

University of Nevada, Reno

Understanding Factors That Influence Attorneys' Plea Recommendations

A dissertation submitted in partial fulfillment of the
requirements for the degree of Doctor of Philosophy in
Social Psychology

by

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May, 2025

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THE GRADUATE SCHOOL

We recommend that the dissertation
prepared under our supervision by

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entitled

Understanding Factors That Influence Attorneys' Plea Recommendations

be accepted in partial fulfillment of the
requirements for the degree of

DOCTOR OF PHILOSOPHY

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Abstract

A large portion of wrongful convictions in the United States result from false guilty pleas. To address this issue, most research has focused on factors that influence defendants' plea decisions. However, recent research suggests that attorneys' plea recommendations play a significant role in shaping defendants' plea decisions. Given their influence in the plea-bargaining process, it is crucial to understand factors that influence attorneys' plea recommendations to identify situations where they might advise clients to falsely plead guilty. My colleagues and I conducted four experiments across three articles to investigate factors that influence attorneys' plea recommendations, utilizing diverse theoretical frameworks and methodological approaches. In the first article (Chapter 2), we conducted two experiments to examine the influence of factors from the Shadow of the Trial (SoT) theory on mock attorneys' plea recommendations. For Experiment 1, mock attorneys read case vignettes that manipulated factors from the original SoT, including conviction probability via evidence strength and potential trial sentence. For Experiment 2, mock attorneys read case vignettes that manipulated factors from the expanded SoT, including conviction probability, potential trial sentence, and defendant guilt status. The findings from both experiments demonstrated that all the SoT factors—conviction probability, potential trial sentence, and defendant guilt status—affected mock attorneys' plea recommendations. In the second article (Chapter 3), we conducted an experiment to examine the influence of factors from Fuzzy Trace Theory (FTT)—gist versus verbatim processing—on practicing attorneys' plea recommendations and related thought processes. Attorneys engaged in a plea simulation that manipulated factors from SoT and measured their cognitive processing styles. The findings revealed

that attorneys' cognitive processing styles influenced how SoT factors affected their plea recommendations, indicating that individual differences play a crucial role in attorneys' decision-making. In the third article (Chapter 4), we conducted an experiment to examine the influence of factors from Prospect Theory (PT)—diminishing sensitivity and reference dependence—on practicing attorneys' plea recommendations and related thought processes. Attorneys engaged in a plea simulation that manipulated the defendant guilt status and potential trial sentence. The findings showed that both factors influenced attorneys' plea recommendations, suggesting that attorneys consider both the severity of trial outcomes and the defendant's guilt or innocence when advising on plea deals. Collectively, these findings provide valuable insight into the cognitive and contextual factors that shape attorneys' plea recommendations, which highlight the complexity of legal decision-making and need for further research to enhance accuracy and fairness in the plea-bargaining process.

Keywords: attorney, bias, heuristics, judgment and decision-making, plea bargain, recommendation, wrongful conviction

Acknowledgements

I would like to acknowledge the help and support of numerous people and organizations, whose contributions were essential to the completion of this dissertation research. I am sincerely grateful to those mentioned here, as well as the many others who have contributed to my educational career.

Thank you to the funding organizations that made this dissertation research possible, including grants from the University of Nevada, Reno Graduate Student Association, the University of Nevada, Reno Interdisciplinary Social Psychology PhD Program, and the American Academy of Forensic Psychology. I am also grateful to the Russell J. and Dorothy S. Bilinski Fellowship Fund—a program of the Bilinski Educational Foundation and the University of Nevada, Reno College of Liberal Arts—for providing financial support during my final year of graduate school. These fellowship and grant funds offered crucial support and flexibility, allowing me to dedicate my time and energy to completing my dissertation research.

Thank you to my advisor, Dr. Yueran Yang, who has been an incredible mentor and supporter throughout my academic journey. Your guidance, encouragement, and dedication to my growth as a scientist have been invaluable. I am immensely appreciative for your patience, wisdom, and the countless ways you have challenged me to think critically and push my work further. Thank you to my dissertation committee: Drs. Emily Berthelot, Shawn Marsh, Monica Miller, and Miko Wilford. Your thoughtful feedback and suggestions, from my comprehensive exam to my dissertation defense, have significantly improved this project. I am sincerely thankful for your time, expertise, and support.

Thank you to the rest of my academic community, including my fellow students, colleagues, and mentors. Your collaboration, thoughtful discussions, and camaraderie have made all the difference in my growth as a scholar and a person. I am deeply grateful for the friendships and connections I've made throughout this journey, and for the innumerable moments of learning and mutual respect that have shaped my experience.

Thank you to my friends and family. Your encouragement, patience, and belief in me have kept me going through every challenge and late-night writing session. Whether it was a kind word, a listening ear, or simply reminding me to take a break—your presence has meant everything to me. Thank you to Travis, who has been my constant source of love and support throughout this journey. Through every challenge and success, you have stood by my side, reminding me of my worth and pushing me to keep going. I could not have done this without you. Finally, thank you to my mom, who inspired me to dream big and never give up, no matter the obstacles. Your sacrifices, wisdom, and unconditional support have shaped me into the person I am today. I am forever grateful for you and everything you have done to help me reach this milestone.

Table of Contents

Chapter 1: Introduction	1
Article Overviews and Authorship Considerations	2
Chapter 2	3
Chapter 3	5
Chapter 4	8
Chapter 5	11
References	12
Chapter 2: Attorney Influence in Plea Bargaining: Factors That Impact Attorneys’ Recommendations	16
Abstract.....	17
Shadow of the Trial (SoT) Theory	18
Attorney Influence in Plea Decisions	20
Factors that Influence Attorneys’ Plea Recommendations	21
Research Overview.....	23
Experiment 1 Method	24
Design.....	24
Participants	25
Materials	25
Procedure	28
Experiment 1 Results and Discussion	29
Experiment 2 Method	34
Design.....	34
Participants	35
Materials and Procedure	35
Experiment 2 Results and Discussion	36
General Discussion	40
Limitations and Future Directions.....	41
Conclusion.....	43
References	44
Appendix A: Case Vignettes	49
Appendix B: Individual Difference Measures.....	54
Chapter 3: Attorneys’ Plea Recommendations: The Effects of Cognitive Processing Style	58
Abstract.....	59
Shadow of the Trial (SoT) Theory	62
Fuzzy Trace Theory (FTT).....	64
Attorney Characteristics	65
Research Overview.....	67
Method.....	69
Participants	69
Design.....	71

Materials	71
Procedure	72
Results	73
Plea Recommendations	73
Confidence.....	78
Willingness to Recommend Plea (WTRP)	83
Maximum Plea Sentences.....	87
Discussion.....	91
Intellectual Merit and Broader Impacts	94
Limitations and Future Directions.....	95
Conclusion	96
References	98
Appendix A: Interactive Computer Simulation Script	104
Appendix B: Cognitive Processing Style (CPS) Scale.....	108
Chapter 4: Prospect or Fuzzy Trace? A Model Comparison for Attorneys' Plea Recommendations.....	109
Abstract.....	110
Prospect Theory (PT)	113
Fuzzy Trace Theory (FTT).....	114
Application to Plea Recommendations	116
Research Overview.....	118
Method.....	120
Participants	120
Design.....	120
Materials/Procedure.....	121
Results	121
Plea Recommendations	122
Confidence.....	126
Willingness to Recommend Plea (WTRP)	131
Maximum Plea Sentences.....	135
Discussion.....	138
Comparing PT and FTT	142
Intellectual Merit and Broader Impacts	143
Limitations and Future Directions.....	144
Conclusion	146
References	147
Appendix A: Interactive Computer Simulation Script	151
Chapter 5: Summary Discussion.....	154
Article Summaries	155
Chapter 2	155
Chapter 3	156
Chapter 4	158
Collective Conclusions	161

Intellectual Merit	162
Broader Impacts.....	166
Recommendations and Future Directions	168
Reflections on the Lessons Learned	170
Conclusion.....	171
References	172

List of Tables

Chapter 2

Table 1: Experiment 1 Regression Coefficients for Predicting Plea Acceptance
Recommendations

Table 2: Experiment 2 Regression Coefficients for Predicting Plea Acceptance
Recommendations

Chapter 3

Table 1: Regression Coefficients for Predicting Plea Acceptance Recommendations

Table 2: Regression Coefficients for Predicting Confidence of Plea Acceptance
Recommendations

Table 3: Regression Coefficients for Predicting Confidence of Plea Rejection
Recommendations

Table 4: Regression Coefficients for Predicting WTRP

Table 5: Regression Coefficients for Predicting Maximum Plea Sentences

Chapter 4

Table 1: Regression Coefficients for Predicting Plea Acceptance Recommendations

Table 2: Regression Coefficients for Predicting Confidence of Plea Acceptance
Recommendations

Table 3: Regression Coefficients for Predicting Confidence of Plea Rejection
Recommendations

Table 4: Regression Coefficients for Predicting WTRP

Table 5: Regression Coefficients for Predicting Maximum Plea Sentences

List of Figures

Chapter 2

Figure 1: Experiment 1 Main Effect of Potential Trial Sentence on Plea Acceptance

Recommendations

Figure 2: Experiment 1 Main Effect of Evidence Strength on Plea Acceptance

Recommendations

Figure 3: Experiment 2 Main Effect of Potential Trial Sentence on Plea Acceptance

Recommendations

Figure 4: Experiment 2 Main Effect of Defendant Guilt Status on Plea Acceptance

Recommendations

Chapter 3

Figure 1: Interaction Effect for Plea Acceptance Recommendations

Figure 2: Interaction Effect for Confidence of Plea Rejection Recommendations

Figure 3: Main Effect of Conviction Probability on WTRP

Figure 4: Main Effect of Defendant Guilt Status on WTRP

Figure 5: Main Effect of Potential Trial Sentence on Maximum Plea Sentences

Chapter 4

Figure 1: Main Effect of Defendant Guilt Status on Plea Acceptance Recommendations

Figure 2: Main Effect of Potential Trial Sentence on Plea Acceptance Recommendations

Figure 3: Main Effect of Defendant Guilt Status on Confidence for Plea Acceptance

Recommendations

Figure 4: Main Effect of Defendant Guilt Status on Confidence for Plea Rejection

Recommendations

Figure 5: Main Effect of Defendant Guilt Status on WTRP

Figure 6: Main Effect of Potential Trial Sentence on WTRP

Figure 7: Interaction Effect for Maximum Plea Sentences

Chapter 1: Introduction

“There is no client as scary as an innocent man.”

