people can feel the restrictions on freedom imposed by synchronous behavior regardless of whether they personally engage in this behavior or only observe it.

Actor–Observer Differences in Reactions to Behavior

As the preceding discussion indicates, the cognitive and motivational factors that come into play when individuals encounter synchronous behavior could have either positive or negative effects on their later judgments and decisions. In fact, both effects could occur, their relative magnitude depending on whether individuals focus their attention on the goal to which the behavior is directed or focus on the behavior itself, independently of its goal relevance. Their attentional focus, in turn, may be influenced in part by whether they personally engage in the behavior or only observe it.

This possibility is suggested by research on actor–observer differences in attributions and judgments (Jones & Nisbett, 1971; for a review, see Fiske & Taylor, 1991). Jones and Nisbett (1971) postulate that individuals attribute others' behavior to factors that are salient to them from the perspective from which they view or imagine this behavior. Thus, actors' attention when they perform goal-related behavior is directed outward, on the goal they are pursuing and their behavior's effectiveness in attaining it, whereas observers' attention is typically drawn to characteristics of the actors' behavior per se. These differences in perspective can influence the explanations that people give for the actors' behavior (Regan & Totten, 1975; Storms, 1973). They can also have an impact on individuals' perceptions of their own versus others' conformity (Pronin, Berger, & Molouki, 2007), their self-perceptions (Libby, Shaeffer, Eibach, & Slemmer, 2007), the intensity of their emotional reactions (Hung & Mukhopadhyay, 2012), and their reliance on concrete versus abstract information (Yan & Sengupta, 2011).

The effects we examined differed from these. In Experiment 1, some participants engaged in a series of exercises either synchronously or asynchronously, and this behavior was observed by others. Then, as part of an ostensibly unrelated experiment, all participants completed a product evaluation questionnaire in which other consumers' preferences for the products were indicated, and their conformity was inferred from the likelihood of choosing majority-endorsed options (for the use of this measure in prior research, see Berger & Heath, 2007; Huang, Zhang, Hui, & Wyer, 2014; Wang, Zhu, & Shiv, 2012; Xu et al., 2012). In administering these measures, we told participants to report their personal preferences without giving them an indication of the criteria they should use. Therefore, their judgments could be based in part on their perceptions that others' preference were indications of product quality or, alternatively, social desirability. However, a copying-others mindset should have an impact on their conformity over and above these motivational factors.

We therefore expected that participants with the goal of engaging in synchronous exercise would focus primarily on this goal and the effectiveness of their behavior in attaining it. To this extent, the concepts activated by their behavior should induce a copying-others mindset, leading them to copy others' preferences in the product-choice task. In contrast, observers are more likely to focus on the actors' behavior without regard to the goal to which it

pertains. To this extent, they should be sensitive to the restrictions on freedom imposed by the behavior and should vicariously experience reactance for reasons suggested by Andreoli et al. (1974). We therefore expected that observers would be less likely to conform to others' opinions in the product-choice task when the actors' behavior was synchronous than when it was not.

Additional Implications

The preceding hypotheses assume that actors and observers typically differ in the relative attention they pay (a) to the effectiveness of the actors' behavior in attaining the goal to which it is directed and (b) to the actors' behavior per se, independently of its goal relevance. Thus, actors should be more likely to experience reactance if their attention is drawn to their behavior per se rather than to its instrumentality in attaining the goal at hand. Correspondingly, observers should be less likely to experience reactance if their attention is drawn to the goal to which the actors' behavior is directed. To this extent, several situational factors could influence both actors' and observers' reactions to the synchronous behavior through their mediating influence on (a) perceptions of the freedom to engage in the behavior, (b) the relevance of copying others' actions to the goal to which their behavior is directed, and (c) the relative attention paid to the actors' behavior per se versus the goal to which it pertains.

Restrictions on freedom. Synchronous behavior is less likely to induce a negative reaction when individuals feel that they have freely chosen this activity than when they feel they were forced to engage in it (Brehm, 1966; see also Bem, 1972). Observers are also less likely to perceive that actors' behavior constitutes a restriction on freedom if the actors volunteered to engage in the behavior. Thus, both actors and observers may express less reactance and, consequently, may be more likely to adopt others' behavior in a later situation in the first case than in the second. Experiment 2 investigated this possibility.

Goal relevance. Second, actors' behavior should theoretically induce a copying-others mindset only if the actors consciously engage in the behavior for the purpose of matching their behavior to that of others. If actors incidentally match others' behavior without intentionally doing so, a plan-goal schema that contains the concepts associated with copying others should not be activated and a copying-others mindset should not be induced. In this case, therefore, the actors' synchronous behavior should not affect their later conformity. Experiment 3 provided evidence of this contingency.

Attention differences. Although reactance and a copying-others mindset can both contribute to actors' conformity, the magnitude of these contributions may vary. To reiterate, actors are likely to think about their behavior in relation to the goal at hand rather than about the restrictions on their freedom required in order to attain the goal. In contrast, observers' attention is more likely to be focused on the actors' behavior per se. If this is so, however, the relative effects of this attention difference might be reduced or even reversed by changing the relative attention that actors and observers pay to the actors' behavior and the goal to which it is directed.

Experiments 4 and 5 confirmed this possibility. Experiment 4 showed that inducing observers to take the actors' perspective reduced the reactance they experienced and led the actors' behav-

ior to have an effect similar to its effects on actors themselves. Experiment 5 demonstrated that stimulating actors to imagine themselves performing the behavior in anticipation of actually doing so increased their sensitivity to the restrictions on freedom imposed by this behavior and thus decreased their later conformity.

Other considerations arise in conceptualizing the phenomena we investigated. One question surrounds the extent to which the phenomena are specific to the goal of behaving synchronously or, alternatively, whether other goals that lead individuals to work together in pursuit of a common goal would have similar effects. It is conceivable that persons who interact with others in pursuit of a common goal will acquire a disposition to cooperate with others in a later situation. As we have noted, however, pursuit of a common goal does not necessarily involve copying others' behavior. (In fact, due to control conditions of the present research, actors had a common goal of doing the exercises; however, attainment of the goal did not require copying one another's behavior.) Thus, the pursuit of such a goal would not elicit a copying-others mindset that influences conformity to anonymous others' judgments on a product preference task, to which neither the goal nor the behavior required to attain it is relevant. We discuss the relative effects of goal activation and behavior activation more fully after our results are reported.

Experiment 1

Experiment 1 confirmed the diametrically opposite effects of synchronous behavior on actors' and observers' judgments. Some participants were asked to perform exercises either synchronously or asynchronously. Other participants observed these exercises. Then, all participants completed a product choice task in which the market share of the choice alternatives was varied. We expected that engaging in synchronous behavior would increase the disposition to choose products that were ostensibly popular whereas observing this behavior would decrease this disposition.

In addition to confirming this hypothesis, we (a) validated our assumption that observers' reactions were mediated by thoughts about the restrictions on actors' freedom of behavior and (b) disconfirmed an alternative interpretation of these reactions. Wang et al. (2012) found that persons who feel lonely show a preference for popular choice alternatives when they report these preferences publicly. (They show a preference for unique and distinctive alternatives when they report their judgments privately.) Judgments in the present experiment were known only to the experimenter. Nevertheless, we expected that if observers of synchronous behavior feel excluded from the main experiment and thus feel socially alienated, these feelings might account for their decreased conformity in this condition. As will be seen, however, this was not the case.

Method

One hundred forty-six Hong Kong undergraduates (55 male, $M_{\text{age}} = 22.01$ years, $SD = 2.90$) were recruited to participate voluntarily in exchange of HK\$40 (approximately US\$5). They were randomly assigned to conditions of a 2 (behavior: synchronous vs. asynchronous) \times 2 (participant role: actor vs. observer) between-subjects design.

