

Temporal Discounting: The Differential Effect of Proximal and Distal Consequences on Confession Decisions

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Drawing on the psychological principle that proximal consequences influence behavior more strongly than distal consequences, the authors tested the hypothesis that criminal suspects exhibit a short-sightedness during police interrogation that increases their risk for confession. Consistent with this hypothesis, Experiment 1 showed that participants ($N = 81$) altered how frequently they admitted to criminal and unethical behaviors during an interview to avoid a proximal consequence even though doing so increased their risk of incurring a distal consequence. Experiment 2 ($N = 143$) yielded the same pattern, but with a procedure that reversed the order of the proximal and distal consequences, thereby ruling out the possibility that it was the unique characteristics of the consequences rather than their proximity that influenced the admission rate. The authors discuss the supported psychological process as a potential explanation for several well-established findings reported in the literature on confessions.

Keywords: criminal confessions, police interrogation, temporal discounting

Police interrogations are designed to obtain incriminating evidence from guilty suspects (Davis & Leo, 2006; Kassin et al., 2010; Leo, 2008). The most incriminating form of evidence gathered during this process is a confession (Kassin et al., 2010; Kassin & Gudjonsson, 2004; Leo, 2008; Leo, Costanzo, & Shaked-Schroer, 2009). However, there is growing concern that the methods police use to obtain confessions are not sufficiently precise in their effects. Recent DNA exoneration cases have revealed more than 250 wrongful convictions, 25% of which involved a false confession (Innocence Project Fact Sheet, 2010). Wrongful convictions supported by false confessions raise concerns about the protection of civil liberties and the integrity of the criminal justice system (Leo, 2008), thereby underscoring the need for research that identifies the underlying causes of confessions as a way to maximize the diagnosticity of police interrogation methods.

Behavioral scientists and legal scholars have responded to this need by exploring how police interrogation methods influence confessions among both guilty and innocent suspects (e.g., Rus-sano, Meissner, Narchet, & Kassin, 2005). This literature has made important advances by virtue of identifying the coercive nature of commonly used police interrogation methods and by developing approaches that have been shown to improve the diagnostic value of the evidence these methods produce (see Gudjonsson, 2003; Kassin et al., 2010; Kassin & Gudjonsson, 2004; Lassiter, 2004, for reviews). Yet, theoretical understanding of the underlying psychological processes that operate during police interrogation has not progressed at the same rate. Although theorists have

articulated how several psychological principles may operate to elicit confessions from suspects (Kassin et al., 2010; Kassin & Gudjonsson, 2004), little empirical research has documented their hypothesized influences. This stands as an important gap in the literature because recommendations for interrogation reforms will have greater scope and utility to the degree that awareness of specific problematic interrogation methods is complemented by an understanding of the underlying psychological processes that are responsible for their effects. Accordingly, the current research tested a key psychological principle that is hypothesized to underlie the elicitation of confessions, but which has not been examined by any prior research relevant to police interrogation. The principle investigated is *temporal discounting*—a tendency for proximal factors to influence behavior more strongly than distal factors (Berns, Laibson, & Loewenstein, 2007; Critchfield & Kollins, 2001).

Temporal Discounting

Theory and research from diverse areas of psychology indicate that immediate or proximal factors influence behavior more strongly than delayed or distal ones. For example, according to decision theory, people perceive immediate consequences to have greater subjective utility than future consequences, thereby causing them to discount future consequences (Björkman, 1984). Research derived from learning theory indicates that delayed consequences have less influence on behavior than immediate consequences, and that organisms prefer to delay punishment rather than to experience it immediately (e.g., Renner, 1964; Tarpay & Sawabini, 1974). Research relevant to social influence indicates that people are more likely to obey the commands of an authority figure when the negative consequences of their behavior are delayed or physically distant from them (Milgram, 1974). In addition, prospect theory proposes that people give greater weight to outcomes that are certain than to those that are probabilistic (Kahneman & Tversky,

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1979), and there is wide agreement among researchers of decision-making that people judge proximal outcomes as more certain than distal outcomes (for reviews, see Kalenscher & Pennartz, 2008; Rachlin, Logue, Gibbon, & Frankel, 1986).