– J. Michael Haller, *Criminal Defense Attorney* (1962)

Plea bargains are arrangements between the prosecution and defense in which defendants waive their right to trial and plead guilty to lesser charges in exchange for sentence leniency (Covey, 2007). The practice of plea bargaining began as a way to increase efficiency in the criminal legal system by convicting guilty defendants pretrial, thereby eliminating resources expended in court (Dervan & Edkins, 2013; Gormley, 2022). However, this practice has evolved into a potentially coercive tactic wherein most defendants (97%)—even those who are factually innocent—are enticed to plead guilty to avoid the risk associated with going to trial (e.g., harsher penalties) (U.S. Sentencing Commission, 2017). Such overreliance on the plea system is related to the issue of increasing wrongful convictions. In fact, 24% of exonerees have falsely pled guilty (National Registry of Exonerations, 2024).

To address this issue (known as the *innocence problem*), the current plea-bargaining literature focuses on factors that influence defendants’ plea decisions (e.g., Schneider, 2018; Schneider, & Zottoli, 2019). Despite this volume of research, researchers have only just begun to investigate attorney influence in plea bargaining. Emerging evidence suggests that attorneys’ plea recommendations significantly influence defendants’ plea decisions (Henderson & Levett, 2019; Henderson & Shteynberg, 2020; Henderson et al., 2023; Lee et al., 2020), especially innocent defendants (Henderson & Levett, 2018). Given that defendants rely on attorneys for legal knowledge and counsel, it is critical for the criminal legal system and scholars to understand factors that influence

attorneys' plea recommendations. With a better understanding of attorney decision-making, researchers can develop a more complete picture of plea bargaining and promote better plea practices (Henderson & Levett, 2019). That is, greater comprehension of factors that affect attorneys' plea recommendations can help educate defense attorneys on elements that contribute to false guilty plea recommendations and inform public policy and procedures to reduce the risk of wrongful convictions.

This dissertation sought to explore factors that influence attorneys' plea recommendations. Specifically, it comprises of three journal articles (Chapters 2–4) that examined key factors drawn from dominant plea decision-making theories, including Shadow of the Trial (SoT) (Bushway & Redlich, 2012; Bushway et al., 2014; Wilford et al., 2021), Fuzzy Trace Theory (FTT) (Helm & Reyna, 2017; Helm et al., 2018; Zottoli et al., 2023), and Prospect Theory (PT) (Bartlett & Zottoli, 2021; Edkins & Dervan, 2018; Garnier-Dykstra & Wilson, 2021). While these theories have primarily been used to explain and predict defendants' plea decisions, they can also be applied to attorneys' plea recommendations to gain deeper insight into attorney decision-making. Accordingly, the three articles in this dissertation utilize different theoretical perspectives and methodological approaches to investigate factors that influence attorneys' plea recommendations. The following sections outline the theoretical frameworks, hypotheses, and methodologies for each experiment, as well as details regarding authorship contributions and publication strategies.

Article Overviews and Authorship Considerations

The current dissertation is structured into five chapters: an introductory chapter (Chapter 1), three standalone papers formatted as empirical journal articles (Chapters 2–

4), and a concluding discussion chapter (Chapter 5) that synthesizes and integrates the findings from all three articles. Chapter 2 includes two online experiments with mock attorneys. Chapter 3 includes one plea simulation embedded in an online experiment with practicing attorneys. Chapter 4 includes another plea simulation embedded in an online experiment with practicing attorneys. Chapter 5 includes a general discussion on the intellectual merit and broader implications of this dissertation as a cohesive body of research. Since the three central chapters are standalone journal articles, each includes its own title page, abstract, appendices, and references. Additionally, the numbering for tables, figures, and appendices resets to “1” at the start of each chapter.

Chapter 2

Chapter 2, “*Attorney Influence in Plea Bargaining: Factors That Impact Attorneys’ Recommendations*,” describes two online experiments that investigated the influence of factors from Shadow of the Trial (SoT) theory and its recent extension on mock attorneys’ plea recommendations. That is, we explored the effects of conviction probability via evidence strength, potential trial sentence, and defendant guilt status (Bushway & Redlich, 2012; Bushway et al., 2014; Wilford et al., 2021). For Experiment 1, we examined factors from the original SoT—evidence strength and potential trial sentence—with three hypotheses:

- H1: Mock attorneys in the strong evidence conditions would be more likely to recommend plea acceptance than those in the weak evidence conditions.
- H2: Mock attorneys in the high potential sentence conditions would be more likely to recommend plea acceptance than those in the low potential sentence conditions.

- H3: Mock attorneys in the strong evidence *and* high potential sentence conditions would be more likely to recommend plea acceptance than those in the weak evidence and low potential sentence conditions.

To test these effects, mock attorney-participants ($N = 221$) read a robbery case vignette. The case vignette manipulated mock attorney-participants' condition in a 2 (Evidence strength: strong, weak) \times 2 (Potential trial sentence: high, low) between-subjects factorial design. After reading the case vignette, mock attorney-participants completed a decision questionnaire with items regarding their recommendation to accept or reject a plea offer. We analyzed the data using a logistic regression model.

For Experiment 2, we examined factors from the expanded SoT—evidence strength, potential trial sentence, and defendant guilt status—with two hypotheses:

- H1: Mock attorneys in the strong evidence and high potential sentence conditions would be more likely to recommend plea acceptance than those in the weak evidence and low potential sentence conditions, replicating the main effects from Experiment 1.
- H2: Mock attorneys in the guilty defendant conditions would be more likely to recommend plea acceptance than those in the innocent defendant conditions.

To test these effects, mock attorney-participants ($N = 500$) read a robbery case vignette. The case vignette manipulated mock attorney-participants' condition in a 2 (Evidence strength: strong, weak) \times 2 (Potential trial sentence: high, low) \times 2 (Defendant guilt status: guilty, innocent) between-subjects factorial design. After reading the case vignette, mock attorney-participants completed a decision questionnaire with

items regarding their plea recommendation. We analyzed the data using a logistic regression model.

The order of authorship for Chapter 2 is Janice L. Burke, Dr. Sarah A. Kruger, and Dr. Yueran Yang. I contributed 85% of the effort through co-conception of the project, creation of research materials, data collection, data analysis, manuscript preparation, and journal submission. Dr. Kruger contributed 10% of the effort through co-conception of the project, assistance with materials creation, and editing the manuscript. Dr. Yang contributed 5% of the effort through project advisement and editing the manuscript.

We initially submitted this manuscript to the *Journal of Experimental Criminology*. The manuscript was sent out for peer review but was ultimately rejected for publication. We are currently revising the manuscript per reviewer recommendations. Once complete, we will submit to the next journal on the list:

1. *Journal of Empirical Legal Studies*
2. *Behavioral Sciences and the Law*
3. *Applied Psychology in Criminal Justice*
4. *Journal of Quantitative Criminology*
5. *Journal of Criminal Law and Criminology*

Chapter 3

Chapter 3, “*Attorneys’ Plea Recommendations: The Effects of Cognitive Processing Style*,” describes one online experiment that investigated the influence of factors from Fuzzy Trace Theory (FTT)—gist versus verbatim processing—on practicing attorneys’ plea recommendations. Previous research has shown that defendants who

relied on gist processing in their plea decisions were more likely to use meaningful, categorical distinctions for plea decisions and thus were more influenced by qualitative information like the type of charge (e.g., felony versus misdemeanor) and factual guilt or innocence (Helm & Reyna, 2017; Helm et al., 2018). On the other hand, defendants who relied on verbatim processing in their plea decisions were more likely to use precise analyses of risk-reward tradeoffs and thus were more influenced by quantitative information like conviction probability and potential trial sentence. Because of this, defendants who relied on verbatim processing were more likely to falsely plead guilty, as they focused on quantitative information like trial penalty rather than qualitative information like defendant guilt status (Helm & Reyna, 2017; Helm et al., 2018). Given that attorneys differ from defendants in their skills and experiences with the legal system, we sought to examine whether attorneys' cognitive processing styles influenced their plea recommendations in the same way as they affect defendants' plea decisions. We examined these factors with two research questions and five hypotheses:

- RQ1: Do attorneys' cognitive processing styles influence their plea recommendations?
 - H1: Attorneys that relied on verbatim processing would be more likely to recommend plea acceptance than those who relied on gist processing.
- RQ2: Do attorneys' cognitive processing styles interact with factors from SoT (i.e., conviction probability, potential trial sentence, and defendant guilt status) to predict their plea recommendations?

