



## The Relative Persuasiveness of Different Forms of Arguments-From-Consequences: A Review and Integration

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# 5 The Relative Persuasiveness of Different Forms of Arguments-From-Consequences

## A Review and Integration

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Research on persuasive communication has explored a great many different message variations as possible influences on persuasive effectiveness, including image-oriented versus product-quality-oriented advertisements for consumer products, arguments based on long-term or short-term consequences of the advocated action, promotion-oriented versus prevention-oriented appeals, gain-framed versus loss-framed appeals, individualist-oriented appeals versus collectivist-oriented appeals, strong versus weak arguments, and variations in fear appeals—with these commonly treated as more or less independent areas of work. This essay argues that these and other lines of research are in fact quite closely related, because all examine variations of a single argument form, argument-from-consequences. Correspondingly, their findings fit together neatly to underwrite several broad generalizations about the relative persuasiveness of different varieties of consequence-based arguments.

Research on persuasive communication has explored a great many different message variations as possible influences on persuasive effectiveness. Among these—and this is not a comprehensive list—are studies concerning image-oriented versus product-quality-oriented advertisements for consumer products, arguments based on long-term or short-term consequences of the advocated action, promotion-oriented versus prevention-oriented appeals, gain-framed versus loss-framed appeals, individualist-oriented appeals versus collectivist-oriented appeals, strong versus weak arguments, and variations in fear appeals.

These different lines of research are commonly treated as more or less independent enterprises. For example, studies of argument quality variations, fear appeals, and image-oriented versus product-quality-oriented ads do not appear to have much to do with each other.

This essay argues that in fact a great many of these different lines of research are quite closely related, and their findings can be seen to fit together neatly. In what follows, the analysis is introduced by identifying a common form of persuasive appeal that has implicitly been the focus of attention in these various different lines of research, namely, consequence-based arguments. The

essay then offers four broad empirical generalizations concerning variations of consequence-based arguments. These generalizations fit these apparently unrelated lines of research into a simple but general conceptual housing.

### **Consequence-Based Arguments**

One of the most basic kinds of argument for supporting a recommended action (policy, behavior, etc.) is a conditional that links the advocated action—the antecedent—with some desirable outcome—the consequent. The general abstract form is: “If the advocated action A is undertaken, then desirable consequence D will occur.” Sometimes the conditional is expressed relatively explicitly (“If you wear sunscreen, you’ll have attractive skin when you’re older”; “If our city creates dedicated bicycle lanes, the number of traffic accidents will be reduced”), sometimes not (“My proposed economic program will increase employment”; “This automobile gets great gas mileage”), and sometimes the consequences of not undertaking the advocated action are cited (“If we don’t adopt these fiscal measures, the economy will sink into a recession”), but the underlying form of the appeal is the same, namely, an invocation of potential consequences as a basis for justifying a course of action.

Various conceptual treatments of argument varieties have recognized this kind of argument as distinctive. Perelman (1959) called this appeal form a “pragmatic argument,” an argument that “consists in estimating an action, or any event, or a rule, or whatever it may be, in terms of its favorable or unfavorable consequences” (p. 18). Walton (1996) labeled it “argument from consequences,” describing it as “a species of practical reasoning where a contemplated policy or course of action is positively supported by citing the good consequences of it. In the negative form, a contemplated action is rejected on the grounds that it will have bad consequences” (p. 75). And this argument form is a recognizably familiar kind of justification. For example, Schellens and de Jong (2004) reported that all 20 of the public information brochures they examined invoked arguments from consequences, whereas, for example, only six used authority-based appeals.

### **Persuasive Effects of Variations in Consequence-Based Arguments**

Although not anywhere explicitly acknowledged previously, a good deal of social-scientific persuasion research has addressed the question of the relative persuasiveness of different forms of consequence-based arguments. Taken together, the existing research underwrites four broad generalizations about consequence-based persuasive message variations. The generalizations concern, in turn, comparisons of appeals invoking more and less desirable consequences of compliance with the advocated view, comparisons of appeals invoking more and less undesirable consequences of noncompliance with the advocated view, comparisons of appeals invoking either desirable consequences of compliance or undesirable consequences of noncompliance, and

comparisons of appeals invoking more and less likely consequences of compliance or noncompliance.

### ***Comparing More and Less Desirable Consequences of Compliance***

One recurring research question in persuasion effects research has—implicitly—been whether the persuasiveness of consequence-based arguments is influenced by the *desirability* of the claimed consequence (or more carefully: whether the persuasiveness of the argument is influenced by the audience's perception of the desirability of the claimed consequence). Abstractly put, the experimental contrast is between arguments of the form: “If advocated action A is undertaken, then *very* desirable consequence D1 will occur,” and “If advocated action A is undertaken, then *slightly* desirable consequence D2 will occur.”

Now one might think that the answer would be too obvious to bother investigating. *Of course* appeals that invoke more desirable consequences will be more persuasive than those invoking less desirable consequences. However, the overt research question has not been expressed quite this baldly, but instead has been couched in other terms. For example, many studies have examined a question of the form: “Do people who differ with respect to characteristic X differ in their responsiveness to corresponding kinds of persuasive appeals?”—where characteristic X is actually a proxy for variations in what people value. This section first reviews such research concerning four different personal characteristics (self-monitoring, consideration of future consequences, regulatory focus, and individualism-collectivism), and then discusses how elaboration likelihood model “argument quality” variations reflect the same underlying message property.

*Self-Monitoring and Consumer Advertising Appeals.* Considerable research attention has been given to the role of the personality variable of self-monitoring in influencing the relative persuasiveness of consumer advertising messages that deploy either image-oriented appeals or product-quality-oriented appeals. Self-monitoring refers to the control or regulation (monitoring) of one's self-presentation (see Gangestad & Snyder, 2000, for a useful review). High self-monitors are concerned about the image they project to others, and tailor their conduct to fit the situation at hand. Low self-monitors are less concerned about their projected image, and mold their behavior to fit their attitudes and values rather than external circumstances.

Hence in the realm of consumer products, high self-monitors are likely to stress the image-related aspects of products, whereas low self-monitors are more likely to be concerned with whether the product's intrinsic properties match the person's criteria for such products. Correspondingly, high and low self-monitors are expected to differ in their reactions to different kinds of consumer advertising, and specifically are expected to react differently to appeals

emphasizing the image of the product or its users and appeals emphasizing the intrinsic quality of the product (e.g., Snyder & DeBono, 1987).