Drawing on the principle that proximal factors influence behavior more strongly than distal factors, several prominent confession theorists have speculated that suspects give priority to short-term goals over long-term goals (Follette, Davis, & Leo, 2007; Kassin et al., 2010; Kassin & Gudjonsson, 2004). Such a tendency, if it occurs, could dramatically increase suspects' risk for confession and conviction. Many of the interrogation methods that police use—e.g., isolation, physical discomfort, misinformation, false evidence, promises of leniency, confrontational questioning—have proximal consequences for suspects that encourage them to confess. Though suspects also face consequences that simultaneously encourage them to deny guilt (e.g., possible conviction, incarceration, and execution), during an interrogation these consequences are comparatively distal. Moreover, once a confession is made it can taint the judgments of central decision makers involved in the ensuing procedural steps leading to conviction including eye-witnesses (Hasel & Kassin, 2009), fingerprint experts (Dror & Charlton, 2006), and jurors (Kassin & Sukel, 1997). Therefore, a bias that leads suspects to focus on short-term contingencies could cause their confession decisions to be too strongly influenced by the proximal consequences delivered by police during an interrogation, without sufficient consideration of the distal (and often more severe) consequences that may be levied by the judicial system, thereby putting suspects' long-term interests at risk.

Research Overview

The present research included two experiments that were designed to provide an initial test of the hypothesis that proximal consequences influence suspects' decisions to confess more strongly than distal consequences. Experiment 1 tested this hypothesis by examining whether a proximal consequence (answering repetitive questions) or a distal consequence (meeting with a police officer) more strongly influenced admissions of criminal and unethical behaviors during an interview. To address the possibility that admissions were influenced by the unique characteristics of the consequences rather than by their proximity, Experiment 2 reversed their order such that meeting with the police officer was the proximal consequence and answering the repetitive questions was the distal consequence.

Experiment 1

Method

Participants. Participants were 81 undergraduates enrolled in psychology courses at a Iowa State University who participated to satisfy a course requirement. There were 38 women and 43 men in the sample. Participants were all native English speakers, and included 2 African Americans, 2 Asians, 70 Caucasians, and 7 participants who self-described as multi-ethnic.

Experimental manipulation. Participants were randomly assigned to one of two experimental conditions or a control condition in a three-cell, between-subjects design. In all conditions, participants were interviewed about their prior criminal and unethical behaviors. In the two experimental conditions, admissions and

denials were each paired with either a proximal or a distal consequence. The proximal consequence was answering a set of repetitive questions. The distal consequence was meeting with a police officer in several weeks to discuss their interview responses in greater detail. The experimental manipulation was a contingency pairing. In one experimental condition ($n = 26$), participants faced the proximal consequence (answering repetitive questions) for each denial and the distal consequence (meeting with the police officer) for admissions. In the other experimental condition ($n = 28$), participants faced the proximal consequence (answering repetitive questions) for each admission and the distal consequence (meeting with the police officer) for denials. In the control condition ($n = 27$), admissions and denials were not associated with any consequences.

Laboratory facility and cover story. All participants were interviewed individually in a small room that was furnished with a personal computer, desk, and two chairs—one for the participant and the other for the experimenter. The walls were bare with the exception of two colored flyers that provided safety tips for crime prevention. One flyer was obtained from the university's Department of Public Safety website and included a university logo. The other was obtained from the local police department's website and included a police department emblem. The flyers were affixed to the wall directly above the computer screen so that they would be seen by participants. The flyers were used to support the cover story that the experiment was a partnership between professors in the Psychology Department and law enforcement personnel and that it was designed to examine the rate of criminal behavior among college students.

Measures and materials.

Interview questions. There were 20 interview questions that assessed whether or not participants had ever engaged in a variety of criminal (e.g., shoplifted) and unethical (e.g., plagiarism) behaviors. Participants admitted or denied each behavior by responding "yes" (coded as 1) or "no" (coded as 0) to each question. The coded responses were summed to create one variable per participant that equaled the total number of admissions made. The interview questions were adapted from the illegal behavior checklist (McCoy et al., 2006) and are presented in Table 1.

Repetitive question set. There were 32 repetitive questions included in the set. These questions assessed participants' perceptions about how the "average Iowan" and "average American" would feel (e.g., hostile, disoriented, jealous) when engaging in the criminal or unethical behavior about which participants had just admitted or denied, depending on condition. Participants answered the repetitive questions on a computer that was programmed with a 3-s delay between each question. Each set of 32 repetitive questions required approximately 7 min to complete. It is important to note that the repetitive questions were not relevant to the theory under investigation in this research, but were developed solely for the purpose of creating a repetitive task for participants to engage in as a consequence of having either admitted or denied a criminal or unethical behavior. Thus, participants' responses to these questions were not recorded and are not further discussed.