- H2: Attorneys in the high conviction probability conditions would be more likely to recommend plea acceptance than those in the low conviction probability conditions.
- H3: Attorneys in the high potential trial sentence conditions would be more likely to recommend plea acceptance than those in the low potential trial sentence conditions.
- H4: Attorneys in the guilty defendant conditions would be more likely to recommend plea acceptance than those in the innocent defendant conditions.
- H5: Attorneys in the high conviction probability and potential trial sentence conditions who relied on verbatim processing would be most likely to recommend plea acceptance.

To test these effects, attorney-participants ($N = 403$) engaged in an interactive computer simulation to imitate a plea bargaining scenario. The plea simulation manipulated attorney-participants' condition in a 2 (Conviction probability: high, low) \times 2 (Potential trial sentence: high, low) \times 2 (Defendant guilt status: guilty, innocent) between-subjects factorial design. After completing the plea simulation, attorney-participants responded to a decision questionnaire with items regarding their plea recommendation and cognitive processing style. We analyzed the data using one logistic regression model and three linear regression models.

The order of authorship for Chapter 3 is Janice L. Burke and Dr. Yueran Yang. I contributed 95% of the effort through conception of the project, creation of materials,

data collection, data analysis, and manuscript preparation. Dr. Yang contributed 5% of the effort through project advisement and editing the manuscript.

The target journal for initial submission of this manuscript is *Psychology, Crime & Law*. If the manuscript is not accepted there, we will revise it per reviewer recommendations and submit to the next journal on the list:

1. *Psychology, Public Policy, and Law*
2. *Law and Human Behavior*
3. *Justice Quarterly*
4. *Criminal Justice and Behavior*
5. *Behavioral Sciences and the Law*

Chapter 4

Chapter 4, “*Prospect or Fuzzy Trace? A Model Comparison for Attorneys’ Plea Recommendations*,” describes one online experiment that investigated the influence of factors from Prospect Theory (PT)—diminishing sensitivity and reference dependence—on practicing attorneys’ plea recommendations. There are three central principles of PT: *loss aversion*, *diminishing sensitivity*, and *reference dependence* (Kahneman & Tversky, 1979, 1984; Tversky & Kahneman, 1981). Using the principle of loss aversion, research has demonstrated that when the conviction probability was low, defendants were more risk-averse and thus more likely to accept worse plea sentences relative to the expected value of trial (Bartlett & Zottoli, 2021). Conversely, when the conviction probability was high, defendants were more risk-seeking and thus larger sentence discounts were necessary for defendants to accept plea offers. However, follow-up research suggests that defendants’ plea decisions were influenced only by *categorically* meaningful changes in

conviction probability and potential trial sentence, indicating the findings might be more consistent with FTT (Zottoli et al., 2023).

To further investigate this theoretical comparison, we examined additional principles of PT, including diminishing sensitivity and reference dependence, on attorneys' plea recommendations. Specifically, we expected that attorneys' would be less sensitive to changes in potential trial sentence as they get further away from the plea offer, consistent with diminishing sensitivity. In addition, we expected that attorneys may view sentence discrepancies between the plea offer and potential trial sentences differently depending on the defendant's guilt status, consistent with reference dependence. If the defendant is guilty, they might view trial as a loss, leading them to be more risk-averse and thus provide more plea acceptance recommendations. If the defendant is innocent, they might view the trial as a gain, leading them to be more risk-seeking and thus provide less plea acceptance recommendations. We examined these factors with two research questions and four hypotheses:

- RQ1: Do factors from PT (i.e., diminishing sensitivity and reference dependence) influence attorneys' plea recommendations?
 - H1: Attorneys in the guilty defendant conditions would be more likely to recommend plea acceptance than those in the innocent defendant conditions.
 - H2: Attorneys in the high potential trial sentence conditions would be more likely to recommend plea acceptance than those in the moderate and low potential trial sentence conditions.

- H3: Differences in attorneys' plea acceptance recommendation rates will progressively decrease as the potential trial sentence increases, consistent with diminishing sensitivity.
- H4: The effects of potential trial sentence on attorneys' plea recommendations would depend on the defendant's guilt status, consistent with reference dependence.
- RQ2: Does PT or FTT better predict attorneys' plea recommendations?

To test these effects, attorney-participants ($N = 403$) engaged in another interactive computer simulation to imitate a plea bargaining scenario. The plea simulation manipulated attorney-participants' condition in a 2 (Defendant guilt status: guilty, innocent) \times 3 (Potential trial sentence: low, moderate, high) between-subjects factorial design. After completing the plea simulation, attorney-participants responded to a decision questionnaire with items regarding their plea recommendation and other related thought processes. We analyzed the data using one logistic regression model and three linear regression models, with planned comparisons to determine demarcations in plea acceptance recommendation rates between potential trial sentence conditions.

The order of authorship for Chapter 4 is Janice L. Burke, Dr. Miko M. Wilford, and Dr. Yueran Yang. I contributed 85% of the effort through co-conception of the project, creation of research materials, data collection, data analysis, and manuscript preparation. Dr. Wilford contributed 10% of the effort through co-conception of the project, assistance in creation of research materials, and editing the manuscript. Dr. Yang contributed 5% of the effort through project advisement and editing the manuscript.

The target journal for initial submission of this manuscript is *Behavioral Sciences*. If the manuscript is not accepted there, we will revise it per reviewer recommendations and submit to the next journal on the list:

1. *Law and Human Behavior*
2. *Psychology, Public Policy, and Law*
3. *Psychology, Crime & Law*
4. *Legal and Criminological Psychology*
5. *American Journal of Criminal Justice*

Chapter 5

Chapter 5 presents a general summary and discussion of the research conducted in Chapters 2 through 4, highlighting their collective impact. Lastly, this chapter provides conclusions and recommendations based on the insights gained from integrating experiments in the current dissertation.

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<https://doi.org/10.1037/lhb0000532>

Chapter 2

Attorney Influence in Plea Bargaining: Factors That Impact Attorneys' Recommendations

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We have no known conflict of interest to disclose.

This work was supported by the University of Nevada, Reno Graduate Student Association under the Research, Travel, and Materials Grant Program.

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Abstract

Most criminal cases in the United States are resolved via plea bargaining, rendering trials nearly obsolete. Previous research has attempted to address this vanishing trial problem by focusing on factors that influence defendants' plea decisions, yet little research has explored factors that affect attorneys' plea recommendations. Because attorneys' recommendations play a key role in defendants' plea decisions, the current research examined factors that contribute to mock attorneys' plea recommendations. Specifically, we explored variables related to the dominant model of plea bargaining, the Shadow of the Trial (SoT) model, and its recent extension. Across two experiments, mock attorney-participants made plea recommendations after reading a robbery case vignette.

Experiment 1 ($N = 221$) manipulated evidence strength and potential sentence, revealing that both factors affected mock attorneys' plea recommendations. Strong evidence and high potential sentence increased the odds that mock attorneys recommended plea acceptance. Experiment 2 ($N = 500$) partially replicated and expanded upon the findings of Experiment 1 by including the defendant's guilt status as an additional factor. High potential sentence and defendant guilt, but not evidence strength, increased the odds of mock attorneys recommending plea acceptance. The findings suggest that attorneys are influenced by factors beyond defendant guilt status, especially potential sentence, leading them to advise innocent defendants to falsely plead guilty.

Keywords: Attorneys, plea bargain, sentence, evidence strength, defendant guilt

Attorney Influence in Plea Bargaining: Factors That Impact Attorneys' Recommendations

Most criminal cases in the United States (97%) are resolved via plea bargaining, rendering trials nearly obsolete (U.S. Sentencing Commission, 2017). Previous research has addressed this vanishing trial problem by focusing on defendants' plea decisions (e.g., Schneider, 2018; Schneider, & Zottoli, 2019), yet little research has explored attorney influence in plea bargaining. As attorney advice is highly influential for defendants' plea decisions (Henderson & Levett, 2018, 2019; Henderson & Shteynberg, 2020), it is imperative to understand how attorneys make plea recommendations for their clients. The current research seeks to shed light on this topic by investigating factors that affect attorneys' plea recommendations.

According to research on the Shadow of the Trial (SoT) theory, the strongest predictors of defendants' plea decisions are conviction probability via evidence strength, potential trial sentence, plea offer, and defendant guilt status (Bushway & Redlich, 2012; Bushway et al., 2014; Wilford et al., 2021). Beyond defendant plea decisions, SoT may also provide a useful framework to understand attorney decision-making, particularly how attorneys make plea recommendations for their clients. With two experiments, this research conducted an empirical test to examine the influence of factors from SoT on attorneys' plea recommendations, thereby revealing the circumstances in which attorneys might recommend that innocent defendants falsely plead guilty.

Shadow of the Trial (SoT) Theory

Most empirical literature on plea decisions follows the Shadow of the Trial (SoT) theory (Mnookin & Kornhauser, 1979). The original SoT argues that defendants' plea

decisions are derived from a comparison between the perceived probable outcome of trial and the plea offer (Bibas, 2004). The mathematical formula that represents this theory is:

$$[\text{Trial conviction probability} \times \text{Trial sentence}] - \text{Plea sentence}$$

When the output of this formula is a positive value, meaning that trial is expected to yield a worse outcome than the plea offer, defendants should choose the plea offer.