Consistent with this analysis, across a large number of studies, high self-monitors have been found to react more favorably to image-oriented advertisements than to product-quality-oriented ads, with the opposite effect found for low self-monitors (e.g., DeBono & Packer, 1991; Lennon, Davis, & Fairhurst, 1988; Snyder & DeBono, 1985; Zuckerman, Gioioso, & Tellini, 1988). Parallel differences between high and low self-monitors have been found with related appeal variations outside the realm of consumer advertising (e.g., Lavine & Snyder, 1996).

Although these effects are conventionally described as a matter of high and low self-monitors having different "attitude functions" to which messages are adapted (e.g., DeBono, 1987), a more straightforward account is that these effects reflect differential evaluation of consequences. High and low self-monitors characteristically differ in their evaluations of various outcomes and object attributes; for instance, high self-monitors place a higher value on aspects of self-image presentation. Given this difference in evaluation, it is entirely unsurprising that high self-monitors find image-oriented appeals to be especially persuasive in comparison to appeals emphasizing product attributes that are, in their eyes, not so desirable. That is, product-quality appeals and image-oriented appeals are differentially persuasive to high self-monitors because the appeals invoke differentially desirable consequences. And the same reasoning applies to low self-monitors: they value the sorts of product attributes mentioned in the product-quality-oriented appeals more than they do those mentioned in the image-oriented appeals—and so naturally are more persuaded by the former than by the latter.

So although this research masquerades as a question about the role of a personality variable in attitude function and persuasion, what the research shows is that for a given message recipient, appeals will be more persuasive if they offer the prospect of consequences the recipient finds relatively more desirable than if they offer the prospect of consequences the recipient finds relatively less desirable. Because high and low self-monitors differ in their relative evaluation of image-oriented and product-quality-oriented consequences, appeals that invoke different kinds of consequences correspondingly vary in persuasiveness.<sup>1</sup>

None of this denies the utility of research focused particularly on self-monitoring and persuasive appeals. It is valuable to know that people systematically differ in their relative evaluations of (specifically) the image-oriented characteristics and the product-quality-oriented characteristics of consumer products, and hence that image-oriented advertising and product-quality-oriented advertising will be differentially persuasive depending on the audience's level of self-monitoring.

But what underlies these findings is a rather more general phenomenon, namely, the greater persuasiveness of arguments that emphasize outcomes deemed especially desirable by the audience. At least when it comes to the

consequences invoked by the arguments in these studies' messages, self-monitoring variations go proxy for value variations—and hence these effects of self-monitoring variations on the persuasiveness of different appeals can be straightforwardly ascribed to the underlying variation in evaluations.

*Consideration of Future Consequences (CFC) and Corresponding Appeal Variations.* An example entirely parallel to that of self-monitoring is provided by research concerning the individual-difference variable known as “consideration of future consequences” (CFC; Strathman, Gleicher, Boninger, & Edwards, 1994). As the name suggests, this refers to differences in the degree to which people consider temporally distant (future) as opposed to temporally proximate (immediate) consequences of contemplated behaviors.

Perhaps unsurprisingly, persons differing in CFC respond differently to persuasive messages depending on whether the message's arguments emphasize immediate consequences (more persuasive for those low in CFC) or long-term consequences (more persuasive for those high in CFC). For example, Orbell and Hagger (2006) presented participants with one of two messages describing both positive and negative consequences of participating in a diabetes screening program. Participants low in CFC were more persuaded to participate when the message described short-term positive consequences and long-term negative consequences; participants high in CFC were more persuaded by a message describing short-term negative consequences and long-term positive consequences (similarly, see Orbell & Kyriakaki, 2008).

As with the self-monitoring research, these findings—even if unsurprising—do represent a genuine contribution: such research underscores the importance of persuaders' thinking about whether the consequences they intend to emphasize are long-term or short-term, and how that connects to the audience's likely dispositions. That is, one substantive dimension of variation in consequences is their temporal immediacy, and attending to that dimension may be important for successful persuasion.

But, as with self-monitoring, what underlies these findings is the general phenomenon of heightened persuasiveness of consequence-based arguments that emphasize more desirable consequences of the advocated viewpoint. At least when it comes to the consequences invoked by the arguments in these studies' messages, CFC variations go proxy for value variations—and hence the effects of CFC variations on the persuasiveness of different appeals can be straightforwardly ascribed to the underlying variation in evaluations.

*Regulatory Focus and Corresponding Appeal Variations.* A third parallel example is provided by research concerning individual differences in “regulatory focus” (Higgins, 1997, 1998). Briefly, regulatory-focus variations reflect broad differences in people's motivational goals, and specifically a difference between a promotion focus, which emphasizes obtaining desirable outcomes (and hence involves a focus on accomplishments, aspirations, etc.), and a prevention focus, which emphasizes avoiding undesirable outcomes (and

hence involves a focus on safety, security, etc.). This individual difference obviously affords a possible basis for adaptation of persuasive messages.

Persons differing in regulatory focus respond differently to persuasive messages depending on whether the message's arguments emphasize promotion-oriented outcomes or prevention-oriented outcomes. For example, Cesario, Grant, and Higgins (2004, Study 2, p. 393) presented participants with messages advocating a new after-school program for elementary and high school students, with the supporting arguments invoking consequences expressed either in promotion-oriented ways ("The primary reason for supporting this program is because it will advance children's education and support more children to succeed") or in prevention-oriented ways ("The primary reason for supporting this program is because it will secure children's education and prevent more children from failing"). Perhaps unsurprisingly, participants tended to be more persuaded by appeals that matched their motivational orientation (for a general review of such research, see Lee & Higgins, 2009).

In a way that is similar to research concerning self-monitoring and CFC, this work identifies another substantive dimension of variation in the consequences associated with the advocated behavior, namely, whether the consequences concern prevention or promotion. This finding is useful because it can emphasize to persuaders that, depending on the receiver's regulatory focus, advocates might prefer to emphasize either prevention-related or promotion-related outcomes.

But, as with self-monitoring and CFC, what underlies these findings is the general phenomenon of the greater persuasiveness of arguments-from-consequences that invoke more desirable consequences of the advocated action. At least when it comes to the consequences invoked by the arguments in these studies' messages, regulatory focus variations go proxy for variations in outcome evaluations—and hence the effects of regulatory focus variations on the persuasiveness of different appeals can be straightforwardly ascribed to the underlying variation in evaluations. (For research linking regulatory-focus differences with differences in more abstract personal values, see Leikas, Lonnqvist, Verkasalo, & Lindeman, 2009.)

