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Culpable Causation

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"Culpable causation" refers to the influence of the perceived blameworthiness of an action on judgments of its causal impact on a harmful outcome. Four studies were conducted to show that when multiple forces contribute to an unfortunate outcome, people select the most blameworthy act as the prepotent causal factor. In Study 1, an actor was cited more frequently as the primary cause of an accident when his reason for speeding was to hide a vial of cocaine than when it was to hide his parents' anniversary gift. In Study 2, of the 4 acts that produced an unfortunate outcome, the most blameworthy act was cited as the factor with the greatest causal impact. Study 3 found that greater causal influence was perceived throughout a causal chain when the act that engaged the chain was positive rather than negative. Finally, Study 4 found that both traditional causal factors (i.e., necessity and sufficiency) and culpable factors influenced perceived causation.

When people are alleged to have committed social, moral, or legal transgressions, their eligibility for blame and sanctions depends on perceptions of their causal role in the production of harm. Causal participation is the basic precondition for ascribing blame and responsibility in virtually all attributional theories of responsibility (Fincham & Jaspars, 1980; Heider, 1958; Shaver, 1985; Shultz & Schleifer, 1983). As Heider (1958) assumed, and as empirical research has demonstrated (e.g., Fincham & Jaspars, 1979; Shaw & Sulzer, 1964), people are rarely held responsible merely for being associated with harmful consequences. Rather, some degree of causal influence appears to be a prerequisite for the ascription of blame and responsibility.

Following the traditional views of causation advanced by Hume (1739/1978) and Mill (1843/1967), from which fundamental attributional formulations such as Kelley's (1967, 1971) covariation principle are derived, theories of causal and responsibility attribution have relied on a presence versus absence test for assessing perceived causal influence. However, many everyday causal problems require assessment of the degree of causal force exerted rather than a judgment about the presence or absence of a particular causal factor. This is especially true in cases of multiple causation, in which the observer must partition causal influence among a variety of possible candidates and assess the relative influence of each.

The perceived importance of competing causal sources depends on the purpose for which causal citations are sought. Whereas scientists seek to identify logical criteria (e.g., necessity, sufficiency, and proximity) for explicating the conditions that can produce or eliminate an effect, the layperson may use more pragmatic criteria (Dray, 1957; Feinberg, 1970). Rather than relying on logical criteria, recent investigations of perceived causation have emphasized the functions of the causation concept in ordinary language and communication (Hilton, 1990; McGill, 1989). According to Feinberg (1970), these criteria for selecting a particular causal factor as the prepotent cause of an event can be summarized as the "lantern" criterion, the "handle" criterion, and the "stain" criterion.

The lantern criterion is consistent with Hart and Honore's (1959) notion of an abnormal cause—the one that makes the difference between the occurrence and nonoccurrence of the event on a particular occasion (see also, Gorovitz, 1965; Hilton & Slugoski, 1986). The identification of an abnormal condition, however, depends on the purpose for which a causal explanation is sought. Hart and Honore (1959), for example, note that a woman married to a man with stomach ulcers might cite eating parsnips as the cause of his indigestion, whereas the man's physician might be more likely to cite the condition of his ulcerated stomach.

From a pragmatic standpoint, however, not all instances of causal citation necessarily involve the attempt to provide a sufficient explanation for an event. Feinberg (1970), for example, viewed the handle criterion from an engineering rather than an explanatory perspective. According to the handle criterion, the cause that is most likely to be dignified as the prepotent cause of the event is the one that provides the most effective mechanism for producing a desired effect. This position is best represented in Collingwood's (1940) manipulability theory, which argues that the concept of causation derives from people's experience of controlling or manipulating objects.

Most germane to the present investigation, however, is what Feinberg (1970) refered to as the stain criterion. The stain criterion involves the desire to pin the blame for a harmful outcome on a culpable party to emphasize his or her wrongdoing. The stain criterion is important in perceived causation when one or more human interventions are among the competing causal influences. As Feinberg notes, people may be disposed to place the blame on the person most at fault, as long as his or her faulty action was a genuine causal factor. In this way, "the indignation and vindictiveness occasioned by harm [has] a respectable outlet in our moral judgments" (1970, p. 219). Placing a stain on an actor's behavior (by identifying it as the prepotent cause of a harmful outcome) may serve as a signal to other people to beware of similar misdeeds, as a reminder to the observer of the actor's nefarious tendencies, or simply as a way of symbolically exacting retribution for the harmful event.

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The possibility that causal citations are made according to the stain criterion suggests that causal judgments are conflated with ascriptions of blameworthiness. In other words, when asked to identify which of a number of competing causal factors is the primary cause of a harmful event, people will cite the cause for which an actor is most blameworthy, that is, the cause containing the most indelible stain. This prediction represents a significant departure from extant theories of blame and responsibility such as the "entailment" model of Fincham and Jaspars (1980) and the "presuppositional" model of Shultz and Schleifer (1983). According to these models, perceived causation determines perceptions of blameworthiness, which in turn determine the administration of sanctions. Although these investigators, among others (e.g., Lloyd-Bostock, 1983), have recognized that perceived blameworthiness may influence judgments of causation, this possibility has not been systematically explored in previous research.

In the research reported below, participants were presented with hypothetical events in which a number of potential causal candidates contributed to an unfortunate outcome and were asked to identify the primary cause of the event. The causal candidates did not differ in terms of traditional conceptions of causation such as necessity, sufficiency, or proximity. Thus, each causal candidate was equally necessary and sufficient and could not be distinguished on the basis of its proximity to the harmful outcome. However, the causal candidates did differ in a way that was expected to influence their perceived blameworthiness and hence their perceived degree of causal influence.