When the output is a negative value, meaning that the plea offer is worse than the expected trial outcome, defendants should reject the plea offer and proceed to trial. Thus, according to the original SoT, these three factors—trial conviction probability, trial sentence, and plea sentence—are the driving forces behind defendants' plea decisions.

Bushway and colleagues (2014) conducted a survey among prosecutors, defense attorneys, and judges to test the original SoT. Their findings supported predictions of SoT, such that the main factors that influenced plea outcomes were conviction probability based on evidence strength, potential trial sentence if convicted, and best plea offer for the defendant. Their research further suggested that the theory should allow for more flexibility between expected trial outcome and potential sentence length (Bushway et al., 2014). Concretely speaking, SoT works best at the aggregate level but tends to have less predictive power at the individual level (Bushway & Redlich, 2012; Edkins & Dervan, 2018). For example, variation in plea decisions could be due to individual differences, such as non-neutral risk preferences or other non-rational behavior in decision-making as well as differences in defendants' criminal histories and current charges (Bushway & Redlich, 2012).

Beyond the original SoT, plea-bargaining research has consistently demonstrated that guilty defendants are more likely to accept plea offers than innocent defendants, even when controlling for conviction probability and plea discounts (e.g., Dervan & Edkins, 2013; Redlich & Shteynberg, 2016; Wilford et al., 2020). Because of this, recent research has expanded SoT to include defendants' guilt status as another predictor of plea decisions (Wilford et al., 2021). Wilford and colleagues (2021) tested this expanded theory by having mock defendants engage in a plea simulation and make decisions. Their research manipulated the defendant's guilt status (guilty or innocent), conviction probability (20%, 50%, or 80%), and plea discount (6, 12, or 18 months). The results showed that SoT was better able to predict plea decisions when guilt status was included (Wilford et al., 2021). As such, the predictive power of SoT for plea decisions increases when accounting for the defendant's guilt status. This expanded SoT model suggests the main factors that influence plea outcomes are evidence strength, potential trial sentence, plea offer, and defendant guilt status (Bushway & Redlich, 2012; Bushway et al., 2014; Wilford et al., 2021). Nevertheless, these factors have yet to be explored in terms of their influence on attorneys' plea recommendations.

Attorney Influence in Plea Decisions

Attorneys play an important role in defendants' plea decisions (Alschuler, 1975; Blumberg, 1967). In fact, recent research has shown that attorneys' plea recommendations significantly affect defendants' plea decisions (Henderson & Levett, 2018, 2019; Henderson & Shteynberg, 2020). For example, one experiment simulated a plea-bargaining scenario via a cheating paradigm in which participants were accused of academic dishonesty (Henderson & Levett, 2018). The experimenter informed

participants that they could either admit guilt and accept lab punishment (analogous to a plea offer) or wait for the academic conduct committee to process their case (analogous to a trial). Next, an advocate advised participants to accept the plea offer, to go to trial, or educated participants on both options but gave no advice. The results revealed that advocate recommendations are highly influential for both guilty and innocent participants' plea decisions, but innocent participants are especially susceptible to such influence. Particularly, innocent participants advised to go to trial were significantly less likely to plead guilty than participants in all other conditions (Henderson & Levett, 2018). These findings demonstrate how attorneys can meaningfully shape defendants' plea decisions, making it essential to examine the factors that inform their recommendations.

Given that defendants rely on attorneys for legal knowledge and counsel, it is critical for the legal system and scholars to understand factors that affect attorneys' plea recommendations. With a better understanding of attorneys' decision-making, researchers can develop a more complete picture of plea bargaining and promote better plea practices (Henderson & Levett, 2019). That is, greater comprehension of factors that influence attorneys' plea recommendations could be used to educate attorneys about factors that contribute to false guilty plea recommendations to reduce the risk of wrongful convictions.

Factors That Influence Attorneys' Plea Recommendations

Previous research has examined factors that influence attorneys' plea recommendations (Cardenas et al., 2023; Hellgren et al., 2022; Henderson, 2021; Kramer et al., 2007). The results generally suggest that attorney plea recommendations are

influenced by legal factors like potential trial sentence and evidence strength (Cardenas et al., 2023; Henderson, 2021) as well as extra-legal factors like defendant claims of innocence and preference to go to trial (Hellgren et al., 2022; Kramer et al., 2007).

Some research has focused on the effects of legal factors on attorney decision-making. For example, Cardenas and colleagues (2023) showed that potential trial sentence affected both defendants' plea decisions and attorneys' recommendations. Attorneys were more likely to recommend plea acceptance and defendants were subsequently more likely to accept the plea when the potential trial sentence was high as opposed to moderate (Cardenas et al., 2023). Henderson (2021) showed that evidence strength also affects attorneys' plea recommendations, such that attorneys were more likely to recommend plea acceptance in strong evidence conditions than weak evidence conditions. These experiments suggest that potential trial sentence and evidence strength are important factors that influence attorneys' plea recommendations (Cardenas et al., 2023; Henderson, 2021).

Other research has focused on the effects of extra-legal factors on attorney decision-making. For instance, Hellgren and colleagues (2022) tested whether the defendant proclaiming innocence influenced attorneys' plea recommendations. The results showed that defendant claims of innocence had little to no effect on attorneys' plea recommendations. Instead, recommendations of plea acceptance were driven by attorneys' perceived conviction probability (Hellgren et al., 2022).

Kramer and colleagues (2007) examined the effects of both legal and extra-legal factors on attorney decision-making. That is, they tested potential trial sentence, evidence strength, and defendants' preference for trial on attorneys' plea recommendations

(Kramer et al., 2007). The results demonstrated that all three factors influenced attorney plea recommendations. Specifically, attorneys were most likely to recommend plea acceptance when there was a high potential sentence, strong evidence, and the defendant preferred to go to trial (Kramer et al., 2007).

To conclude, research has suggested that both legal and extra-legal factors play important roles in attorney plea recommendations (Cardenas et al., 2023; Hellgren et al., 2022; Henderson, 2021; Kramer et al., 2007). Nevertheless, research has yet to systematically test factors from SoT on attorney decision-making. Such research would be important to advance theory and develop a better understanding of attorney influence in plea bargaining.

Research Overview

Across two experiments, the current research conducted an empirical test to examine how well the original and expanded SoT could explain attorneys' plea recommendations. Experiment 1 manipulated evidence strength and potential trial sentence, focusing on factors involved in the original SoT (Bushway & Redlich, 2012; Bushway et al., 2014). Experiment 2 manipulated defendant guilt status in addition to evidence strength and potential trial sentence, focusing on factors involved in the expanded SoT (Wilford et al., 2021). Empirically testing factors from the SoT framework would offer valuable insights into the theoretical underpinnings of attorneys' plea recommendations. The experiments were approved by the university's Institutional Review Board. The research materials and data are available on the Open Science Framework at <https://osf.io/9bacx/>.

Experiment 1 Method

Experiment 1 focused on evidence strength (strong versus weak) and potential trial sentence (high versus low). First, we hypothesized that evidence strength would influence plea recommendations, such that mock attorneys in the strong evidence conditions would be more likely to recommend plea acceptance compared to those in the weak evidence conditions (**Hypothesis #1**). Second, we hypothesized that potential trial sentence would influence plea recommendations, such that mock attorneys in the high potential sentence conditions would be more likely to recommend plea acceptance compared to those in the low potential sentence conditions (**Hypothesis #2**). Third, we hypothesized there would be an interaction between evidence strength and potential trial sentence. Specifically, mock attorneys in the strong evidence and high potential sentence condition would be more likely to recommend plea acceptance compared to those in the weak evidence and low potential sentence condition (**Hypothesis #3**).

Design

Experiment 1 was a 2 (Evidence strength: strong, weak) \times 2 (Potential trial sentence: high, low) between-subjects factorial design. Participants were randomly assigned to one of four conditions in which the evidence strength and potential trial sentence were manipulated. The evidence strength factor manipulated evidence strength to be either strong or weak. The strong evidence condition presented three pieces of inculpatory evidence and one piece of exculpatory evidence, whereas the weak evidence condition presented one piece of inculpatory evidence and one piece of exculpatory evidence. The potential trial sentence factor manipulated the sentence to be either high (8

years) or low (2 years). The dependent variable included mock attorneys' plea recommendations for their clients to accept or reject the plea offer.

Participants

We recruited undergraduate students from a mid-sized university in the western United States. Participants signed up to participate through the university's SONA research subject pool system ($N = 221$). We conducted a post hoc power analysis for logistic regression that indicated the sample size of 221 had 99% statistical power to detect an effect size for odds ratio (OR) of 2. Participants ranged from 18 to 52 years of age ($M = 20.95$, $SD = 5.50$) and were mostly female (78.0%). Most participants identified as White or Caucasian (50.4%), followed by Hispanic or of Latin American descent (18.0%), East Asian (6.3%), Black or African American (4.5%), Pacific Islander or Hawaii Native (1.2%), Middle Eastern (1.2%), and another or multiple categories (18.0%). Students from the university's subject pool are required to complete a requisite number of SONA credits for their courses each semester. Each participant received one course credit as compensation for participating in this experiment. The survey was administered through Qualtrics, and students participated online.

