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Running Head: DYNAMICS OF REACTANCE

Reactance and the Dynamics of Disagreement:

Multiple Paths from Threatened Freedom to Resistance to Persuasion

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Abstract

Many experiments show that threats to attitudinal freedom create reactance, but the underlying dynamics of reactance-based disagreement have not received much attention. The present experiments identified two paths from threats to disagreement. In one path, threats to attitudinal freedom directly motivate disagreement; in the other, negative cognitive responses mediate the threat's effect on disagreement. Two experiments demonstrated the causes and consequences of each path from threat to persuasion. When a communicator threatened freedom at the beginning of the message, unfavorable cognitive responses (counterarguing, negative perceptions of the source's credibility) fully mediated the effect of threat on disagreement. When the threat appeared at the end of the message, however, threat had a direct, unmediated effect on disagreement (Experiment 1). The two paths had different consequences for sleeper effects: disagreement rooted in negative cognitive responses persisted, whereas disagreement directly motivated by the threat declined when the threat was removed (Experiment 2). Implications for reactance and for threat-based sleeper effects are discussed.

Reactance and the Dynamics of Disagreement:

Multiple Paths from Threatened Freedom to Resistance to Persuasion

Reactance theory (Brehm, 1966; Brehm & Brehm, 1981; Wicklund, 1974), one of the most widely-studied theories of resistance to social influence, proposes that the motivation to maintain personal freedoms creates resistance to persuasion. According to the theory, people are motivated to restore a freedom when they perceive that it has been threatened or eliminated. Several freedoms are involved in the domain of attitude change (Brehm & Brehm, 1981, chap. 6). People feel free to hold particular attitudes, to change their attitudes, or to avoid committing to any position (e.g., Wicklund & Brehm, 1968; Worchel & Brehm, 1970). When these freedoms are threatened, people experience reactance. Attitude change is one way to restore threatened attitudinal freedom. If a communicator threatens one's freedom to disagree, then the freedom to disagree can be reasserted by disagreeing (Wright, 1986). This pattern is the well-known "boomerang effect"—the recipient moves away from the position advocated by the communicator.

Why does threatening freedom cause disagreement? In their review of reactance theory, Eagly and Chaiken (1993) pointed out that the inner dynamics of reactance were not well understood:

The issue of how reactance, the negative emotional state that ensues when freedom is threatened or eliminated, influences the processing of information remains largely unexplored. Researchers who have used reactance theory to generate predictions or to explain obtained persuasion findings have rarely included measures that may provide evidence of subjects' cognitive processing....This omission is not surprising given that most research on reactance predated attitude researchers'

contemporary preoccupation with underlying cognitive processes (p. 571).

Brehm and Brehm (1981), in discussing unresolved issues in reactance research, make a similar point. After noting the evidence for threat-induced boomerang effects, they ask, “are these reactance effects a direct reflection of the motivational state directed toward restoration of freedom, or are there mediating cognitive processes?” (p. 396). Their discussion suggests two possibilities. First, reactance may have a direct motivational effect on resistance. People may change their attitudes simply because they are motivated to restore their freedom and disagreement is the most direct way to do so. In this sense, boomerang effects represent built-in responses to threats—all else equal, a threat to freedom is sufficient for negative attitude change.

Second, disagreement may represent the endpoint of mediating cognitive responses (Jacks & Cameron, 2003; Petty, Ostrom, & Brock, 1981). For example, encountering a threat to freedom in a message will evoke reactance and the motivation to reassert one’s freedom to disagree. As a result, people may have negative responses to the message, such as counterarguments, blanket rejections of the position, and negative perceptions of the source’s credibility or attractiveness (Worchel & Brehm, 1971; Wright, 1986). The eventual disagreement may result from the recruitment of unfavorable cognitive responses, not from the initial motivation that stimulated them. In this second possibility, threats reduce agreement by evoking thoughts that are unfavorable to successful persuasion.

There are thus two paths to reactance-induced resistance to persuasion. One suggests that reactance can directly motivate resistance to persuasion; the second suggests that cognitive responses mediate the effects of threats on resistance. There is no reason to assume that these approaches are

contradictory or exclusive; both are founded on the motivation to restore threatened freedoms. A sensible position is to assume that both paths to disagreement occur in different circumstances. Sometimes a threat may reduce agreement indirectly, by affecting perceptions of the communicator and by evoking negative cognitive responses. This reflects the cognitive mediation of reactance. Likewise, sometimes a threat may affect agreement directly, in which the mere threat automatically leads to disagreement. This reflects the unmediated motivational effect of reactance on attitude change. If both processes can occur, then the task for research is to examine the conditions that promote one versus the other path.