Manipulation check item. Participants' understanding of the contingency pairing was assessed by asking experimental participants which interview response required them to answer the repetitive questions. Response options were (a) "When I gave a 'NO' response," (b) "When I gave a 'YES' response," and (c) "Some-

Table 1
Interview Questions Used in Experiments 1 and 2

Have you ever. . .
1. Shoplifted something worth \$25 or more?
2. Drank, bought, or tried to buy alcohol before you were 21?
3. Bought or held stolen goods worth \$25 or more?
4. Sold any type of illegal drug or controlled substance, like prescription drugs, marijuana, crack, or any other kind of drug?
5. Obtained or used any prescription drugs for non-medical purposes (like getting high, staying awake, to have fun)?
6. Stolen property worth \$25 or more?
7. Smoked, bought, or tried to buy cigarettes before you were 18?
8. Intentionally set fire to destroy property that did not belong to you?
9. Been joyriding (borrowed someone's car without permission)?
10. Tried, used or experimented with any illegal drugs such as marijuana, cocaine, crack, LSD, or any other illegal drug?
11. Vandalized property, like keying a car, slashing a tire, spraying graffiti, or destroying mailboxes?
12. Assaulted someone with the intent of harming him or her, either with your bare hands or with any kind of object or weapon?→If yes, was it self-defense? ____Yes ____No
13. Illegally downloaded music, movies, software, or anything else?
14. Taken credit for someone else's work, ideas, or answers as your own (plagiarism)?
15. Engaged in a non-violent sex offense such exposing yourself to someone or voyeurism, which is being a peeping Tom?
16. Transported fireworks across state lines?
17. Trespassed or broken into buildings for fun or to look around?
18. Hunted or fished without a license?
19. Carried an illegal or concealed weapon, like a gun, knife, or club?
20. Driven a vehicle while under the influence of alcohol or any other drug like marijuana, cocaine, LSD, etc.?

Note. Participants responded "yes" (coded as 1) or "no" (coded as 0) to each interview question. The questions were adapted from the illegal behavior checklist (McCoy et al., 2006).

times when I gave a 'NO' response and sometimes when I gave a 'YES response.'

Suspicion check item. To probe for suspicion, all participants were asked whether they believed that they had been misled in any way during the study and if so, to describe how. Responses were examined to identify participants who were suspicious about the potential meeting with the police officer.

Procedures. After obtaining informed consent and providing the cover story, the experimenter explained the contingency pairing and then individually interviewed participants about their prior criminal and unethical behaviors by asking them the 20 interview questions. The experimenter recorded participants' responses to these questions throughout the interview. Participants in one experimental condition answered the set of 32 repetitive questions every time they denied having engaged in one of the criminal or unethical behaviors (proximal consequence for denials–distal consequence for admissions) whereas those in the other experimental condition answered the set of 32 repetitive questions every time they admitted having engaged in one of the criminal or unethical behaviors (proximal consequence for admissions–distal consequence for denials). Because each repetitive question set required approximately 7 min to complete, the total time required to answer these questions had the potential to become substantial. For example, a participant whose interview responses required her or him to answer 8 sets of the repetitive questions would have spent nearly an hour on this task over the course of the interview. Although experimental participants could avoid the proximal consequence of the repetitive questions by giving the alternative interview response (e.g., an admission from participants assigned to receive the proximal consequence for each denial), doing so increased their risk of incurring the distal consequence of meeting with the police officer in several weeks. Control participants' interview responses were not associated with any consequences. Following the interview, participants were probed for suspicion and then debriefed.

Results and Discussion

Preliminary Analyses

Data transformation and effect sizes. The number of admissions participants made in response to the interview questions constituted the dependent variable, subsequently referred to as the admission rate. Because the admission rate was positively skewed, we square-root transformed it to reduce non-normality (Osborne, 2002). Although we used the transformed variable in the analyses, we also report raw score values for ease of interpretation. Effect sizes are reported as Cohen's *d* (Cohen, 1988) and are based on the transformed admission rate as are confidence intervals for reported mean differences.

Manipulation check. A frequency analysis indicated that all experimental participants correctly understood the contingency pairing that was associated with their interview responses.

Suspicion check. Examination of participants' responses to the suspicion check indicated that none were suspicious about the potential meeting with the police officer.