Materials

Case Vignette

The case vignettes described a scenario of armed robbery and provided background information necessary to make a plea recommendation, including all evidence against the defendant. Participants received one of two case vignettes wherein evidence strength was manipulated. As mentioned above, the strong evidence condition included three pieces of inculpatory evidence and one piece of exculpatory evidence,

whereas the weak evidence condition included one piece of inculpatory evidence and one piece of exculpatory evidence. The inculpatory evidence in the strong evidence condition included an eyewitness identification, a confession, and DNA evidence. The inculpatory evidence in the weak evidence condition was solely eyewitness identification. The exculpatory evidence was a character witness for the defense in both the strong and weak evidence conditions.

The plea bargains provided charge information, potential trial sentence, and plea offer. Charge information detailed the state law for armed robbery. Participants received one of two plea bargains in which the potential trial sentence was manipulated. The high potential sentence condition carried an 8-year sentence, whereas the low potential sentence condition carried a 2-year sentence. For each condition, the prosecution offered a plea deal with a 1-year sentence. See Appendix A for these case vignettes.

Plea Recommendation and Confidence Questionnaire

The plea recommendation and confidence questionnaire measured the dependent variable of mock attorneys' plea recommendations. Participants advised their clients to accept or reject the plea deal. Additionally, they rated their confidence in the plea recommendation on a scale ranging from 0% to 100%.

Manipulation and Attention Checks

All participants answered questions on manipulation checks regarding evidence strength and potential trial sentence. Concretely, participants were asked what sentence the defendant would have received had they gone to trial and what evidence was presented against them. Participants also answered attention check questions, such as the type of crime charged and defendant guilt status.

Individual Difference Measures

In addition to the main variables of interest, we also measured several individual differences as potential covariates. Specifically, we measured participants' attitudes toward the criminal justice legal system, perceived inequality of justice processes and outcomes, and perceptions of procedural justice. See Appendix B for these scales. We also measured demographic variables such as age, gender identity, ethnicity, and academic major/minor, as well as experiences with and attitudes toward criminal justice and plea bargaining.

Attitudes Toward the Criminal Legal System (ATCLS) Scale. The Attitudes Toward the Criminal Legal System (ATCLS) scale measures attitudes toward the criminal legal system (Martin & Cohn, 2004). The scale includes 24 items on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). The items examine attitudes towards seven major positions in the criminal legal system: judges, police officers, defense attorneys, prosecuting attorneys, juries, punishment, and laws. Higher scores indicate more positive attitudes toward the criminal legal system, whereas lower scores indicate more negative attitudes. The ATCLS scale had a Cronbach's alpha of $\alpha = 0.90$, indicating excellent reliability within this sample.

Perceived Inequality of Justice (PIJ) Scale. The Perceived Inequality of Justice (PIJ) scale measures perceived inequality of justice processes and outcomes (Pleasence & Balmer, 2018). The scale includes 24 items on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). Higher scores indicate greater perceived inequality of justice (i.e., negative attitudes), whereas lower scores indicate lesser perceived inequality

of justice (i.e., positive attitudes). The PIJ scale had a Cronbach's alpha of $\alpha = 0.80$, indicating good reliability within this sample.

Support for Procedural Justice Short (SPJ-S) Scale. The Support for Procedural Justice Short (SPJ-S) scale measures perceptions of procedural justice (Grootelaar & van den Bos, 2018; Grootelaar et al., 2022; Murphy et al., 2023). The scale includes 6 items on a 5-point Likert scale (1 = strongly disagree; 5 = strongly agree). Higher scores indicate greater support for procedural justice for offenders, whereas lower scores indicate lesser support for procedural justice. The SPJ-S scale had a Cronbach's alpha of $\alpha = 0.82$, indicating good reliability within this sample.

Demographics Questionnaire. Participants answered questions about their age, gender identity, ethnicity, and academic major/minor. Participants also answered questions regarding criminal justice courses, knowledge of the criminal justice system, and attitudes toward plea bargaining in general. Lastly, participants were asked if they had any previous experiences with the criminal justice system (e.g., whether they had been a defendant, victim, witness, juror, etc.).

Procedure

After providing consent, participants first completed a series of validated scales, including the ATCLS scale (Martin & Cohn, 2004), PIJ scale (Plesence & Balmer, 2018), and SPJ-S scale (Grootelaar & van den Bos, 2018; Grootelaar et al., 2022; Murphy et al., 2023). Next, participants were instructed to act as defense attorneys advising their clients on a plea decision. Participants were randomly assigned to one of two case vignettes in which the evidence strength was strong or weak. Following review of the case, participants were randomly assigned one of two plea bargains in which the potential

trial sentence was high (8 years) or low (2 years), with the plea offer carrying a 1-year sentence regardless of condition. Participants then advised the defendant to accept or reject the plea deal and rated their level of confidence in the recommendation. Finally, participants answered attention and manipulation checks and provided demographic information.

Experiment 1 Results and Discussion

We first analyzed participants' responses to the attention and manipulation check questions. The majority (94%) of participants answered both questions correctly. We performed analyses with and without the data from participants who failed attention or manipulation checks. Because the results were not meaningfully different, we report the results from analyses using the full data set.

We tested Hypotheses #1-3 with a logistic regression model. The model included evidence strength, potential trial sentence, and their interaction term as predictor variables, and plea recommendation as the dichotomous outcome variable (see Table 1). The original model also included ATCLS scores, PIJ scores, SPJ-S scores, confidence ratings, and demographic variables as covariates. As none of covariates significantly predicted plea recommendations ($ps \geq 0.097$), we dropped covariates from the model to conserve statistical power.

Table 1***Experiment 1 Regression Coefficients for Predicting Plea Acceptance******Recommendations***

Variable	<i>b</i>	<i>SE</i>	<i>p</i>	<i>OR</i>	95% CI
Potential trial sentence	1.493	0.470	0.001**	4.451	[1.772, 11.18]
Evidence strength	2.221	1.018	0.029*	9.215	[1.252, 67.81]
Interaction	-0.982	0.607	0.105	0.374	[0.114, 1.230]

Note. *** indicates significance at $p < 0.001$, ** indicates significance at $p < 0.01$,

* indicates significance at $p < 0.05$.

We first examined whether there was a significant interaction between evidence strength and potential trial sentence in predicting plea recommendations (**Hypothesis #3**). The results showed that the interaction between evidence strength and potential trial sentence was not significant, $\chi^2 = 0.168$, $p = 0.125$. Thus, the results did not support Hypothesis #3 that mock attorneys in the strong evidence and high potential sentence condition would be more likely to recommend plea acceptance compared to those in the weak evidence and low potential sentence condition.

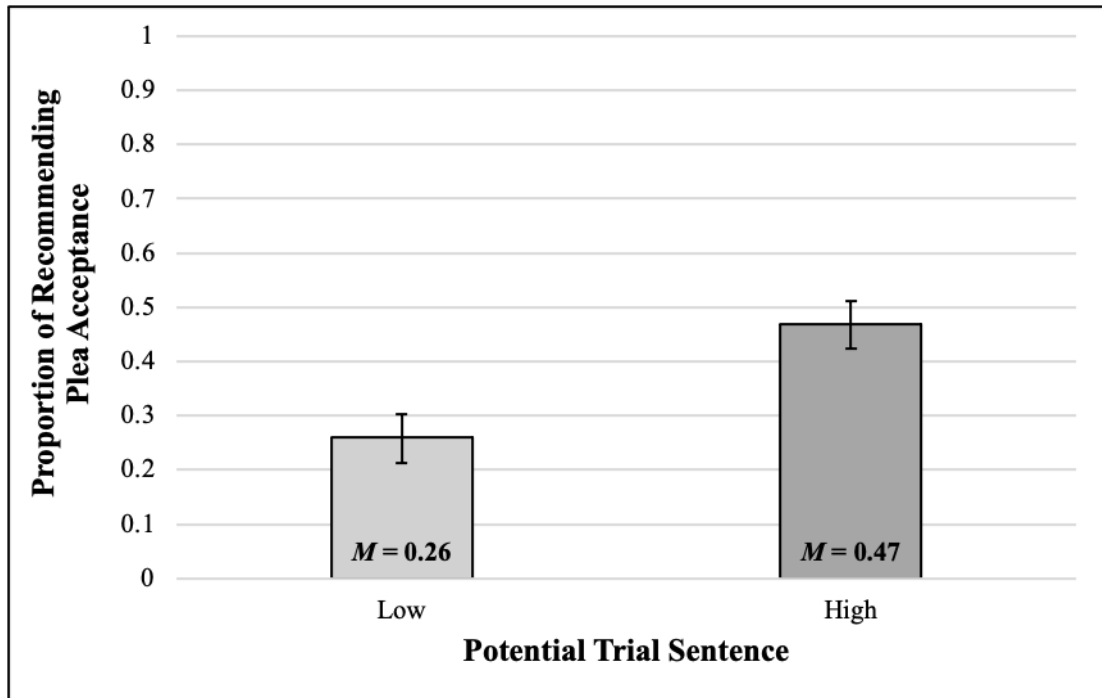
Because of the non-significant interaction, we removed the interaction term from the model and used a main-effects only model to examine the effects of evidence strength and potential trial sentence (**Hypotheses #1 and #2**). The information criteria showed comparable fit to the data between the interaction model (AIC = 162.3, BIC = 173.8) and main-effects only model (AIC = 162.8, BIC = 171.4), supporting the use of the more parsimonious model. The results showed a significant main effect of evidence strength, $b = 2.221$, $p = 0.029$, $OR = 1.939$, 95% CI [1.095, 3.431]. Mock attorneys in strong

evidence conditions ($M = 0.44$, $SD = 0.48$) had almost double the odds of recommending plea acceptance as those in weak evidence conditions ($M = 0.29$, $SD = 0.49$). The results also showed a significant main effect of potential trial sentence, $b = 1.493$, $p = 0.001$, $OR = 2.525$, 95% CI [1.424, 4.478]. The odds of mock attorneys in high potential sentence conditions recommending plea acceptance ($M = 0.47$, $SD = 0.50$) were 2.5 times higher than the odds of those in low potential sentence conditions ($M = 0.26$, $SD = 0.44$). Thus, the results support Hypotheses #1 and #2, such that mock attorneys in strong evidence and high potential sentence conditions would be more likely to recommend plea acceptance compared to those in weak evidence and low potential sentence conditions. Figures 1 and 2 display the mean proportions of plea recommendations for the significant main effects.