Students participated in groups of 10–12. Upon their arrival at the laboratory, participants were randomly divided into two groups

of equal size and were told that we had a different task for each group. On this pretense, one group was assigned to be *actors* and the other to be *observers*. In *synchronous exercise* conditions, actors were instructed to follow an experimenter to learn four simple exercises involving head, arm, waist, and leg movements. They were told to do the exercises in synchrony with other actors (i.e., to perform the same actions in the same way at the same pace as others). To facilitate their attainment of this objective, we asked them to count aloud as they performed each movement. In *asynchronous exercise* conditions, the procedure was the same except that actors were not instructed to do the exercises synchronously.

While this was going on, the observers waited in another room and could not hear the instructions the actors were given. After the actors had practiced for 2 minutes, the observers reentered the experimental room and watched the actors perform for 10 minutes. All participants then moved to an ostensibly unrelated study (conducted by a different researcher) in which they completed a product preference questionnaire similar to that employed by Berger and Heath (2007). Participants were instructed that the researchers were interested in consumers' preferences and were presented with information allegedly excerpted from *Consumer Reports* about the market share of different brands. Under this guise, participants were asked to choose one of three brands in each of five different product categories (e.g., car navigation system, sunglasses, and sofa). The alternatives in each category varied in terms of the proportion of persons who owned each. (In the case of sofa, for example, participants were told that, according to an online consumer survey, 71% of other individuals owned a sofa from Wildon Home, 19% owned one from Skyline Furniture, and 10% owned one from Catnapper.) Participants' choices were coded as 1, 2, or 3 depending on whether participants chose the option with the lowest, middle, or highest market share, respectively. Choices were summed over items to provide a score from 5 to 15, with higher numbers indicating a greater tendency to copy others' preferences.

After the brand choice task, actors indicated the extent to which performing the exercises had made them feel that their freedom of behavior was restricted, whereas observers reported both (a) the extent to which performing the exercises restricted the actors' freedom and (b) the extent to which observing the exercise made them think about restrictions on their own freedom. In addition, observers reported the extent to which they felt socially excluded and the extent to which they felt they were not an important part of the experiment. All judgments were reported along scales from 1 (*not at all*) to 5 (*very much*). Finally, actors reported the extent to which they felt that they did the exercise synchronously, and observers indicated whether they felt the actors did the exercise synchronously, along the same scale used for other items.

Results

Statistical strategy. The design of this and subsequent experiments meant that the current dependent measures, although assessed individually, was nested within actors' or observers' groups. To examine the degree of variability in responses at the individual level that is attributed to being part of the group, we computed the intraclass correlation coefficient, ICC (1) (Bartko, 1976; James, 1982; Kozlowski & Klein, 2000), for the dependent measures in all five experiments. This coefficient, calculated for

both the main dependent variables (conformity) and the great majority of other variables in our experiments, was typically small in size and nonsignificant (ranging from $-.13$ to $.11$, $ps > .10$), suggesting that the effects of nesting were minimal and the data could be analyzed at the individual level.

Furthermore, the Durbin-Watson coefficients ranged from 1.55 to 2.09 for all the analyses across the five experiments, suggesting that the independence assumption for the generalized linear model (GLM) was satisfied (see Durbin & Watson, 1950, 1971; Garson, 2012). Nevertheless, given the nested nature of the study design, we re-ran the regressions testing all hypotheses using hierarchical linear modeling (HLM; random intercepts models). The conclusions based on HLM remained unchanged from conclusions based on the GLM approach.

Manipulation check. Behavioral synchrony was manipulated successfully. Analyses of perceptions of synchrony as a function of behavior and participant role indicated that participants perceived a higher degree of synchrony in the synchronous exercise condition ($M = 3.91$, $SD = 0.94$) than in the asynchronous exercise condition ($M = 3.17$, $SD = 1.10$), $F(1, 142) = 19.11$, $p < .001$, $\eta^2 = .12$, and that this difference did not depend on whether participants were actors (3.84 vs. 3.06), $F(1, 142) = 11.41$, $p = .001$, or observers (4.00 vs. 3.30), $F(1, 142) = 7.99$, $p < .01$, $F(1, 142) = .06$, $p > .81$.

That said, there are undoubtedly individual differences in the degree to which actors were successful in engaging in synchronous behavior. Data pertaining to these differences are unavailable. However, our conceptualization pertains to individuals' perceptions of their behavior and not their actual behavior. The fact that observers, like actors, perceived differences in the behavior in the two conditions indicates that the manipulation was successful.

Conformity. Participants' conformity to others' product choices is shown in Table 1 as a function of behavioral synchrony and participant role. Analyses of these data yielded a significant interaction of these variables, $F(1, 142) = 10.87$, $p = .001$, $\eta^2 = .07$. That is, actors copied others' preferences to a greater extent in synchronous conditions ($M = 10.88$, $SD = 2.34$) than in asynchronous conditions ($M = 9.77$, $SD = 1.90$), $F(1, 142) = 4.88$, $p < .05$, whereas observers conformed less in the former conditions ($M = 9.47$, $SD = 1.97$) than in the latter ($M = 10.60$, $SD = 1.77$), $F(1, 142) = 5.11$, $p < .05$. Supplementary analyses indicated that actors' conformity was positively correlated with their perceptions of the degree to which they did the exercises synchronously ($r = .17$, $p > .10$), whereas observers' conformity was negatively correlated with their perceptions that the actors behaved synchronously ($r = -.14$, $p > .10$). The fact that these correlations

Table 1
Actors' and Observers' Conformity as a Function of Behavioral Synchrony: Experiment 1

Role	Behavior	
	Synchronous	Asynchronous
Actor	10.88 (2.34) _a	9.77 (1.90) _{b,c}
Observer	9.47 (1.97) _c	10.60 (1.77) _{a,b}

Note. Cells with unlike subscripts differ at $p < .05$. Standard deviations are indicated in parentheses.

did not achieve statistical significance suggests that the goal of behaving synchronously, but not incidental synchrony, was essential for the effect to occur. We tested this proposition more formally in Experiment 3.

Perceptions of freedom. Actors did not report feeling that their freedom was significantly more restricted while performing synchronous exercises ($M = 3.58$, $SD = 1.12$) than while performing asynchronous exercises ($M = 3.37$, $SD = 1.03$, $F < 1$), suggesting that they experienced little reactance. In contrast, observers reported that performing the exercise task restricted the actors' freedom to a greater extent in the synchronous condition ($M = 3.71$, $SD = 1.09$) than in the asynchronous condition ($M = 3.10$, $SD = 1.00$), $F(1, 66) = 5.69$, $p < .05$, $\eta^2 = .08$, and thought about restrictions on their own behavior to a greater extent in the former condition ($M = 3.42$, $SD = .86$) than in the latter ($M = 2.87$, $SD = 1.17$), $F(1, 66) = 5.10$, $p < .05$, $\eta^2 = .07$.

To assess the mediating impact of reactance on observers' behavior, we averaged responses to the latter two measures. Behavioral synchrony was associated with both this index ($\beta = -.34$, $p < .01$) and conformity ($\beta = .29$, $p < .05$). Moreover, the reactance measure was associated with conformity ($\beta = -.32$, $p < .01$). When both factors were entered into the predictor of conformity, however, the effect of behavioral synchrony was reduced to marginal significance ($\beta = .20$, $p = .10$), whereas the effect of reactance remained reliable ($\beta = -.25$, $p < .05$; see Figure 1). The indirect effect of synchrony on observers' conformity tendency through their perceptions of actors' behavioral freedom was further confirmed by bootstrapping (Preacher & Hayes, 2008): Based on 1,000 samples, the 95% confidence interval ranged between 0.0205 and 0.8756, excluding zero.