*Individualism-Collectivism and Corresponding Appeal Variations.* A final parallel example is provided by research on "individualism-collectivism," which refers to the degree to which individualist values (e.g., independence) are prioritized as opposed to collectivist values (e.g., interdependence). Although there is variation from person to person in individualism-collectivism, this dimension of difference has commonly been studied as one element of larger cultural orientations (see Hofstede, 1980, 2001). So, for example, Americans are likely to be relatively individualistic whereas Koreans, say, are more likely to be collectivistic. This variation in cultural values obviously affords a possible basis for adaptation of persuasive messages.

Perhaps unsurprisingly, persons from cultures differing in individualism-collectivism respond differently to persuasive messages depending on whether

the message's appeals emphasize individualistic or collectivistic outcomes. For example, advertisements for consumer goods are more persuasive for American audiences when the ads emphasize individualistic outcomes ("This watch will help you stand out") rather than collectivistic ones ("This watch will help you fit in"), with the reverse being true for Chinese audiences (e.g., Aaker & Schmitt, 2001; for a review, see Hornikx & O'Keefe, 2009; for an individual-level example of the phenomenon, see van Baaren & Ruivenkamp, 2007). This effect plainly reflects underlying value differences—differences in the evaluation of various attributes of consumer products.

Thus, as with self-monitoring, CFC, and regulatory focus, these effects derive from the general phenomenon of the greater persuasiveness of consequence-based arguments that invoke more desirable consequences of the advocated action. At least when it comes to the consequences invoked by the arguments in these studies' messages, individualism-collectivism variations go proxy for variations in outcome evaluations—and hence these effects of individualism-collectivism variations on the persuasiveness of different appeals can be straightforwardly ascribed to the underlying variation in evaluations.

*The Argument Thus Far.* To summarize the argument to this point: Consequence-based appeals are more persuasive when they invoke outcomes of the advocated action that are (taken by the audience to be) relatively more desirable than when they invoke outcomes that are not valued so highly. Individuals can vary in their evaluations of consequences of an action, and so matching appeals to the audience's evaluations is important for persuasive success. Individual variations in the evaluation of particular sorts of outcomes can be related to a number of individual-difference variables—self-monitoring, individualistic-collectivistic orientation, regulatory focus, consideration of future consequences—but these all reflect underlying variation in the evaluations of consequences.

Although the individual-difference variables just discussed are perhaps the most studied, other individual differences have been the subject of similar investigation, that is, examination of the relative persuasiveness of appeals designed to match variations in receivers' psychological needs and values as inferred from an individual-difference variable. Studies by Bailis, Fleming, and Segall (2005), Faber, Karlen, and Christenson (1993), Kowert and Homer (1993), and Settle and Mizerski (1974)—examining, respectively, higher versus lower self-concordance, compulsive vs. normal buyers, firstborns versus laterborns, and inner- versus other-directed persons—provide just four examples.

Even where no systematic individual-difference variable is involved, various investigators have confirmed that where audience members differ in their evaluation of consequences, matching appeals to such variation (i.e., emphasizing outcomes thought by the audience to be desirable) can influence persuasive success. For example, Clary, Snyder, Ridge, Miene, and Haugen (1994) obtained importance ratings of various possible reasons for volunteering, and



then presented participants with provolunteering messages that varied in the importance of the proffered reasons; messages invoking important reasons were more persuasive than those invoking unimportant reasons. Notably, work based on Fishbein's (1967) expectancy-value model of attitude, especially as embedded in the theory of reasoned action and its successors (e.g., Ajzen, 1991; Fishbein & Ajzen, 2010), has explicitly emphasized the utility of designing persuasive messages based on the audience's perception of the relative desirability of various consequences (e.g., Cappella, Yzer, & Fishbein, 2003; Fishbein & Yzer, 2003).<sup>2</sup>

So what might seem on the surface to be a crazy quilt of isolated research findings—about self-monitoring, regulatory focus, and so forth—in fact represents the repeated confirmation of a fundamental truth about what makes consequence-based arguments persuasive: Arguments-from-consequences are more persuasive to the extent that they emphasize how the advocated view yields outcomes thought by the audience to be relatively more (rather than less) desirable.

*Argument Quality Variations in Elaboration Likelihood Model Research.* The research discussed to this point has focused on differences between people. The general idea has been that persons differ on some variable (e.g., self-monitoring), and that persuasive appeals matched to the audience's level of that variable will be more persuasive than mismatched appeals. But (the argument has been) these variables are all associated with systematic underlying variation in the evaluation of the consequences of the advocated action, and what makes a persuasive appeal matched or mismatched is whether the appeal emphasizes relatively more desirable consequences (matched) or relatively less desirable ones (mismatched).

However, the same basic phenomenon can be detected in an area of persuasion research not involving individual differences, namely, the effects of variation in (what has been called) "argument quality" or "argument strength." Argument-quality variations have figured prominently in research on Petty and Cacioppo's well-known elaboration likelihood model of persuasion (ELM; Petty & Cacioppo, 1986).

ELM researchers have used variations in argument quality as a device for assessing the degree to which message recipients closely attended to message contents. For example, Petty, Cacioppo, and Goldman (1981) varied argument quality, source expertise, and the audience's involvement with the persuasive issue (i.e., the personal relevance of the issue). Under conditions of low involvement, the persuasiveness of the message was more influenced by variations in expertise than by variations in argument quality; under conditions of high involvement, the reverse pattern obtained. The implication is that under conditions of higher involvement, audiences were more closely processing the message and so were more attentive to argument quality variations.

In such ELM research, "argument quality" has been defined in terms of persuasive effects. That is, a high-quality argument is one that, in pretesting,

is relatively more persuasive (compared to a low-quality argument) under conditions of high elaboration (close message processing). The question of what makes those high-quality arguments more persuasive has not been of much interest to ELM researchers. From the perspective of ELM researchers, argument quality variations have been used “primarily as a methodological tool to examine whether some other variable increases or decreases message scrutiny, not to examine the determinants of argument cogency per se” (Petty & Wegener, 1998, p. 352).