Figure 1

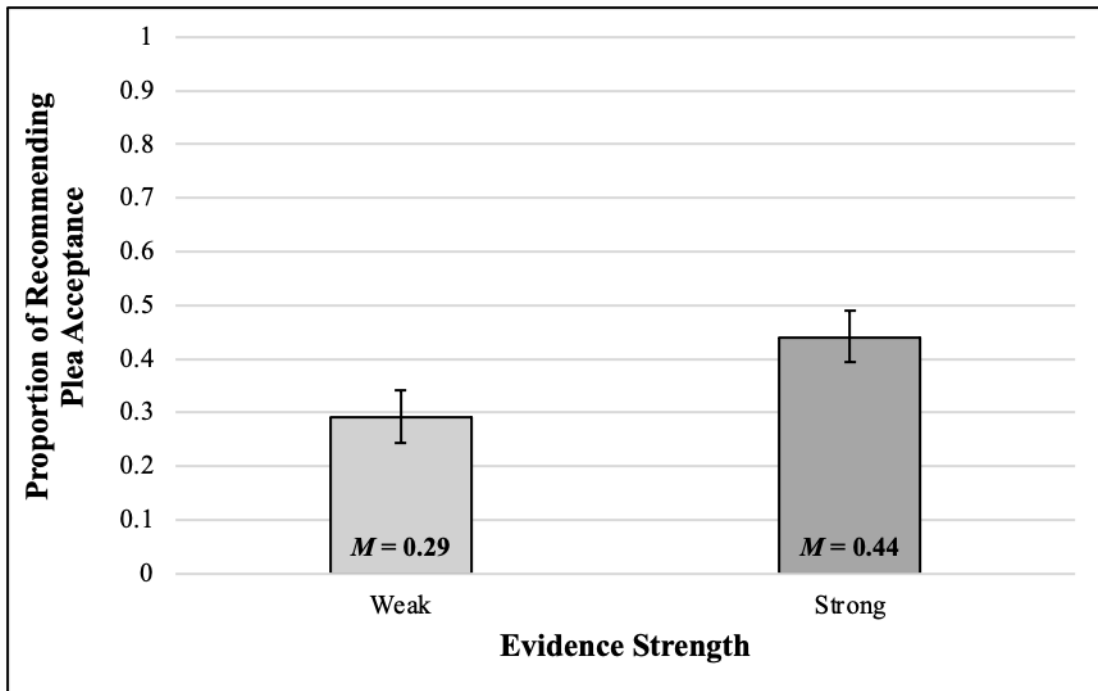
Experiment 1 Main Effect of Potential Trial Sentence on Plea Acceptance

Recommendations



Note. Error bars indicate standard errors of the estimates.

Figure 2

Experiment 1 Main Effect of Evidence Strength on Plea Acceptance Recommendations

Note. Error bars indicate standard errors of the estimates.

Experiment 1 investigated the effects of evidence strength and potential trial sentence on attorneys' plea recommendations. The findings suggest that both factors influence mock attorneys' recommendations. Strong evidence and high potential sentence led to more plea acceptance recommendations. These findings suggest that factors involved in the original SoT play an important role in attorney decision-making, consistent with findings from previous research (e.g., Cardenas et al., 2023; Hellgren et al., 2022; Henderson, 2021; Kramer et al., 2007). In a second experiment, we further probed the effects of evidence strength and potential trial sentence when defendant guilt status is considered, as in recent research on the expanded SoT (Wilford et al., 2021).

Experiment 2 Method

Experiment 2 expanded on Experiment 1 by including defendant guilt status. To enhance the generalizability of results to a different population, we recruited a community sample of participants from Amazon's Mechanical Turk (Mturk). Participants followed the same procedure as Experiment 1, with the addition of the new factor of defendant guilt status. We hypothesized a replication of the main effects of Experiment 1 for evidence strength and potential trial sentence, such that mock attorneys in the strong evidence and high potential sentence conditions would be more likely to recommend plea acceptance compared to those in the weak evidence and low potential sentence conditions (**Hypothesis #1**). We also expected that defendant guilt status would significantly influence plea recommendations, such that mock attorneys in guilty conditions would be more likely to recommend plea acceptance compared to those in innocent conditions (**Hypothesis #2**).

Design

Experiment 2 was a 2 (Evidence strength: strong, weak) \times 2 (Potential trial sentence: high, low) \times 2 (Defendant guilt status: guilty, innocent) between-subjects factorial design. Participants were randomly assigned to one of eight conditions in which evidence strength, potential trial sentence, and defendant guilt status were manipulated. The factors of evidence strength and potential sentence were the same as Experiment 1. That is, the evidence strength factor manipulated evidence strength to be either strong or weak. The strong evidence condition presented three pieces of inculpatory evidence and one piece of exculpatory evidence, whereas the weak evidence condition presented one piece of inculpatory evidence and one piece of exculpatory evidence. The potential trial

sentence factor manipulated the sentence to be either high (8 years) or low (2 years). The new factor of defendant guilt status was manipulated such that participants were told whether the defendant was guilty or innocent. The dependent variable included mock attorneys' plea recommendations for their clients to accept or reject the plea offer.

Participants

We recruited Mturk participants ($N = 500$) via CloudResearch's Mturk Toolkit. We conducted a post hoc power analysis for logistic regression that indicated the sample size of 500 had 99% statistical power to detect an effect size for OR of 2. Participants' ages ranged from 19 to 91 years ($M = 40.54$, $SD = 12.02$), and about half (51.0%) identified as male. Participants predominantly identified as White or Caucasian (70.4%), followed by Black or African American (7.6%), East Asian (7.6%), Hispanic or of Latin American descent (4.8%), and another or multiple ethnicities (9.6%). The survey took approximately 15 minutes to complete, and all participants were paid \$2.00 upon completion. Participants enrolled online via Mturk, and the survey was administered through Qualtrics.

Materials and Procedure

The materials and procedure for this experiment were the same as in Experiment 1, with one exception: The case vignette was adjusted to include defendant guilt status. Specifically, the vignette was manipulated to depict whether the defendant was guilty or innocent of the crime charged. All other materials remained the same as Experiment 1. Cronbach's alphas for all scales indicated excellent to good reliability within this sample (ATCLS $\alpha = 0.93$, PIJ $\alpha = 0.85$, and SPJ-S $\alpha = 0.86$).

Experiment 2 Results and Discussion

We first analyzed participants' responses to attention and manipulation check questions. The majority (98%) of participants answered both questions correctly. We performed analyses with and without the data from participants who failed attention or manipulation checks. Because the results were not meaningfully different, we report the results from analyses using the full data set.

We tested Hypotheses #1 and #2 with a logistic regression model. The model included evidence strength, potential trial sentence, defendant guilt status, and their interactions as predictor variables, and plea recommendation as the dichotomous outcome variable (see Table 2). The original model also included ATCLS scores, PIJ scores, SPJ-S scores, confidence ratings, and demographic variables as covariates. As none of the covariates significantly predicted plea recommendations ($ps \geq 0.059$), we dropped the covariates from the model to conserve statistical power.

Table 2

Experiment 2 Regression Coefficients for Predicting Plea Acceptance

Recommendations

Variable	<i>b</i>	<i>SE</i>	<i>p</i>	<i>OR</i>	95% CI
Potential trial sentence	0.642	0.230	0.005**	1.900	[1.212, 2.979]
Evidence strength	0.327	0.227	0.148	1.388	[0.890, 2.164]
Interaction	2.841	0.242	< 0.001***	17.13	[10.66, 27.51]

Note. *** indicates significance at $p < 0.001$, ** indicates significance at $p < 0.01$,

* indicates significance at $p < 0.05$.

We first examined whether there were significant interactions among evidence strength, potential trial sentence, and defendant guilt status in predicting plea recommendations. The results showed that none of the interactions were significant, χ^2 s \geq 0.081, $ps \geq$ 0.336. Thus, we removed the interaction terms from the model and used a main-effects only model to examine effects of evidence strength, potential trial sentence, and defendant guilt status (**Hypotheses #1 and #2**). The information criteria showed comparable fit to the data between the interaction model (AIC = 494.4, BIC = 528.2) and main-effects only model (AIC = 492.6, BIC = 509.5), supporting the use of the more parsimonious model.