Study 1

The first study was designed to show that causal citations are increased when the motive underlying a harmful action is socially desirable as opposed to undesirable. Subjects read about a car accident in which the main character, John, hit another car at an intersection, resulting in a variety of injuries to the driver. The culpable causation factor was manipulated by varying John's reason for driving over the speed limit. In the socially desirable motive condition, John was speeding so that he would arrive home in time to hide an anniversary present from his parents. In the socially undesirable motive condition, John was speeding so that he would arrive in time to hide a vial of cocaine from his parents. It was predicted that John would be cited as a cause more frequently when his motive was to hide from his parents a vial of cocaine rather than an anniversary present.

Three other contributing causes were included. Subjects were told that some oil had been spilled in the road, that a tree branch was blocking the stop sign at the intersection, or that the other driver ignored the stop sign at the intersection. It was expected that John's perceived causal role would be diminished more by the other driver's negligence (a blameworthy cause) than by the environmental obstacles.

Method

Subjects

Subjects were 174 male and female introductory psychology students participating in partial fulfillment of a course requirement. The study was conducted in four group-testing sessions.

Procedure

The independent variables (motive: socially desirable or socially undesirable; other cause: oil spill, stop sign blocked by tree branch, and other driver's negligence) were manipulated in the context of a brief story in which the main character was driving over the speed limit when he came to an intersection and hit a car that was traveling from the opposite direction. The experimental conditions are described fully below:

> John was driving over the speed limit (about 40 mph in a 30-mph zone) in order to get home in time to . . .
>
> *Socially Desirable Motive*
>
> . . . hide an anniversary present for his parents that he had left out in the open before they could see it.
>
> *Socially Undesirable Motive*
>
> . . . hide a vial of cocaine he had left out in the open before his parents could see it.
>
> *Other Cause*
>
> *Oil spill.* As John came to an intersection, he applied his brakes, but was unable to stop as quickly as usual because of some oil that had spilled on the road. As a result, John hit a car that was coming from the other direction.
>
> *Tree branch.* As John came to an intersection, he failed to see a stop sign that was covered by a large tree branch. As a result, John hit a car that was coming from the other direction.
>
> *Other car.* As John came to an intersection, he applied his brakes, but was unable to avoid a car that ran through a stop sign without making any attempt to slow down. As a result, John hit the car that was coming from the other direction.
>
> *Consequence of Accident*
>
> John hit the driver on the driver's side, causing him multiple lacerations, a broken collar bone, and a fractured arm. John was uninjured in the accident.
>
> Complete the following sentence: The primary cause of this accident was ———.

Subjects were instructed to list only one cause: the one that they thought was the primary cause of the accident. On the following page, subjects first rated the extent to which John was responsible for the accident (0 = *not at all responsible;* 10 = *very responsible*) and then the extent to which John was the cause of the accident (0 = *not at all a cause;* 10 = *very much a cause*). They then indicated how much money, if any, they thought should be awarded to the driver that John hit. Subjects were told that they could award between $0 and $100,000, and that the average amount in cases such as this, if John were believed to be at fault, would be about $25,000.

Results

Causal Citations

Two coders, working independently, assessed whether the primary cause subjects listed implicated John or one of the other possible causal sources (i.e., the oil spill, the other driver, or the tree branch). To assess reliability, both coders evaluated the same subsample of 20 randomly selected responses. Agreement between the two coders was perfect. Because the number of subjects in each experimental condition was identical, the raw frequencies are presented in Table 1.

The number of times John's behavior was cited as a cause was entered as the dependent variable in a log-linear analysis, with motive (socially desirable or socially undesirable) and other cause (oil, other car, or tree) as the independent variables. No

Table 1
Frequency of Causes Cited

Other cause cited	Motive			
	Hide anniversary gift		Hide cocaine	
	John	Other	John	Other
Oil	19	10	28	1
Other car	8	21	17	12
Tree	16	13	24	5

significant interactions were obtained; hence, only the main effects are reported below.

The predicted main effect of the motive variable was obtained, $\chi^2(1) = 15.27$, $p < .0001$, such that John was more frequently cited as a cause of the accident when his motive was to hide a vial of cocaine than it was when his motive was to hide an anniversary gift from his parents.

The second main effect indicated that John was more frequently cited as a cause when he encountered an oil spill or an obstructed stop sign than when the other driver ran a stop sign, $\chi^2(2) = 17.27$, $p < .0002$.

Ratings

Causation. As can be seen in Table 2, ratings of causation paralleled those of the causal explanations. Main effects were obtained for the motive variable, $F(1, 157) = 4.71$, $p < .04$, indicating that John was viewed as less of a cause of the accident when his motive was socially desirable ($M = 5.70$) rather than socially undesirable ($M = 6.50$), and also for the other cause variable, $F(2, 157) = 38.18$, $p < .0001$, indicating that John's perceived causal role was diminished when another car contributed to the accident ($M = 3.87$) than when the accident was due to an oil spill ($M = 7.13$) or a tree branch ($M = 7.26$).

Responsibility. Ratings of responsibility paralleled those of causation: Main effects on responsibility ratings were obtained for the motive, $F(1, 157) = 4.57$, $p < .04$, and other cause variables, $F(2, 157) = 41.14$, $p < .0001$. The first main effect indicated that John was judged less responsible when he was said to be rushing to hide an anniversary gift ($M = 6.10$) than when he was rushing to hide a vial of cocaine ($M = 6.98$). The second main effect showed that John was viewed as less responsible when another driver contributed to the accident ($M = 4.13$) than when the accident was due to the oil spill ($M = 7.84$) or to the tree branch covering the stop sign ($M = 7.67$).

Compensation. A main effect of the other cause variable on compensation recommendations, $F(2, 157) = 15.31$, $p < .0001$, indicated that smaller awards to the victim were recommended when the victim contributed to the accident ($M = \$10,324$) than when the environmental obstacle was an oil spill ($M = \$26,563$) or a tree branch obstructing a stop sign ($M = \$28,427$).

Discussion

Study 1 provided a clear demonstration of the culpable causation principle: With causal necessity, sufficiency, and proximity held constant, the more culpable act was deemed by subjects to have exerted a larger causal influence. In addition to influencing subjects' causal explanations, the motive manipulation had parallel effects on ratings of causal influence and on judgments of responsibility.