The Present Experiments

The present research was designed to demonstrate both direct and indirect effects of threats to freedom. The goals were (1) to show that threats to freedom can have both direct and mediated effects on attitudes, (2) to identify some conditions that moderate whether a threat to freedom will directly or indirectly affect attitude change, and (3) to show that the two paths have different implications for resistance to persuasion. Experiment 1 tested the first two goals. It explored whether threats to freedom can cause disagreement through several paths, and it identified circumstances when the different paths occur. Experiment 2 tested the third goal. It examined implications of the various paths for reactance-based sleeper effects (Brehm & Mann, 1975; Gruder et al., 1978)—do different paths to *initial* disagreement have different implications for *delayed* disagreement?

Experiment 1

Experiment 1 examined whether disagreement due to threatened freedom can result from different paths. In the typical reactance experiment, threats to freedom are placed throughout the communication.

Brehm and Brehm (1981, p. 396) suggested that presenting a threat at the beginning of a message or at the end of a message could illuminate the role of cognitive processes in reactance. Starting with a threat should bias message processing, whereas ending with a threat allows relatively objective message processing. Experiment 1 thus manipulated when the threat to freedom appeared in the message. In one condition, the threat appeared at the beginning of the communication, before any arguments were presented. Starting with a threat to attitudinal freedom should evoke negative responses to the message, such as counterarguing and negative perceptions of the communicator's credibility, that persist through the message. In another condition, the threat appeared at the end of the communication, after all arguments had been presented. Agreement was then immediately assessed. In this condition, people have less time to criticize the message or the source. To appraise mediational relationships between threat, cognitive responses, and agreement, we measured perceptions of the communicator's credibility (e.g., sincerity, open-mindedness, expertise; Hovland, Janis, & Kelley, 1953) and self-reports of counterarguing during the communication.

Both direct and indirect effects were predicted. When the threat appeared at the beginning of the message, the threat's effect should be mediated by perceptions of credibility and by counterarguing. In this condition, the threat would reduce agreement by affecting the mediating variables. When the threat appeared at the end of the message, however, a sole direct effect of threat on agreement should appear. Given the relative lack of time for unfavorable cognitive responses, the threat itself should directly reduce agreement.

Method

Participants and Design

A total of 131 people enrolled in General Psychology at the University of North Carolina at Greensboro (UNCG) participated and received credit toward a research participation option. Ten participants were excluded because they did not understand the directions or they did not speak English as their native language. The final sample consisted of 121 students—82 women (68%) and 39 men (32%). Each person was randomly assigned to one of three between-subject conditions: *No Threat*, *Threat at Start*, or *Threat at End*.

Procedure

People participated in groups of 3 to 10. The study was described as a survey of “how different aspects of personality relate to people’s attitudes” as well as “what people think about other people’s opinions.” People expected to complete some brief personality scales, read an opinion essay that had been written by another student, and then give their impressions and reactions about what they had read. The personality part of the cover story was included to divert attention from the experiment’s true purpose. To bolster the cover story’s credibility, the questionnaire’s first page included generic filler items related to various opinions and aspects of personality. Placing filler items on the top sheet enabled the experimenter to remain unaware of each participant’s condition, for the manipulation appeared on the following page.

Persuasive message. After completing the filler items, participants completed “a survey of impressions of other people’s opinions.” The instructions said that approximately 50 UNCG students had written brief essays describing their opinions related to university issues. The experimenters now wished to get other people’s impressions and reactions to the 50 essays. In the *no threat* condition, people read a

one-sided essay in which the communicator argued that the university should add a major in advertising. Participants in the *threat at start* condition read the basic no-threat essay. The essay began, however, with the following sentences:

Here are my reasons for wanting a major in advertising at UNCG. They're good reasons, so I know you completely agree with all of them. Because when you think about it you are really forced to agree with me because this is a universal student issue.

Likewise, in the *threat at end* condition, three sentences were added to the end of the basic no-threat essay:

So those are my reasons for wanting a major in advertising at UNCG. They're good reasons, so I know you completely agree with all of them. Because when you think about it you are really forced to agree with me because this is a universal student issue.

Adding coercive statements to a communication is one of the most widely-used threat manipulations in reactance research (see Brehm & Brehm, 1981). The essay and threatening statements had been written by an undergraduate research assistant, to lend a credible style of prose.