Main Analyses

We tested the hypothesis that the greater a consequence's proximity, the greater its influence on suspects' confession decisions by means of a one-way analysis of variance (ANOVA) followed by planned contrasts. The independent variable was the contingency pairing (i.e., proximal consequence for denials–distal consequence for admissions versus proximal consequence for admissions–distal consequence for denials versus no consequences). The dependent variable was the square-root transformed admission rate. Results indicated that the contingency pairing significantly influenced the admission rate, $F(2, 78) = 5.03$; $p = .009$ (Fig. 1). Therefore, we next compared the admission rate of participants in the two ex-

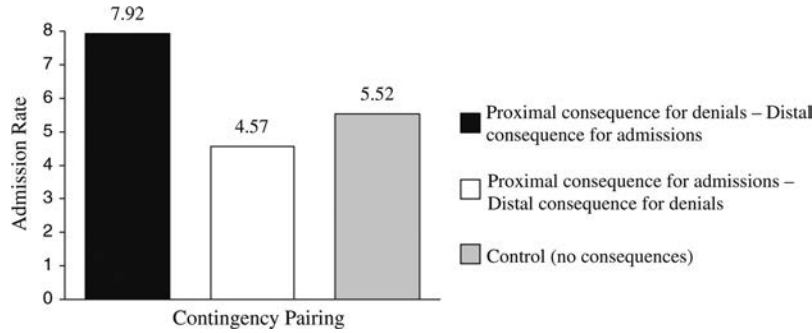


Figure 1. Results of Experiment 1. $N = 81$. Values reflect the admission rate of participants in each condition. The proximal consequence of answering the repetitive questions influenced the admission rate more strongly than the distal consequence of meeting with the police officer in several weeks.

perimental conditions to examine whether the pattern of means supported the hypothesis. Results indicated that participants who received the proximal consequence for denials and the distal consequence for admissions had a significantly higher admission rate ($M_{\text{transformed}} = 2.70$; $sd_{\text{transformed}} = .81$; $M_{\text{raw}} = 7.92$; $sd_{\text{raw}} = 4.39$) than participants who received the proximal consequence for admissions and the distal consequence for denials ($M_{\text{transformed}} = 1.97$; $sd_{\text{transformed}} = .85$; $M_{\text{raw}} = 4.57$; $sd_{\text{raw}} = 3.17$), $t(78) = 3.07$; $p = .003$; $d = .89$; 95% CI [.29, 1.17]. This result supports the hypothesis by showing that participants shifted their admissions to avoid the proximal consequence even though doing so increased their risk of incurring the distal consequence.

Having demonstrated support for the hypothesis, we next compared the admission rate of participants in each of the experimental conditions to the admission rate of participants in the control condition. These contrasts addressed whether the significant difference that we found between the two experimental conditions reflected a disproportional influence of one contingency pairing compared to the other. Results indicated that the admission rate of participants who received the proximal consequence for denials and the distal consequence for admissions ($M_{\text{transformed}} = 2.70$; $sd_{\text{transformed}} = .81$; $M_{\text{raw}} = 7.92$; $sd_{\text{raw}} = 4.39$) was significantly higher than the admission rate of control participants ($M_{\text{transformed}} = 2.15$; $sd_{\text{transformed}} = .96$; $M_{\text{raw}} = 5.52$; $sd_{\text{raw}} = 3.76$), $t = 2.27$; $p = .026$; $d = .63$; 95% CI [.07, 1.03]. By contrast, the admission rate of participants who received the proximal consequence for admissions and the distal consequence for denials ($M_{\text{transformed}} = 1.97$; $sd_{\text{transformed}} = .85$; $M_{\text{raw}} = 4.57$; $sd_{\text{raw}} = 3.17$) was not significantly different from the admission rate of control participants ($M_{\text{transformed}} = 2.15$; $sd_{\text{transformed}} = .96$; $M_{\text{raw}} = 5.52$; $sd_{\text{raw}} = 3.76$), $t = .79$; $p = .43$; $d = .20$; 95% CI [−.30, .66]. Accordingly, the tendency for the proximal consequence of the repetitive questions to influence the admission rate more strongly than the distal consequence of meeting with the police officer occurred primarily among participants who faced the proximal consequence for each denial of criminal or unethical behavior—the condition that most closely resembles the situation faced by criminal suspects during a police interrogation (Ofshe & Leo, 1997).

