The mechanisms of minimization: How interrogation tactics suggest lenient sentencing through pragmatic implication

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These studies were registered on the Open Science Framework (<https://osf.io/c3hux/>). A preprint is available at <https://psyarxiv.com/etudk/>

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Abstract

Objective: Minimization is a legal interrogation tactic in which an interrogator attempts to decrease a suspect's resistance to confessing by, for example, downplaying the seriousness of the crime. These studies examined the extent to which minimization pragmatically implies that a suspect will receive a more lenient sentence in exchange for a confession.

Hypotheses: Generally, we predicted that participants who read an interrogation with a minimization theme or a direct promise of leniency would mistakenly expect more lenient sentences compared to a control condition if the suspect confessed to the crime. Hypotheses were preregistered prior to conducting each experiment.

Method: In six experiments (N s=413, 574, 496, 552, 489, 839), MTurkers read an interrogation transcript in which the suspect was (1) promised leniency, (2) subjected to minimization, or (3) questioned about the evidence (control). We tested whether warnings about direct promises and minimization induced people to adjust their expectations of sentence severity and also whether a warning could help people better calibrate their sentencing expectations.

Results: Moral minimization techniques decreased sentencing expectations after a confession ($d = 0.34$), by influencing the perceived severity of the crime ($d = .40$). Honesty themes, similar to illegal direct promises, led participants to infer that leniency would be forthcoming in exchange for a confession ($d = .60$). Warnings about leniency repaired sentencing expectations when participants read an interrogation with a direct promise, but were ineffective when an interrogator used minimization.

Conclusions: Contrary to the beliefs of American courts, which have allowed minimization but not direct promises to be used in interrogations, minimization does indeed impact sentencing expectations. There may be cause to review the legality of such tactics.

Keywords: pragmatic implication, interrogation, false confession, minimization

Public significance statement

These studies advance the field's knowledge about the effects of minimization, a legal interrogation tactic that courts assume do not lead to implications of leniency. Results suggest that minimization does imply leniency in part by influencing how people judge the severity of the crime. The effects of minimization may be difficult to correct because of their indirect nature, which may lead to more coerced confessions and the acceptance of these confessions in the criminal justice system.

The mechanisms of minimization: How interrogation tactics suggest lenient sentencing through pragmatic implication

In order to be admissible as evidence, a confession must be found to have been made voluntarily, that is, free from the influence of coercion (see *Culombe v. Connecticut*, 1961; *Rogers v. Richmond*, 1961). In *Bram v. United States* (1897), the US Supreme Court opined that, in order to be admissible, confession evidence must “not be extracted by any sort of threat or violence, not obtained by any direct or implied promises, however slight” (p. 542-543). Although this statement indicates that even slight implied promises that a confession will be rewarded with leniency would render a confession inadmissible, there is some inconsistency in the manner in which courts have ruled about implied promises and threats. Courts have often tolerated statements by police that may imply benefits for confessing and have sometimes ruled such statements as coercive. For instance, in *People v. Pugh* (1951), the court found that statements by an interrogator indicating that “it would be better to tell the truth” or “it would be better for you to confess” were coercive and therefore rendered a confession inadmissible (but see, e.g., *People v. Jimenez*, 1978). In contrast and more recently, in *United States v. Mashburn* (2005), the court ruled that it did not constitute a coercive promise of leniency for an interrogator to tell the suspect, “The only way you can help yourself... is... by an acceptance of responsibility....” (p. 305). The ambiguities of what constitutes an impermissible implied promise are highly important, since police often use an arsenal of interrogation tactics that may change suspects’ expectations of how they might be punished.

Interrogation Tactics

The broad term “minimization” is used to encompass a wide variety of commonly used “soft sell” interrogation tactics that we describe next (Kassin, 1997; Kassin et al., 2007; Kelly et

al., 2019; Leo, 1996). Because different techniques may function differently and research on this topic is scarce, the present studies specifically focus on the effects of two types of minimization: moral minimization and honesty themes. (Kassin et al., 2010; Kelly et al., 2019). First, the Reid Technique (Inbau et al., 2013) often recommends that interrogators develop a “minimizing theme” that, among other things, downplays the moral seriousness of the offense. The Reid manual provides the following example of blaming the victim: “*Joe, no woman should be on the street alone at night looking as sexy as she did...it’s too much of a temptation for any normal man*” (Inbau et al., 2013, p. 221). Such themes appear to correspond to the methods people use to manage and mitigate blame (see Malle, et al., 2014). Thus, it is plausible that moral minimization may influence suspects’ perception of how severe the crime was. Another type of minimization theme is one that insists to the suspect that honesty is critical. The interrogation of Brendan Dassey, made famous by the Netflix documentary series *Making a Murderer* (Demos & Ricciardi, 2015), contained numerous references to honesty and the truth (e.g., “*Honesty here, Brendan, is the thing that’s going to help you*”; “*...the honest person is the one who’s going to get the better deal out of everything*”; “*Honesty is the only thing that will set you free.*”; *Dassey v. Dittman*, 2018). The Reid Technique recommends the use of themes such as this for suspects who do not appear to be emotionally involved in the crime, for whom moral themes are thought to be ineffective (Inbau et al, 2013, see p.239-250).

Though the express goal of minimization is to decrease a suspect’s resistance to confessing, interrogation manuals and training caution interrogators against indicating that minimizing the moral seriousness of the crime will reduce the suspect’s criminal responsibility (Inbau et al, 2013, p.205). Indeed, courts have generally ruled that minimization is not coercive and does not constitute an implied promise of leniency (e.g., *Miller v. Fenton*, 1986; *United States v. Jacques*,

2014). However, Jayne and Buckley (1991), both co-authors of the recent editions of the Reid Manual, remark that it is plausible to expect that minimization tactics would result in a suspect drawing an inference that leniency is forthcoming (see p.28). The Reid Manual is clear that to the extent that a suspect infers a promise of leniency from minimization, it is due to motivated reasoning, or “wishful thinking” (Inbau et al., 2013, p. 213). This explanation suggests that there is nothing inherent to minimization that implies that leniency is forthcoming; rather, guilty suspects could draw self-serving inferences from the minimizing statements because such inferences suit their goals (see, e.g., Kruglanski et al, 2012). However, there is substantial reason to believe that many minimization tactics *pragmatically imply* a promise of leniency and inferences of leniency are not solely caused by a suspect’s motivations.

Pragmatic Implication and Inference

Pragmatic implication refers to the communication of a message “between the lines” of a statement, such that people arrive at an expectation or belief that is beyond what is necessarily denoted by the statement (Harris & Monaco, 1978). That is, pragmatic implication occurs when a message induces a receiver (a listener or reader) to draw an inference that is not strictly logically implied. For example, the statement, “The Psychology professor told a dull story about Hugo Münsterberg,” pragmatically implies, “The Psychology professor bored their students with a story about Hugo Münsterberg” (Brewer, 1977). Although the former statement does not *logically require* the latter to be true, people who hear the former tend to pragmatically infer the latter. Pragmatic implications and inferences are indispensable in everyday life, as people frequently make utterances that do not communicate their intended message with strict logical rigor. Harris and Monaco (1978) argued that pragmatic implication and inference occur because when a person receives a message, they seek to understand it by evaluating its literal meaning, by taking cues

from the situation, and by using their prior knowledge (Fredericksen, 1975). Guided by context, people rapidly comprehend the pragmatic implications of messages, effectively ignoring the strict logical implication as superficial and unimportant, and instead processing and remembering the pragmatic, gist meaning of the message. Indeed, after comprehending a message, people tend to quickly forget the surface properties of messages, such as exact phrasing and word order (Gernsbacher, 1985; Sachs, 1967).

When implied messages communicate inaccurate information, however, the effects can be pernicious. For example, in 2018, a California Court of Appeals ruled that a suspect in an interrogation was in police custody partly because of interrogators' use of the honesty minimization theme (*People v. Torres*, 2018). The court found that the police's insistence that the suspect should "tell the truth" essentially communicated to him, through pragmatic implication, that he would not be free to leave until he accepted and repeated the police's version of the facts.