Feelings of social exclusion. The effects of behavioral synchrony on observers' judgments cannot be attributed to their feelings of social exclusion. These feelings did not depend on whether the behavior they observed was synchronous ($M = 2.53$, $SD = 1.11$) or asynchronous ($M = 2.33$, $SD = 1.09$, $F < 1$). Observers' perception that they were not an important part of the experiment was also similar in synchronous ($M = 2.71$, $SD = 1.11$) and asynchronous conditions ($M = 2.60$, $SD = 1.25$, $F < 1$). Finally, neither measure of social exclusion was appreciably correlated with observers' conformity (for social exclusion feeling: $r = .01$, $p > .91$; for perception that they were not an important part of the experiment: $r = -.05$, $p > .68$). Thus, this alternative interpretation of our findings does not seem tenable.

In conclusion, this experiment confirmed our expectation that synchronous behavior typically increases actors' tendency to con-

form while observing this behavior normally decreases observers' conformity. Furthermore, observers' thoughts about the restrictions on actors' behavioral freedom mediated the negative effect of the actors' synchronous behavior on their conformity, whereas observers' feelings of social exclusion had no impact on their disposition to conform.

Experiment 2

We assumed that both actors who engaged in synchronous behavior and observers of this behavior would experience reactance to the restrictions on their freedom that was required in order to perform the behavior but that, in the case of actors, the effect of this reactance was overridden by the effect of a copying-others mindset. In fact, actors in Experiment 1 did not report feeling any more restrictions on their behavior when it was synchronous than when it was asynchronous, suggesting that they experienced little reactance despite being required to engage in synchronous behavior. We nevertheless expected that explicitly giving them freedom of choice would decrease any residual feelings of reactance that they might otherwise experience and, therefore, would increase the relative impact of a copying-others mindset on their later behavioral decisions.

Correspondingly, we assumed that if observers were made aware that the actors volunteered to perform synchronous behavior, they would be less likely to perceive the behavior to be a restriction on their freedom and would experience less vicarious reactance than they otherwise would. We therefore expected that giving actors freedom to choose whether to engage in synchronous behavior would increase both actors' and observers' disposition to copy others' choices in a later situation.

Experiment 2 examined this possibility. All participants were exposed to synchronous exercise conditions either as actors or as observers. In some conditions, however, actors' freedom of choice was increased by asking them to choose between two alternative studies, whereas in other conditions, actors were not given any choice. We expected that although the general difference between actors' and observers' preferences might continue to exist, both actors and observers would be more inclined to select popular options in the product choice task when actors had been given free choice over their behavior than when they had not.

Method

One hundred seventeen Hong Kong undergraduates (48 male, $M_{\text{age}} = 20.67$ years, $SD = 1.35$) participated in this study for payment of HK\$40 (approximately US\$5). They were randomly assigned to conditions of a 2 (freedom of choice: free vs. forced) \times 2 (participant role: actor vs. observer) between-subjects design. As in Experiment 1, participants took part in the study in groups of 10–12 persons and were randomly divided into actors and observers. In *forced choice* conditions, actors were required to do the exercise synchronously, and no alternative choices were provided. In *free choice* conditions, actors were asked to choose between two studies: the synchrony task and an essay writing task in which they would be asked to write an essay of about 500 words on "the individual and the cosmos in Renaissance philosophy." As we expected, all participants chose to do the exercise task. Correspondingly, observers either were told that the actors were required

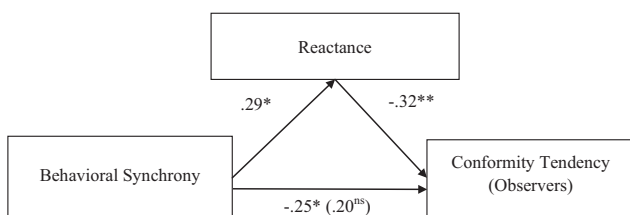


Figure 1. Mediating effects of reactance on observers' conformity: Experiment 1. The value in parentheses indicates the regression coefficient of behavioral synchrony on conformity tendency (observers) controlling for reactance. ns = nonsignificant. * $p < .05$. ** $p < .01$.

to do the synchronous behavior task or were told that the actors had been given a choice of the two aforementioned options and had chosen to perform the exercises.

After the synchronous exercise, all participants completed the same product preference task employed in Experiment 1. In addition, they indicated how much threat the synchronous activities had posed to their behavioral freedom and how much freedom they experienced when they were doing the synchronous exercises (or, in the case of observers, how much freedom they had experienced when they watched the actors do the exercises). Finally, they indicated the extent to which the actors were forced to perform the synchrony task. All responses were made along a scale from 1 (*not at all*) to 5 (*very much*).

Results

Manipulation check. Analyses of perceptions of synchrony as a function of choice freedom and participant role indicated that the actors indeed had greater freedom of choice in free choice conditions than in forced choice conditions, $F(1, 113) = 122.20$, $p < .001$, $\eta^2 = .52$, and this difference did not significantly depend on whether participants were actors (4.07 vs. 2.55), $F(1, 113) = 48.96$, $p < .001$, or observers (4.10 vs. 2.24, $F(1, 113) = 74.71$, $p < .001$), $F(1, 113) = 1.25$, $p > .26$.

Conformity. Participants' conformity to others' preferences is summarized in Table 2 as a function of freedom of choice and participant role. Analyses of these data revealed main effects of both participant role, $F(1, 113) = 9.24$, $p = .003$, $\eta^2 = .08$, and choice freedom, $F(1, 113) = 10.77$, $p = .001$, $\eta^2 = .09$. Actors generally conformed more to others' preferences ($M = 9.59$, $SD = 1.48$) than observers did ($M = 8.71$, $SD = 1.71$), confirming the results of Experiment 1. However, both actors and observers had a greater disposition to copy others' preferences under free choice conditions ($M = 9.62$, $SD = 1.44$) than under forced choice conditions ($M = 8.68$, $SD = 1.73$). Furthermore, the interaction of choice freedom and participant role was not significant ($F < 1$).

Reactance. Participants' estimate of perceived freedom was reverse scored and averaged with their estimate of perceived threat to form a single index of reactance. As we expected, participants perceived greater reactance in forced choice conditions ($M = 3.88$, $SD = 0.72$) than under free choice conditions ($M = 3.22$, $SD = 0.78$), $F(1, 113) = 22.87$, $p < .001$, $\eta^2 = .17$. Neither the main effect of participant role nor its interaction with choice freedom was significant ($ps > .22$).

Regression analyses confirmed the mediating effect of reactance on the impact of choice freedom on conformity. Pooled over actors and observers, both freedom of choice ($\beta = .29$, $p < .01$) and

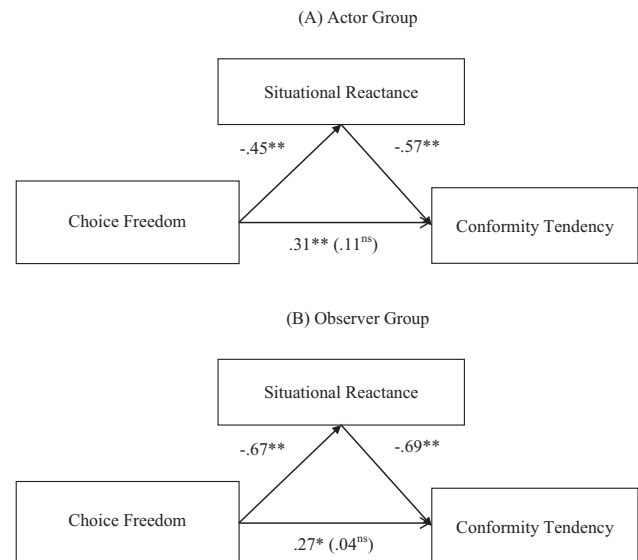


Figure 2. Mediating effects of situational reactance on the effect of choice freedom on actors' and observers' conformity: Experiment 2. The values in parentheses indicate the regression coefficient of choice freedom on conformity tendency controlling for situational reactance. ns = nonsignificant. * $p < .05$. ** $p < .01$.

situational reactance ($\beta = -.55$, $p < .001$) significantly predicted conformity. When both factors were entered as the predictor of conformity, however, the effect of freedom of choice was reduced to nonsignificance ($\beta = .08$, $p = .37$), whereas the effect of situational reactance remained reliable ($\beta = -.52$, $p < .001$), suggesting that the effect of choice freedom on conformity was mediated by reactance. Bootstrapping further confirmed this conclusion: Based on 1,000 samples, the 95% confidence interval ranged from 0.3803 to 1.1604, excluding 0. Separate analyses of actors and observers, summarized in Figure 2, confirm this conclusion.