The findings of Experiment 1 supported the hypothesis that the more proximal a consequence, the greater its influence on the admission rate. However, Experiment 1 did not vary the timing of the two consequences. That is, although Experiment 1 did vary

whether admissions or denials were paired with a proximal or distal consequence, the repetitive questions were always the proximal consequence, and meeting the police officer was always the distal consequence. It was possible, therefore, that the effect we observed did not reflect a tendency for participants to admit to the criminal and unethical behaviors to avoid the proximal consequence rather than the distal consequence, but instead to avoid the repetitive questions rather than meet with the police officer. To address this possibility, we performed a second experiment in which we reversed the order of the proximal and distal consequences such that meeting with the police officer was the proximal consequence and answering the repetitive questions was the distal consequence. If the results of Experiment 1 were truly due to the differential proximity of the consequences, then in Experiment 2 the proximal consequence should again influence the admission rate more strongly than the distal consequence even though the proximal consequence would now be meeting with the police officer and the distal consequence would now be answering the repetitive questions.

Experiment 2

Method

Participants. Participants were 143 undergraduates enrolled in psychology courses at a Iowa State University who participated to satisfy a course requirement. There were 93 women and 50 men in the sample. Participants were all native English speakers, and included 2 African Americans, 4 Asians, 131 Caucasians, 1 Native American, and 5 participants who self-described as multi-ethnic.

Experimental design. Participants were randomly assigned to one of two conditions in a between-subjects experimental design. In both conditions, participants admitted or denied involvement in the same 20 behaviors used in Experiment 1 (Table 1), with each type of response paired with either a proximal or distal consequence. However, in Experiment 2, the proximal consequence was meeting with the police officer immediately after the interview to discuss their interview responses in greater detail, and the distal consequence was to return to the lab in several weeks to answer the repetitive questions. In one condition ($n = 76$), denials were paired with the proximal consequence (meeting with the police officer) and admissions with the distal consequence (an-

swering the repetitive questions). This contingency pairing was reversed for participants in the other condition ($n = 67$).

Procedures, measures, and materials. The procedures, measures, and materials were the same as those used in Experiment 1 except for the following modifications. To increase the believability that a police officer was indeed present in the lab, a jacket, hat, and badge resembling those used by police were displayed in plain sight of participants. In addition, prior to the interview and in the presence of each participant, the experimenter knocked on an interior lab room door and appeared to converse with the police officer, letting the officer know that another participant had arrived and that he may, therefore, “have another meeting” that day.

Other modifications were implemented to reverse the order of the consequences. Specifically, we added three bogus questions to the start of the interview. These bogus questions were designed to elicit from participants a response that would require them to answer the repetitive questions, thereby both enabling participants to personally experience their tedious nature and setting the stage for a subsequent feigned computer malfunction that would serve to make the repetitive questions the distal consequence. To accomplish this, participants assigned to answer the repetitive questions for each admission of criminal or unethical behavior were asked bogus questions that were expected to elicit admissions, including whether they had ever “parked illegally,” “failed to use a turn signal while changing lanes or while making a turn,” and “failed to come to a complete stop at a stop sign.” Participants assigned to answer the repetitive questions for each denial of criminal or unethical behavior were asked bogus questions that were expected to elicit denials, including whether they had ever “faked a high school diploma,” “bribed a public official,” and “deliberately used credit cards and/or checks illegally,” the latter of which was obtained from the illegal behavior checklist (McCoy et al., 2006). Note that there were 10 participants who failed to give the expected response to the bogus questions. Because this affected the timing of the feigned computer malfunction, these participants’ data were excluded prior to performing any of the analyses.

Immediately after the expected response to each of the first two bogus questions, participants answered the repetitive questions. However, after responding to the third bogus question, the computer appeared to malfunction, though in actuality this event was pre-programmed. After failed attempts to fix the problem, a supervisor instructed the experimenter to finish the interview and have the participant return to the lab in several weeks to answer the repetitive questions for each and every behavior to which the participant subsequently either admitted or denied, depending on condition. Thus, the feigned computer malfunction delayed the consequence of answering the repetitive questions for several weeks into the future, thereby making it the distal consequence.

Following the feigned computer malfunction, the experimenter continued the interview, which involved the same 20 questions regarding criminal and unethical behaviors used in Experiment 1. To continuously remind participants of the proximal and distal consequences that were paired with their admissions and denials, the experimenter kept a running tally of each participant’s interview responses on a form that was printed in large font and affixed to the wall in participants’ direct line of sight. The form included two blank columns with headers “Yes Responses” and “No Responses.” Beneath each header was a consequence sub-header:

“Meet with Police Officer” or “Answer Follow-up Questions,” with the particular pairing of response headers and consequence sub-headers matching the experimental condition to which participants had been assigned.