But other researchers have naturally been concerned to identify the “active ingredient” in these ELM manipulations. There is now good evidence that the key element in ELM argument quality variations is variation in the evaluation of the consequences invoked by the arguments (Areni & Lutz, 1988; Hustinx, van Enschot, & Hoeken, 2007; van Enschot-van Dijk, Hustinx, & Hoeken, 2003; see also Johnson, Smith-McLallen, Killeya, & Levin, 2004). That is, the “argument quality” variations used in ELM research reflect underlying variations in the desirability of claimed consequences—the “strong argument” messages used consequence-based arguments with highly desirable outcomes, whereas the “weak argument” messages used consequence-based arguments with less desirable outcomes. Small wonder, then, that the strong arguments should turn out generally to be more persuasive than the weak arguments (Park, Levine, Westermann, Orfgen, & Foregger, 2007, p. 94).<sup>3</sup>

To illustrate this point concretely: One much-studied message topic in ELM research has been a proposal to mandate university senior comprehensive examinations as a graduation requirement. In studies with undergraduates as research participants, the “strong argument” messages used arguments such as “with mandatory senior comprehensive exams at our university, graduates would have better employment opportunities and higher starting salaries,” whereas the “weak argument” messages had arguments such as “with mandatory senior comprehensive exams at our university, enrollment would increase” (see Petty & Cacioppo, 1986, pp. 54–59, for other examples of such arguments). It’s not surprising that, at least under conditions of relatively close attention to message content, the “strong argument” messages would be more persuasive than the “weak argument” messages, because the messages almost certainly varied in the perceived desirability of the claimed outcomes.

So here is yet another empirical confirmation of the general point that consequence-based arguments become more persuasive with greater perceived desirability of the claimed consequences of the advocated view. Argument quality research offers a slightly different kind of evidentiary support than that represented by the previously discussed individual-difference research (self-monitoring and so on), because here there is likely to have been relative uniformity across audience members in the comparative evaluations of the consequences under discussion. That is, among the undergraduate message recipients in the ELM studies, there was presumably general agreement that, for example, enhanced employment opportunities is a more desirable outcome than is increased university enrollment, whereas the individual-difference

studies focused on circumstances in which study participants varied in their evaluations. (Of course, in those individual-difference studies, evaluations would be relatively homogeneous within a given condition, such as among high self-monitors.)

*Summary: Variation in the Desirability of the Consequences of the Advocated Action.* The effects observed in a number of distinct lines of persuasion research appear to all be driven by one fundamental underlying phenomenon, namely, that the persuasiveness of consequence-based arguments is influenced by the desirability of the depicted consequences of the advocated view: As the desirability of those consequences increases, the persuasiveness of the arguments is enhanced. This commonality has not been so apparent as it might have been, perhaps because persuasion researchers have not been as attentive as they might to the argumentative structure of the appeals used in their experimental messages. But once it is seen that these various lines of research all involve arguments based on consequences, and once it is seen that the experimental messages vary with respect to the desirability of the consequences invoked, then it becomes apparent that one basic process gives rise to all these apparently unrelated effects.

Indeed, this may justifiably be thought of as perhaps the single best supported empirical generalization about persuasion that can be described to date. Findings from a variety of different lines of research—self-monitoring, consideration of future consequences, regulatory focus, individualism-collectivism, argument quality—all buttress the conclusion that consequence-based arguments emphasizing relatively more desirable consequences of the advocated action are likely to be more persuasive than are arguments emphasizing relatively less desirable consequences.

### ***Comparing More and Less Undesirable Consequences of Noncompliance***

The just-discussed appeal variation involves variations in the consequent of a conditional in which the antecedent was adoption of the communicator's recommendation ("If advocated action A is undertaken"). But a parallel appeal variation can be identified in which the antecedent is a failure to adopt the recommended action ("If advocated action A is *not* undertaken") and the *undesirability* of the consequence varies. Abstractly put, the contrast here is between arguments of the form: "If advocated action A is not undertaken, then *very* undesirable consequence U1 will occur"; and "If advocated action A is not undertaken, then *slightly* undesirable consequence U2 will occur." And the research question is: which of these will be more persuasive?

Again, one might think the answer too obvious to merit study. *Of course* appeals that invoke very undesirable consequences will be more persuasive than those invoking mildly undesirable consequences. Nonetheless, this turns out to have been the object of considerable empirical research—but, as above, the research question has not been stated quite this plainly.

The work of interest here is research on “fear appeals,” which are messages that invoke the specter of undesirable consequences from failing to follow the communicator’s recommendations. Fear appeal research has addressed a number of different questions concerning the invocation of fear-arousing consequences as a means of persuasion, but one substantial line of work in this area has implicitly addressed the appeal variation of interest here. Specifically, considerable research has manipulated fear-arousal messages so as to vary the depicted undesirability of the consequences. In theoretical frameworks such as protection motivation theory (Rogers & Prentice-Dunn, 1997), this is represented as variation in “threat severity.” For example, Block and Keller (1998, p. 1596) compared safer-sex messages that described the possible consequences of failing to adopt the advocated behaviors either as “AIDS-related cancers, dementia, and even death” (relatively high severity) or as “genital discharge, sores, and mild pain” (relatively low severity).

Perhaps unsurprisingly, the general research finding has been that threats perceived as more severe (i.e., more undesirable) make for more effective persuasive appeals than do threats perceived as less severe (less undesirable); see the meta-analytic reviews of de Hoog, Stroebe, and de Wit (2007), Floyd, Prentice-Dunn, and Rogers (2000), and Witte and Allen (2000). Expressed in terms of consequence-based arguments, the appropriate generalization is that appeals invoking consequences of noncompliance are more persuasive when the invoked consequences are relatively more undesirable than when the consequences are relatively less undesirable.

### *Interlude: Variation in the Evaluative Extremity of Consequences*

Two variations of consequence-based arguments have been considered thus far, one where the consequences of adopting the advocated action differ in their desirability, the other where the consequences of not adopting the advocated action differ in their undesirability. But these two variations can plainly be housed together. Abstractly put, these comparisons consider variations in the extremity of evaluation of claimed outcomes. Unsurprisingly, consequences that are evaluated more extremely (more desirable consequences of adopting the advocated action, or more undesirable consequences of failing to adopt the advocated action) make for more persuasive appeals than do consequences that are less extremely evaluated.

Thus, as with self-monitoring, CFC, regulatory focus, individualism-collectivism, and argument quality, what produces the observed fear appeal threat-severity effects is the general phenomenon of the greater persuasiveness of consequence-based arguments that invoke more extremely evaluated consequences. Variations in perceived threat severity plainly represent variations in the evaluative extremity of potential outcomes—and hence these effects of variations in depicted threat severity can be straightforwardly ascribed to the underlying variation in evaluations.