In summary, the results of this experiment indicate that the freedom of choice over performing synchronous behavior influenced both actors' and observers' adoption of others' preferences by affecting their psychological reactance.

Experiment 3

Our interpretation of the effect of actors' synchronous behavior on their later behavior assumes that the actors consciously perceive their actions as a means of attaining the goal of behaving synchronously. However, one might speculate that actors' conformity in synchronous behavior conditions is induced by the similarity of their behavior to others' behavior independently of its relevance to the goal to which the behavior was directed. If this were so, however, inducing actors to match others' behavior incidentally, for reasons that are unrelated to the goal of behaving synchronously, should not activate a copying-others mindset and should not influence their conformity in later situations. Experiment 3 confirmed this hypothesis.

We also evaluated another possibility. Engaging in synchronous behavior can give rise to a sense of group cohesiveness (Ehrenreich, 2006; see also Haidt, 2007; Haidt, Seder, & Kesebir, 2008)

Table 2
Effect of Nature of Choice on Actors' and Observers'
Subsequent Conformity Tendency: Experiment 2

Role	Choice freedom of synchrony	
	Forced synchrony	Free-choice synchrony
Actor	9.10 (1.57) _a	10.07 (1.22) _b
Observer	8.27 (1.80) _a	9.17 (1.51) _{b,c}

Note. Cells with unlike subscripts differ at $p < .05$. Standard deviations are indicated in parentheses.

and consequently can increase cooperation and feelings of social attachment (Hove & Risen, 2009; Paladino et al., 2010; Wiltermuth, 2012; Wiltermuth & Heath, 2009). In these earlier studies, participants' feelings of affiliation were directed toward the same individuals with whom they had previously interacted. It seemed intuitively unlikely that these feelings would mediate the effects of performing synchronous behavior on conformity to anonymous individuals who had not been engaged in this behavior. Nevertheless, this possibility was worth evaluating empirically.

Method

Eighty-five Canadian undergraduate students (29 male, $M_{\text{age}} = 19.89$ years, $SD = 1.61$) participated in groups of 6 to 8 persons each for course credit. They were randomly assigned to one of three conditions. In *intentional synchrony* conditions, participants engaged in synchronous behavior under conditions identical to those employed in Experiment 1. In *incidental synchrony* conditions, participants learned the same four body movements with the experimenter but were then told to perform the exercises in time to a metronome. Thus, although their behavior was synchronized, performing this behavior was not their objective. In *asynchrony* conditions, participants performed the same behaviors but were told to perform the behaviors at their own pace. In all conditions, participants performed the exercises for around 10 minutes.

After finishing the exercises, participants completed the product preference task administered in previous experiments. Then, they reported their agreement with several items pertaining to (a) the attention they paid to others' behavior ("I paid attention to what others were doing"), (b) their goal while doing the exercise ("My goal was to do exercises exactly as others were doing them"), (c) the perceived restriction on their behavioral freedom ("Performing the exercise task made me feel that my behavior was being restricted"), and (d) their closeness and similarity to other participants ("I felt personally close to other participants who were performing the exercises," "I felt similar to other participants who were performing the exercises"; $r = .31$, $p < .01$), all along a scale from 1 (*disagree very much*) to 7 (*agree very much*). Finally, participants estimated the extent to which they felt that they did the exercise synchronously along a scale from 1 (*not at all*) to 7 (*very much*) and reported their general mood along a scale from 1 (*sad*) to 7 (*happy*).

Results

Manipulation check. Our manipulation of behavioral synchrony was successful. Participants reported their behavior to be more similar to others in both intentional synchrony conditions ($M = 5.81$, $SD = 1.04$) and incidental synchrony conditions ($M = 5.38$, $SD = 0.98$) than in asynchrony conditions ($M = 3.69$, $SD = 1.20$), in each case, $F(1, 82) > 35.69$, $p < .001$, whereas judgments in the two synchrony conditions did not differ from one another, $F(1, 82) = 2.29$, $p > .13$. Thus, participants in both incidental synchrony and intentional synchrony conditions were aware that they had performed the exercises in synchrony with others. As noted presently, however, they perceived their objective of performing the behavior to differ in the two conditions.

Conformity. Participants' adoption of others' preferences in each behavior condition is shown in the first row of Table 3. The effect of behavior conditions was significant, $F(2, 82) = 4.92$, $p < .05$, $\eta^2 = .11$, and indicates that participants copied others' preferences significantly more in intentional synchrony conditions ($M = 10.96$, $SD = 1.65$) than in either incidental synchrony conditions ($M = 10.14$, $SD = 1.38$), $F(1, 82) = 4.67$, $p < .05$, or asynchrony conditions ($M = 9.79$, $SD = 1.24$), $F(1, 82) = 9.39$, $p < .01$, whereas conformity in the latter two conditions did not differ ($F < 1$). Participants' mood did not affect their conformity ($p > .71$).

Supplementary data shown in the next two rows of Table 3 confirmed our assumptions concerning the factors that underlie these differences. Although participants' attention to what others were doing did not differ significantly in intentional and incidental synchrony conditions, participants reported trying to do exercises exactly as others were doing to a significantly greater extent in the intentional synchrony condition ($M = 5.07$, $SD = 1.24$) than in either incidental synchrony conditions ($M = 4.10$, $SD = 1.15$) or asynchrony conditions ($M = 2.55$, $SD = 1.24$), $F(2, 82) = 31.20$, $p < .001$, $\eta^2 = .43$. Mediation analyses involving all three behavior conditions (we created dummy variables for intentional and incidental synchrony) indicated that both intentional synchrony ($\beta = .37$, $p < .01$) and the "goal to behave exactly as others" ($\beta = .37$, $p < .001$) were significantly related to conformity. When both dummy variables and the proposed mediator were entered into the predictor of conformity, however, the effect of intentional synchrony was reduced to nonsignificance ($\beta = .14$, $p = .36$), whereas the effect of the goal to behave like others

Table 3
Actors' Conformity and Process Measures as a Function of Behavioral Synchrony: Experiment 3

Measure	Intentional synchrony	Incidental synchrony	Asynchrony	F
Conformity	10.96 (1.65) _a	10.14 (1.38) _b	9.79 (1.24) _b	4.92*
I paid attention to what others were doing.	5.26 (1.06) _a	4.72 (1.13) _{a,b}	4.48 (1.18) _b	3.45*
My goal was to do exercises exactly as others were doing them.	5.07 (1.24) _a	4.10 (1.15) _b	2.55 (1.24) _c	31.20**
Performing the exercise task made me feel that my behavior was being restricted.	4.48 (1.25) _a	4.24 (1.46) _{a,b}	3.59 (1.27) _b	3.44*
I felt personally close to other participants who were performing the exercises.	5.11 (1.09) _a	4.34 (1.11) _b	4.14 (1.36) _b	5.12**
I felt similar to other participants who were performing the exercises.	5.19 (1.04) _a	4.55 (1.30) _b	3.93 (1.03) _c	8.58*

Note. Cells with unlike subscripts in each row differ at $p < .05$. Standard deviations are indicated in parentheses.

* $p < .05$. ** $p < .01$.

remained reliable ($\beta = .30, p < .05$). Thus, participants' attempts to behave like others significantly mediated the effects of behavioral synchrony on their later conformity (see Figure 3). Bootstrapping confirmed this conclusion: Based on 1,000 samples, the 95% confidence interval ranged between 0.1020 and 0.9477, excluding 0.