Finally, we revised the manipulation check item that assessed participants’ understanding of the contingency pairing so that it corresponded to the experimental manipulation that was used in Experiment 2. First, participants were asked whether or not they might have to meet with a police officer during their session. Response options were “Yes” and “No.” Second, participants were asked whether this meeting would take place if they tended to admit to or deny having engaged in the criminal and unethical behaviors that were assessed during the interview. Response options were “When I answered YES” and “When I answered NO.”

Results and Discussion

Preliminary Analyses

Data transformation and effect sizes. Replicating the distribution of data obtained in Experiment 1, the admission rate was positively skewed. Therefore, we used a square-root transformation of this variable in the main analysis and used values associated with the transformed variable to calculate effect sizes in terms of Cohen’s d (Cohen, 1988), as well as the confidence interval for the mean difference.

Manipulation check. We examined whether participants correctly understood the contingency pairing associated with their interview responses with two separate analyses. We used a frequency analysis to identify how many participants correctly understood that they might have to meet with a police officer during their session. All participants were told that they might have this meeting depending on how they answered the interview questions and 142 participants correctly reported that they understood that this meeting might take place. To examine whether participants correctly understood whether admissions or denials required them to have this meeting, we performed a Mann–Whitney U . The Mann–Whitney U is the non-parametric equivalent of a t -test. It tests for a difference between two medians (Gibbons & Chakraborti, 1992). Results indicated that participants were highly accurate when reporting the contingency pairing that was associated with their interview responses, $U = 595$; $p < .001$. Excluding participants who did not understand the contingency pairing from the analysis did not have any meaningful impact on the results.

Suspicion check. Examination of participants’ responses to the suspicion check revealed that five participants in the sample were suspicious about the potential meeting with the police officer. Excluding these participants from the analysis did not have any meaningful impact on the results.

Main Analysis

The data were analyzed with a t -test. The independent variable was the contingency pairing (i.e., proximal consequence for denials–distal consequence for admissions versus proximal consequence for admissions–distal consequence for denials). The dependent variable was the square-root transformed admission rate. Results indicated that participants who expected to meet with the police officer immediately after the interview for denials and to

answer the repetitive questions in several weeks for admissions had a significantly higher admission rate ($M_{\text{transformed}} = 2.02$; $sd_{\text{transformed}} = .79$; $M_{\text{raw}} = 4.69$; $sd_{\text{raw}} = 3.22$) than participants who expected to meet with the police officer immediately after the interview for admissions and to answer the repetitive questions in several weeks for denials ($M_{\text{transformed}} = 1.56$; $sd_{\text{transformed}} = .93$; $M_{\text{raw}} = 3.28$; $sd_{\text{raw}} = 2.90$), $t(141) = 3.16$; $p = .002$; $d = .53$; 95% CI [.18, .74] (Fig. 2).

Nearly identical results were obtained when the analysis excluded participants whose responses to the manipulation and suspicion checks indicated that they did not understand the contingency pairing and/or were suspicious about the potential meeting with the police officer. Specifically, participants who expected to meet with the police officer immediately after the interview for denials and to answer the repetitive questions in several weeks for admissions had a significantly higher admission rate ($M_{\text{transformed}} = 2.01$; $sd_{\text{transformed}} = .79$; $M_{\text{raw}} = 4.67$; $sd_{\text{raw}} = 3.13$) than participants who expected to meet with the police officer immediately after the interview for admissions and to answer the repetitive questions in several weeks for denials ($M_{\text{transformed}} = 1.55$; $sd_{\text{transformed}} = .95$; $M_{\text{raw}} = 3.30$; $sd_{\text{raw}} = 2.99$), $t(119) = 2.84$; $p = .005$; $d = .52$; 95% CI [.14, .78].

The findings of Experiment 2 replicated the pattern observed in Experiment 1: Participants shifted their admissions to avoid the proximal consequence and, by so doing, increased their risk of incurring the distal consequence. The fact that we observed this result in both experiments despite having reversed the order of the consequences across the two studies indicates that participants' admissions of criminal and unethical behaviors were influenced by the proximity of the consequences, and not simply by participants' aversion to answering repetitive questions or meeting with a police officer.