This opinion issue was selected from a series of campus issues based on pretesting. Pretesting revealed that undergraduates had favorable attitudes toward adding a major in advertising, that they saw this issue as above-average in importance, and that they saw the essay as having moderately strong arguments and as clearly one-sided. A pro-attitudinal message was used to maximize reactance effects. Threatening attitudinal freedom creates more reactance when people agree with the communicator's position (Brehm & Brehm, 1981, chap. 6; Worchel & Brehm, 1970; Wright, 1986). Although

counterintuitive, this prediction follows from reactance theory and is supported by research. When someone already disagrees with a threatening communicator, the mere existence of disagreement establishes that one is free to disagree (see Brehm & Brehm, 1981, pp. 125-135). This type of manipulation and the specific threatening statements were based on past research (see Carver, 1977; Silvia, in press; Snyder & Wicklund, 1976; Wicklund & Brehm, 1968; Worchel & Brehm, 1970).

Dependent measures. After reading the essay, participants responded to the dependent measures. All items were completed with 7-point Likert-type scales. Agreement with the communicator was measured with two items (e.g., “How much do you agree with the author?”; scale anchors: *not at all, very much*). (Because of the communicator’s obvious, extremely positive position, measuring agreement with the communicator is the same as measuring favorability toward the issue.) A manipulation check of perceived threat to freedom was obtained with four items (e.g., “The author was pressuring me to agree with him/her”; scale anchors: *not at all, very much*). Perceptions of the communicator’s credibility were measured with four items that assessed dimensions of credibility found in past research (Hovland et al., 1953): “How sincere is the author?” (*not at all, very sincere*); “How open-minded is the author?” (*not at all, very open-minded*); “How qualified is the author to write about this topic?” (*not at all, very qualified*); and “Does the author seem like an expert on this topic?” (*not at all, definitely*). Finally, self-reported counterarguing was measured with three items: “Were you criticizing the essay while you were reading it?”; “While reading the essay, were you thinking of points that went against the author’s arguments?”; and “While reading the essay, were you feeling skeptical of the author’s arguments?” (*not at all, very much*). Demographic items followed the dependent variables.

Results

Manipulation Check

The four items measuring perceived threat to attitudinal freedom were averaged ($\alpha = .95$). A planned contrast comparing the no-threat condition to the two threat conditions (weights: -2, 1, 1) was highly significant, $t(118) = 7.97, p < .001$. As expected, people in the no-threat condition ($M = 2.66$) found the essay to be significantly less threatening relative to people in the threat-at-start ($M = 4.98$) and threat-at-end conditions ($M = 5.18$).

Effects of Threat on Agreement

How did the threats to freedom affect agreement with the communicator? The two items measuring agreement with the communicator were averaged ($\alpha = .78$). A planned contrast comparing the no-threat condition to the two threat conditions (weights: -2, 1, 1) was significant, $t(118) = 3.96, p < .001$. Subsequent comparisons indicated that both types of threat aroused reactance (see Table 1). Relative to people in the no-threat condition, people in the threat-at-start condition ($t(78) = 3.47, p < .001, d = .77$) and in the threat-at-end condition ($t(77) = 3.48, p < .001, d = .79$) agreed significantly less with the communicator. (Effect sizes were calculated with Minsize 2; Morse, 1999). Furthermore, the temporal position of the threat did not affect reactance—the two threat conditions had equivalent levels of agreement, $t(81) = .096, p < .92, d = .02$. In short, threats to attitudinal freedom reduced agreement, regardless of whether people encountered the threat at the start or at the end of the message.

Mediation Analyses

Mediation analyses were conducted to assess the direct and indirect effects of threats to freedom

on agreement (Baron & Kenny, 1986). To enable stronger causal inferences, the mediation analyses used the manipulation of threat instead of the self-reported manipulation check. Two sets of analyses were conducted. The first set involved the no-threat condition and the threat-at-start condition; the second set involved the no-threat condition and the threat-at-end condition. This strategy enabled a look at differences in mediation depending on whether the threat occurred before or after the message. Responses to the four items measuring perceptions of the communicator's credibility ($\alpha = .75$) and the three items measuring counterarguing ($\alpha = .81$) were averaged to form credibility scores and counterarguing scores.

Threat at start. When the threat appeared at the start of the message, the effect of the threat was fully mediated by cognitive responses. Viewed singly, the threat manipulation significantly reduced agreement, $\beta = -.366, p < .001$. The threat manipulation also predicted increases in self-reported counterarguing, $\beta = .374, p < .001$, as well as negative perceptions of the communicator's credibility, $\beta = -.374, p < .001$. When threat, counterarguing, and credibility were considered simultaneously, threat no longer predicted agreement, $\beta = -.153, p < .15$, whereas both counterarguing ($\beta = -.272, p < .015$) and credibility ($\beta = .296, p < .009$) still significantly predicted agreement.