The first study also showed that the tendency to cite the focal actor as the cause of the accident varied as a result of the nature of the other possible causes that were present in the situation. In general, the actor's perceived causal role was greatly diminished when the information indicated that the other driver was negligent relative to when oil had been spilled on the road or a tree branch had obstructed the stop sign at the intersection. The intervention of another human agent similarly influenced judgments of responsibility, avoidability, and award of compensation. In the socially desirable motive condition, causal citations of the focal actor were much less frequent than citations of other factors when another driver contributed to the accident. However, in the socially undesirable motive condition, the focal actor was still cited more frequently as a cause than any other factor, even when the other driver was clearly negligent in running through the stop sign.

Table 2
Ratings of Responsibility, Causation, and Compensation

Other cause	Motive	
	Hide anniversary gift	Hide vial of cocaine
	Responsibility	
Oil spill		
M	7.23	8.34
SD	2.27	1.52
Other car		
M	3.96	4.30
SD	2.70	2.78
Tree branch		
M	7.19	8.11
SD	2.76	2.10
	Causation	
Oil spill		
M	6.54	7.65
SD	1.90	1.56
Other car		
M	3.48	4.26
SD	2.52	2.82
Tree branch		
M	7.04	7.46
SD	2.36	2.29
	Compensation (in U.S. dollars)	
Oil spill		
M	23,807	29,034
SD	18,693	18,365
Other car		
M	9,703	10,944
SD	18,973	17,143
Tree branch		
M	28,269	28,575
SD	16,043	21,925

Study 2

Whereas the first study examined the relative causal influence of the actor's behavior vis-à-vis the actions of another person or environmental obstacles, the second study examined the relative causal influence of different behaviors of the actor. The stimulus materials were modeled on a study by Wells, Taylor, and Turtle (1987). Subjects read a story about a man named Robert who experienced a number of mishaps on his way to a concert and missed the concert as a result. Of the four events subjects read, one was an event for which Robert was relatively blameworthy (e.g., speeding), and the other three were events for which he was relatively blameless (e.g., being misidentified and stopped by a policeman). The causal influence of each event on the outcome was equated by instructing subjects to assume that each event delayed Robert for an identical amount of time.

Perceived causation was assessed by asking subjects to list three ways in which the unfortunate outcome could have been avoided. As Wells and Gavanski (1989) have shown, people tend to cite as causal those aspects of an event that were potentially alterable. Two versions of the culpable causation hypothesis were advanced. The first version stated that an event (e.g., being stopped by the police), when presented in its blameworthy version (e.g., being stopped by the police for speeding), would be cited more frequently as a cause than when presented in its blameless version (e.g., being mistakenly stopped by police who thought that his car matched the description of a stolen vehicle). The second version of the hypothesis was that the blameworthy event would be cited more frequently as a cause than any of the other four events. Although the second hypothesis could not be evaluated statistically because a single subject could contribute varying numbers of causal citations (from none to four) to the four events, it was evaluated descriptively by inspecting the frequencies of causal listings.

Method

Subjects

Subjects were 290 male and female general psychology students participating in partial fulfillment of a course requirement.

Procedure

The experiment was conducted in small (n = 4–9) group sessions and was described as involving people's reactions to unfortunate events. Subjects first read an introductory paragraph as follows:

> One day Robert planned to go to a concert with some free tickets he had won from a local radio station. Along the way Robert experienced a number of mishaps. Assume that each of the events listed below delayed Robert for an identical amount of time.

Subjects then read a series of four events. Two versions were created for each event, one for which the actor was relatively blameworthy and one for which he was relatively blameless. The blameworthy version involved either negligence or a socially undesirable motive. For each sequence of four events, one of the events was presented in its blameworthy version and the other three in their blameless versions. The four events were presented in one of four orders (1, 2, 3, 4; 2, 3, 4, 1; 3, 4, 1, 2; or 4, 1, 2, 3). Thus, the blameworthy item was equally likely to appear in any of the four positions in the sequence. The two versions of each event are provided below:

> *Event 1: Flat Tire*
> *Blameworthy.* Ran over a sharp object and got a flat tire while whistling at a woman in the car next to him.
> *Blameless.* Got a flat tire when he ran over a sharp object on the road.
>
> *Event 2: Alternate Route*
> *Blameworthy.* Took a longer route in order to pick up some drugs from a friend for the concert.
> *Blameless.* Took a longer route due to some construction that was taking place along his usual route.
>
> *Event 3: Stopped by Police*
> *Blameworthy.* Was stopped by a police officer and given a ticket for traveling 60 mph in a 25 mph zone.
> *Blameless.* Was mistakenly stopped by a police officer who thought that his car matched the description of one that was stolen.
>
> *Event 4: Minor Accident*
> *Blameworthy.* Completely ignored a stop sign, bumped another car at an intersection, and had to get out to exchange information.
> *Blameless.* Was bumped from behind in traffic and had to get out to exchange information.

The story concluded as follows:

> Robert got to the concert just as it was ending, and therefore wasted the tickets he had won. In the space provided below, list *three* ways in which these events could have been changed so that Robert would not have missed the concert.

Subjects then received an additional sheet that asked them to rate the extent to which Robert was to blame for each event. Blame ratings were made on 9-point scales ranging from *not at all to blame* (0) to *very much to blame* (8).

Coding System

Two undergraduate research assistants who were uninformed about the purpose of the study developed a system for coding subjects' beliefs about how the event could have turned out differently. The final system included 17 categories. The coders, working independently, coded all of the responses into these 17 categories. To assess reliability, the responses of 10 randomly selected subjects were evaluated by both coders. The percentage agreement between the two coders was 86.