Almost three decades before the California court's ruling, Kassin and McNall (1991) argued that minimization tactics in police interrogations communicate a pragmatically implied promise of leniency in exchange for a confession. In a series of studies, they demonstrated that when people read interrogation transcripts that featured minimization, they expected the suspect to be sentenced more leniently, compared to when they read transcripts featuring explicit threats of punishment, maximization (i.e., emphasizing the strength of evidence and severity of the crime), or direct questioning. In line with this finding, Horgan et al. (2012) found that minimization tactics induce suspects facing an accusation to view the potential consequences of confessing as less severe. Importantly, this change in expectations occurs despite the absence of a direct promise of leniency. Thus, minimization tactics may operate by leading suspects to draw an (incorrect) inference about how they will be treated later in the legal process.

Mechanisms of Minimization and a Resistance to Correction

Previous research supports the notion that minimization influences expectations of punishment and is broadly consistent with the hypothesis that minimization tactics pragmatically imply a promise of leniency. However, to the best of our knowledge, no studies have directly assessed whether and how the language of minimization tactics leads people to pragmatically infer a promise of leniency. The present studies were designed to expand and enrich our understanding of how minimization works. Specifically, we aimed to replicate the results of Kassin and McNall (1991), to examine whether minimization's influence on sentencing expectations is especially resistant to warnings or correction, and to assess the mechanisms through which minimization influences sentencing expectations.

There is reason to predict that pragmatically implied promises of leniency are more persistent in their influence on expectations of sentencing, compared to explicit promises of leniency. Recently, Rich and Zaragoza (2016) found that implied misinformation was even more resistant to corrections than explicit misinformation. In these studies, people were exposed to either explicit or implied misinformation, and some were provided with corrections for the misinformation. After receiving corrections for the inaccurate information, people who were exposed to implied misinformation were more likely to hold beliefs consistent with the misinformation, compared to those exposed to explicit misinformation. In the context of interrogations, these findings could mean that even if people are explicitly warned that the police are not able to guarantee leniency in exchange for a confession, they may have substantial difficulty adjusting their expectations about punishment in the appropriate direction.

Because minimization merely implies that a suspect will receive a lighter sentence in exchange for a confession, informing people that the police are not permitted to make promises

may be ineffective at disabusing people of the mistaken perception that a confession will lead to leniency. In practice, such warnings about leniency during or before interrogations may not occur often. Regardless of their prevalence, testing their effect can help shed light on the mechanisms by which interrogation tactics influence sentencing expectations.

Additionally, minimization tactics may communicate that the suspect will be punished more leniently through means other than inferring that the interrogator has offered leniency in exchange for a confession. For instance, minimizing themes that downplay the moral seriousness of the crime may lead to attenuated sentencing expectations by suggesting that the suspect is less blameworthy and thus less liable to punishment (see, e.g., Malle, Guglielmo, & Monroe 2014). Minimization tactics that emphasize the (vague) benefits of cooperating, such as an honesty theme, might implicitly communicate that one such benefit is mitigated punishment (see, e.g., Yang, Gyll, & Madon, 2016). Through changing the perceived severity of the crime or the perceived usefulness of cooperation, minimization may influence expectations of punishment, even in the absence of specific inferences that a promise of leniency has been made.

The Present Experiments

In the six experiments we present here, we investigate whether sentencing expectations can be influenced by the language of interrogation techniques – specifically moral minimization, development of an honesty theme, and a direct promise of leniency – and whether warnings about the lawfulness of the police promising leniency and information about the interrogation tactic of minimization can help correct sentencing expectations. We additionally investigate how the effects of these interrogation techniques might be mediated by inferences of leniency, perceptions of crime severity, and perceptions of the usefulness of cooperating with the police. Because of the large number of variables we measured and manipulated, the predictions are more intelligible once

the reader is familiar with the method. Thus, hypotheses are presented at the end of the Method section.

Method

Overview

We conducted six experiments using highly similar methods and nearly identical materials. The similarity of methods and measures permits us to combine the data from all six studies and analyze them simultaneously. Prior to the data collection of Study 6, we registered a plan to conduct analyses (and, thus, base our conclusions) on the combined data. We have taken this approach for two central reasons.

First, the most reliable inferences drawn from these data come from the aggregated data, rather than the individual studies. Some researchers have recommended the use of internal meta-analyses for similar purposes (Goh et al., 2016). Although meta-analytic methods provide numerous advantages, they are especially useful for combining results from disparate methods, in the absence of the original raw data. Here, methods are sufficiently similar and we have access to the original data, so there is no advantage of using meta-analysis, rather than combination of the raw data (sometimes called *mega-analysis*; Carlson & Miller, 1987). A mega-analytic approach also permits us closer examination of the data (e.g., their distributions), which meta-analysis would not. Second, presenting the results of six closely similar experiments might simply be cumbersome and difficult for readers to follow. This approach is highly streamlined compared to the presentation of separate studies. Other researchers have taken similar aggregated approaches to reporting numerous similar experiments (e.g., Heerdink et al., 2015).

However, we are mindful that a mega-analytic approach poses some potential disadvantages. One thing that is potentially deemphasized is the narrative of our reasoning that

occurred between each study. Over the course of the present project, our methodological decisions were influenced by the results of each study we conducted, as we analyzed the data and considered what to do next. That said, this problem is mitigated by the fact that we preregistered the methods and hypotheses for all studies reported here, and we have archived previous analyses, documentation, and the original data on the Open Science Framework (OSF) for any interested reader to peruse (<https://osf.io/c3hux>). An additional problem would arise if we selectively excluded studies or pilot tests that potentially could have been combined and presented here (Vosgerau et al., 2018). We confirm that we have excluded no studies in this series. That is, with respect to this project, our “file drawer” is empty (Rosenthal, 1979).

Participants

We recruited participants from Amazon’s Mechanical Turk (MTurk). For each study, we screened out those who had participated in previous studies in this project using TurkPrime (Litman et al., 2017). We restricted our recruitment to Workers who had completed at least 100 Human Intelligence Tasks (HITs) with a 90% approval rate. Participation required approximately 10 minutes, and participants were paid \$0.50. To ensure that participants were paying attention to the materials and procedures, we used an instructional manipulation check (IMC; Oppenheimer et al., 2009). We determined all sample sizes, stopping rules, and exclusion criteria in advance of each data collection.

The six studies had a total of $N = 3,363$ participants, after exclusions. Assuming a single observation per participant, this sample provides us with approximately .80 power to detect a regression coefficient of $f^2 = .003$ (equivalent to approximately $d = .11$), with a conventional alpha level of .05. Differences between the studies resulted in unbalanced experimental groups and in differing numbers of observations of dependent variables. As such, this sensitivity analysis should

be taken as an overall summary, rather than a power calculation for a specific hypothesis test. Participants were 65.2% female, 34.4% male, and 0.4% other genders. They were on average 38.9 years old ($SD = 12.6$, median = 36).

Design and Procedure

All of the present studies were approved by the institutional review board of John Jay College of Criminal Justice, at which both authors were affiliated at the time of data collection. Prior to data collection, each of the six studies was preregistered on OSF. For each study, brief descriptions of the registrations, participants, designs, and dependent measures are provided in Table 1. For added clarity, as we describe variables below, we note which studies included the manipulations and measures. All materials and data are available on OSF (<https://osf.io/c3hux/>). As can be seen in the Table 1, the sophistication of the registrations increases through the sequence of studies. This is because data collection for these six studies took place during a time at which the authors were familiarizing themselves with open science practices (see, e.g., Nosek et al., 2018). Simply put, we got better with practice.

Our procedures closely resembled those of Kassin and McNall (1991). In all conditions in all studies, participants read a one-page simulated police report that described the investigation of a burglary of a residence. After reading the report, participants read a transcript of an interrogation of a suspect of the burglary. Following the interrogation transcript, participants responded to the IMC and completed a dependent measures questionnaire.