Several new methods of mediation analyses have appeared since Baron and Kenny (1986) presented their causal steps method (MacKinnon, Lockwood, Hoffman, West, & Sheets, 2002; Shrout & Bolger, 2002). To assess mediation directly, we conducted a modified form of the Sobel (1982) test of mediation (see Kenny, Kashy, & Bolger, 1998, p. 260). This test, expressed as a z -score, directly assesses the extent to which a mediator carries the effect of an independent variable on a dependent variable. According to these analyses, both counterarguing ($Z = 1.98, p < .047$) and credibility ($Z = 2.09, p < .036$)

significantly mediated between threat and agreement.

In summary, the pattern of mediation effects suggests that counterarguing and credibility fully mediated the effect of the threat manipulation on agreement. The direct effect of threat became insignificant when the effects of the mediating variables were considered concurrently, and both mediators had significant mediational effects.

Threat at end. When the threat appeared at the end of the message, a different pattern of mediation appeared. Viewed singly, the threat manipulation significantly reduced agreement, $\beta = -.369$, $p < .001$. The threat manipulation also predicted increases in self-reported counterarguing, $\beta = .283$, $p < .011$. Threat had only a marginal effect on negative perceptions of the communicator's credibility, $\beta = -.211$, $p < .062$. When threat, counterarguing, and credibility were considered simultaneously, threat still significantly predicted agreement, $\beta = -.271$, $p < .01$. Counterarguing did not significantly predict agreement ($\beta = -.092$, $p < .4$), although credibility did ($\beta = .344$, $p < .002$). The Sobel test of mediation assessed whether counterarguing and credibility significantly mediated between threat and agreement. Neither counterarguing ($Z = .75$, $p < .45$) nor credibility ($Z = 1.57$, $p < .11$) had a significant mediational effect.

This pattern of effects suggests that counterarguing and credibility did not mediate the effect of the threat manipulation on agreement. The direct effect of threat remained significant when the mediating variables were considered concurrently. Furthermore, the direct tests of mediation did not find significant mediational effects for either variable. Therefore, the threat apparently had a direct negative effect on agreement when it appeared at the end of the message.

Summary of mediation analyses. Different patterns of mediation appeared, depending on whether the threat to freedom appeared at the start or at the end of the message. When the threat appeared before the message, cognitive responses mediated the effect of threat—both counterarguing and credibility had significant mediational effects, and threat no longer had a significant direct effect on agreement. But when the threat appeared after the message, cognitive responses did not mediate the effect of threat—neither counterarguing nor credibility had a significant mediational effect, and the direct path from threat to agreement remained significant.

Discussion

Experiment 1 examined the underlying dynamics of reactance-based disagreement. As predicted, threats to freedom had both direct and mediated effects on attitude change. Threats preceding a message caused disagreement mediated by cognitive responses; counterarguing and perceptions of the communicator's credibility fully mediated the effect of the threat on disagreement. Threats following a message, however, directly caused disagreement that was unmediated by negative cognitive responses. This experiment thus demonstrates that threats to freedom can evoke disagreement through different paths—one mediated by cognitive processes, and one following directly from the motivation to restore threatened freedoms.

Experiment 1 measured counterarguing with self-report Likert items. Other ways of measuring counterarguing are prompting people to recall their negative thoughts (Romer, 1979), giving people a list of arguments and asking them to mark the arguments that came to mind during the message (Phau et al., 2004), and asking for open-ended thought listing after the message and coding the thoughts for

counterarguments (e.g., Petty & Cacioppo, 1979). Research has not explored the convergence of these measures, but there are reasons to believe that they will show the same effects. Both self-report and thought-listing measures (1) are given after the message and after measuring attitudes, (2) involve self-reports of thoughts, and (3) presume that people can recall and consciously report on their thoughts during the message.

Experiment 2

Finding multiple paths in reactance advances our understanding of reactance-based resistance, but what are the implications of this finding? Do different paths to disagreement have different consequences for other important issues in persuasion, beyond initial agreement with the message? Experiment 2 was conducted to test additional implications of the multiple paths. In particular, the experiment tested predictions regarding threat-based *sleeper effects*. Increases in persuasion over time can result from several processes (Cook & Flay, 1978; Kumkale & Albarracín, 2004; Pratkanis, Greenwald, Leippe, & Baumgardner, 1988). Reactance theory has proposed a threat-based sleeper effect. According to the theory, all persuasion attempts create forces toward compliance and forces toward reactance (Brehm & Brehm, 1981). Agreement reflects the balance of the positive and negative forces (cf. Davis & Knowles, 1999; Knowles & Linn, 2004). Threats to freedom sharply increase the force toward reactance, which then overwhelms the positive force toward compliance. Removing the threat reduces the force toward reactance; people then comply, provided that the force toward compliance remains strong. In short, removing a threat will create a sleeper effect if people have reasons to agree with the message. Only a few experiments have tested this prediction, but they have shown that removing a threat can lead to increases

in persuasion over time (Brehm & Mann, 1975; Gruder et al., 1978, Study 2; Worchel & Brehm, 1971, Study 2).