Eight of the 17 categories pertained to the events presented in the stories (four events × blameworthy and blameless versions), and the other 9 were incidental to these events (e.g., Robert should have found an alternate means of transportation or Robert should have woken up earlier). Of the 870 possible responses (290 subjects × 3 causal citations), 27 were missing because some subjects cited only two causal factors. Sixty-four responses were uncodable into any of the 17 categories. The eight events listed in Table 3 account for 460 of 779 total causal citations, or 59% of the total causes cited. By far, the most frequently cited cause not included in Tables 3 and 4 is "Robert should have gotten up earlier," which was cited a total of 117 times. None of the remaining 8 categories were cited consistently.

Results

Perceived Blameworthiness

Table 3 presents the ratings of blameworthiness for each of the four events in each sequence. As can be seen from the table,

Table 3
Means and Standard Deviations for Blame Ratings

Item	*M*	*SD*
Sequence 1		
Yelling at woman[a]	7.47	1.19
Taking longer route	1.21	1.76
Police officer making mistake	0.22	0.61
Being bumped from behind	1.83	1.86
Sequence 2		
Running over sharp object	3.27	2.49
Stopping to get drugs[a]	7.48	1.51
Police officer making mistake	0.78	1.39
Being bumped from behind	2.09	1.76
Sequence 3		
Running over sharp object	3.03	2.19
Taking longer route	1.17	1.66
Getting a speeding ticket[a]	7.67	0.60
Being bumped from behind	1.87	2.16
Sequence 4		
Running over sharp object	2.94	2.54
Taking longer route	1.09	1.70
Police officer making mistake	0.72	1.75
Running a stop sign[a]	7.62	1.38

[a] Item intended as most blameworthy.

the event that was intended to be the most blameworthy was identified as such by subjects in all cases (all $ps < .0001$).

Causal Citation

Table 4 presents the frequency with which each of the four events that impeded Robert's progress was listed as a way that the outcome of missing the concert could have been avoided. Each column represents a series of events with one blameworthy and three blameless factors. For clarity of exposition, the four orders in which the items in each column were presented are ignored, and the corresponding frequencies are summed across order.

Chi-square tests were conducted for the hypothesis stating that the blameworthy event would be cited more frequently than its blameless counterpart. According to this hypothesis, for example, "ran over a sharp object while whistling at a woman" should be cited as a cause more frequently than "ran over a sharp object." Similarly, "speeding" should be cited more frequently than "being mistakenly stopped by a policeman." These comparisons can be seen by corresponding acts in Table 4, which compares the frequencies of each blameworthy item with its three blameless counterparts. Chi-square tests compared the frequency of each blameworthy item with the most frequently cited blameless item. For example, the act "yelling at the woman" ($n = 23$) was compared with the act "running over a sharp object" ($n = 23$). Chi-square tests were significant for each of the four comparisons. Two of the comparisons ("yelling at woman" vs. "ran over sharp object in road" and "ran a stop sign" vs. "bumped from behind") were significant at $p < .001$, whereas the other two comparisons ("stopped to get drugs" vs. "had to take a longer route" and "speeding" vs. "police mistake") were significant at $p < .05$.

Thus, the hypothesis that subjects would cite blameworthy versions of an event more frequently than blameless versions was strongly confirmed. Although chi-square tests could not be performed within a column because subjects contributed more than one response, it can clearly be seen that the blameworthy item was cited with considerably greater frequency than *any* of the other event causes in each instance.

Discussion

The results of the second study provide further support for the culpable causation principle, which states that the most blameworthy of a set of causal candidates will be cited as the prepotent cause of an event. Despite each causal factor delaying the actor for an identical amount of time, and each factor being rotated in the causal sequence so that it appeared in each position an equal number of times, the blameworthy cause was much more likely to be cited as a cause of the event than the same cause in its nonblameworthy version, and in fact, was cited more frequently than any other causal factor. These results are not explicable in terms of causal necessity or sufficiency, because each factor was said to have delayed the actor for an identical period of time. Furthermore, each event appearing an equal number of times in each position rules out an explanation in terms of causal proximity.

Study 3

A perdurable question in the philosophy of mind concerns the relationship between an action and its consequences (for pertinent reviews see Mischel, 1969; White, 1968). Theoretically, all actions have infinite consequences: That is, the molecules set in motion by one action engage other molecules, which then affect others, and so on, ad infinitum. The action–conse-

Table 4
Frequency of Citations for Blameworthy and Blameless Causal Factors

Blameworthy cause	Frequency
Yelled at woman	
Yelled at woman[a]	53
Had to take longer route	36
Police mistake	34
Bumped from behind	10
Stopped to get drugs	
Ran over sharp object	23
Stopped to get drugs[a]	56
Police mistake	22
Bumped from behind	19
Speeding	
Ran over sharp object	11
Had to take longer route	15
Speeding[a]	57
Bumped from behind	9
Ran stop sign	
Ran over sharp object	15
Had to take longer route	18
Police mistake	13
Ran stop sign[a]	50

[a] Item intended as most blameworthy.

quence problem has important practical ramifications in the area of blame and responsibility. Consider the following example: A mailman slips on the broken steps of a homeowner, who has been negligent in repairing his property. Should the homeowner be liable for the mailman's medical bills? For the time he misses at work? For the arguments that ensue between the mailman and his wife because of the financial strain of missing work? For his children having to wear Pic and Save sneakers instead of Air Jordans and thereby losing social status at school?

In the law, practical considerations limit the scope of liability. In New York, for example, a person is liable for the first house that burns down as a result of a negligent fire but none afterward. The same practical constraints, however, do not obtain for the average conduct evaluator. In other words, there are no rules in everyday social life to govern the scope of blameworthiness for a harmful act. At this point, the culpable causation principle can be brought into service: In general, it is predicted that an actor will be perceived as more blameworthy for the extended consequences of a causal chain to the extent that he or she is culpable for the process by which the causal chain was engaged. Two versions of this hypothesis were evaluated in Study 3: One possibility was that actors whose initial behaviors were either culpable or inculpable would be viewed as equally causal for undesirable consequences that occurred early in a causal chain, but that the actor whose initial behavior was culpable would be viewed as more a cause of later events in the sequences. A second possibility was that the actor whose initial behavior was culpable as opposed to inculpable would be viewed as more causal for both immediate and remote elements of the causal chain.