Interrogation Technique

Across all studies (see Table 1), we varied the technique the interrogator used in the interrogation transcript. In the *control* condition (all studies), the interrogator reviewed the various pieces of evidence that were found at the scene of the crime (e.g. “I need to know why your prints

are in there. You need to tell me what happened because I don't get how your prints were in the house if you weren't involved in this thing."). In the *moral minimization* condition (all studies), the interrogator developed a theme that emphasized that the crime could have been more serious and that the suspect was not a morally abhorrent person (e.g. "This could have been way worse. You didn't hurt anyone...You're not some crazed killer, not some psychopath...What I'd guess is that you're just a guy looking to make a quick buck. And I get that."). In the *direct promise* condition (all studies), the interrogator stated that if the suspect confessed, he would receive a more lenient sentence (e.g. "...cooperation means a lot. It means the difference between you potentially, you know, going away for a long time or serving a lighter sentence."). In the *honesty theme* condition (Studies 5 & 6), the interrogator developed a theme that emphasized the importance and (unspecified) benefits of honesty. Much of the language and phrasing used in this condition was adapted from the interrogation of Brendan Dassey (e.g. "Honesty here is the thing that's gonna help you...No matter what you did, we can work through that, as long as you're honest with us"). The approximate length of the interrogation scripts was similar, and the suspect's responses to the interrogator's statements were identical in all conditions.

Warnings about Leniency and Minimization Tactics

We also manipulated whether participants received additional information about the lawfulness and objectives of interrogation tactics. Those who received a *leniency warning* (Studies 1, 2, & 3) were informed that promises of leniency were unlawful and that they should not expect a confession to result in a reduced sentence. Those who received a *minimization warning* (Studies 2 & 3) were informed that moral minimization is a tactic used by the police to obtain a confession and that it should not be interpreted as a signal that the police genuinely believe the crime was less severe than it in fact was. Those who received a *combined warning* (Study 4) received information

both about the unlawfulness of promises leniency and about minimization tactics. The text of these warnings is presented in the Appendix.

Those who received a warning read it either before or after reading the transcript. We varied the position of the warnings to account for the possibility that the pre- and post-warnings might have different effects. In the literature on misinformation, different warnings in different positions sometimes yield different changes to the magnitude of the misinformation effect (see, e.g., Blank & Launay, 2014; Oeberst & Blank, 2012). We had no hypotheses about the position of the warnings and found that there were no reliable effects of warning position, so in all analyses reported here, we have collapsed the position conditions.

Materials and Dependent Measures

After reading the interrogation transcript, participants then completed a questionnaire which contained our dependent measures. The specific measures varied across studies (see Table 1).

Sentencing Expectations

In all studies, participants reported how severely they expected the suspect to be punished if he were found guilty (1) after continuing to deny he committed the burglary (hereafter, *denial sentence*) and (2) after confessing to the crime (hereafter, *confession sentence*). Sentencing expectations were measured on a 10-point scale; a response of 1 indicated an expectation of the minimum sentence, whereas 10 represented the maximum sentence.

Explanatory variables

Beginning in Study 3, we measured a set of variables we thought might explain the influence of interrogation techniques on sentencing expectations.

Leniency inferences. After responding to the sentencing expectation items, participants read a series of statements making assertions about the outcome of the case (Studies 3, 4, 5, & 6). Three of those statements represented conditional *leniency inferences*, which indicated that the suspect was likely to receive a lighter sentence specifically in exchange for a confession (“If Clarence McDonald confesses to the crime, he will receive a lighter sentence”; “If Clarence McDonald continues to deny involvement in the crime, he will receive a harsher sentence”; “If Clarence McDonald confesses, the interrogator will convince the prosecutor to recommend a more lenient sentence”). Participants indicated whether or not the statement was *true*, *false*, or *cannot be determined* based on the material they had read. Each participant received a score of 0-3 indicating the number of inferences of that type they endorsed as true. We also assessed the endorsement of unconditional leniency inferences, but in the interest of space, we only present the results of conditional leniency inferences here. Results for these inferences can be found at <https://osf.io/mzdwe/>.

None of these statements corresponded to facts that were explicitly mentioned in the police report or interrogation (except in the direct promise condition, in which the interrogator explicitly offered a more lenient sentence in exchange for a confession). As such, endorsement of these statements as true corresponds to a pragmatic inference on the part of the participant. This method of endorsement of pragmatic inferences is similar to the measures used in the basic psycholinguistic literature (see, e.g., Harris, 1974; Harris & Monaco, 1978).

Embedded attention checks. To camouflage their purpose and to check participants’ attention, the inference statements were embedded in larger list of statements about basic facts concerning the crime (Studies 3, 4, 5, & 6), five of which were true and five of which were false (e.g., “Clarence McDonald is accused of murdering a resident of the house that was burglarized.”).

All statements were presented in a randomized order. We excluded participants who responded incorrectly to two or more of these factual statements.

Perceived crime severity. Participants rated the severity of the crime in question on a 10-point scale (Studies 5 & 6). A response of 1 represented “not severe at all,” and a response of 10 represented “extremely severe.” This question specifically referred to the seriousness of the offense and made no reference to the severity of the sentence the suspect was likely to receive.

Perceived usefulness of cooperation. Participants also rated the extent to which they thought it would improve the suspect’s outcome in court for him to cooperate with the police (Study 6). They responded to this item on 10-point scale. A response of 1 represented “not at all,” and a response of 10 represented “extremely.”

Manipulation Checks

As a check of the effectiveness of the leniency warning (Studies 1, 2, 3, & 4), participants reported whether police could legally offer leniency in exchange for a confession (*Yes*, *No*, or *I don’t know*). As a check of the effectiveness of the information provided about moral minimization (Studies 2, 3, & 4), participants completed a multiple-choice question about the definition of minimization. We did not exclude participants as a function of their response to these items.

Exploratory Measures

Finally, we included several exploratory measures in all studies. Participants estimated how many actually innocent and actually guilty suspects (out of 100) they thought would confess as a result of the interrogation they read. These measures are potentially useful to infer participants’ perceptions of how effective and how coercive the interrogation was. Participants also reported whether the interrogator had promised the suspect leniency in exchange for a confession (*Yes*, *No*,

or *I don't know*). This item is potentially useful for assessing whether participants perceived that the interrogator's actions constituted a promise of leniency.

We asked whether participants thought the suspect was innocent or guilty, and to rate their confidence in this perception on a 10-point scale (1 = not at all, 10 = extremely). Additionally, following Kassin and McNall (1991), participants indicated on 10-point scales (1 = not at all, 10 = extremely) how much pressure the interrogator put on the suspect, as well as how eager, sympathetic, fair, aggressive, and likeable he was. The data for all exploratory measures can be found at <https://osf.io/c3hux>.

Hypotheses

Our hypotheses evolved over the series of six experiments. Rather than enumerating all the many versions of the predictions we made, we have summarized them here. Our hypotheses, as they were proposed at the time, are available in the documentation for each study on OSF (see Table 1 for links to each registration).

Sentence Expectations

Interrogation technique. We predicted that, when no warning or minimization information was present, participants in the moral minimization condition and the direct promise condition would expect more lenient sentences if the suspect confessed to the crime (i.e. confession sentences), compared to the control condition. We also predicted that the honesty theme would produce effects similar to the moral minimization theme.

Warnings. Because our theoretical reasoning led us to expect that implied promises would be more difficult to correct than explicit promises, we expected that leniency warnings would be effective at changing people's sentencing expectations when a direct promise was present but not when moral minimization was used. Specifically, we expected the warning to increase confession

sentences in the direct promise condition but not in the moral minimization condition. Leniency warnings should not influence denial sentences because they specifically refer to promises of leniency in exchange for a confession. We included a minimization warning as an exploratory measure to test whether an informed layperson could effectively use that information to identify the tactic and adjust their sentence expectations accordingly.

Explanatory Variables

For the analysis of the explanatory variables, we were interested in the effects of interrogation techniques, not in the effects of the warnings. Thus, the following hypotheses pertain to the conditions in which no warning or minimization information was present.

Leniency inferences. We predicted that compared to the control condition, the direct promise and honesty theme conditions would draw a greater number of conditional leniency inferences because the core message communicated by the investigator in these interrogations is that a confession is “the difference between...going away for a long time or serving a lighter sentence” (direct promise) or “honesty...will set you free” (honesty theme).