The findings of Experiment 1 suggest that the different paths to disagreement should have different implications for the stability of disagreement. When people disagree simply because of the threat, then the reactance-based sleeper effects should appear. If disagreement solely reflects an attempt to reassert the freedom to disagree, then removing the threat removes the reason to disagree. But when people disagree because of negative thoughts about the source and message, then their levels of disagreement should be stable. They have reasons for disagreeing—removing the threat does not remove the reasons on which disagreement was founded. These predictions thus qualify reactance theory's predictions regarding sleeper effects—whether removing a threat creates a sleeper effect should depend on the path to initial disagreement.

Method

Participants and Design

Sixty-six students—44 women (67%) and 22 men (33%)—enrolled in General Psychology at UNCG participated and received credit toward a research participation option. Each person was randomly assigned to a *No Threat*, *Threat at Start*, or *Threat at End* condition.

Procedure

People participated in groups of 3 to 8. The procedure of Experiment 2 followed that of the first experiment, with some exceptions. The participants expected to take part in two unrelated studies: a study of “personality and reading,” and a study of “aesthetic preferences.” In the ostensible “first study,”

participants read one of the three essays used in Experiment 1. Measures of agreement (2 items) and perceived threat (3 items) followed the essay.

Believing the attitude-related study to be over should render the threat to freedom obsolete and thus set the stage for possible sleeper effects. In an experiment by Brehm and Mann (1975), for example, participants learned that the study of group processes had ended, so the freedoms at stake were no longer relevant. Participants then began the “second study,” which did not involve attitudinal freedoms. People completed a page of filler personality items and then rated the complexity and interestingness of random polygons. After this filler “second study,” they completed the same measure of agreement they had completed earlier in the experiment.

Results

Manipulation Check

The three items measuring perceived threat to attitudinal freedom were averaged ($\alpha = .96$). A planned contrast comparing the no-threat condition to the two threat conditions (weights: -2, 1, 1) was highly significant, $t(63) = 10.15, p < .001$. As expected, people in the no-threat condition ($M = 2.13$) found the essay to be significantly less threatening relative to people in the threat-at-start ($M = 5.06$) and threat-at-end conditions ($M = 5.96$).

Initial Agreement

How did the threat to freedom affect initial agreement with the communicator? The two items measuring agreement were averaged ($\alpha = .83$). A planned contrast comparing the no-threat condition to the two threat conditions (weights: -2, 1, 1) was significant, $t(63) = 3.54, p < .001$. As in Experiment 1,

both types of threat aroused reactance (see Table 2). Relative to people in the no-threat condition, people in the threat-at-start condition ($t(42) = 2.65, p < .011, d = .79$) and in the threat-at-end condition ($t(43) = 3.94, p < .001, d = 1.19$) disagreed significantly with the communicator. Furthermore, the temporal position of the threat did not affect the occurrence of reactance—the two threat conditions had equivalent levels of agreement, $t(41) = .58, p < .56, d = .18$. In short, threats to attitudinal freedom reduced agreement, regardless of whether people encountered the threat at the start or at the end of the message.

Sleeper Effects

When measured immediately, disagreement with the message replicated the pattern found in Experiment 1. People in the threat conditions disagreed equally, regardless of whether the threat appeared at the beginning or end of the message. But what about disagreement over time? The two items measuring Time 2 agreement were averaged ($\alpha = .85$), and a repeated-measures ANOVA assessed how threats to freedom affected initial and delayed agreement. This analysis found a non-significant main effect of time, $F(1, 63) = 1.16, ns$, a main effect of threat, $F(2, 63) = 5.18, p < .008$, and a significant interaction, $F(2, 63) = 3.76, p < .029$.

Within-subject *t*-tests evaluated the form of this interaction (see Table 2). As predicted, people in the no-threat condition ($t(22) = .55, p < .59, d = .11$) and in the threat-at-start condition ($t(20) = .53, p < .60, d = .11$) did not change their agreement over time. People in the threat-at-end condition, however, showed a sleeper effect—their agreement increased significantly over time, $t(21) = 2.55, p < .019, d = .54$.

Between-subject analyses evaluated the relative magnitude of change over time. “Sleeper effect”

scores were calculated by subtracting initial agreement from delayed agreement—positive numbers reflect an increase in agreement over time. People in the threat-at-end condition showed a significantly larger sleeper effect, relative to people in the no-threat condition ($t(43) = 2.43, p < .019, d = .73$) and people in the threat-at-start condition ($t(41) = 2.19, p < .034, d = .68$). People in the no-threat and threat-at-start conditions showed equivalent change, $t(42) = .19, p < .91, d = .06$.