Method

Subjects

Subjects were 112 male and female psychology students participating in partial fulfillment of a course requirement.

Stories

The culpable or inculpable process by which an actor's initial behavior set into motion a chain of consequences was manipulated in four stories. Each subject was exposed to a story that depicted either a culpable or an inculpable initial behavior. After learning of the process by which the causal chain was engaged, subjects read about a succession of unfortunate events that followed, each increasingly remote from the first. The complete text of the four stories is provided in the Appendix.

Response Measures

After reading the story, subjects were asked to rate the extent to which the actor was the cause of each of the events that followed. Ratings were made on 11-point scales ranging from *not at all the cause* (0) to *very much the cause* (10). Three of the stories contained seven events, and one contained six. After making causal ratings, subjects apportioned blame among the participants in the event.

Results

Ratings of Causal Influence

Mean ratings of the perceived causal influence of each factor are presented in Table 5. Multivariate analyses of variance were conducted for each story on the seven causal judgments (six in Story 4). In each instance, the multivariate F was significant at at least $p < .01$. Univariate tests were conducted on each causal

Table 5
Mean Causal Ratings for Each of Four Stories

Act	Positive motive	Negative motive
Story 1		
Telling Robert what happened	3.05	8.74****
Robert telling others what happened	2.94	6.74***
Maria getting a reputation for sleeping around	2.28	6.53****
Maria getting asked out by Gary	2.50	5.21**
Gary raping Maria	1.39	3.37*
Maria becoming depressed and getting behind in her classes	1.33	3.89**
Maria dropping out of school	1.50	3.79**
Story 2		
Telling Hilary about the jewelry	6.76	8.95*
Hilary gaining employment at the house	1.67	4.84***
Hilary attempting to steal the jewelry	3.14	7.42***
The owner being knocked down the stairs	0.86	3.21**
The owner breaking her leg	1.14	3.42*
The owner's leg having to be reset	0.57	2.89**
The owner walking with a permanent limp	0.57	2.79**
Story 3		
The president investigating Henry	2.50	8.56****
The president finding out that Henry had been in Alcoholics Anonymous	2.20	7.25****
Henry being fired from the company	2.15	6.56****
Henry being unable to find a job in the industry	1.05	4.87***
Henry being forced to work long hours at a job for low pay	0.85	4.50****
The financial strain between Henry and his wife	0.95	4.37****
Henry and his wife getting divorced	0.70	3.31***
Story 4		
Giving the disease to Melissa	6.74	9.43***
Melissa having to miss work	4.63	8.50****
Rumors starting in Melissa's company about her illness	3.63	6.36*
Melissa being fired from her job	2.95	7.00****
Melissa having a difficult time getting another job	2.26	5.50***
Melissa being forced to take a lower paying job with fewer benefits	2.26	5.50***

* $p < .05$. ** $p < .01$. *** $p < .001$. **** $p < .0001$.

factor. The results of these analyses are also presented in Table 5.

Table 5 shows, as expected, that the actor's perceived causal influence tended to decline as the events in the causal chain became more remote, although there were some exceptions to this tendency. The important results involve the comparison between culpable and inculpable process conditions. Without exception, ratings of the actor's causal influence on succeeding events in the causal chain were greater when the event that set the chain in motion was a culpable as opposed to an inculpable one. These findings offer strong support for the contention that blameworthiness for an initial event determines perceptions of causal influence for the elements in an extended causal chain. More specifically, these findings are consistent with the second possibility outlined earlier; namely, that the actor whose initial behavior was culpable as opposed to inculpable would be seen as more causal for both immediate and remote elements of a causal chain (see Table 6).

Ratings of Blameworthiness

Ratings of the actor's blameworthiness relative to the other causal factors offer further support for the proposed linkage between blameworthiness and causation. With the exception of the second story, the main actor was blamed more for the events that transpired when the process by which he engaged the causal chain was culpable as opposed to inculpable. The exception of Story 2 is most likely due to the fact that, in contrast to the other stories, another agent was introduced who was then responsible for the subsequent events. With the exception of Story 2, each of these analyses yielded significant effects at $p < .001$.

Discussion

The hypothesized link between blameworthiness and causation was applied to a long-standing theoretical problem in the philosophy of mind, and a practical problem in the administration of law: namely, the extent to which culpability is traced in a causal chain from the actions that initially set the causal chain in motion. Some of the events that followed from the actor's initial culpable action were quite remote, such as a person's marriage suffering as a result of the culpable actor writing a letter to the president of his company about the person's alcoholism (Story 3). Nevertheless, culpability for the initial event still led to substantial perceived differences in causal influence for the remote elements in the chain. Although there may be some logical justification for the difference in perceived causal influence with regard to the first event in the causal chain, once the first event had occurred, the actor had no input into the succeeding events. The actor's causal role in these succeeding events in the two experimental conditions cannot, therefore, be easily distinguished in terms of causal proximity, necessity, or sufficiency.

However, the initially culpable actor being generally viewed as more causal than the inculpable actor for *all* elements of the causal chain precludes direct assessment of the hypothesis (derived from the philosophy of mind and the culpable causation principle) that initial culpable acts lead the observer to trace causation farther down to the more remote elements in the causal chain. In other words, it would not be technically accurate to say that initial culpable acts led the observer to identify more events as falling within the scope of the actor's causal influence; rather, initial culpable acts led the observer to ascribe greater causal influence for all events, both immediate and remote.