Perceived crime severity. We predicted that the moral minimization condition would exhibit lower perceived crime severity, compared to the control condition.

Perceived Usefulness of Cooperation. We predicted that the direct promise and honesty theme conditions would exhibit higher perceived usefulness of cooperation, compared to the control condition.

Mediation analysis: Leniency inferences, perceived crime severity, and perceived cooperation usefulness. We were interested in testing whether the effect of interrogation techniques on confession sentences is mediated by leniency inferences, perceived crime severity, and perceived usefulness of cooperation. We were interested in these possible mediated

relationships in the absence of a warning, so all analyses were planned to be conducted on data from participants who received no warnings. We were specifically interested in the effects of interrogation techniques on confession sentences. We planned to test the following mediation models: (1) the effect of direct promises through leniency inferences, (2) the effect of an honesty theme through leniency inferences, (3) the effect of moral minimization through perceived crime severity, (4) the effect of direct promises through perceived usefulness of cooperation, and (5) the effect of an honesty theme through perceived usefulness of cooperation.

Results

We first address the manipulation checks. Next, we address our primary research question concerning sentencing expectations. Second, we then address the explanatory variables (leniency inferences, perceived crime severity, and perceived usefulness of cooperation). Third, we present the results of the causal mediation analyses that tie together the results on sentencing expectations and the explanatory variables.

Manipulation Checks

For the two manipulation checks, we preregistered that we would collapse the combined warning condition with the leniency warning and the minimization information condition respectively. However, we now believe that separating the conditions is more informative.

Leniency warnings. Participants who received a leniency warning or combined warning (leniency warning *and* minimization warning) were significantly more likely to indicate that they believed such promises were unlawful, $\chi^2(4) = 651.80, p < .001$, indicating that the manipulation was generally effective at delivering the intended message (see Table 2).

Minimization warning. Participants who received a minimization warning or the combined warning were significantly more likely to define minimization correctly, $\chi^2(2) = 541.45$,

$p < .001$, indicating that the manipulation was generally effective at delivering the intended message (see Table 2).

Sentencing Expectations

Analytic approach. Our primary research question concerned the extent to which interrogation techniques influence sentencing expectations. To account for the repeated measures and nested data structure (Gelman & Hill, 2012; Meteyard & Davies, 2020), we fit a linear mixed effects model predicting sentencing expectations. For this and other mixed effects models, we used the lme4 package (Bates et al, 2015) for R (R Core Team, 2018), supplemented with the lmerTest package (Kuznetsova, Brockhoff, & Christensen, 2017) to obtain Satterthwaite approximated degrees of freedom for the inferential tests. All reported mixed effects models used restricted maximum likelihood estimation. Each participant provided two measures of sentencing expectations, a confession sentence and a denial sentence. Thus, each participant provided two observations (total $N = 6,710$ valid observations). The model included fixed effects for *sentence type* (confession, denial), *interrogation condition* (control, moral minimization, direct promise, honesty theme), *leniency warning* (no warning, leniency warning, combined warning), *minimization warning* (no warning, minimization warning), and all applicable interaction terms. Each fixed effect used treatment contrasts (dummy coding), with the first listed condition for each factor as the reference group. The model included random intercepts for participants, nested in studies. The results of this analysis are presented in Table 3. Each coefficient displayed in the table is accompanied by a standardized effect size calculated by dividing the unstandardized coefficient by the standard deviation of sentencing expectations (see, e.g., Gelman & Hill, 2012). Additionally, for each coefficient, we have provided a brief interpretation.

Figures 1 and 2 illustrate the effects of interrogation technique, sentence type, and the warnings on sentencing expectations. Each panel of the figures contains several data visualizations. First, error bars are centered on the group means, and their vertical height represents the 95% confidence interval. Second, semi-transparent points represent raw data, quasi-randomly distributed to approximate a density distribution (i.e., a beeswarm plot; Clarke & Sherill-Mix, 2017; see Cumming, 2009; Cumming & Finch, 2005; Ho et al., 2019 for interpreting data visualizations).

Narrative Summary of Results

We first explain the pattern of sentencing expectations produced by each interrogation technique, in the absence of warnings or information about minimization. We then describe how the effects of the interrogation techniques are moderated by the presence of the leniency warning, the minimization warning, or the combined warning)

Broadly, we expected that moral minimization, direct promise, and honesty theme conditions would reduce confession sentences compared to the control condition. The results provided clear evidence that the interrogation tactics used in the transcript influenced participants' expectations of how the suspect would be sentenced if found guilty of the crime. Participants in the moral minimization condition expected significantly more lenient confession sentences and more lenient denial sentences, compared to the control condition. The decrease in sentencing expectations was approximately equal for both confession and denial sentences. Participants in the direct promise condition expected significantly more lenient confession sentences and harsher denial sentences. Contrary to expectations, the honesty theme did not significantly change confession or denial sentences, compared to the control condition.

Our reasoning about the continued influence effect led us to expect that the warnings about leniency would be effective at correcting people's expectations in the direct promise condition but not in the moral minimization condition, which would only imply that leniency was forthcoming. The observed effects of the warnings and minimization information did not support a continued influence idea. However, the data suggest that participants did not apply the warnings in a consistent or appropriate manner. Broadly speaking, there are two ways to misapply a warning in this context: (1) one can fail to adjust one's expectations when the subject of the warning occurs and (2) one can adjust one's expectations when the subject of the warning *does not* occur. Here, we see evidence that participants systematically committed the latter error and under some conditions committed the former error.

In the direct promise condition, participants who received the leniency warning expected more lenient denial sentences and harsher confession sentences. Put simply, participants who read that promises of leniency are forbidden in interrogations correctly applied the warning to situations in which the interrogator offered the suspect leniency in exchange for a confession. However, those who received the warning in the control condition, in which there were no direct or implied promises, used the warning inappropriately and also expected harsher confession sentences. These findings suggest that participants were indeed sensitive to the presence of promises of leniency but that they over-applied the warning to cases in which no promises occurred. In the moral minimization condition, the leniency warning had the same effect as it did in the control condition, leading participants to expect harsher confession sentences – but participants still thought the suspect would receive more lenient sentences overall, compared to the control condition. In other words, the leniency warning did not mitigate moral minimization's effect of lowering sentencing expectations.

The combined warning also resulted in participants inappropriately using the warnings when there were no direct or implied promises. Participants in the control condition expected harsher confession sentences and more lenient denial sentences when they received a combined warning, and this effect was not significantly magnified or mitigated in the other interrogation conditions. Thus, when provided with the combined warning about the lawfulness of promises of leniency and about minimization tactics, it seems that participants simply adjusted their expectations without regard to the actual content of the interrogation.

Unlike the leniency warning and the combined warning, presenting *only* a warning about minimization tactics did not have a significant effect on sentencing expectations in the control condition. Minimization warnings did, however, induce participants to expect harsher confession sentences and more lenient denial sentences in both the moral minimization and direct promise condition in nearly identical magnitudes ($d_s = 0.38$ and 0.31 respectively for confession sentences and 0.36 and 0.35 for denial sentences; see Table 4). Given that the direct promise condition did not involve minimization, these results suggest that participants again over-generalized the information with which they were provided.

Influence of Interrogation Conditions on Explanatory Variables

Leniency inferences. Our research questions pertaining to leniency inferences and other explanatory variables concerned the effects of the interrogation techniques under “typical” circumstances, in the absence of warnings. Thus, for these research questions, we analyze data only for conditions in which participants received no warnings. However, the results of all the forthcoming analyses concerning explanatory variables are highly similar when analyzing the data including conditions in which warnings appeared (for details, see <https://osf.io/etvuw/>). For additional analyses specifically pertaining to leniency inferences, see <https://osf.io/4dyq7/>.

Of all responses to the three conditional leniency inference statements, 26.2% were endorsements, 10.8% of statements were labeled false, and 62.8% were labeled unable to be determined (0.2% missing). Frequency distributions for the endorsement of conditional leniency inferences are presented in Figure 3. As before, we used a linear mixed effects model to predict conditional leniency inferences with interrogation condition (control condition as reference group), with random intercepts for each study. The results of this analysis are presented in Table 4.