Discussion

The findings of Experiment 2 show how different paths of reactance have different implications for sustained disagreement. Although they caused similar levels of agreement at Time 1, the different paths from threat to reactance caused different levels of agreement at Time 2. The location of a threat in a message did not affect disagreement at Time 1—threats preceding and following the message each reduced agreement relative to an unthreatening message. But these threats diverged at Time 2. As expected, disagreement rooted in negative cognitive responses (the threat-at-start condition) was enduring—agreement with the message remained stable. Disagreement based in the threat alone (the threat-at-end condition) was unstable—agreement increased once the persuasion part of the study was apparently over and the threat was thus defunct. This is congruent with reactance-based sleeper effects (Brehm & Mann, 1975; Gruder et al., 1978; Worchel & Brehm, 1971), in which removing a threat increases agreement.

General Discussion

One of reactance theory's central predictions—that threats to freedom reduce the effectiveness of social influence—has been supported by many experiments (Brehm & Brehm, 1981; Wicklund, 1974).

But precisely how threats to freedom impair persuasion has been relatively neglected by research. As Eagly and Chaiken (1993) noted, most of reactance theory's central predictions were tested before the rise of cognitive models of attitude change. As a result, not much attention has been given to the underlying processes that mediate between the recognition of a threat to freedom and the eventual resistance to persuasion. The dynamics of reactance effects were thus targeted in the present research.

Multiple Paths to Disagreement

Reactance theory is fundamentally a motivational theory—it traces resistance to the need to maintain perceived freedoms (Brehm, 1966). But this does not preclude multiple paths, some of them cognitively-mediated, from the motivation to restore a threatened freedom to the eventual level of agreement with the threatening message. The present experiments demonstrated several paths from threat to disagreement, each rooted in different dynamics. In one path, disagreement stemmed from cognitive responses evoked by the threat. Negative responses, in the form of counterarguing and unfavorable perceptions of the communicator's credibility, fully mediated the effect of the threat on disagreement. In a second path, the threat directly caused disagreement, unmediated by counterarguing or by the source's credibility. This path resembles the traditional view of the dynamics of reactance, in which threats motivate disagreement. Thus, there are several ways in which the motivation to restore threatened freedoms can cause resistance to persuasion.

Apart from demonstrating the different paths to disagreement, the present experiments identified implications of the paths for other aspects of the persuasion process. The two paths to disagreement had different consequences for sleeper effects. Despite their identical effects on initial agreement, the two

paths diverged in their effects on sustained agreement. Disagreement based on cognitive responses to the message was stable over the course of the experiment. Disagreement based on the threat alone, in contrast, was unstable—people’s agreement increased significantly when the threat was defunct. The same levels of initial disagreement can change into different levels of long-term agreement, depending on why people disagreed in the first place. Given their different causes and consequences, the multiple paths from threats to disagreement should receive more attention in future research on reactance.

The manipulation of timing used in the present experiments was originally suggested by Brehm and Brehm (1981, p. 396). They speculated that varying the temporal position of threat could be a useful way of assessing motivational and cognitive components of reactance. Timing, however, is just one convenient way of manipulating reactance, and other methods should be explored in future research. For example, manipulations of distraction could differentiate between direct and indirect paths to disagreement by inhibiting unfavorable cognitive responses (Osterhouse & Brock, 1970). Similarly, future research should explore alternative consequences of different reactance paths. It seems likely that other cognitive processes central to persuasion—such as encoding and recall of message arguments—could play different roles in the effects of threats on resistance.

Reactance-Based Sleeper Effects

The sleeper effect can stem from several processes (Kumkale & Albarracín, 2004). The best-known cause is the disjunction of the message’s contents and a discounting cue, such as the communicator’s lack of credibility (Pratkanis et al., 1988). A second cause is the change in agreement following changes in threats to freedom. Reactance theory assumes that persuasion reflects the balance of

reasons to agree and reasons to disagree (Brehm & Brehm, 1981). A threat to freedom is a strong reason to disagree, and it thus tends to overwhelm the reasons to agree. But if the threat is removed, reasons to agree may overwhelm the reasons to disagree (see Brehm & Mann, 1975).

The present experiments replicate and extend past research on sleeper effects rooted in reactance. As in past research (Brehm & Mann, 1975; Worchel & Brehm, 1971), removing a threat increased agreement. This replicates past findings and supports the theory's analysis of the role of reactance in sleeper effects. Going beyond replication, the present experiments illuminate the processes underlying the effects. In Experiment 2, a sleeper effect appeared only when people's initial disagreement was a direct response to the threat (the threat-at-end condition). When initial disagreement was mediated by cognitive responses, disagreement was stable over time (the threat-at-start condition).