Reactance. Participants' reactance is summarized in the fourth row of Table 3. Participants reported feeling that their behavior was more restricted in both intentional synchrony conditions ($M = 4.48, SD = 1.25$) and incidental synchrony conditions ($M = 4.24, SD = 1.46$) than in asynchrony conditions ($M = 3.59, SD = 1.27$), $F(2, 82) = 3.44, p < .05, \eta^2 = .08$. This difference confirms the nonsignificant difference observed in Experiment 1 and confirms our assumption that although actors who behaved synchronously were sensitive to restrictions on their freedom, the effects of a copying-others mindset overrode whatever effects their reactance had on their conformity.

Feelings of similarity and social closeness. Participants' feelings of closeness and similarity to others are shown in the last two rows of Table 3. Participants felt significantly closer and more similar to others in intentional synchrony conditions than in other conditions. This raises the possibility that participants' greater conformity in the former conditions was mediated by their feelings of closeness to others. In fact, however, mediation analyses indicated that neither feelings of social closeness (95% CI based on 1,000 bootstrapping samples, from -0.2804 to 0.2940 , including 0) nor feelings of similarity (95% CI based on 1,000 samples, from -0.1578 to 0.3799 , including 0) significantly mediated the effects of intentional synchrony on conformity.

The results of this experiment support our assumption that the conscious objective of behaving synchronously with others is necessary to induce a copying-others mindset. Merely behaving similarly to others without having the conscious objective of doing so is not sufficient. The failure for the actors' behavior to influence their conformity in incidental synchrony conditions suggests that the effects did not result from a disposition to unconsciously mimic others' behavior (Chartrand & Bargh, 1999) that generalizes over situations. Finally, although behaving synchronously increased actors' feelings of closeness and similarity to the particular persons with whom they interacted, this factor did not mediate the impact of their synchronous behavior on conformity to others' judgments in an unrelated situation.

Incidentally, one might speculate that the effects of actors' synchronous behavior on their conformity in previous experiments

resulted in part from the presence of observers, who might have distracted them from thinking about the restrictions on freedom imposed by their behavior. In the present study, however, actors conformed in intentional synchrony conditions even in the absence of observers. Therefore, this alternative interpretation does not seem viable.

Experiment 4

Experiment 3 showed that the effect of synchronous behavior on actors' conformity results from their disposition to focus attention on the effectiveness of their behavior in copying others' actions. As a consequence, actors were relatively insensitive to the constraints on their freedom that were required in order to attain this objective (Experiment 1). If this is so, focusing observers' attention on the effectiveness of the actors' behavior in attaining this goal might also desensitize them to the constraints on this behavior and reduce the reactance they experience.

Experiment 4 investigated this possibility. Actors were told that their success in behaving synchronously would be compared to that of other groups of participants and that a reward would be given to the group that was most successful. Moreover, in some conditions, observers were told that they would share the reward with the actors, thus tying their own outcomes to the actors' success. When observers' own outcomes are not linked to those of actors, they should typically focus on the actors' behavior independently of the goal to which the behavior was directed and should vicariously experience reactance as they did in Experiment 1. When observers' outcomes are contingent on the actors' success in behaving synchronously, however, we expected observers to focus their attention on the instrumentality of the actors' behavior to the attainment of this outcome, offsetting the reactance that otherwise predominated and increasing the likelihood of adopting others' judgments in a later situation to a level similar to that observed when actors' behavior was asynchronous.

In addition, we increased the generalizability of our earlier findings to actual behavior as well as judgments. To do this, we used a different index of conformity: namely, the donation of money to either well-known or lesser known charities (see Levav & Zhu, 2009). We assumed that participants would perceive the well-known charities to be more popular than the lesser known ones. Consequently, we expected that individuals' conformity would be reflected in a greater difference between their donations to the former charities and their donations to the latter ones.

Method

One hundred forty Hong Kong undergraduates (51 male, $M_{\text{age}} = 20.06$ years, $SD = 1.46$) participated for course credit. Participants were randomly assigned to conditions of a 2 (participant role: actor vs. observer) \times 3 (behavior/outcome relatedness: synchronous behavior/dependent outcomes vs. synchronous behavior/independent outcomes vs. asynchronous behavior) between-subjects design.

As in Experiment 1, individuals participated in groups of 10–12, with half of them assigned to be actors and the others assigned to be observers. In *synchronous behavior* conditions, actors were told that (a) we were holding a "synchronous exercise" competition in which each group's performance would be evaluated by two

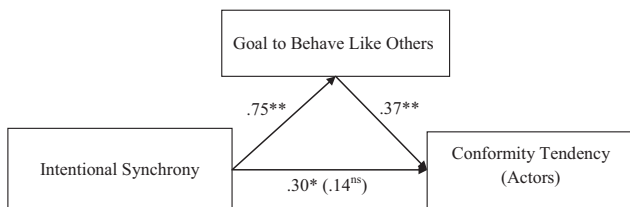


Figure 3. Mediating effect goal on actors' conformity: Experiment 3. The value in parentheses indicates the regression coefficient of intentional synchrony on conformity tendency (actors) controlling for goal to behave like others. ns = nonsignificant. * $p < .05$. ** $p < .001$.

independent judges and (b) each member of the winning group would receive a cash reward of HK\$30 (approximately US\$4). In *asynchronous behavior* conditions, actors performed their exercises without being instructed to do them synchronously, and they were told that each of them would get a HK\$30 cash prize if the average performance of individuals in their group was the highest. The criteria for judging synchronous behavior included the extent to which the behaviors are synchronous, whether the movements were correct, and the extent to which participants applied efforts to the exercises (the latter two criteria were used to judge the individual performance of those in the asynchronous behavior conditions).

As a manipulation of observers' perception of the tie between their outcomes and actors' outcomes, observers were first informed of the rewards that actors would receive in synchronous (asynchronous) behavior conditions. Then, in *dependent-outcome* conditions, they were told that if the group they were observing won, they would attain a reward equivalent to that of the actors. In both *independent-outcome* and *asynchronous behavior* conditions, however, they were told that rewards would be allocated to actors alone but that, to be fair, each group of observers would be entered into a lottery and that the lottery-winning group would receive a reward equivalent to that of the winning actor group.

After this exercise stage, all participants completed a donation task similar to that used to assess conformity by Levav and Zhu (2009). Participants were given HK\$10 (approximately US\$1.25) that they could use for donating money to a list of six nonprofit organizations. They were told that they could decide to give any amount they wished to each organization. If they donated less than \$10 in total, they could keep the rest for themselves, and if they wanted to donate more, they could do so using their own money. Three of the organizations (the Red Cross, the Society for Protection of Children, and the Breast Cancer Foundation) were well known in Hong Kong, whereas the other three (AIDS Organization, the Down Syndrome Association, and the Arthritis and Rheumatism Foundation) were less known. This difference was confirmed on the basis of pretesting. Thirty participants from the same subject population rated the organizations' familiarity along a scale from 1 (*not at all*) to 7 (*very*). These participants were significantly more familiar with the three well-known charities

($M = 3.52$, $SD = 1.50$) than with the three lesser known ones ($M = 2.21$, $SD = 0.97$), $F(1, 29) = 38.07$, $p < .001$, $\eta^2 = .57$.

Finally, participants rated the synchrony of the exercises they performed or observed along a scale from 1 (*not at all synchronous*) to 5 (*very synchronous*). Then, they reported the extent to which they perceived both actors and observers to be "in-group" members along a scale from 1 (*not at all*) to 5 (*very much*). Participants were then debriefed and dismissed. The money collected in this study was actually sent to the specific charities that the participants had designated.