We expected that the direct promise condition and the honesty theme condition would prompt people to draw conditional leniency inferences. In line with this prediction, participants in the direct promise condition and honesty theme condition endorsed significantly more conditional leniency inferences compared to the control condition. Indeed, for the direct promise condition, the modal number of conditional leniency inferences endorsed was the maximum (i.e., 3). Participants in the moral minimization condition did not endorse significantly more conditional leniency inferences compared to the control condition. In both the control and moral minimization condition, the vast majority of participants endorsed zero conditional leniency inferences.

Recall that the leniency inference measures asked participants whether each statement was true based on the case materials, not whether they perceived there to be a direct promise in the interrogation. Additionally, as an exploratory measure, we directly asked participants to indicate whether the interrogator made a promise of leniency in exchange for a confession (see Table 2). Participants in the direct promise condition more frequently perceived there to be a promise of leniency, compared to the control condition, $\chi^2(2) = 657.55, p < .001$. Participants in the direct promise condition also more frequently perceived there to be a promise of leniency, compared to the honesty theme condition, $\chi^2(2) = 121.31, p < .001$. Participants in the honesty theme condition also more frequently perceived there to be a promise of leniency, compared to the control

condition, $\chi^2(2) = 265.46, p < .001$. This increase was substantial, with almost half of participants (46.2%) in the honesty theme condition indicating that there was a promise of leniency in the interrogation, compared to 2.8% in the control condition.

Perceived crime severity. We hypothesized that moral minimization might operate by making the crime seem less severe. To test this prediction, we fit a linear mixed effects model predicting perceived crime severity with interrogation condition (control condition as reference group), with random intercepts for each study. The results of this analysis are presented in Table 5. Consistent with the prediction, participants in the moral minimization condition rated the crime as significantly less severe compared to the control condition. Neither direct promises nor the honesty theme significantly influenced perceptions of crime severity.

Perceived usefulness of cooperation. We measured the extent to which participants thought that cooperating with the police would improve the suspect's outcome in court. We hypothesized that the honesty theme might operate by giving people the impression that cooperating with the police would lead to better legal outcomes later. To test this, we compared each interrogation condition to the control condition using a linear regression model predicting perceived usefulness of cooperation (see Table 6). In our preregistration, we incorrectly specified linear mixed effects models for analyses related to this measure. However, because we only measured perceived usefulness of cooperation in Study 6, there are no random effects. Thus, we corrected this when we conducted the analyses.

Participants in the direct promise and honesty theme condition reported that they thought the suspect's outcome in court would be significantly worse if he cooperated with the police, compared to the control condition. This pattern was opposite what we predicted. However, as one might expect, perceived usefulness of cooperation was negatively correlated with confession

sentences, $r(834) = -.29, p < .001$. That is, the more participants reported they thought cooperation would be useful for the suspect in court, the more leniently participants thought suspects would be sentenced if they confessed. The measure, therefore, appears to sensibly predict sentencing expectations, but interrogation techniques are not influencing ratings in the manner we hypothesized.

Mediation Models

We tested three mediation models to assess the plausibility of hypothesized causal mechanisms for the influence of moral minimization, direct promises, and the honesty theme on confession sentences. We preregistered two additional models, testing the mediating role of perceptions of the usefulness of cooperation for direct promises and the honesty theme. However, because of the unexpected negative relationship between those interrogation techniques and the hypothesized mediator, we opted not to report those models here, as they do not imply an easily intelligible causal relationship.

For the three models we ultimately fit, we used the data from participants who received no warnings and no minimization information, and we compared the interrogation condition in question to the control condition. In our preregistration, we incorrectly specified our R code such that we failed to exclude data from participants who received minimization information. We corrected this mistake when we conducted the analyses. As it happens, including those who received minimization information does not substantively impact the results. Indeed, including the data from all conditions in which warnings appeared produces essentially identical results (see <https://osf.io/ajecw/>).

Mediation models were fit with the mediation package (Tingley et al., 2014) for R, with standard errors approximated with 10,000 bootstrap samples. The constituent linear mixed effects

models (i.e., independent variable predicting mediator; independent variable and mediator predicting outcome variable) were fit using lme4, with random intercepts for each study. We also conducted a series of robustness checks to assess the plausibility of the causal direction being opposite of what our analyses assume (i.e., that changes in sentencing expectations cause changes in the hypothesized mediators). These checks and supplemental arguments about the plausibility of the causal relationships implied by the models are available here: <https://osf.io/6jmc7/>.

Effect of direct promises mediated by leniency inferences. We hypothesized that direct promises might decrease confession sentence expectations through leniency inferences. The results of this mediation analysis are displayed in Figure 4. The paths from the direct promise condition to leniency inferences and from inferences to confession sentences indicated significant effects, and the indirect effect of the direct promise condition through conditional leniency inferences was also significant.

Effect of the honesty theme mediated by leniency inferences. We hypothesized that the honesty theme might decrease confession sentence expectations through leniency inferences. The results of this mediation analysis are displayed in Figure 5. The paths from the honesty theme condition to conditional leniency inferences and from inferences to confession sentences indicated significant effects, and the indirect effect of the direct promise condition through leniency inferences was also significant. However, recall that the honesty theme did not have a significant direct effect on confession sentences (see Table 4). There are situations in which a mediating relationship is plausible despite the independent variable not being a significant predictor of the outcome variable, but this situation imposes constraints on what relationships between these variables are plausible (Baron & Kenny, 1986; MacKinnon et al., 2000; Shrout & Bolger, 2002). One possibility is that the honesty theme caused multiple effects on sentence expectations that

approximately canceled each other out, but we only assessed the mechanism of one such effect through conditional leniency inferences.

Effect of moral minimization mediated by perceived crime severity. We hypothesized that moral minimization might decrease confession sentence expectations through perceived crime severity. The results of the corresponding mediation analysis are presented in Figure 6. Consistent with the hypothesis, each direct path and the indirect path of moral minimization through perceived crime severity indicated a significant effect.

Discussion

In six experiments, we find evidence that minimization techniques influence people's expectations of how severely a suspect will be punished if found guilty. Specifically, we found that moral minimization induces people to view the crime as less severe, which in turn predicts reduced sentencing expectations. As operationalized here, moral minimization does not appear to induce participants to perceive that the interrogator had made a direct promise of leniency. Examining the effect of moral minimization on conditional leniency inferences (Table 4), we can see that the confidence interval excluded effects larger than negligibly small (upper bound equivalent to $d = 0.18$; see, e.g., Wellek, 2010). Instead, it seems that moral minimization succeeded in communicating that the suspect's blameworthiness is objectively (and therefore, legally) mitigated, such that observers expected the suspect would receive a lighter sentence (see Malle et al., 2014).

However, we found that the development of a theme that emphasized the importance of honesty (of the same kind that was used in the infamous interrogation of Brendan Dassey) led people to draw pragmatic inferences that the suspect will receive more lenient treatment if they confess. Indeed, almost half the participants exposed to the honesty theme (46.2%) reported that

the interrogator made a direct promise of leniency – even though no such promise was present in the language of the interrogation. However, the honesty theme as operationalized here had little to no effect on perceived crime severity, as one can see by the confidence interval for its effect (Table 5; lower bound equivalent to $d = -0.20$). Thus, different minimization tactics (e.g., themes) appear to operate by different psychological mechanisms.

Warnings

Minimization appears to have the pernicious effect of making people expect leniency even in the face of warnings that police cannot influence sentencing. In situations in which a suspect inquires about the consequences of confessing, the Reid Manual recommends warning suspects that the interrogator does not have the authority to promise leniency. They provide the following model dialogue for such a situation:

Suspect: “What would happen if I told you I did this?”