These findings thus suggest qualifications to reactance theory's analysis of sleeper effects. The effects of the threat on cognitive responses moderate whether or not removing the threat will create a sleeper effect. If people disagreed solely to reassert their freedom, then removing the threat removes the sole reason for disagreeing—a sleeper effect should appear. But if the threat resulted in negative cognitive responses to the message, then removing the threat removes only one of several reasons for disagreeing—other reasons to disagree remain (e.g., self-generated counterarguments, negative perceptions of the source). These other reasons maintain disagreement despite the removal of the threat. This extended analysis of reactance-based sleeper effects is congruent with the original analysis—as before, agreement reflects the balance of forces toward compliance and reactance—but it offers more differentiated predictions regarding how the presence and absence of threats affects the persistence of

reactance.

The reactance-based sleeper effect shows that reactance is not merely due to disliking the threatening communicator (see Worchel & Brehm, 1971). If people disagreed simply because they disliked the source of the threat, there would be no reason for increased agreement over time, let alone a selective increase in only one of the two conditions that showed initial reactance. This is one of many findings that demonstrate that threats to freedom, not disliking or anger, are the core of reactance. A disliking view also has difficulty explaining (1) why appealing, liked groups can increase reactance (Brehm & Mann, 1975); (2) why impersonal (i.e., non-social) events threaten freedom (Brehm, 1966); (3) why gifts and favors can increase reactance (Brehm & Cole, 1966); and (4) why enhancing choices can increase reactance (Brehm & Rozin, 1971).

References

- Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*, 1173–1182.
- Brehm, J. W. (1966). *A theory of psychological reactance*. New York: Academic Press.
- Brehm, S. S., & Brehm, J. W. (1981). *Psychological reactance: A theory of freedom and control*. New York: Academic Press.
- Brehm, J. W., & Cole, A. (1966). Effect of a favor which reduces freedom. *Journal of Personality and Social Psychology, 3*, 420–426.
- Brehm, J. W., & Mann, M. (1975). Effect of importance of freedom and attraction to group members on influence produced by group pressure. *Journal of Personality and Social Psychology, 31*, 816–824.
- Brehm, J. W., & Rozen, Z. (1971). Attractiveness of old alternatives when a new, attractive alternative is introduced. *Journal of Personality and Social Psychology, 20*, 261–266.
- Carver, C. S. (1977). Self-awareness, perception of threat, and the expression of reactance through attitude change. *Journal of Personality, 45*, 501–512.
- Cook, T. D., & Flay, B. R. (1978). The persistence of experimentally induced attitude change. *Advances in Experimental Social Psychology, 11*, 1–57.
- Davis, B. P., & Knowles, E. S. (1999). A disrupt-then-reframe technique of social influence. *Journal of Personality and Social Psychology, 76*, 192–199.

- Eagly, A. H., & Chaiken, S. (1993). *The psychology of attitudes*. Fort Worth, TX: Harcourt, Brace, Jovanovich.
- Gruder, C. L., Cook, T. D., Hennigan, K. M., Flay, B. R., Alessis, C., & Halamaj, J. (1978). Empirical tests of the absolute sleeper effect predicted from the discounting cue hypothesis. *Journal of Personality and Social Psychology*, *36*, 1061–1074.
- Hovland, C. I., Janis, I. L., & Kelley, H. H. (1953). *Communication and persuasion*. New Haven, CT: Yale University Press.
- Jacks, J. Z., & Cameron, K. A. (2003). Strategies for resisting persuasion. *Basic and Applied Social Psychology*, *25*, 145–161.
- Kenny, D. A., Kashy, D. A., & Bolger, N. (1998). Data analysis in social psychology. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *The handbook of social psychology* (4th ed., Vol. 1, pp. 233–265). Boston: McGraw–Hill.
- Knowles, E. S., & Linn, J. A. (2004). Approach–avoidance model of persuasion: Alpha and omega strategies for change. In E. S. Knowles & J. A. Linn (Eds.), *Resistance and persuasion* (pp. 117–148). Mahwah, NJ: Erlbaum.
- Kumkale, G. T., & Albarracín, D. (2004). The sleeper effect in persuasion: A meta-analytic review. *Psychological Bulletin*, *130*, 143–172.
- MacKinnon, D. P., Lockwood, C. M., Hoffman, J. M., West, S. G., & Sheets, V. (2002). A comparison of methods to test mediation and other intervening variable effects. *Psychological Methods*, *7*, 83–104.