General Discussion

The findings of this research provided evidence in support of a general psychological process that has been implicated in the elicitation of criminal confessions (e.g., Follette et al., 2007; Kassin et al., 2010; Kassin & Gudjonsson, 2004), but which has not previously been tested by research relevant to police interrogation. The process demonstrated was one of temporal discounting whereby a proximal consequence influenced admissions of criminal and unethical behaviors more strongly than a distal consequence. Research relevant to decision-making under risk provides

a theoretical context in which to understand this result. When making decisions, people tend to equate proximity with certainty (for reviews, see Kalenscher & Pennartz, 2008; Rachlin et al., 1986). This tendency has important implications for suspects' confession decisions because it suggests that proximal consequences, which are perceived as relatively certain, may influence suspects' confession decisions more strongly than distal consequences, which are perceived as more probabilistic.

Consistent with this, our participants may have judged the distal consequence as less certain than the proximal consequence and, therefore, given it less weight when deciding whether or not to admit to the criminal and unethical behaviors. Participants may have based their perceptions of the relative uncertainty of the distal consequence on several rationalizations. They may have engaged in wishful thinking, hoping that the experimenter might forget to contact them. Or, they may have thought that they could avoid the experimenter's request to return to the lab by not responding to calls or emails. Or, they may have believed that, if contacted, they would be able to overcome the experimenter's authority as well as any demand characteristics associated with the situation and exercise their right to withdraw from the study—a right that we should parenthetically note was not exercised by any of our participants during their sessions despite the relative certainty of the proximal consequence. Thus, it is through these sorts of rationalizations that our participants may have judged the distal consequence as relatively uncertain and, therefore, viewed it as a risk worth taking.

Temporal Discounting: Explanatory Mechanism of Confessions

The idea that suspects may temporally discount distal consequences when making confession decisions may contribute to understanding several well-established findings reported in the confession literature. It may help explain why suspects sometimes confess to crimes to escape from police interrogation even though this behavioral strategy increases their risk of conviction and incurring severe penalties (Sigurdsson & Gudjonsson, 1996). Our results suggest that this paradoxical behavioral strategy may arise because suspects do not sufficiently weigh distal consequences when making confession decisions, and instead grant too much weight to the proximal consequences present during an interrogation. To the extent this occurs, suspects may find it psychologically easier to risk incurring the distal

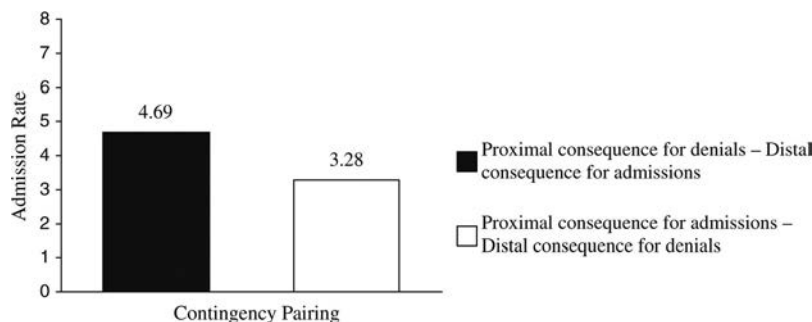


Figure 2. Results of Experiment 2. $N = 143$. Values reflect the admission rate of participants in each condition. The proximal consequence of meeting with the police officer immediately after the interview influenced the admission rate more strongly than the distal consequence of answering the repetitive questions in several weeks.

consequences levied by the judicial system in order to attain the short-term goal of ending a police interrogation.

Our findings may also help explain compliant false confessions whereby innocent suspects confess to crimes when pressured by police (Kassin, 2005; Kassin & Wrightsman, 1985). Part of the psychology underlying this phenomenon may be that innocent suspects exhibit an exaggerated tendency to discount distal consequences (Kassin et al., 2010; Kassin & Gudjonsson, 2004). Because innocent suspects strongly believe that their innocence will be apparent to interrogators and that the truth of their innocence will eventually be borne out (Kassin & Norwick, 2004), they may (wrongly) perceive the distal consequences facing them as remote and unlikely to materialize. As such, they may believe that they can falsely confess to a crime as a way to escape from an interrogation and yet not have to worry about the distal consequences associated with the crime due to the misperception that their innocence will protect them.

An exaggerated tendency to weigh proximal consequences more heavily than distal consequences may also be present among suspects with psychological vulnerabilities, including those with cognitive deficits, mental illness, substance dependence, as well as minors. These individuals, who are overrepresented among false confessors (Drizin & Leo, 2004; Redlich, 2007; Redlich & Drizin, 2007), tend to be impulsive (Owen-Kostelnik, Reppucci, & Meyer, 2006; Redlich & Drizin, 2007) and may, therefore, be particularly likely to take a short-sighted perspective when deciding whether or not to confess.