The results showed a significant main effect of potential trial sentence, $b = 0.642$, $p = 0.005$, $OR = 1.900$, 95% CI [1.212, 2.979]. The odds of mock attorneys in the high potential sentence condition recommending plea acceptance ($M = 0.65$, $SD = 0.48$) were 1.9 times higher than the odds of those in the low potential sentence condition ($M = 0.35$, $SD = 0.50$). Thus, the results partially support Hypothesis #1 that mock attorneys in high potential sentence conditions would be more likely to recommend plea acceptance compared to those in low potential sentence conditions.

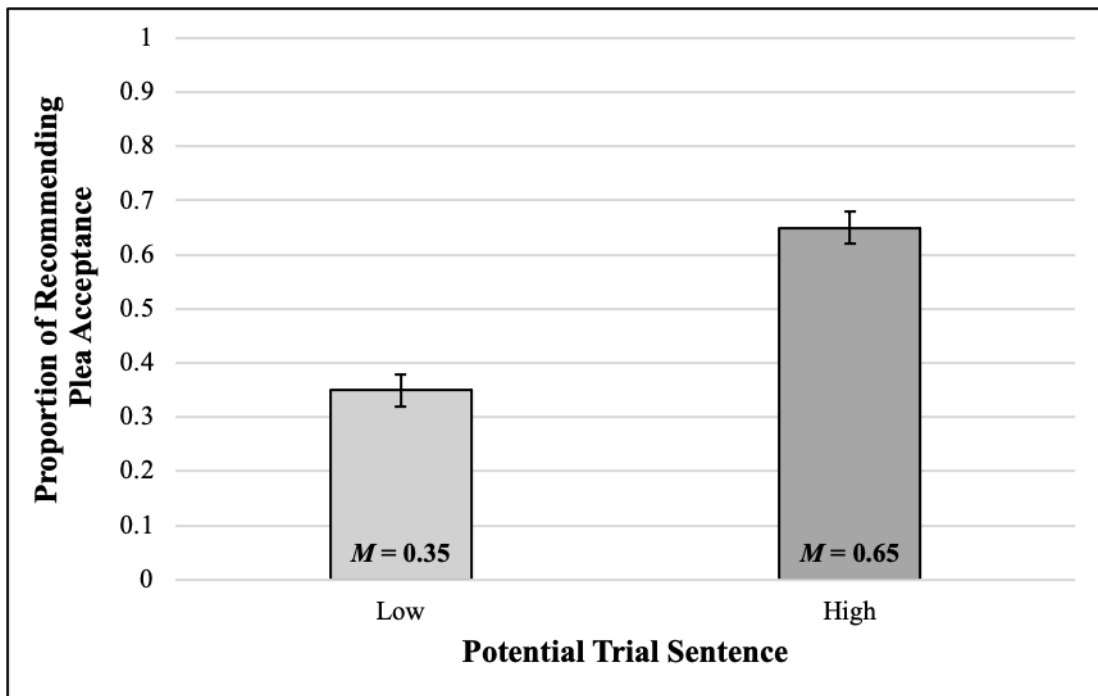
However, the results indicated that the main effect of evidence strength was not significant, $b = 0.327$, $p = 0.148$, $OR = 1.388$, 95% CI [0.890, 2.164]. Mock attorneys' plea recommendations did not differ between strong ($M = 0.63$, $SD = 0.48$) and weak ($M = 0.58$, $SD = 0.50$) evidence conditions. Thus, the results did not fully support Hypothesis #1 that mock attorneys in strong evidence conditions would be more likely to recommend plea acceptance compared to those in weak evidence conditions.

The results revealed a significant main effect of defendant guilt status, $b = 2.841$, $p < 0.001$, $OR = 17.13$, 95% CI [10.66, 27.51]. Mock attorneys in guilty conditions ($M = 0.86$, $SD = 0.47$) had 17.1 times higher odds of recommending plea acceptance than those in innocent conditions ($M = 0.35$, $SD = 0.48$). Thus, the results support Hypothesis #2 such that mock attorneys in guilty defendant conditions would be more likely to recommend plea acceptance compared to those in innocent defendant conditions. Figures 3 and 4 display the mean proportions of plea recommendations for the significant main effects.

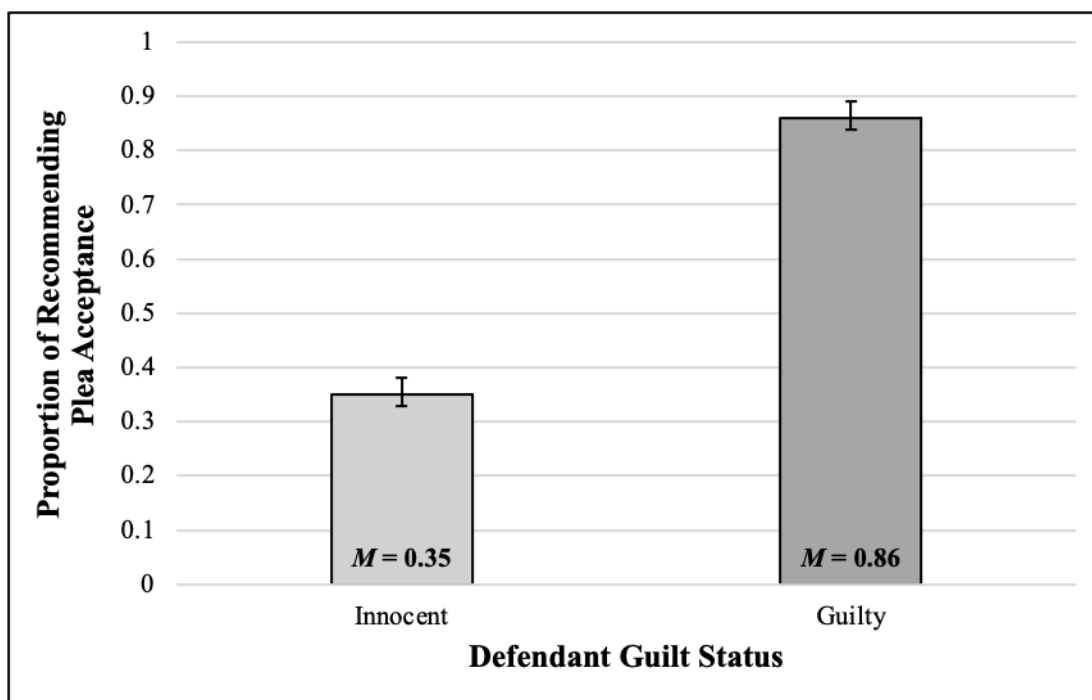
Figure 3

Experiment 2 Main Effect of Potential Trial Sentence on Plea Acceptance

Recommendations



Note. Error bars indicate standard errors of the estimates.

Figure 4***Experiment 2 Main Effect of Defendant Guilt Status on Plea Acceptance******Recommendations***

Note. Error bars indicate standard errors of the estimates.

Experiment 2 examined effects of the expanded SoT factors—evidence strength, potential trial sentence, and defendant guilt status—on mock attorneys’ plea recommendations. Consistent with Experiment 1, the findings revealed that potential trial sentence significantly influenced mock attorneys’ recommendations. High potential sentence led to more plea acceptance recommendations. Inconsistent with Experiment 1, evidence strength did not influence mock attorneys’ recommendations. Strong evidence did not lead to more plea acceptance recommendations as it did in the previous experiment.

Most importantly, defendant guilt status significantly influenced mock attorneys' plea recommendations, with a substantial effect size. Our research reveals that the odds that an attorney would recommend plea acceptance for a guilty defendant would be 17 times higher than that for an innocent defendant. Given such a tremendous effect size, it could be the case that guilt status overwhelmed evidence strength, causing evidence strength to no longer be a significant contributor to plea recommendations. In other words, attorneys may not take evidence into account if they are aware of the defendant's guilt status.

General Discussion

The current research provided an empirical test of factors from SoT to explain attorney decision-making in plea bargaining. Specifically, this research examined how attorney plea recommendations are influenced by evidence strength, potential trial sentence, and defendant guilt status (Bushway & Redlich, 2012; Bushway et al., 2014; Wilford et al., 2021). The findings from these experiments showed that defendant guilt status was a powerful predictor of plea recommendations, consistent with the recent expansion of SoT (Wilford et al., 2021). Both evidence strength and potential trial sentence were also important predictors of plea recommendations; however, the effect of evidence strength diminished when defendant guilt status was included.

The effect of defendant guilt status suggests that the plea-bargaining process may enhance efficiency of the criminal legal system. This is especially true if attorneys are more inclined to advise guilty defendants to accept plea deals, thereby convicting guilty defendants pretrial and reducing resources expended for trial (Gormley, 2022). However, this implication relies on the assumption that attorneys form accurate judgments of

defendant guilt status. Sometimes, this may not be the case. For example, attorneys may presume that innocent defendants are guilty based on their perceived conviction probability (Hellgren et al., 2022) or other cognitive biases (Charman et al., 2019). If attorneys form inaccurate judgments of defendant guilt status, the plea-bargaining process can be harmful, as attorneys might recommend innocent defendants to falsely plead guilty. Thus, our findings highlight the importance of attorneys forming accurate judgments of defendant guilt.