Any persuasive circumstance that permits identification of systematic

variation across individuals in the extremity of the evaluation of consequences is one that permits corresponding adaptation of persuasive appeals. If people of kind X and people of kind Y generally vary in their evaluation of possible outcomes, then a persuader will want to craft different appeals to type X audiences and to type Y audiences (as suggested by research on self-monitoring, consideration of future consequences, regulatory focus, and individualism-collectivism).

Similarly, any persuasive circumstance in which there is relative uniformity (in a given audience) of the evaluation of particular consequences is a circumstance that permits corresponding construction of appeals in ways likely to maximize the chances of persuasive success. When describing the consequences of adoption of the advocated course of action, advocates will naturally want to emphasize those consequences the audience thinks most desirable (as suggested by research on ELM research on argument quality). When describing the consequences of failing to adopt the advocated action, advocates will naturally want to emphasize those consequences the audience thinks most undesirable (as suggested by fear appeal research).

But, as will be apparent by now, the underlying phenomenon is exactly the same in all these different lines of research. That may not have been easy to see without closely considering the underlying argumentative structure of these appeals—but once seen, the common thread is obvious: Persuasion researchers have confirmed, over and over again, that the persuasiveness of consequence-based arguments is affected by the evaluative extremity of the depicted consequences.

To be sure, this generalization is in some ways of rather limited utility for message designers. Although it may be true that it will generally be more persuasive to invoke evaluatively more extreme consequences, this principle does not help a message designer identify exactly *which* consequences to emphasize in a given persuasive circumstance. And identifying such consequences can potentially be quite challenging. For example, some fear appeal research has suggested that the threat of death will not always be more fearful than other threats, and that different audiences find different threats fearful (e.g., Henley & Donovan, 2003; Murray-Johnson et al., 2001; Robertson, O'Neill, & Wixom, 1972).

In that sense, the research to date adds something beyond this broad generalization, because it identifies various substantively different kinds of outcomes whose evaluations might vary. To express this in terms of message design: A persuader can, in addition to thinking abstractly about the audience's perceived desirability of various consequences, also think concretely about some more specific substantive aspects of the contemplated arguments. For example: Do the contemplated appeals mostly emphasize long-term rather than short-term consequences, and are consequences of that sort likely to appeal to the audience? Do the contemplated appeals mostly emphasize promotion-oriented rather than prevention-oriented consequences, and are consequences of that sort likely to appeal to the audience? And so forth.

Still, what makes these substantive variations of interest is that they correspond to underlying systematic differences in evaluation of consequences. That is, these particular substantive variations are manifestations of a more general and fundamental phenomenon. For that reason, message designers would be well-served by beginning with the larger organizing question (“What consequences will this audience find especially desirable or undesirable?”) rather than with a raft of more specific questions about this or that particular substantive variation.

### ***Comparing Desirable Consequences of Compliance and Undesirable Consequences of Noncompliance***

Given the two forms of consequence-based argument already discussed—one based on the desirable consequences of compliance and one based on the undesirable consequences of noncompliance—one might naturally wonder whether there is any general difference in persuasiveness *between* these two forms. As it happens, the research literature on persuasion contains considerable research comparing consequences-of-compliance appeals (with the abstract form “If the advocated action A is undertaken, then desirable consequence D will occur”) and consequences-of-noncompliance appeals (“If the advocated action A is not undertaken, then undesirable consequence U will occur”).

This message variation is commonly labeled as the difference between “gain-framed” appeals (invoking the advantages of performing the advocated action) and “loss-framed” appeals (invoking the disadvantages of not performing the advocated action). For example, in Meyerowitz and Chaiken’s (1987) classic study of breast self-examination (BSE) behavior, the gain-framed message included appeals such as: “Research shows that women who do BSE have an increased chance of finding a tumor in the early, more treatable stage of the disease,” whereas the parallel appeal in the loss-framed message was: “Research shows that women who do not do BSE have a decreased chance of finding a tumor in the early, more treatable stage of the disease” (p. 504). Similarly, in McCaul, Johnson, and Rothman’s (2002, p. 626) study of messages advocating getting flu shots, one message described consequences of getting a flu shot such as: “You will be less likely to get the flu this fall” and “If you do get the flu, you will probably not be as sick” (the gain-framed message), where the other described consequences of not getting a flu shot such as: “You will be more likely to get the flu this fall” and “If you do get the flu, you will probably be more sick” (the loss-framed message). These experimental manipulations straightforwardly compare appeals emphasizing desirable outcomes of adopting the advocated action and appeals emphasizing parallel undesirable outcomes of failing to adopt the advocated action.

In retrospect, perhaps the labels “gain-framed” and “loss-framed” for these message types were not quite as transparent as one might have liked. For example, “compliance-focused” (instead of “gain-framed”) and

“noncompliance-focused” (instead of “loss-framed”) might have drawn attention to how the antecedents of these appeals vary, rather than the consequences. But “gain-framed” and “loss-framed” are too well-established in the research literature to suppose that any alternative terminology will have much purchase.

For two reasons, invoking undesirable consequences of noncompliance (loss framing) might be expected to generally be more persuasive than invoking desirable consequences of compliance (gain framing). One is the phenomenon of negativity bias, the generally greater impact of and sensitivity to negative information as compared to otherwise-equivalent positive information (for a review, see Cacioppo, Gardner, & Berntson, 1997). The other is the phenomenon of loss aversion, the general preference for avoiding losses as opposed to obtaining gains (e.g., Kahneman, Knetsch, & Thaler, 1990; Kahneman & Tversky, 1979). These two well-established psychological phenomena suggest there should be a natural persuasive advantage for appeals emphasizing the undesirable consequences of noncompliance (i.e., loss-framed appeals).

But it appears that there is no such general difference in persuasiveness between appeals invoking desirable consequences of compliance and appeals invoking parallel undesirable consequences of noncompliance. O’Keefe and Jensen’s (2006) meta-analysis found no statistically significant difference in the persuasiveness of gain-framed and loss-framed appeals. Research on gain-framed and loss-framed appeals thus has turned to the question of whether some moderating factor might be at work, such that under some circumstances appealing to the desirable consequences of compliance will be more persuasive, whereas in other situations an appeal to the undesirable consequences of noncompliance will be more effective. Two particular moderators are of interest here: the nature of the advocated action (and specifically a contrast between disease detection and disease prevention) and the receiver’s regulatory focus (a contrast between promotion and prevention orientations).