Finally, the effectiveness of interrogation methods to elicit confessions may partly reflect their ability to exacerbate the effect observed herein. Interrogation manuals, such as those describing the well-known Reid Technique (Inbau, Reid, Buckley, & Jane, 2001), explicitly make the point that a primary aim of police interrogation is to prevent suspects from worrying about the future, long-term consequences of a confession. Toward this end, police use an arsenal of interrogation methods that reduce the extent to which suspects consider the negative, distal consequences of a crime and direct their attention instead toward proximal and favorable consequences associated with a confession (e.g., catharsis, leniency, social approval). Thus, our research suggests that police interrogation practices may exacerbate a pre-existing tendency among suspects to favor short-term goals over long-term goals.

Interrogation methods may also exacerbate a shortsightedness among suspects by virtue of eliciting negative emotions. Research dating back to the 1950s indicates that negative emotions cause people to narrow their attentional focus to central and relevant information (Easterbrook, 1959). Therefore, common reactions to police interrogation, which include fatigue, despair, hopelessness, anxiety, and fear (Irving, 1980; Gudjonsson, 2003), may exacerbate the extent to which suspects make confession decisions on the basis of proximal consequences, ultimately creating a sort of *interrogation myopia* whereby suspects' choices are driven too much by the social influences operating during the immediate interrogation situation, and too little by their true, long-term interests.

Limitations

There are two limitations of our research that warrant discussion. First, ethical concerns precluded us from creating a situation as coercive as an actual police interrogation. For example, our partici-

pants faced consequences that were less severe than those faced by real suspects and they were questioned about their prior criminal and unethical behaviors in a physical environment that was less threatening than an interrogation room. In light of this, it is useful to consider whether our research can reveal underlying processes at play within real police interrogations. For at least two reasons, we believe it can. For one, the tendency of our participants to engage in temporal discounting when deciding whether or not to admit to criminal and unethical behaviors is consistent with current theoretical perspectives. Confession theorists have proposed that criminal suspects are motivated more by short-term goals than long-term goals (Follette et al., 2007) and that their behaviors are influenced more by short-term consequences than long-term consequences (Kassin et al., 2010; Kassin & Gudjonsson, 2004). Accordingly, current theoretical perspectives specifically hypothesize that criminal suspects engage in the very same process that our participants exhibited, thereby supporting the relevance of our findings to actual police interrogations. In addition, the experimental approach has proven to be an invaluable tool in the scientific discovery of psychological processes that underlie behavior in extraordinary circumstances (e.g., Asch, 1956; Haney, Banks, & Zimbardo, 1973; Latané & Darley, 1968; Milgram, 1974; Tajfel & Wilkes, 1963). We believe that our procedures similarly tapped a key psychological process that influences suspects' decisions to confess during police interrogation; namely, that suspects enter the interrogation context with a propensity to make short-sighted decisions.

A second limitation of our research pertains to our sample. We relied exclusively on college students who were homogenous in terms of age and ethnicity and who were probably less vulnerable to coercion than the typical suspect. Because of this, the magnitude of effects we observed may differ from those present in the naturalistic environment. However, it is important to understand the nature of this difference. Because our participants did not constitute a vulnerable population, our results are more likely to be conservative estimates of the causal effect of temporal discounting on confession decisions than they are to be overestimates.

Conclusion

The findings of this research supported the influence of temporal discounting on confession decisions. Participants shifted their admissions of criminal and unethical behaviors to avoid a proximal consequence even though doing so increased their risk of incurring a distal consequence. Although the complexity of the police interrogation context precludes any single psychological process from fully explaining the phenomenon of confessions, our findings provide the first experimental support for the hypothesis that suspects suffer from a short-sightedness during police interrogation that increases their risk for confession (Follette et al., 2007; Kassin et al., 2010; Kassin & Gudjonsson, 2004). By demonstrating the effect of temporal discounting, our findings also lend empirical support to recently recommended reforms to police interrogation (Kassin et al., 2010). Many commonly used police interrogation methods, such as lengthy interrogations, physical isolation, the presentation of false evidence, and minimization tactics, are specifically designed to emphasize to suspects the short-term, negative consequences of denials and to de-emphasize the long-term, negative consequences of a confession (Inbau et al., 2001). Our findings underscore the need to limit the use of such methods because of their potential to exploit a pre-existing vulnerability among

suspects to make short-sighted confession decisions, thereby increasing the likelihood that even innocent suspects will confess.

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