Results

Manipulation checks. Participants judged the exercise to have been performed more synchronously in synchronous behavior conditions ($M = 3.80$, $SD = 0.53$) than in asynchronous behavior conditions ($M = 2.00$, $SD = 0.45$), $F(1, 136) = 355.63$, $p < .001$, $\eta^2 = .72$, and this was equally true of both actors (3.80 vs. 2.05, $F(1, 136) = 142.31$, $p < .001$) and observers (3.79 vs. 1.95, $F(1, 136) = 127.27$, $p < .001$); the interaction was not significant, $F(1, 136) = .20$, $p > .65$. Actors were more inclined to perceive both themselves and observers to be in-group members when the observers' outcome depended on their performance ($M = 3.76$, $SD = 0.72$) than when it did not ($M = 2.11$, $SD = 0.76$), $F(1, 70) = 80.04$, $p < .001$, $\eta^2 = .53$. Similarly, observers were more inclined to perceive both themselves and actors to be in-group members in the former condition ($M = 3.43$, $SD = 0.59$) than in the latter ($M = 1.78$, $SD = 0.56$), $F(1, 66) = 128.71$, $p < .001$, $\eta^2 = .66$. These differences did not depend on whether the actors' behavior was synchronous or asynchronous ($ps > .20$).

Donations. Participants' conformity to others' donation behavior was inferred from the difference between their donations to well-known charities (to which others were likely to donate) and their donations to lesser known charities (to which others were less likely to donate). Seven participants did not contribute anything. Other participants' donations ranged from \$HK2 to \$HK19. These difference scores, along with the mean donations to each type of charity separately, are summarized in Table 4 as a function of behavior/outcome relatedness and participant role. Analyses of the difference scores yielded main effects of both participant role, $F(1,$

Table 4
Actors' and Observers' Disposition to Donate to Well-Known Versus Lesser Known Charities as a Function of Behavioral Synchrony and Outcome Independence: Experiment 4

Variable	Behavior/outcome relatedness		
	Synchronous behavior/dependent outcome	Synchronous behavior/independent outcome	Asynchronous behavior
Well-known charities			
Actor	6.12 (2.43) _a	6.85 (2.38) _a	4.29 (2.57) _b
Observer	5.63 (2.56) _{a,b}	3.16 (2.29) _c	5.65 (2.06) _b
Lesser known charities			
Actor	3.00 (2.52) _a	2.58 (2.02) _a	4.38 (2.75) _b
Observer	3.72 (2.38) _{a,b}	5.68 (2.61) _c	4.10 (1.74) _b
Difference			
Actor	3.12 (3.61) _a	4.27 (3.45) _a	−0.10 (4.17) _b
Observer	1.91 (4.41) _{a,b}	−2.52 (4.24) _c	1.55 (2.68) _b

Note. Cells with unlike subscripts differ at $p < .05$. Standard deviations are indicated in parentheses.

134) = 10.65, $p < .001$, $\eta^2 = .07$, and behavior/outcome relatedness, $F(2, 134) = 3.17$, $p < .05$, $\eta^2 = .05$. However, the interaction of these variables was also significant, $F(2, 134) = 14.75$, $p < .001$, $\eta^2 = .18$, and of the form expected. Between-cell comparisons shown in Table 4 indicate that actors' donations to well-known charities relative to lesser known ones were significantly greater when their behavior was synchronous ($M_{\text{diff}} = 3.71$, $SD = 3.54$) than when it was asynchronous ($M_{\text{diff}} = -0.10$, $SD = 4.17$), $F(1, 134) = 14.65$, $p < .001$, and this was true regardless of whether the observers' outcomes were linked to their own outcomes or not. Furthermore, when observers' outcomes were independent of those of actors, they conformed less when the actors' behavior was synchronous ($M_{\text{diff}} = -2.52$, $SD = 4.24$) than when it was asynchronous ($M_{\text{diff}} = 1.55$, $SD = 2.68$), $F(1, 134) = 12.62$, $p < .01$, replicating the results of Experiment 1. When the observers' outcomes depended on the actors' success, however, their conformity ($M_{\text{diff}} = 1.91$, $SD = 4.41$) did not differ from their conformity when the actors' behavior was synchronous ($M_{\text{diff}} = 1.55$, $SD = 2.68$, $F < 1$). In fact, their conformity was not significantly less than actors' conformity in these conditions ($M_{\text{diff}} = 3.12$, $SD = 3.61$, $p > .20$), suggesting that observers might have vicariously acquired a copying-others mindset similar to the mindset that actors had.

Separate analyses of the money donated to well-known and lesser known charities provided further confirmation of these conclusions. As shown in the first two sections of Table 4, actors donated more money to well-known charities and less money to lesser known charities when their behavior was synchronous than when it was not. In contrast, observers donated less money to well-known charities and more money to lesser known ones in synchronous behavior/independent outcome conditions than in either synchronous behavior/dependent outcome conditions or asynchronous behavior conditions, whereas their donations in the latter two conditions did not significantly differ.

Discussion

This experiment confirmed the conclusions drawn in earlier studies and showed that these conclusions generalize to actual behavior as well as judgments. That is, the effect of behavioral synchrony on actors' donation decisions was primarily governed by a copying-others mindset. Moreover, when observers' outcomes were not tied to actors' outcomes, they donated less money to popular than to unpopular charities when the actors' behavior was synchronous, suggesting that their donations were largely governed by the reactance they experienced. When their outcomes were linked to actors' outcomes, however, their attention was directed to the instrumentality of the actors' behavior to the attainment of the goal to which it pertained rather than to the actors' behavior per se. Consequently, the reactance they experienced was decreased, leading them to donate rather than less more to well-known charities. Moreover, thinking about the instrumentality of the actors' behavior to the goal may have led them to acquire a copying-others mindset without actually performing the behavior themselves.

Experiment 5

Experiment 4 showed that directing observers' attention to the goal of actors' synchronous behavior eliminated the reac-

tance they experienced when they thought about the actors' behavior per se, perhaps inducing a copying-others mindset similar to that of actors. Our conceptualization also implies that directing actors' attention to their behavior rather than to the goal of this behavior should induce reactance similar to that experienced by observers.

Experiment 5 confirmed this prediction. In some conditions, actors were told that their goal was to perform exercises either synchronously or asynchronously, as in other studies. However, they were given pictures of the movements to be performed and told to imagine themselves performing the exercises and to describe the experience they would have in writing. We expected that the writing task would stimulate them to think about the feelings they were likely to have when performing the exercises and thus would lead them to experience reactance, much as observers would. Thus, we expected them to decrease their disposition to copy others' preferences in a later situation.

Method

One hundred ten Hong Kong undergraduates (44 male, $M_{\text{age}} = 19.84$ years, $SD = 1.72$) participated for course credit. Participants took part in groups of 10–12 and were assigned randomly to conditions of a 2 (behavior: synchronous vs. asynchronous) \times 2 (experience: imagined vs. actual) between-subjects design.

All participants in this experiment were assigned to the role of actor. Participants in *actual-behavior* conditions engaged in either synchronous exercises or nonsynchronous exercises under conditions identical to those employed in other studies. In *imagined-behavior* conditions, however, participants were told that they would be required to engage in an exercise involving body movements and were given descriptions and pictures showing the movements to be performed. In *synchronous* conditions, they were either told that they would be required to do these exercises in synchrony with other group members. In *asynchronous* conditions, they were simply told that they would do the exercises with other participants without synchrony being mentioned. In each case, participants were instructed to imagine the situation in which they would be doing the exercises and to elaborate the experiences in a few sentences.

Participants in each condition then performed the brand choice task administered in Experiments 1–3. Then, participants in actual-behavior conditions indicated the extent to which they felt that they had done the exercise synchronously along a scale from 1 (*not at all*) to 5 (*very much*).

Results

Manipulation checks. Participants who actually engaged in the exercise task reported that their behavior was more synchronous in synchronous behavior ($M = 4.00$, $SD = 0.63$) than in asynchronous behavior conditions ($M = 1.97$, $SD = 0.78$), $F(1, 53) = 111.53$, $p < .001$, $\eta^2 = .68$. Furthermore, participants who imagined performing synchronous behavior used an average of 3.24 synchrony-related terms to describe the behavior they expected to perform, whereas participants who imagined asynchronous behavior used none.