*Disease Detection/Prevention as a Moderator.* The leading suggested moderator has been whether the advocated action is a disease prevention behavior (such as wearing sunscreen), for which appeals to desirable consequences of compliance are hypothesized to have an advantage, or a disease detection behavior (such as skin examinations), for which appeals to undesirable consequences of noncompliance are expected to be more persuasive (e.g., Salovey, Schneider, & Apanovitch, 2002; Salovey & Wegener, 2003). The empirical evidence in hand, however, does not seem to fit this picture: The two appeal forms do not significantly differ in persuasiveness for most disease prevention behaviors (O’Keefe & Jensen, 2007) or for most disease detection behaviors (O’Keefe & Jensen, 2009).

*Regulatory Focus as a Moderator.* More recently, a second potential moderator of gain-loss message framing effects has been proposed: the receiver’s regulatory focus. As discussed above, regulatory-focus variations concern the



broad motivational differences between a promotion focus (which emphasizes obtaining desirable outcomes) and a prevention focus (which emphasizes avoiding undesirable outcomes). This individual-difference variable is similar to approach–avoidance motivation (BAS/BIS; Carver & White, 1984), which suggests that individuals vary in their general sensitivity to reward (desirable outcome) or punishment (undesirable outcome) cues. Several investigators have hypothesized that promotion-oriented (approach-oriented) individuals should be more persuaded by gain-framed appeals than by loss-framed appeals, with the reverse pattern holding for prevention-oriented (avoidance-oriented) individuals (e.g., Jeong et al., 2011; Latimer, Salovey, & Rothman, 2007).

The evidence bearing on this hypothesis is unfortunately flawed by virtue of a confusion about the nature of gain-framed and loss-framed appeals. Gain- and loss-framed appeals are conditional arguments that vary in the *antecedent*, that is, whether the antecedent is compliance (gain-framed) or noncompliance (loss-framed).<sup>4</sup> By contrast, regulatory focus variations are relevant to variations in the substantive *consequences* invoked, and specifically whether the consequences are promotion-oriented or prevention-oriented.

Hence the interplay of gain-loss variations (different kinds of antecedents) and regulatory focus variations (different kinds of consequents) yields four possible appeal types: (a) gain-framed appeals that emphasize prevention consequences (e.g., “if you exercise, you’ll reduce your risk of a stroke”); (b) gain-framed appeals that emphasize promotion consequences (e.g., “if you exercise, you’ll have more energy”); (c) loss-framed appeals that emphasize prevention consequences (e.g., “if you don’t exercise, you’re missing out on a great way of reducing your stroke risk”); and (d) loss-framed appeals that emphasize promotion consequences (e.g., “if you don’t exercise, you’re missing out on a great way of increasing your energy”).

Unfortunately, research examining the role of regulatory-focus variations in gain-loss framing effects has not always isolated the effect of gain-loss framing variations (antecedent variations); it has often confounded antecedent-related variations (compliance vs. noncompliance) and consequent-related variations (promotion vs. prevention consequences). As an illustration, consider Jeong et al.’s (2011) study, in which participants varying in approach/avoidance (BAS/BIS) motivation were presented with gain-framed and loss-framed messages advocating charitable donations. For example, one gain-framed appeal was: “The library at Jefferson University is in need of funding. With funds, it will be able to stay open longer hours for student use and expand the book collection.” An example of a loss-framed appeal was: “The cafeteria at Lincoln University is in need of funding. Without funds, it will have to cut down on menu items and increase food prices.” Jeong et al. (2011) found that approach-oriented (BAS) participants rated gain-framed appeals as more effective, and indicated willingness to donate more money in response to such appeals; avoidance-oriented (BIS) participants, on the other hand, rated loss-framed appeals as more effective and were more favorably influenced by such appeals.



Notice that Jeong et al.'s (2011) gain-framed and loss-framed appeals differed not only in the antecedent of the appeal (compliance or noncompliance), but also in the consequent of the appeal—how the consequences were described. In the gain-framed appeal, the consequences were described in terms of improvement relative to the status quo (“stay open longer hours”), whereas in the loss-framed appeal the consequences were described in terms of disimprovement relative to the status quo (“cut down on menu items”). To see the relevance of this point, consider that these are not the only ways in which the consequences might have been phrased. For example, the gain-framed appeal could have been worded as follows: “The library at Jefferson University is in need of funding. With funds, it will be able to avoid reducing library hours and avoid having to reduce the book collection.” This would still be a gain-framed appeal, that is, an appeal focused on the desirable consequences of compliance—but with the consequences described in terms of preventing (avoiding) disimprovements rather than in terms of promoting (approaching) improvements.

As a similar example: Sherman, Mann, and Updegraff (2006) found that approach-oriented participants were more persuaded by a gain-framed appeal advocating flossing than by a loss-framed appeal, with the reverse result obtained for avoidance-oriented participants—but the gain-framed and loss-framed appeals differed in the consequences invoked. The gain-framed message was entitled: “Great Breath, Healthy Gums Only a Floss Away,” which suggests a focus on promotion-oriented consequences of compliance. But the loss-framed message was entitled: “Floss Now and Avoid Bad Breath and Gum Disease”—a title that emphasizes prevention-oriented consequences (and, not incidentally, is phrased in terms of the consequences of compliance).

At best, then, the research evidence is ambiguous about the role of regulatory focus in gain-loss framing effects. Because the research designs have not consistently distinguished antecedent variations and consequent variations, the observed differences in persuasiveness cannot be unequivocally attributed to the antecedent variation (the gain-loss framing manipulation).

But, as perhaps is obvious, it is much more plausible that the observed effects were driven by the variation in consequences than by any variation in antecedents. In Jeong et al.'s (2011) study, for instance, for promotion-oriented persons, a gain-framed appeal emphasizing promotion consequences was more persuasive than a loss-framed appeal emphasizing prevention consequences—but the active ingredient producing such a difference was surely the kind of consequence involved, not the kind of antecedent. Few studies appear to have carefully distinguished consequence variation (i.e., whether the outcomes are promotion-focused or prevention-focused) and antecedent variation (i.e., whether the message was compliance-focused or noncompliance focused). But what limited empirical evidence exists indicates that persons differing in regulatory-focus-related motivations are not differentially persuaded by compliance-focused and noncompliance-focused appeals (i.e., are not influenced by whether the appeals are gain-framed or loss-framed)

but rather—across such appeal variations—are differentially persuaded by whether the substantive consequences invoked match their motivational orientation (Chang, 2010, Experiment 2).