Interrogator: “...I’m not in a position to tell you what might happen. I can’t tell you that if you tell the truth about this here is what’s going to happen because I don’t have that authority.” (Inbau et al., 2013, p.274)

This language is similar in content to our warning about the lawfulness of promises of leniency by the police. Our results suggest that people may not apply such warnings appropriately. Warnings increased confession sentences across all interrogation techniques, including in the control condition where no minimization was used or direct promises were made. This pattern of results suggests that people may be in some ways sensitive to warnings but not specific in their application of their content. These results also suggest that our hypothesized continued influence mechanism is not at play here, since warnings changed expectations even in conditions that merely

implied leniency. Perhaps the warnings are ineffective because the warnings do not specifically target and counteract the mechanisms by which the techniques seem to operate.

However, speaking against this possibility, the warnings about moral minimization we provided included a statement about how the tactic should not be taken as an indication that the crime was less severe than it was, yet this information also affected sentencing expectations in the direct promise condition, in which people's perceptions of the severity of the crime were otherwise unaffected. It is not clear why this occurred. Future research would be required to more closely examine these issues. In any case, warnings may be inadequate for redressing the mistaken inferences that people are prone to make when exposed to minimization, and thus that in this case, preventative measures (e.g., prohibiting minimization) are more valuable than corrective ones.

Implications

In the United States, a confession is only admissible as evidence if it was given "voluntarily" (e.g., *Culombe v. Connecticut*, 1961). Recognizing that an offer of leniency might erode voluntariness, courts have been consistent in their prohibition on directly promising leniency in order to obtain a confession. Importantly, participants in the present studies interpreted the honesty theme similar to a direct promise—indeed, participants mistook the honesty theme as a direct promise almost half the time (46.2%). This finding should thus raise concern for the legality of this tactic.

The potential constitutionality of moral minimization, however, requires careful legal consideration. Directly addressing the Court's concern about promises of leniency, interrogation manuals that advise the development of minimizing themes emphasize that interrogators should take care not to downplay the *legal* seriousness of the crime (e.g., Inbau et al., 2013; Zulawski & Wicklander, 2000). Courts have been more tolerant of interrogators downplaying the *moral*

seriousness of crimes (e.g., *United States v. Jacques*, 2014). However, to the extent that the lawfulness of moral minimization has turned on the assumption that it does not cause people to misperceive the legal consequences of their actions, the present studies pose potential problems for the courts' decisions. Our results show that moral minimization does indeed influence sentence expectations by diminishing the severity of the crime. The message that the crime is less severe may communicate that the crime is legally mitigated. Though this is not the same as a promise of leniency, the present results suggest that moral minimization may have the capacity to influence a suspect's decision-making process in a coercive manner by implying less severe consequences (even in the absence of motivation, described later). These processes may help explain why moral minimization tactics are effective at eliciting confessions, both among the guilty and the innocent (Horgan et al., 2012; Russano et al., 2005).

Additionally, the development of an honesty theme appears to be capable of implying a promise of leniency in exchange for a confession. Such promises are unlawful, but courts have upheld the use of the honesty themes. To what extent is an interrogation technique permissible if it has effects that are psychologically parallel to tactics that have been prohibited? To our knowledge, the courts have not directly addressed the constitutionality of this issue, but given the present data, it appears to be central to the viability of moral minimization and the development of honesty themes.

Limitations and Future Directions for Research

In addition to the other areas in which future research can provide additional clarity, we would like to mention three domains related to the design and results of the present studies that may be worthy of further attention: (1) motivation, (2) sentencing expectations, and (3) stimulus sampling.

Motivation.

“Through wishful thinking a suspect might surmise in his own mind, because his crime could have been much worse, he is due some leniency in court. An investigator cannot be held accountable for a guilty suspect’s wishful thinking” (Inbau et al., 2013, p. 213).

In the excerpt from the Reid Technique manual, the authors articulate a motivational explanation for minimization’s effectiveness at producing confessions: A transgressor is psychologically incentivized to believe the minimizing theme, so they are more willing to confess. This explanation is at odds with the pragmatic implication explanation. Participants in the present studies had no incentive to expect that the suspect would or should be punished more leniently or harshly, yet the tactics changed their sentencing expectations. Moral minimization – a staple of the Reid Technique – led disinterested observers to infer that the subject of such tactics would be punished less severely.

Although we believe the lack of participant motivation strengthens the conclusion regarding pragmatically implied leniency (i.e., what matters is the language used in the tactics, not the suspect’s motivation), it does limit the extent to which we can draw inferences about the perceptions and behavior of real suspects. There is good reason from past research to believe that many minimization tactics indeed cause suspects to perceive the consequences of confessing to be less severe (e.g., Horgan et al., 2012). However, previous laboratory research on interrogation has generally not made distinctions between minimizing themes. Thus, it would be useful to conduct experiments with psychologically realistic paradigms, with motivated suspects, to assess the extent to which the various mechanisms we argue are at play here generalize. Observational studies are also needed to estimate the prevalence of various minimization themes.

Sentencing Expectations. Across all the conditions in the present studies, there was a strong and reliable tendency for people to expect harsher denial sentences compared to confession sentences. Although this pattern was highly consistent, it is somewhat difficult to interpret, as it could be a reflection of several psychological processes. Perhaps people have an intuitive notion that confessing tends to lead to lower sentences. For instance, they might expect that confessors are more likely to plead guilty and thus be sentenced more leniently. Alternatively, perhaps this is a moral intuition that confessing would connote remorse or entail an apology (or at least an acceptance of responsibility), which might in turn mitigate moral blameworthiness (see, e.g., Malle et al., 2014). Measuring sentencing expectations with different methods (e.g., different question wording; in different contexts) may shine light on why this pattern emerged.

Stimulus sampling and materials. Examining the effects of interrogation techniques required a control condition for comparison. Constructing a truly neutral interrogation for a control condition is likely impossible (without making the situation extremely artificial), but selection of a control condition is important, as it sets the benchmark against which the other techniques are compared. Here, the control condition entailed an interrogation of similar length to the others by focusing on the evidence recovered from the crime scene. It may be worthwhile for future research to examine other reasonable control interrogations.

Another limitation of the present experiments is the relatively small set of stimuli. We used nearly identical materials across the studies (i.e., the same case report, highly similar interrogation transcripts). Although this consistency provides powerful evidence of the local replicability of the results (see, e.g., Simons, 2014), it is not clear the extent to which these results would generalize to other materials and contexts. Because similar results have been observed previously with different sets of materials (Kassin & McNall, 1991), we would be surprised if the results did not

replicate across other contexts, but this is an issue that should be resolved with data. We encourage other researchers to make use of our open materials and procedures for replications and extensions.

Conclusion

Taken together, these studies raise concerns about the dangers of minimization—a technique that US courts have distinguished from illegal direct promises of leniency. The results of the present experiments demonstrate that two types of minimization suggest that a confessor will receive a lighter sentence either by decreasing the perceived severity of the crime (moral minimization) or by implying that cooperating with the police will result in a more lenient punishment (honesty theme). Alarming, warnings that specifically state that minimization is a ploy that will not result in more lenient sentences fail to work appropriately and appear to have a blanket effect on sentencing expectations, rather than a calibrated one. The tactics examined in these studies are only two of a multitude of different types of minimization, the psychological mechanisms of which have only just recently begun to be empirically scrutinized. Such research may provide invaluable evidence for courts to evaluate if and when they revisit the lawfulness of minimization tactics.

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Tables and Figures

Table 1. *Overview of the present studies*

Study	Registration	Sample prior to exclusions	Final sample size	Design	Main dependent measures
1	Hypotheses, Sample, Exclusions (osf.io/fzp6g)	455	413	3 (<i>interrogation</i> : control, moral minimization, direct promise) x 2 (<i>leniency warning</i> : present, absent)	Sentencing expectations
2	Hypotheses, Sample, Exclusions (osf.io/rckf2)	628	574	3 (<i>interrogation</i> : control, moral minimization, direct promise) x 2 (<i>leniency warning</i> : present, absent) x 2 (<i>minimization warning</i> : present, absent)	Sentencing expectations
3	Hypotheses, Sample, Exclusions, Analyses (osf.io/ypvmj)	756	496	3 (<i>interrogation</i> : control, moral minimization, direct promise) x 2 (<i>leniency warning</i> : present, absent) x 2 (<i>minimization warning</i> : present, absent)	Sentencing expectations, Pragmatic inferences
4	Hypotheses, Sample, Exclusions, Analyses, Code (osf.io/pd4zv)	635	552	4 (<i>interrogation</i> : control, moral minimization, direct promise, honesty theme) x 2 (<i>combined warning</i> : present, absent)	Sentencing expectations, Pragmatic inferences
5	Hypotheses, Sample, Exclusions, Analyses, Code (osf.io/sgf4v)	598	489	4 (<i>interrogation</i> : control, moral minimization, direct promise, honesty theme)	Sentencing expectations, Pragmatic inferences, Crime severity
6	Hypotheses, Sample, Exclusions, Analyses, Code (osf.io/sx9zg)	996	839	4 (<i>interrogation</i> : control, moral minimization, direct promise, honesty theme)	Sentencing expectations, Pragmatic inferences, Crime severity, Cooperation usefulness
Combined	Hypotheses, Sample, Exclusions, Analyses, Code (osf.io/sx9zg)	-	3,363		(Full dataset available here: osf.io/brz73/)

Table 2.