Table 6
Mean Percentage Estimates of Blame for Each Causal Factor

Actor	Inculpable process	Culpable process
Story 1		
Jane	4.33	30.19
Maria	7.27	7.56
Gary	74.93	50.44
Robert	13.47	11.19
Story 2		
Hilary	49.94	41.00
Lucretia	18.50	50.38
The owner	31.50	8.62
Story 3		
Jack	10.00	48.93
Henry	19.29	13.21
The president	71.07	37.86
Story 4		
John	33.57	67.60
Melissa	43.43	12.50
Melissa's employer	24.43	19.90

Study 4

Study 4 was designed to investigate issues relevant both to traditional views of causation and to the culpable causation principle. Relatively little research has been conducted with adult subjects to examine the influence of necessary and sufficient conditions on judgments of causation. Mill's (1967) canons of logic provided the first formalization of necessary and sufficient conditions, representing the culmination of "regularity" theories of causation that originated with Hume (1978). In modern philosophy of science, necessity and sufficiency are often used in place of the term *causation* because of the ambiguity of the causation concept. A necessary condition can be expressed in logical terms as follows:

> A property p is a necessary condition for a property q if and only if whenever q is present, p is present.

A sufficient condition can be expressed as follows:

> A property p is a sufficient condition for a property q if and only if whenever p is present, q is present.

To illustrate: Being run over by a steamroller is a sufficient but not a necessary condition for death. Whenever someone is run over by a steamroller he or she is dead, but there are many other ways to die besides being run over by a steamroller. On the other hand, the presence of oxygen is a necessary but not sufficient condition for combustion. Oxygen is present whenever something catches fire, but oxygen by itself will not produce a fire.

Research by Shultz and his colleagues (Shultz, Schleifer, & Altman, 1981) has suggested that people are sensitive to necessary conditions but not to sufficient conditions. One goal of Study 4 was to provide strong evidence that both necessary and sufficient conditions are used in making causal ascriptions.

In addition, Study 4 investigated two factors based on the culpable causation principle that have no place in the traditional Hume–Mill view of causality. The first was whether the victim's demise was perpetrated intentionally or accidentally. Intentional harm is more blameworthy than accidental or negligent harm, and hence according to the culpable causation principle, is likely to be perceived as having exerted a greater causal impact on the outcome. The second culpable factor was whether the person who was harmed had a liver disorder that was brought on by alcoholism or diabetes. On the basis of the assumption that people view alcoholism to be a more blameworthy disease than diabetes, it was predicted that a liver disorder generated by alcoholism would be cited as a more potent cause of the man's demise than a liver disorder generated by diabetes.

Method

Subjects

Subjects were 382 male and female undergraduate psychology students whose participation partially fulfilled a course requirement.

Design and Vignettes

Sixteen versions of a story were written to produce a $2 \times 2 \times 2 \times 2$ factorial design. The story began with the defendant, Jack Starn, inviting his business partner to his home for dinner. Subjects then learned that Starn intentionally or accidentally poisoned his partner. In the intentional scenario, it was explained that Starn stood to gain complete control of their business, which was worth over $2 million, if his partner died. Thus, Starn purposely poisoned his partner's food with the intention of killing him. In the accidental scenario, Starn had a bit too much to drink while preparing dinner and accidentally reached for a jar containing a poisonous dye, thinking that it contained a broth he wanted to use in the soup he was preparing. This jar was normally kept in the refrigerator by his wife, who was a chemist, with a warning label on it. Starn knew that his wife kept the dye in the refrigerator, but he was careless on this occasion.

Subjects then learned that the business partner had a severe reaction upon eating the food and was rushed to the hospital, where he was pronounced dead on arrival. The remaining variables were manipulated within the context of the autopsy that was performed. These variables pertained to whether the partner had a liver disorder that was caused by either diabetes or alcoholism and whether the poison was a necessary or sufficient condition for the partner's death. These conditions are presented below.

Necessary and Sufficient
The autopsy showed that Starn's partner died directly of the poisoning, and that he would not have died if he had not been poisoned. The autopsy also revealed that Starn's partner had a liver disorder due to the fact that he was a diabetic [alcoholic]. However, the coroner stated that the partner's liver disorder and diabetes [alcoholism] had absolutely nothing to do with his death.

Necessary but Not Sufficient
The autopsy showed that Starn's partner was a diabetic [alcoholic], and that he had a liver disorder that was brought on by the diabetes [alcoholism]. The liver disorder, although serious, was controllable with medication. According to the coroner's report, the dye aggravated the liver condition, thereby causing the partner's death. The coroner's report further stated that the partner would not have died from the poison if he did not also have the liver disorder.

Not Necessary but Sufficient
The autopsy showed that Starn's partner was a diabetic [alcoholic], and that he had a liver disorder that was brought on by the diabetes [alcoholism]. The liver disorder had advanced to such a serious stage that Starn's partner would have died at any minute, although Starn was unaware of this. According to the coroner's report, Starn's partner could have died either from the poison, or from the liver condition—either one was sufficient to have caused his death.

Not Necessary and Not Sufficient
The autopsy showed that Starn's partner was a diabetic [alcoholic], and that he had a liver disorder that was brought on by the diabetes [alcoholism]. The liver disorder had advanced to such a serious stage that Starn's partner would have died at any minute, although Starn was unaware of this. According to the coroner's report, Starn's partner died from the liver disorder. The coroner further stated that the poison was not concentrated enough to kill a person.

Response Measures

After reading the vignette, subjects were asked to respond to the following question: "To what extent do you think each of the following caused the death of Starn's business partner? Please read each option before circling any numbers." Each group then rated the causal influence of the following four factors, on 11-point scales ranging from *not at all a cause* (0) to *very much a cause* (10): Starn's putting the dye in his partner's food, Starn's wife keeping the dye in the refrigerator, the partner's diabetes or alcoholism, and the partner's liver disorder.

Results

The primary hypotheses involved causal ratings of Starn's relative contribution to the partner's death, as well as the contribution of the partner's diabetic or alcoholic condition. Ratings of Starn's relative contribution were obtained by subtracting the average of the other three causes (Starn's wife keeping the dye in the refrigerator, the partner's alcoholism or diabetes, and the partner's liver disorder) from the causal rating for Starn's putting the dye in his partner's food. These values, along with the values for the partner's alcoholism or diabetes, are displayed in Table 7.