In sum, it is unlikely that regulatory-focus variations will yield systematic differences in persuasiveness between compliance-focused and noncompliance-focused appeals independent of the kinds of consequences invoked. Regulatory-focus variations do not map easily onto the contrast between compliance-focused (gain-framed) and noncompliance-focused (loss-framed) appeals. But regulatory-focus variations do map easily onto a contrast between promotion-oriented consequences and prevention-oriented consequences—with, as the empirical evidence suggests, corresponding differences in the persuasiveness of appeals emphasizing these different consequences.

*Summary.* Two variables have been commonly suggested as possible moderators of gain-loss message framing effects, one concerning the kind of behavior advocated (disease prevention vs. disease detection), the other concerning the kind of message recipient involved (promotion-oriented vs. prevention-oriented). But there is not good evidence for either hypothesis (and for the former, there is good evidence to the contrary). There may be some other yet unconfirmed moderating factor at work that will permit identification of systematic differences in the relative persuasiveness of these two kinds of consequence-based appeals, but at present, the clear generalization to be drawn is that invoking desirable consequences of compliance is in general neither more nor less persuasive than invoking parallel undesirable consequences of noncompliance.

### ***Comparing More and Less Likely Consequences***

Just as it seems ordinary and rational that the assessment of alternatives (products, courses of action, etc.) should be affected by the *desirability* of the associated consequences, so it seems similarly sensible that such assessments should be affected by the perceived *likelihood* of those consequences. For example, given two courses of action with equally positively evaluated consequences, the action more likely to produce those consequences should presumably be preferred. Correspondingly, one would expect that—parallel to the effects observed for variations in the desirability of consequences invoked by persuasive messages—variations in the depicted likelihood of consequences should show similar patterns of differential persuasiveness. So, for example, greater persuasion should be observed (*ceteris paribus*) when outcomes are described as highly likely than when those same outcomes are described as only somewhat likely.

However, the relevant research evidence is surprisingly unclear on this score. In fact, the most appropriate conclusion at present seems to be this: Variations in the depicted likelihood of consequences may not dependably produce corresponding differences in persuasive effects.

At least some research does support the expectation that variation in depicted likelihood will produce corresponding variations in persuasive effectiveness. Specifically, some meta-analyses of fear-appeal research have concluded that variations in depicted threat vulnerability produce the expected effects on persuasive outcomes: As the threatened consequences are depicted as more likely to occur, there is correspondingly greater persuasion. Witte and Allen's (2000) meta-analysis found such a relationship for each of three different persuasive outcomes (attitudes, intentions, and behaviors); a similar conclusion was reached by the more limited meta-analytic review of Floyd, Prentice-Dunn, and Rogers (2000). Curiously, de Hoog et al.'s (2007) meta-analysis found similar results for effects on intentions and behaviors, but not on attitudes. Still, the general pattern in fear appeal research seems to suggest that variation in the depicted likelihood of consequences produces corresponding variation in persuasive effects.

But this pattern of results is not consistent with two other bodies of research. First, a surprisingly large number of other studies—studies that are generally not included in meta-analytic reviews of fear appeal research—have reported that messages varying in the depicted likelihood of consequences did not differentially influence persuasive outcomes, but messages varying in the desirability of depicted outcomes did correspondingly vary in persuasiveness. For example, Hass, Bagley, and Rogers (1975) found that variation in the depicted undesirability of an energy crisis created corresponding variations in intentions to conserve energy (the more undesirable an energy crisis was depicted to be, the greater conservation intentions were), but variation in the depicted likelihood of an energy crisis did not differentially affect intentions. In Wogalter and Barlow's (1990, Experiment 1) study of the perceived safety of consumer products, participants received messages varying in the depicted likelihood and depicted severity of injury; variation in depicted severity had corresponding effects on hazard perceptions (products with high-severity warnings were perceived as more hazardous than those with low-severity warnings), but variation in the depicted likelihood of consequences did not affect hazard perceptions. In a series of studies, Smith-McLallen (2005) manipulated both likelihood information and desirability information, finding that attitudes were more influenced by variations in the desirability of the claimed consequences than by variations in the likelihood of those consequences' occurrence. From a related set of studies, Johnson et al. (2004) concluded that "persuasion is more about suggesting good rather than bad *consequences* (valence) for the message recipient than it is about creating impeccably logical—a.k.a. truthful or likely—arguments" (p. 216); as Levin, Nichols, and Johnson (2000, p. 183) put it, "arguments that were positive in valence but not particularly likely were just as persuasive as arguments that were both good and likely." Relatedly, Lipkus, Green, and Marcus (2003) found that whether participants received or did not receive information about the severity of colorectal cancer significantly affected screening behavior in the expected way (those receiving severity information were more likely to subsequently be screened), but receiving or

not receiving information about the likelihood of colon cancer (incidence and risk factors) did not have corresponding effects.

Taken together, these studies obviously suggest complications for a simple, neat picture in which variations in the depicted likelihood of consequences straightforwardly produce corresponding variations in persuasive effects. It may be that some moderating factor is at work, such that under some circumstances (but not others), messages depicting highly likely consequences will generally be more persuasive than messages depicting less likely consequences. But these studies make it plain that, at least for the moment, the direct research evidence is rather more clouded than one might have expected.

The other body of research that casts doubt on the expected role of likelihood-related appeal variations is work aimed at identifying predictors of attitude (and related assessments). For example, Fishbein's (1967) expectancy-value model of attitude (see, similarly, Fishbein & Ajzen, 2010, pp. 96–125) proposes that attitudes are a multiplicative function of belief evaluation (the perceived desirability of each associated salient belief) and belief strength (the perceived likelihood of each belief).

But research has raised significant questions about whether likelihood judgments influence attitudes in the ways one would expect (and hence indirectly has created doubt about whether messages aimed at influencing likelihood judgments would have much effect on attitudes). In particular, several studies have suggested that the apparent contribution of belief-strength scores to attitude prediction is an artifact of using standardized lists of beliefs. When a respondent assesses only his or her unique individualized set of beliefs, only belief evaluation (not belief likelihood) contributes to the prediction of attitudes (e.g., Cronen & Conville, 1975; Eagly, Mladinic, & Otto, 1994). In a similar vein, several studies of product safety judgments have found that evaluative perceptions are much more powerful than likelihood perceptions, with the latter often not making a significant contribution: "people do not readily use injury likelihood in their judgments of product safety" (Young, Brelsford, & Wogalter, 1990, p. 503; similarly, see Wogalter, Brelsford, Desaulniers, & Laughery, 1991; Wogalter, Young, Brelsford, & Barlow, 1999).