Choice behavior. Table 5 shows the mean conformity of participants' product choices (computed as in Experiment 1) as a

Table 5

Actors' Conformity as a Function of Actual and Anticipated Behavioral Synchrony: Experiment 5

Experience of synchrony	Behavior	
	Synchronous	Asynchronous
Actually engaged	10.12 (1.31) _a	9.17 (1.83) _b
Imagined	8.52 (1.95) _c	9.75 (1.82) _b

Note. Cells with unlike subscripts differ at $p < .05$. Standard deviations are indicated in parentheses.

function of behavioral synchrony and behavior conditions (imagined vs. actual). Analyses of these data yielded a significant interaction of these variables, $F(1, 106) = 10.59, p = .002, \eta^2 = .09$. Between-cell comparisons shown in the table indicate that, as in earlier studies, participants who actually performed the behavior showed a significantly greater tendency to copy others' preferences when their behavior was synchronous ($M = 10.12, SD = 1.31$) than when it was not ($M = 9.17, SD = 1.83$), $F(1, 106) = 3.98, p < .05$. In contrast, participants who only imagined exercising showed significantly less conformity to others' preferences when the behavior they imagined was synchronous ($M = 8.52, SD = 1.95$) than when it was not ($M = 9.75, SD = 1.82$), $F(1, 106) = 6.80, p < .05$. In short, although actually engaging in synchronous activity increased conformity, imagining the activity and describing the experience of engaging in it decreased participants' subsequent conformity to others' preferences, presumably because imagining and mentally simulating synchronous activities shifts actors' perspective to that of an observer, increasing feelings of reactance and reducing the tendency to conform.

General Discussion

Although previous research has typically focused on the determinants of conformity behavior, it has seldom examined its downstream consequences. Our research suggests that this behavior can have two different effects. In some cases, copying others' behavior generalizes to other, quite unrelated situations in which others' opinions or behaviors are available. At other times, however, copying others' behavior can induce reactance and motivate persons to assert their individuality. In this case, it can decrease their tendency to adopt others' opinions and behavior in a later situation.

Our research circumscribed the conditions in which these opposing effects occur. If individuals who are induced to copy others focus on their behavior's effectiveness in attaining the goal to which it is directed, the behavior is likely to activate a "copying-others" mindset that increases the adoption of others' preferences in an unrelated choice situation. However, if people focus their attention on their behavior per se without thinking about its goal relevance, they experience reactance that decreases their later adoption of others' preferences. Moreover, these dispositions are evident in not only the individuals who perform the behavior but also the persons who observe it.

In the conditions we investigated, individuals' copying of others' actions was induced by having them engage in synchronous behavior. As we have noted, this situation is only one of several possible conditions in which a copying-others mindset might be activated. For example, individuals often copy others to gain

approval, to behave in a way that is socially desirable, or to increase their likelihood of making a correct judgment. In these instances, they are also likely to focus their attention on the utility of their behavior in attaining this goal, and a copying-others mindset might be activated. However, these motives were unlikely to play a role in the conditions we constructed, as the goal of behaving synchronously is unrelated to any objective that might have governed participants' later behavior. Thus, the behavior itself, independently of the goal to which it was directed, was sufficient to produce the effects we observed.

Theoretical Implications

Our conceptualization assumes that when individuals who engage in goal-directed behavior focus on the goal to which the behavior is relevant, concepts associated with the means of attaining this objective are activated. Once these concepts are accessible in memory, they influence the individuals' behavior in later situations to which the concepts are relevant. Thus, in the conditions we considered, engaging in synchronous behavior activated concepts associated with copying others' actions, inducing a copying-others mindset that led the actors to conform to others' preferences in pursuit of a totally unrelated objective. In contrast, observers of the actors' behavior typically focused their attention on this behavior independently of the goal to which it pertained. Vicariously experiencing the constraints on actors' behavior that are required in order to behave synchronously led observers to experience reactance (Andreoli et al., 1974). Consequently, they asserted their individuality by conforming less to others' preferences and decisions in a later situation than they otherwise would.

The effects of a copying-others mindset and the effects of reactance are not mutually exclusive. Both factors influence behavior, and the relative magnitude of their influence can depend on situational factors that influence the attention to (a) the goal to which the actors' behavior is directed and (b) the actors' behavior per se, independently of the goal to which it is relevant. We assumed, based on the conceptualization proposed by Jones and Nisbett (1971), that actors typically direct their attention outward. They focus their attention on the effectiveness of their behavior in attaining the goal to which it is directed rather than on their actions per se, and, so, the effect of a copying-others mindset is likely to predominate. In contrast, observers normally focus their attention on the actors' behavior per se, and so the effects of reactance are likely to predominate. These differences were confirmed in Experiment 1.

For a copying-others mindset to be activated, the actors must be conscious of the goal to which their synchronous behavior is directed. If actors engage in this behavior without having a conscious objective of copying others' behavior, the goal-relevant concepts associated with this activity will not be activated and a copying-others mindset will not be induced. Consequently, as Experiment 3 indicated, actors' conformity in a later situation will not be affected.

Several situational variables can affect the relative influence of reactance and a copying-others mindset. For example, reactance is experienced only when the actors' freedom to engage in synchronous behavior is restricted. Experiment 2 showed that when actors are free to choose whether to engage in the synchronous behavior, both their own and observers' feelings of reactance decreases and

the effect of a copying-others mindset increases correspondingly. Furthermore, when observers are told that the rewards they will personally receive in the experiment depend on whether the actors attain their objective (as in Experiment 4), they increase their attention to this objective and the effectiveness of the actors' behavior in attaining the objective. Consequently, the reactance they experience is decreased, and their subsequent conformity is similar to that of persons who observe asynchronous behavior. In fact, it was not significantly less than that of actors themselves, suggesting that they might have acquired a copying-others mindset. On the other hand, directing actors' attention to their behavior independently of the goal to which it is directed (as in Experiment 5) increases their feelings of reactance, and the effect of these feelings predominates over the effect of a copying-others mindset.

In the present research, a copying-others mindset was induced by stimulating participants to engage in physical behavior. However, other types of synchrony might have similar effects. Shen, Wyer and Cai (2012), for example, found that copying another's rate of speaking in a speech shadowing task influenced the speed of completing a questionnaire in an unrelated experiment. This behavior could activate a copying-others mindset that influences conformity as well. Situations in which individuals copy others' emotional responses might also have an effect. Finally, other paradigms might produce the effects we observe. For example, copying others' behavior sequentially might also induce a copying-others mindset. In considering these possibilities, however, it is important to bear in mind that the effects should only occur if actors think about their behavior in relation to a goal to which it is relevant. Otherwise, a copying-others mindset would not be activated and the actors' behavior might have little effect on their conformity in the situations they encounter later.

Alternative Interpretations

Our data call numerous alternative interpretations of our findings into question.

Generalization of goals versus generalization of behavior.

A behavioral mindset is characterized by the effect of goal-directed behavior in one situation on the behavior employed in a later situation in pursuit of a quite different goal. These effects should be distinguished from the effects of the goals themselves. For example, pursuing a goal in one situational context might activate goal-related concepts that are applied in a later situation, activating a similar goal in the later situation (Custers & Aarts, 2007, 2010). For example, copying others' behavior in order to gain social approval might lead individuals to seek social approval in a later situation and, therefore, to conform in this situation as well. This seems unlikely to account for the phenomena we observed, however. That is, the synchronous behavior that participants performed was not clearly related to any goal to which participants' later behavior (reporting product preferences or making donation decisions) was relevant. It therefore seems more reasonable to conclude that the behavior of copying others generalized over situations independently of the goal to which the behavior was related.