Causal Necessity and Sufficiency

The first hypothesis predicted that Starn's relative causal influence would be perceived to be greater when his behavior was a necessary as opposed to an unnecessary condition for the partner's demise. This prediction was confirmed, $F(1, 366) = 343.65$, $p < .0001$ (necessary $M = 4.98$; unnecessary $M = -0.95$).

The second hypothesis stated that Starn's relative causal influence would be perceived to be greater when his behavior was a sufficient rather than an insufficient condition for the partner's death. This prediction was also confirmed, $F(1, 366) = 158.14$, $p < .0001$ (sufficient $M = 4.33$; insufficient $M = 0.15$).

A significant interaction was obtained between necessary

Table 7
Ratings of Causal Importance

Causal condition	Intentional		Unintentional	
	Alcoholic	Diabetic	Alcoholic	Diabetic
Starn versus other causes[a]				
Necessary and sufficient	6.49	5.83	5.71	6.48
Necessary and insufficient	4.46	5.02	2.19	2.67
Not necessary and sufficient	2.12	2.71	1.80	0.33
Not necessary and insufficient	−2.75	−4.32	−3.41	−3.61
Partner's chronic condition[b]				
Necessary and sufficient	2.72	1.69	3.10	1.73
Necessary and insufficient	5.50	4.35	5.72	5.48
Not necessary and sufficient	7.15	5.55	5.95	7.45
Not necessary and insufficient	8.78	8.52	8.67	8.17

[a] Entries for Starn versus other causes were obtained by subtracting the average of the other three causes from ratings of Starn's causal role. Thus, the value of 0 indicates equal causation; positive values indicate that Starn was viewed as more of a cause than the other factors, and negative values indicate that Starn was viewed as less of a cause than other factors.
[b] Values pertaining to the partner's chronic condition are simply subjects' 11-point scale (0–10) ratings.

and sufficient conditions on ratings of Starn's relative causal influence, $F(1, 366) = 18.76$, $p < .0001$. This interaction was primarily due to the other three factors being believed to have had a much greater causal impact on the partner's death than Starn's behavior in the condition in which Starn's behavior was neither necessary nor sufficient for the partner's death. No significant higher order interactions were obtained.

Intentionality

The third hypothesis, derived from the culpable causation principle, predicted that Starn would be seen as relatively more the cause of the partner's death when he intentionally poisoned his partner than when he did so accidentally. This hypothesis was also confirmed, $F(1, 366) = 8.57$, $p < .004$ (intentional $M = 2.75$; unintentional $M = 1.94$). No significant interactions were obtained in this condition.

The Partner's Alcoholism or Diabetes

The fourth hypothesis, again derived from the culpable causation principle, was that the partner would be cited more as a cause of his own death when he was described as an alcoholic than as a diabetic. This hypothesis was confirmed, $F(1, 366) = 5.39$, $p < .02$ (alcoholic $M = 5.69$; unintentional $M = 5.06$). Again, no significant interactions were obtained.

Discussion

Study 4 provided strong support both for the influence of necessary and sufficient conditions on perceived causation and for the influence of two factors derived from the culpable causation principle; namely, the intentional or unintentional nature of the offense and the physical state of the victim (diabetic or alcoholic). The finding that sufficiency as well as necessity information affected causal judgment conflicts with previous research by Shultz, Schleifer, and Altman (1981), which failed to find an effect of sufficiency information. A plausible reason for this difference concerns the way sufficiency was defined. In the present study, sufficiency was simply defined in logical terms: A cause, p, is sufficient for an effect, q, if and only if whenever p occurs, q occurs. Shultz and his colleagues, however, examined sufficiency as a differentiating factor between an event's occurrence and nonoccurrence on a particular occasion. The present results indicate that a standard logical presentation of sufficient conditions strongly influences perceptions of causation.

The predictions derived from the culpable causation principle were that the actor would be seen as having exerted a greater causal role for intentional than negligent wrongdoing and that an alcoholic victim would be viewed as having contributed more to his own demise than a diabetic victim. The influence of intention and state of the victim, of course, cannot be explained in terms of causal necessity or sufficiency. The fact that intentional harmdoing is generally more culpable than accidental harmdoing led to increased ratings of perceived causal influence. The findings for the victim's physical state suggest that feelings of disapprobation for the manner in which a physical disorder (alcoholism or diabetes) developed affected perceptions of the causal role played by the illness in the victim's demise. Thus, because alcoholics may be perceived to have greater control over the development of their illness than diabetics they are seen to have a greater causal influence over unfortunate outcomes brought about by the illness (for supportive evidence, see Alicke & Davis, 1990)

General Discussion

The four studies reported in this article provide evidence for a previously unexplored determinant of perceived causation; namely, the degree of blameworthiness inherent in an act. These results suggest, in contrast to virtually all extant models of responsibility attribution, that the degree of culpability in an act can influence perceptions of causation.

Both motivational and nonmotivational interpretations can be provided for these results. From the motivational perspec-

tive, the observer's affective reaction to an actor's nefarious motives, an actor's reckless behavior, or the degree of harm produced, instills an active desire to place a "stain" on the source of the emotional response. A relatively direct way to validate this stain on the actor's character is to exaggerate his or her causal influence on the harmful outcome. Conversely, from the nonmotivational perspective, the stain on the actor's character may result from overapplication of the observer's general expectation that culpable behaviors have more causal impact than inculpable behaviors.

The culpable causation principle applies primarily in circumstances in which numerous potential causal conditions contribute to an outcome, none of which obviously necessitate the outcome more than others. The problem of multiple causation arises in many, if not most interesting cases of blame and responsibility attribution. For example, legal cases of conspiracy and complicity require complex decisions about the relative causal contributions of two or more parties to a crime. Similar problems arise in tort cases of contributory negligence, in which the amount of compensation awarded to the injured party requires a determination of his or her own contribution to the accident. Many attributional problems in everyday social life also require the observer to consider the causal contribution of the perpetrator and victim, such as in circumstances in which the observer must decide whether an instance of harmdoing was initiated by the perpetrator or provoked by the victim.