These results naturally cast some doubt on the potential persuasiveness of appeals emphasizing the likelihood of consequences. If likelihood judgments do not significantly affect attitudes and similar assessments, then perhaps it should not be surprising that studies of likelihood-related appeal variations should not have consistently found the expected effects on persuasive outcomes.

In short, although it might be plausible to have supposed that likelihood-related appeal variations would straightforwardly produce corresponding variations in persuasive effectiveness, the research evidence in hand offers a much murkier picture. Where persuaders deploy consequence-based appeals, it may be more important to emphasize the valence (desirability or undesirability) of the consequences than to emphasize their likelihood.

**Conclusion**

A great many seemingly-unrelated lines of persuasion research can be seen to be quite closely connected conceptually, by virtue of involving variations in features of consequence-based arguments. And the substantial accumulated empirical evidence concerning these variations can be summarized in four broad generalizations: (a) appeals invoking the consequences of adopting the advocated action are more persuasive when the invoked consequences are relatively more desirable than when the consequences are relatively less desirable; (b) appeals invoking the consequences of failing to adopt the advocated action are more persuasive when the invoked consequences are relatively more undesirable than when the consequences are relatively less undesirable; (c) there is no general difference in persuasiveness between appeals invoking desirable consequences of compliance and appeals invoking parallel undesirable consequences of noncompliance; and (d) appeals depicting the consequences as relatively more likely may not be dependably more persuasive than appeals depicting those consequences as relatively less likely.

Future investigation might extend this sort of analysis by considering how other aspects of consequence-based appeals might influence persuasive outcomes. For example, one might examine the persuasiveness of messages invoking both desirable consequences of compliance and undesirable consequences of noncompliance, as compared to that of messages invoking only one of these elements. Two existing research lines bear on this matter. One is the study of “mixed-frame” messages in gain-loss message framing research (e.g., Latimer et al., 2008; similarly, see Treiber, 1986; Wilson, Wallston, & King, 1990); these messages deploy appeals invoking both the desirable consequences of compliance and the undesirable consequences of noncompliance (i.e., both “gain-framed” and “loss-framed” appeals). The other is investigations of certain fear-appeal variations. The canonical form of a fear appeal contains two message components, one emphasizing undesirable consequences of noncompliance (the message material meant to arouse fear) and one emphasizing the desirable consequences of the advocated action (message material meant to convey the effectiveness of the recommended action); this combination of message components is conceptually the equivalent of “mixed-frame” messages. Some fear-appeal research designs have compared the persuasiveness of messages containing both components and messages containing only one (e.g., Simonson, Aegerter, Berry, Kloock, & Stone, 1987, Study 4; Tanner, Hunt, & Eppright, 1991). The question to be addressed—and a careful review of relevant research is not in hand—is whether messages discussing both the desirable consequences of compliance and the undesirable consequences of noncompliance will in general, or in specifiable circumstances, differ in persuasiveness from messages discussing only one of these.

In sum: Although not widely appreciated, research on the relative persuasiveness of a number of message variations has implicitly compared different forms of consequence-based arguments. Recognition of this common focus

permits the identification of several broad generalizations about consequence-based arguments, and provides a promising larger conceptual framework for housing other research questions concerning persuasion.

## Notes

1. The conception and assessment of self-monitoring has not been without controversy, especially concerning the construct's multidimensionality (e.g., Briggs & Cheek, 1988; Briggs, Cheek, & Buss, 1980; Gangestad & Snyder, 2000; Lennox & Wolfe, 1984; Snyder & Gangestad, 1986). But even if simple conceptualizations of the structure of self-monitoring are defective, the empirical relationship of interest here—between self-monitoring scores and differential responsiveness to image-oriented and quality-oriented appeals—is quite secure. Some intimations to the contrary (e.g., Slama & Singley, 1996) are based on vote-counting summaries in which nonsignificant effects are counted as disconfirmations, but, as pointed out by DeBono (2006), the direction of effect has actually been remarkably consistent across a large number of studies. Indeed, one way of reading the present argument is to say that one doesn't need the apparatus of "self-monitoring" to explain that empirical result; all one needs is the recognition that self-monitoring scores—whatever else they might do—tap into differences in evaluations of consumer product attributes.
2. As a reader pointed out, another way of framing the present argument is to house it within the theoretical framework of the theory of planned behavior and its successors. In that framework, the proximal determinants of attitudes are persons' salient beliefs about the behavior (and specifically, the desirability and strength of those beliefs). These beliefs can be influenced by a great many different "background factors," including individual factors (e.g., personality variations) and social factors (e.g., cultural variation). But the effects of all such background factors are obtained through their effects on more proximal factors (Fishbein & Ajzen, 2010, pp. 24–25). The present argument that, for example, self-monitoring and individual-collectivism have their effects because of their systematic relationships to variations in consequence evaluation can plainly be fitted neatly within such a framework.
3. Keller and Lehmann's (2008) review did not find argument strength (or fear) to be significantly related to health-related intentions, but these conclusions are suspect. Keller and Lehmann's (2008) review was not based on experimental (randomized trial) data concerning specifically the independent variables of interest. For example, a study in which all the messages had strong arguments had its results included in the analysis of the effects of strong-argument messages. So Keller and Lehmann's conclusions about a given message variable were not based exclusively on experiments in which levels of that variable were manipulated. In fact, they reported, "we had relatively few manipulated levels for many of the variables" (p. 120). There are, of course, very good and familiar reasons to prefer conclusions based on randomized trials ("this experiment compared the effectiveness of one-sided and two-sided messages and found...") over those based on observational studies ("in this study all the messages were two-sided, and people were really persuaded, so therefore..."). Correspondingly, there are good reasons to prefer meta-analytic conclusions based exclusively

on randomized trial data, such as Witte and Allen's (2000) meta-analysis, over those based largely on observational studies, such as Keller and Lehmann's (2008) report.

4. Because the appeals are intended to persuade, different *valences* of consequences are of course invoked: compliance is depicted as yielding advantages (desirable consequences) and noncompliance is depicted as yielding disadvantages (undesirable consequences). But the *content* of the consequences is free to vary otherwise.

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