Feelings of social connectedness. Previous research indicates that engaging in synchronous behavior increases the disposition to adopt popular courses of action (Paladino et al., 2010; Wiltermuth, 2012). In these studies, participants' behavior was directed to the

same persons with whom participants had interacted synchronously and was likely to be mediated by the impact of behavior synchrony on feelings of affiliation and social connectedness with these persons (Hove & Risen, 2009). In our studies, however, behaving synchronously influenced participants' disposition to adopt the opinions of individuals who were not associated in any way with the persons with whom participants had interacted earlier. In fact, engaging in synchronous behavior did increase feelings of social closeness in Experiment 3. However, these feelings did not mediate the impact of actors' behavior on their later conformity.

Effects of resource depletion. Exercise is effortful and might deplete actors' resources, leading actors to use a cognitively simple basis for evaluating the products they considered later (Fennis, Janssen, & Vohs, 2009). This could potentially increase their conformity to others' product preferences relative to that of observers. If this were so, however, actors' conformity should have increased when they performed asynchronous exercises, as this behavior was also physically depleting. This was not the case. Furthermore, note that when observers' goals in Experiment 4 were linked to actors' goals, observers' preference for donating to popular charities did not significantly differ from that of actors despite the difference in resources that actors and observers expended. Therefore, resource depletion seems unlikely to be a major contributor to the difference between actors' and observers' conformity in the conditions we constructed.

Distraction. The presence of observers might conceivably distract actors from thinking about the constraints on their freedom that is required in order to behave synchronously, decreasing the reactance they experienced and increasing their conformity for this reason. However, the evidence that actors conformed under intentional-synchrony conditions of Experiment 3, when observers were not present, argues against this interpretation.

Feelings of social exclusion. On a priori grounds, one might expect observers to feel socially excluded from the main experiment when the actors' behavior was synchronous. Such feelings could contribute to their reactance. However, observers' feelings of social exclusion in Experiment 1 did not depend on whether actors' behavior was or was not synchronous.

Global versus local processing. Actors, who focus on goals to which their behavior is relevant, may be disposed to construe the situation in relatively abstract, global terms. In contrast, observers, who focus on the actors' behavior, construe the behavior more concretely. As Förster and Dannenberg (2010; see also Liberman & Trope, 2008) find, processing information globally or in detail in one situation can induce a disposition to do so in later, quite different situations. If this is so, and if individuals are more likely to accept others' opinions when they process information globally than when they process information in detail (and thus think more critically), this could account for the effects we observe. Thus, although additional research would obviously be needed to confirm the assumptions underlying this interpretation, it is of heuristic interest.

Other Considerations

Mimicry. Our findings are worth considering in the context of research on mimicry (Chartrand & Bargh, 1999, 2002). Although the tendency to mimic others' behavior has been influenced by

affiliation motives (Kawakami, Dovidio, & Dijksterhuis, 2003; Lakin & Chartrand, 2003) and social exclusion (Lakin, Chartrand, & Arkin, 2008), it presumably occurs without awareness. It is conceivable that synchronous behavior, even if performed without awareness, might activate conformity-related concepts that influence behavior in a different situation (for summaries of evidence that unconscious concept activation can influence judgments and behavior, see Bargh, 1997; Förster & Liberman, 2007). However, this is unlikely to have played a major role in the conditions we constructed. In Experiment 3, for example, actors who had incidentally engaged in synchronous behavior reported awareness that they had done so. Nevertheless, their behavior had no impact on their conformity to others' product choices in a later situation. Given that consciously engaging in synchronous behavior had little effect when it was not goal relevant, it seems unlikely that unconsciously engaging in the behavior had much influence in our studies. However, the effects of unconscious mimicry in one situation on the disposition to copy others' behavior in a later situation may be worth investigating.

The effect of observers' conformity in our research is worth considering in the context of a study by Tanner, Ferraro, Chartrand, Bettman, and Van Baaren (2008). They found that participants' product preferences were influenced by others' preferences when they had an opportunity to imitate the others' behavior (see also Ramanathan & McGill, 2007). However, this effect did not occur when participants only observed others' behavior without having an opportunity to mimic it. Although the paradigm employed by Tanner et al. is quite different from that we employed, the different effects of actually engaging in behavior that mimics other persons and only observing others' behavior is analogous to the difference between actors and observers that we identified.

Assimilation and contrast. The opposite effects of synchronous behavior on actors' and observers' conformity are noteworthy in the context of priming effects on behavior more generally (Förster & Liberman, 2007; Wyer, 2008). That is, the exposure to synchronous behavior (either one's own or others') could be viewed as a prime that activates concepts associated with it. To this extent, our research indicates that the same prime can have opposite (assimilation and contrast) effects, depending on the situational conditions in which the priming occurs. Other research also suggests that the same primed construct can have different effects on choices in different contexts (Laran, Janiszewski, & Cunha, 2008; Wheeler & Berger, 2007). Our research might be another, albeit quite different, example of the opposing effects of primed concepts, depending on the goal involved and individuals' attentional focus.

Cultural differences. Although participants in the experiments we conducted were East Asian (Hong Kong Chinese) and Western (Canadians), our manipulations had similar effects on each group. Nonetheless, chronic cultural differences in the preference for common and unique choice alternatives should be noted. Kim and Markus (1999) provided several examples of this difference. These cultural differences could have an influence on the disposition to copy others' preference independently of the factors we investigated. On the other hand, it is possible that a copying-others mindset is more likely to predominate among Asians in the conditions we examined. Moreover, reactance is more likely to be experienced by Westerners, whose reactions to

restrictions on freedom may be more pronounced. These possibilities may be worth examining.

Concluding Remarks

Possible limitations of our research should be noted. In four of the studies we conducted, the same dependent variable was employed—a product choice task in which individuals conformed to the preferences of unknown others. The use of a common dependent variable was desirable in this research to ensure that the effects we attributed to differences in our manipulations were not confounded with differences in the dependent variable. The results of Experiment 3, in which individuals donated to charities, provide some assurance that our conclusions are not specific to a particular index of conformity. A broader set of conditions in which conformity plays a role may nevertheless be worth considering in future extensions of the research. In addition, it is conceivable that having personally engaged in similar synchronous activities in the past might decrease observers' reactance to the observing similar synchronous activities, which might attenuate the effect of observing synchrony on their tendency to seek uniqueness subsequently. Future research could fruitfully examine this possibility.

The generalizability of our findings to situations outside the laboratory needs to be established. Synchronous behavior occurs frequently in many areas of daily life; groups often engage in activities (e.g., marching, singing, and dancing) that require acting in synchrony. In a religious and other ritualistic ceremony, for example, people engage in synchronous behavior and this behavior is observed by others either personally or on television. It is interesting to speculate that observing or participating in these activities could have different effects on conformity in situations that people encounter once the ceremony is completed. Moreover, the effects of performing or observing synchronous behavior seem likely to exemplify the effects of behavioral conformity in general. To this extent, our research suggests that when individuals copy others' behavior in order to attain a specific goal to which this behavior is relevant, it can influence the impact of popularity-based persuasive appeals that they encounter in an unrelated situation in which this goal is no longer a concern.

The effects we observed add to a more general body of research on perspective differences in information processing. The perspective from which a stimulus object or event is observed or imagined can influence the way it is comprehended (Black, Turner, & Bower, 1979; Jiang, Adaval, Steinhart, & Wyer, 2014; Jiang & Wyer, 2009) and how it is evaluated (Meyers-Levy & Peracchio, 1992). Moreover, conflict in the implications of the different perspectives that individuals take when processing information can decrease the information's effectiveness (Hung & Wyer, 2009). These differences in perspective can be physical (Meyers-Levy & Peracchio, 1992) or interpersonal (e.g., doctor vs. patient, donor vs. recipient, etc.; see Hung & Wyer, 2009). A general conceptualization of the impact of perspective on information processing that incorporates these effects as well as those reported in this article remains to be developed.

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Received January 28, 2014

Revision received May 5, 2014

Accepted May 15, 2014 ■