Future research must be directed at other ways in which blameworthiness may influence judgments about harmful behavior. In addition to influencing perceptions of causation, the degree of blameworthiness inherent in an act may influence perceptions of the actor's intentions, motives, the impact of situational forces, and other legal criteria such as whether the actor possessed normal mental faculties. These effects are most likely to be observed when a great degree of affect is elicited by the actor's harmful conduct. Public outcries against the insanity defense, for example, may be due to the crimes for which the plea is entered being generally quite severe. The degree of affect aroused by the act may lead people to overestimate the extent to which the defendant possessed the capacity for rational action. In a similar vein, the accidental death of a child in an automobile accident may lead the observer to exaggerate the driver's negligence.

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(Appendix follows on next page)

Appendix

Four Stories Predicting Culpable or Inculpable Behavior

Story 1

Jane S. and Maria L. were roommates in a college dormitory for almost a year. Maria had been upset for about a week after dating a friend of Jane's named Greg, who was visiting for the weekend. Jane finally asked her what was wrong, and Maria told Jane that she had slept with Greg and was feeling guilty because she had never done anything like that before. Maria said that she was feeling lonely at the time, but now she felt guilty about what she had done, and wished that it had never happened.

[Culpable process]: Jane thought that Maria was acting like a child and that it was funny that she was so upset about sleeping with Greg. Jane joked about it with a friend of Greg's named Robert, telling him that Maria was a fool.

[Inculpable process]: Jane was increasingly concerned about Maria, and was angry at Greg for being so insensitive. Jane told a friend of Greg's named Robert about what had happened, and asked him to tell Greg that she wanted to talk to him.

Robert, however, told a number of other people, and before long, Maria had developed a reputation for sleeping around.

About a month later, a person in Greg's fraternity named Gary asked Maria to go to a party with him. Maria declined at first, but Gary kept asking, so Maria finally agreed to go. After the party, Gary asked Maria to come up to his room in the fraternity house with him so he could get his keys to drive her home. Maria waited outside the door, but as it was taking Gary a while to find his keys, she stepped inside. Gary then began to kiss Maria. Maria asked him to stop and tried to get out of the room. Gary blocked the door, and raped her.

Maria pressed charges, but the jury thought that since she went up to Gary's room she was partly the cause and found him not guilty. After this, Maria became extremely depressed and lost interest in school. She began to fall behind in her classes and didn't feel like making the work up. Eventually, she dropped out of school.

Story 2

Lucretia had been a professional house cleaner for about ten years. She worked mostly in upperclass neighborhoods.

[Culpable process]: To supplement her income, she often stole jewelry from these houses. She had been fired for suspicion of theft on a couple of occasions, although nobody was able to prove conclusively that she had stolen anything. The last time she was fired led to an angry exchange of words in which she was accused of stealing by the woman who owned the house. Lucretia told a friend of hers named Hilary about the expensive jewelry that this woman kept hidden in the attic. They agreed that if Hilary could get a job there she would attempt to steal the jewelry and Lucretia would get a third of the money. Hilary managed to gain employment at this residence.

[Inculpable process]: To supplement her income, she worked both during the day and in the evening as well. She had recently been fired from a job by the owner of a house who accused her of stealing jewelry. Lucretia knew that the jewelry had been stolen by the woman's son who used it to buy drugs, but she had no desire to work for this woman anymore and simply left without telling the woman about her son. Lucretia expressed her anger about this incident to another house cleaner she knew named Hilary. Unknown to Lucretia, Hilary applied for a job at this home and managed to gain employment there.

Two weeks after being hired, Hilary went upstairs to the attic to find the jewelry. At that moment, the woman who owned the house came home and caught her. The owner ran downstairs to call the police, and Hilary knocked her down the stairs while trying to run away. The woman suffered a concussion and a broken leg. After two months, complications set in and the leg had to be broken and reset. The leg never healed properly, and the woman walked with a permanent limp.

Story 3

An employee in a major advertising company named Jack was competing with another employee named Henry for the position of vice-president in charge of the television division.

[Culpable process]: Two weeks before the decision was to be made Jack wrote an anonymous letter to the president saying that Henry was an alcoholic and regularly used a variety of illegal drugs. Jack put the letter in his desk drawer and went to the main office to get an envelope.

[Inculpable process]: Two weeks before the decision was to be made a person who disliked Henry sent Jack a letter telling him that Henry was an alcoholic and regularly used a variety of illegal drugs. Jack respected Henry and was angry about this letter, so he put the letter in his desk drawer and immediately went down the hall to confront the person who he thought had written it.

In the meantime, the president of the company stopped by Jack's office and happened to see the letter sticking partly out of the drawer.

The president investigated and found out that Henry had once attended Alcoholics Anonymous meetings. Henry was fired from the company without explanation. Rumors began to circulate in the industry, and Henry was unable to find another job in the industry. He was forced to work long hours at a job outside of the television industry for low pay. The financial strain caused tension between Henry and his wife. Their marriage suffered from the new pressures, and they wound up getting divorced.

Story 4

John and Melissa had been dating for about nine months. John recently found out that he had a sexually transmitted disease.

[Culpable process]: John contracted this disease from a girl he met in a bar while Melissa was out of town. However, John didn't tell Melissa about this. About two months later, Melissa broke up with John when she caught him in bed with a friend of hers.

[Inculpable process]: John contracted this disease from his former girlfriend. John and Melissa talked about this, and Melissa agreed that they could still have a sexual relationship as long as they were careful. About two months later, John and Melissa broke up when Melissa decided she wanted to see other people.

Soon after this Melissa became ill with severe symptoms and found out that she had contracted the disease from John. Melissa was out of work for about three weeks, and during that time, rumors started in her company about her illness. Melissa was fired from her job without explanation. She had an extremely difficult time finding another job because her former employer would not give her a reference. She was forced to take a much lower paying job with fewer benefits.

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