Descriptive statistics for manipulation checks and explanatory variables

Manipulation checks					
<i>Lawfulness of leniency</i>					
Condition	Lawful	Unlawful	I don't know		
No warning	18.2% (158)	33.7% (293)	48.2% (419)		
Leniency warning	7.0% (63)	87.6% (793)	5.3% (48)		
Combined warning	11.7% (30)	83.3% (214)	5.1% (13)		
<i>Definition of minimization</i>					
Condition	Correct	Incorrect			
No warning	27.5% (202)	72.2% (532)			
Minimization warning	84.4% (532)	15.6% (98)			
Combined warning	85.2% (219)	14.8% (38)			
Explanatory variables					
<i>Conditional leniency inferences</i>					
Condition	Mean	SD	Median	Mode	<i>n</i>
Control	0.39	0.79	0	0	446
Moral minimization	0.46	0.86	0	0	453
Direct promise	1.67	1.25	2	3	451
Honesty theme	1.07	1.18	1	0	396
<i>Perceived crime severity</i>					
Condition	Mean	SD	Median	<i>N</i>	
Control	5.78	1.95	6	323	
Moral minimization	4.99	2.04	5	330	
Direct promise	5.68	1.80	6	342	
Honesty theme	5.67	1.98	6	329	
<i>Perceived usefulness of cooperation</i>					
Condition	Mean	SD	Median	<i>N</i>	
Control	6.35	2.57	7	214	
Moral minimization	6.28	2.78	7	205	
Direct promise	5.74	2.53	6	212	
Honesty theme	5.13	2.58	5	207	
<i>Perceived presence of a promise of leniency</i>					
Condition	Yes	No	I don't know		
Control	2.8% (14)	93.7% (476)	3.5% (18)		
Moral minimization	8.5% (43)	84.6% (429)	6.9% (35)		
Direct promise	80.9% (427)	16.3% (86)	2.8% (15)		
Honesty theme	46.2% (183)	46.7% (185)	7.1% (28)		

Note: Whenever row percentages are displayed, frequency counts are in parentheses. For the explanatory variables, descriptive statistics are for conditions with no warnings or minimization information.

Table 3.

Linear mixed effects model results for the effect of interrogation condition, leniency warnings, and minimization information on confession and denial sentences

Fixed effects	Unstandardized coefficient (b)	SE	Standardized effect (d)	t	df	p-value	Brief interpretation
Intercept (Control, confession sentences, no warnings)	5.41	0.10		54.89	5266.49	<.0001	
Moral Minimization	-0.83 [-1.10, -0.56]	0.14	-0.34	-5.98	5275.65	<.0001	Moral minimization significantly reduced confession sentences compared to the control condition.
Direct Promise	-0.59 [-0.86, -0.32]	0.14	-0.24	-4.27	5275.65	<.0001	Direct promises significantly reduced confession sentences compared to the control condition.
Honesty Theme	-0.13 [-0.42, 0.16]	0.15	-0.05	-0.86	5275.63	.39	The honesty theme did not have a significant effect on confession sentences, relative to the control condition.
Leniency Warning	0.55 [0.18, 0.92]	0.19	0.22	2.84	5273.42	.005	The leniency warning significantly increased confession sentences in the control condition.
Combined Warning	0.88 [0.27, 1.49]	0.31	0.36	2.82	5274.55	.005	The combined warning significantly increased confession sentences in the control condition.
Minimization Warning	-0.16 [-0.65, 0.33]	0.25	-0.07	-0.65	5274.35	.52	Information about minimization did not significantly affect confession sentences in the control condition.
Denial Sentences	1.80 [1.60, 2.00]	0.10	0.74	18.65	3355.00	<.0001	Denial sentences were expected to be significantly harsher than confession sentences in the control condition.
<i>Two-way interactions</i>							
Moral Minimization x Leniency Warning	0.31 [-0.22, 0.84]	0.27	0.13	1.15	5275.65	.25	The effect of leniency warnings on confession sentences did not significantly change in the moral minimization condition compared to the control condition.
Direct Promise x Leniency Warning	0.99 [0.44, 1.54]	0.28	0.40	3.54	5275.65	<.0001	Leniency warnings significantly increased confession sentences in the direct promise condition, beyond their effect in the control condition.
Moral Minimization x Combined Warning	0.24 [-0.62, 1.10]	0.44	0.10	0.54	5275.65	.59	The effect of the combined warning on confession sentences did not significantly change in the moral minimization condition compared to the control condition.
Direct Promise x Combined Warning	0.50 [-0.32, 1.32]	0.42	0.21	1.20	5275.65	.23	The effect of the combined warning on confession sentences did not significantly change in the direct promise condition compared to the control condition.

Honesty Theme x Combined Warning	-0.08 [-0.90, 0.74]	0.42	-0.03	-0.18	5275.65	.86	The effect of the combined warning on confession sentences did not significantly change in the honest theme condition compared to the control condition.
Moral Minimization x Minimization Warning	0.93 [0.22, 1.64]	0.36	0.38	2.55	5275.65	.01	Information about minimization significantly increased confession sentences in the moral minimization condition.
Direct Promise x Minimization Warning	0.75 [0.04, 1.46]	0.36	0.31	2.09	5275.65	.04	Information about minimization significantly increased confession sentences in the direct promise condition.
Moral Minimization x Denial Sentences	-0.04 [-0.31, 0.23]	0.14	-0.02	-0.33	3355.00	.74	Moral minimization reduced denial sentences in a magnitude similar to its effect on confession sentences.
Direct Promise x Denial Sentences	1.06 [0.81, 1.31]	0.13	0.44	7.85	3355.00	<.0001	Direct promises led people to expect significantly harsher denial sentences compared to the control condition.
Honesty Theme x Denial Sentences	0.25 [-0.04, 0.54]	0.15	0.10	1.73	3355.00	.08	The honesty theme did not have a significant effect on denial sentences beyond the increase already observed in the control condition.
Leniency Warning x Minimization Warning	0.38 [-0.33, 1.09]	0.36	0.15	1.03	5275.45	.30	Minimization information did not significantly change the effect of the leniency warning on confession sentences in the control condition.
Leniency Warning x Denial Sentences	-0.53 [-0.90, -0.16]	0.19	-0.22	-2.80	3355.00	.005	The leniency warning had an apparent effect on confession sentences but not denial sentences.
Combined Warning x Denial Sentences	-0.99 [-1.60, -0.38]	0.31	-0.41	-3.25	3355.00	.001	The combined warning significantly decreased denial sentences in the control condition.
Minimization Warning x Denial Sentences	-0.28 [-0.77, 0.21]	0.25	-0.12	-1.13	3355.00	.26	Minimization information did not significantly influence denial sentences in the control condition.
<i>Three-way interactions</i>							
Moral Minimization x Leniency Warning x Minimization Warning	-0.59 [-1.59, 0.41]	0.51	-0.24	-1.15	5275.65	.25	The effect of leniency warnings on confession sentences did not significantly change in the moral minimization condition when minimization information was present, compared to the control condition.
Direct Promise x Leniency Warning x Minimization Information	-0.85 [-1.87, 0.17]	0.52	-0.35	-1.64	5275.65	.10	Minimization information did not significantly change the effect of leniency warnings on confession sentences in the direct promise condition.
Moral Minimization x Leniency Warning x Denial Sentences	-0.06 [-0.57, 0.45]	0.26	-0.02	-0.22	3355.00	.83	Leniency warnings did not significantly change moral minimization's reduction of denial sentences.
Direct Promise x Leniency Warning x Denial Sentences	-1.37 [-1.90, -0.84]	0.27	-0.56	-5.02	3355.00	<.0001	The leniency warning significantly decreased denial sentences in the direct promise condition, beyond the effect in the control condition.
Moral Minimization x Combined Warning x Denial Sentences	0.71 [-0.13, 1.55]	0.43	0.29	1.65	3355.00	.10	The combined warning did not significantly change moral minimization's reduction of denial sentences.
Direct Promise x Combined Warning x Denial Sentences	-0.55 [-1.35, 0.25]	0.41	-0.23	-1.33	3355.00	.18	The combined warning did not significantly change the direct promise's increase of denial sentences.