- Morse, D. T. (1999). MINSIZE2: A computer program for determining minimum sample size for statistical significance for univariate, multivariate, and nonparametric tests. *Educational and Psychological Measurement, 59*, 518–531.
- Osterhouse, R., & Brock, T. C. (1970). Distraction increases yielding to propaganda by inhibiting counterarguing. *Journal of Personality and Social Psychology, 15*, 344–358.
- Phau, M., Compton, J., Parker, K. A., Wittenberg, E. M., An, C., Ferguson, M., Horton, H., & Malyshev, Y. (2004). The traditional explanation of resistance versus attitude accessibility: Do they trigger distinct versus overlapping processes of resistance? *Human Communication Research, 30*, 329–360.
- Petty, R. E., & Cacioppo, J. T. (1979). Issue involvement can increase or decrease persuasion by enhancing message-relevant cognitive responses. *Journal of Personality and Social Psychology, 37*, 1915–1926.
- Petty, R. E., Ostrom, T. M., & Brock, T. C. (1981). Historical foundations of the cognitive response approach to attitudes and persuasion. In R. E. Petty, T. M. Ostrom, & T. C. Brock (Eds.), *Cognitive responses in persuasion* (pp. 5–29). Hillsdale, NJ: Erlbaum.
- Pratkanis, A. R., Greenwald, A. G., Leippe, M. R., & Baumgardner, M. H. (1988). In search of reliable persuasion effects: III. The sleeper effect is dead. Long live the sleeper effect. *Journal of Personality and Social Psychology, 54*, 203–218.
- Romer, D. (1979). Distraction, counterarguing and the internalization of attitude change. *European Journal of Social Psychology, 9*, 1–17.

- Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: New procedures and recommendations. *Psychological Methods, 7*, 422–445.
- Silvia, P. J. (in press). Deflecting reactance: The role of similarity in increasing compliance and reducing resistance. *Basic and Applied Social Psychology*.
- Snyder, M. L., & Wicklund, R. A. (1976). Prior exercise of freedom and reactance. *Journal of Experimental Social Psychology, 12*, 120–130.
- Sobel, M. E. (1982). Asymptotic intervals for indirect effects in structural equations models. In S. Leinhardt (Ed.), *Sociological methodology 1982* (pp. 290–312). San Francisco: Jossey–Bass.
- Wicklund, R. A. (1974). *Freedom and reactance*. Potomac, MD: Lawrence Erlbaum Associates.
- Wicklund, R. A., & Brehm, J. W. (1968). Attitude change as a function of felt competence and threat to attitudinal freedom. *Journal of Experimental Social Psychology, 4*, 64–75.
- Worchel, S., & Brehm, J. W. (1970). Effects of threats to attitudinal freedom as a function of agreement with the communicator. *Journal of Personality and Social Psychology, 14*, 18–22.
- Worchel, S., & Brehm, J. W. (1971). Direct and implied social restoration of freedom. *Journal of Personality and Social Psychology, 18*, 294–304.
- Wright, R. A. (1986). Attitude change as a function of threat to attitudinal freedom and extent of agreement with a communicator. *European Journal of Social Psychology, 16*, 43–50.

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Table 1

Effects of a threat to attitudinal freedom on agreement, perceived credibility, and self-reported counterarguing: Experiment 1

		No Threat	Threat at Start	Threat at End
Agreement	<i>M</i>	4.88	4.02	4.00
	<i>SD</i>	1.09	1.11	1.15
	95% CI	4.52 to 5.24	3.67 to 4.37	3.64 to 4.36
Credibility	<i>M</i>	3.91	3.11	3.46
	<i>SD</i>	.79	1.15	1.25
	95% CI	3.65 to 4.17	2.76 to 3.47	3.06 to 3.88
Counterarguing	<i>M</i>	3.40	4.68	4.28
	<i>SD</i>	1.71	1.50	1.26
	95% CI	2.84 to 3.97	4.21 to 5.15	3.87 to 4.67
	<i>n</i>	38	42	41

Note. *CI* = confidence interval. Higher scores indicate more agreement, higher perceived communicator credibility, and higher self-reported counterarguing. Scores range from 1 to 7.

Table 2

Effects of a threat to attitudinal freedom on initial and delayed agreement: Experiment 2

	No Threat	Threat at Start	Threat at End
Initial Agreement	5.13 (1.06)	4.00 (1.72)	3.73 (1.02)
Delayed Agreement	5.04 (1.23)	3.88 (1.74)	4.32 (1.33)
Sleeper Effect	-.09 (.76)	-.12 (1.03)	.59 (1.09)
<i>n</i>	23	21	22

Note. Higher scores indicate more agreement. "Sleeper effect" scores are the change in agreement from

Time 1 to Time 2. Standard deviations are in parentheses. Scores for agreement range from 1 to 7.