Honesty Theme x Combined Warning x Denial Sentences	0.31 [-0.49, 1.11]	0.41	0.13	0.76	3355.00	.44	The combined warning did not significantly change the honesty theme's (nonsignificant) effect on denial sentences.
Moral Minimization x Minimization Warningx Denial Sentences	-0.35 [-1.06, 0.36]	0.36	-0.14	-0.98	3355.00	.33	Minimization information did not significantly change moral minimization's reduction of denial sentences.
Direct Promise x Minimization Warningx Denial Sentences	-0.30 [-0.99, 0.39]	0.35	-0.12	-0.85	3355.00	.39	Minimization information did not significantly change the direct promise's increase of denial sentences.
Leniency Warning x Minimization Warningx Denial Sentences	-0.10 [-0.81, 0.61]	0.36	-0.04	-0.29	3355.00	.77	Minimization did not significantly change the tendency for leniency warnings to decrease denial sentences in the control condition.
Four-way interactions							
Moral Minimization x Leniency Warning x Minimization Warningx Denial Sentences	0.65 [-0.33, 1.63]	0.50	0.27	1.30	3355.00	.19	When both leniency warnings and minimization information were present, moral minimization's reduction of denial sentences was not significantly changed.
Direct Promise x Leniency Warning x Minimization Warningx Denial Sentences	0.64 [-0.36, 1.64]	0.51	0.26	1.26	3355.00	.21	Minimization information did not significantly change the effect of leniency warnings on denial sentences in the direct promise condition.
Random effects	<i>SD</i>						
Participants, nested in studies	1.60						
Studies	0.07						
Residual	1.54						

Note: *t*-tests use Satterthwaite approximations for degrees of freedom. Unstandardized coefficients are displayed with 95% confidence intervals. Standardized effects (interpretable as standardized mean differences) were calculated by dividing the unstandardized coefficient by the standard deviation of the dependent variable ($SD = 2.43$).

Figure 1.

Note: Error bars represent 95% confidence intervals around the mean for each group. Semi-transparent points represent raw data, quasi-randomly distributed to approximate a density distribution. These plots display the data specifically for conditions in which there was no minimization information. A horizontal line is drawn at the midpoint of the sentence expectation scale.

Figure 2.

Note: Error bars represent 95% confidence intervals around the mean for each group. Semi-transparent points represent raw data, quasi-randomly distributed to approximate a density distribution. These plots display the data specifically for conditions in which there was no leniency warning. A horizontal line is drawn at the midpoint of the sentence expectation scale.

Figure 3.

Frequency distributions of leniency inferences, by interrogation condition

Table 4.

Linear mixed effects model results for the effect of interrogation condition on conditional leniency inferences

Fixed effects	<i>b</i>	<i>SE</i>	Standardized effect	<i>t</i>	<i>df</i>	<i>p</i>
Intercept (Control)	0.39 [0.29, 0.49]	0.05		7.89	1742	< .001
Moral minimization	0.07 [-0.07, 0.21]	0.07	0.06	1.07	1742	.29
Direct promise	1.29 [1.15, 1.43]	0.07	1.11	18.66	1742	< .001
Honesty theme	0.69 [0.55, 0.83]	0.07	0.60	9.72	1742	< .001
Random effects	<i>SD</i>					
Studies	<.001					
Residual	1.03					

Note: *t*-tests use Satterthwaite approximations for degrees of freedom. Unstandardized coefficients are displayed with 95% confidence intervals. Standardized effects (interpretable as standardized mean differences) were calculated by dividing the unstandardized coefficient by the standard deviation of the dependent variable (*SD* = 1.16).

Table 5.

Linear mixed effects model results for the effect of interrogation condition on perceived crime severity

Fixed effects	<i>b</i>	<i>SE</i>	Standardized effect	<i>t</i>	<i>df</i>	<i>p</i>
Intercept (Control)	5.78 [5.56, 6.00]	0.11		53.43	1320	< .001
Moral minimization	-0.79 [-1.08, -0.50]	0.15	-0.40	5.19	1320	< .001
Direct promise	-0.09 [-0.38, 0.20]	0.15	-0.05	.62	1320	.54
Honesty theme	-0.11 [-0.40, 0.18]	0.15	-0.06	.73	1320	.46
Random effects	<i>SD</i>					
Studies	<.001					
Residual	1.94					

Note: *t*-tests use Satterthwaite approximations for degrees of freedom. Unstandardized coefficients are displayed with 95% confidence intervals. Standardized effects (interpretable as standardized

mean differences) were calculated by dividing the unstandardized coefficient by the standard deviation of the dependent variable ($SD = 1.97$).

Table 6.

Linear model results for the effect of interrogation condition on perceived usefulness of cooperation

Fixed effects	<i>b</i>	<i>SE</i>	Standardized effect	<i>t</i>	<i>df</i>	<i>p</i>
Intercept (Control)	6.35 [6.00, 6.70]	0.18		53.43	834	< .001
Moral minimization	-0.07 [-0.58, 0.44]	0.26	-0.03	0.27	834	.79
Direct promise	-0.61 [-1.10, -0.12]	0.25	-0.23	2.41	834	.02
Honesty theme	-1.22 [-1.73, -0.71]	0.26	-0.46	4.78	834	< .001

Note: Unstandardized coefficients are displayed with 95% confidence intervals. Standardized

effects (interpretable as standardized mean differences) were calculated by dividing the unstandardized coefficient by the standard deviation of the dependent variable ($SD = 2.66$).

Figure 4.

Note: Unstandardized estimates are displayed, with 95% confidence intervals and p -values. Dashed line represents the indirect effect of direct promises through conditional leniency inferences.

Figure 5.

Note: Unstandardized estimates are displayed, with 95% confidence intervals and p -values. Dashed line represents the indirect effect of honesty theme through conditional leniency inferences.

Figure 6.

Note: Unstandardized estimates are displayed, with 95% confidence intervals and p -values.

Dashed line represents the indirect effect of moral minimization through perceived crime severity.

Appendix

Leniency warning:

Please note that police officers are **not legally permitted to promise more lenient sentences** in exchange for a confession.

Therefore, **even if the police say that the suspect will receive a reduced sentence** if he confesses, **the suspect will not receive a lighter sentence** if found guilty.

Minimization warning:

“Minimization” is an interrogation tactic in which an interrogator **downplays the seriousness of the offense and offers face-saving excuses** for having committed the crime.

Interrogators use minimization in order to encourage a suspect to confess, but **it does not mean that the interrogator believes the crime is actually less serious than it was.**

Combined warning:

Interrogators often use a tactic known as “minimization” in order to encourage a suspect to confess. Minimization may include downplaying the seriousness of the offense, offering face-saving excuses, or otherwise leading suspects to see confession as a good choice. However, if the police downplay the seriousness of the crime, it does not necessarily mean that they believe that the crime was in fact less serious.

Although minimization is a legally permissible interrogation tactic, police officers are not permitted to promise more lenient sentences in exchange for a confession. Therefore, even if the police say that the suspect will receive a reduced sentence if he confesses, the suspect will not receive a lighter sentence if found guilty.