The effect of potential trial sentence also provides valuable insights into plea bargaining in the criminal legal system. Specifically, our research revealed that potential sentence was a strong predictor of attorneys' plea recommendations, for both guilty and innocent defendants. This is concerning because prosecutors have the autonomy to charge cases and craft plea offers to incentivize defendants' guilty pleas. If discrepancies between the plea offer and potential trial sentence are too large, attorneys may advise innocent defendants to falsely plead guilty (Helm et al., 2022). For example, prosecutors sometimes overcharge, meaning that they charge defendants with more severe charges or a greater number of charges than facts of the case support (Haby & Brank, 2013). This practice inflates the discrepancy between the plea offer and potential trial sentence. In such situations, attorneys may advise both guilty and innocent defendants to plead guilty to avoid more punitive consequences at trial. Thus, the effect of potential trial sentence on attorneys' plea recommendations can contribute to false guilty pleas via prosecutorial practices that encourage attorneys to advise their clients to accept plea offers, regardless of their factual guilt or innocence.

Limitations and Future Directions

Despite the implications of these findings, there are some limitations of this research. Most importantly, we used samples of participants with limited legal knowledge as mock attorneys. Although it would have been beneficial to examine these factors using actual attorneys, obtaining a sample large enough to ensure sufficient power to detect effects among this specialized population was not feasible for the current research. Now that the effects have been established with mock attorneys, future research will focus on testing these effects within the target population (i.e., attorneys) to replicate and extend the findings. Future research should also explore whether attorneys make inferences about their client's guilt status, and if this affects their plea recommendations in the same way as ground truth in the current research.

Another limitation of these experiments is the lack of verisimilitude, or the appearance of being real. This could affect participants' plea recommendations because they might perceive their decisions as lacking consequentiality. That is, the online nature of these vignette-based experiments might have influenced participants' responses because of their awareness that the decisions would not impact an actual defendant. Future research should attempt to replicate the current research using interactive methods and behavioral paradigms to increase ecological validity.

Lastly, future research should investigate a potential interaction effect between defendant guilt status and evidence strength on attorneys' plea recommendations. Our research showed that evidence strength ceased to predict plea recommendations when defendant guilt status was included. Nevertheless, this could be due to the type of evidence presented during pretrial negotiations (Redlich et al., 2016). Thus, future

research should examine this effect with different manipulations of evidence strength to determine the threshold for which evidence strength affects attorneys' plea recommendations when defendant guilt status is known.

Conclusion

The current research informs the plea-bargaining literature by empirically testing factors from the expanded SoT on mock attorneys' plea recommendations. Specifically, we investigated the influence of evidence strength, potential trial sentence, and defendant guilt status on plea recommendations. Together, the findings from this research demonstrate that all three factors affect plea recommendations. Although these findings show that mock attorneys are more likely to recommend that guilty defendants accept plea offers than innocent defendants, it also reveals the circumstances in which they might recommend that innocent defendants falsely plead guilty (i.e., when the evidence is strong or potential sentence is high). Therefore, these findings could be used to educate defense attorneys against factors that contribute to false guilty plea recommendations.

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Appendix A

Case Vignettes

Summary 1—Strong evidence:

Your client, Mr. Durbin, is charged with robbing George Watson on Saturday, February 19, 2022 at approximately 7:15 pm. Mr. Watson and his wife were leaving the restaurant when they were approached by a person who demanded Mr. Watson's wallet and cell phone and Mrs. Watson's purse. The man appeared to have a weapon in his jacket. Mr. Watson initially resisted, and the perpetrator threatened to shoot both of them if they did not comply. The Watsons handed over their belongings, and the perpetrator took them and ran out of sight. The Watsons immediately returned to the restaurant and called the police.

The record shows the police investigation led to your client. After contacting the police, the Watsons independently gave their statements and physical descriptions of the culprit. A sketch artist created a rendering based on each description, and the police took the sketches to establishments in the area. The owner of a gym $\frac{3}{4}$ of a mile from the scene of the crime tentatively identified both sketches as images of your client, a member and frequenter of the gym. The gym owner told the police, "Well it looks kinda like a guy who hangs out here, my buddy Durbin."

Further, the police used cell tower records to locate your client within two miles of the scene of the crime around the time of the offense. Both your client's phone and Mr. Watson's phone pinged the same tower, indicating it was the closest tower to both phones. This tower is also the closest tower to the gym. Your client checked into the gym on the day of the crime at 6:37 pm. The gym owner is familiar with Mr. Durbin and testified that Mr. Durbin is usually at the gym for 1.5-2 hours, which could have placed your client at the gym on the night in question until 8:00 or 8:30 pm.

An empty wallet, which appeared identical to Mr. Watson's, was also found in the dumpster next to the gym, along with some small items that matched the contents of Mrs. Watson's purse. A handgun with no serial number was also found near the dumpster. Your client is not the owner of a firearm. No such weapon is registered in his name. Mere proximity is circumstantial evidence.

Although there is no evidence linking your client to the contents of Mrs. Watson's purse, DNA evidence was found on the dumpster next to the gym that matches your client. Mr. Durbin goes to the gym often and admits to using the dumpster on occasion, which presents one possible explanation for his DNA being found at the disposal site. Further, no DNA evidence was found on the handgun near the dumpster.

Your client was brought to the station for questioning and an identification. Mr. and Mrs. Watson each identified your client in a lineup as the person who had robbed them. Mr. and Mrs. Watson made these identifications in separate rooms, at the same time, and without consulting one another. Both gave their identifications with high levels of confidence.

After many hours of interrogation, your client admitted to the police that he robbed Mr. and Mrs. Watson on the way home from the gym that evening. However, he later recanted the confession, stating that he lied due to lack of sleep and highly manipulative interrogation tactics by investigators. No written confession was provided.

Finally, your client's coworker, Ms. Jones, testified to Mr. Durbin's character in her deposition. She reported that your client has not had any infractions with the law, aside from a couple parking tickets. Ms. Jones also testified to Mr. Durbin's upstanding character, record of community service, and position of respect within his company. However, it is possible she does not know everything about his life.

Summary 2—Weak evidence:

Your client, Mr. Durbin, is charged with robbing George Watson on Saturday, February 19, 2022 at approximately 7:15 pm. Mr. Watson and his wife were leaving the restaurant when they were approached by a person who demanded Mr. Watson's wallet and cell phone and Mrs. Watson's purse. The man appeared to have a weapon in his jacket. Mr. Watson initially resisted, and the perpetrator threatened to shoot both of them if they did not comply. The Watsons handed over their belongings, and the perpetrator took them and ran out of sight. The Watsons immediately returned to the restaurant and called the police.

The record shows the police investigation led to your client. After contacting the police, the Watsons independently gave their statements and physical descriptions of the culprit. A sketch artist created a rendering based on each description, and the police took the sketches to establishments in the area. The owner of a gym $\frac{3}{4}$ of a mile from the scene of the crime tentatively identified both sketches as images of your client, a member and frequenter of the gym. The gym owner told the police, "Well it looks kinda like a guy who hangs out here, my buddy Durbin."

Further, the police used cell tower records to locate your client within two miles of the scene of the crime around the time of the offense. Both your client's phone and Mr. Watson's phone pinged the same tower, indicating it was the closest tower to both phones. This tower is also the closest tower to the gym. Your client checked into the gym on the day of the crime at 6:37 pm. The gym owner is familiar with Mr. Durbin and testified that Mr. Durbin is usually at the gym for 1.5-2 hours, which could have placed

your client at the gym on the night in question until 8:00 or 8:30 pm.

An empty wallet, which appeared identical to Mr. Watson's, was also found in the dumpster next to the gym, along with some small items that matched the contents of Mrs. Watson's purse. A handgun with no serial number was also found near the dumpster. Your client is not the owner of a firearm. No such weapon is registered in his name. Mere proximity is circumstantial evidence.

Your client was brought to the station for questioning and an identification. Mr. and Mrs. Watson each identified your client in a lineup as the person who had robbed them. Mr. and Mrs. Watson made these identifications in separate rooms, at the same time, and without consulting one another. Both gave their identifications with high levels of confidence.

Finally, your client's coworker, Ms. Jones, testified to Mr. Durbin's character in her deposition. She reported that your client has not had any infractions with the law, aside from a couple parking tickets. Ms. Jones also testified to Mr. Durbin's upstanding character, record of community service, and position of respect within his company. However, it is possible she does not know everything about his life.

Plea bargain 1—High potential trial sentence/guilty defendant:

Charge information:

Mr. Durbin is charged with **robbery**, which is defined as “*the unlawful taking of personal property from the person of another, or in the person's presence, against his or her will, by means of force or violence or fear of injury, immediate or future, to his or her person or property, or the person or property of a member of his or her family, or of anyone in his or her company at the time of the robbery. A taking is by means of force or fear if force or fear is used to:*

- (a) *Obtain or retain possession of the property;*
- (b) *Prevent or overcome resistance to the taking; or*
- (c) *Facilitate escape.*” (NRS 200.380)

Recall that Mr. Durbin is guilty.

You are briefly meeting with your client before his plea hearing. He has already been arraigned, which means you had a prior proceeding in which you and your client were informed of the charge (robbery) against him. You did not enter a plea at the arraignment but will have a chance to do so now. This charge typically carries a sentence of **8 years**. The prosecutor has offered a plea deal for **1 year**.

If your client admits guilt to the **robbery** and waives his trial rights, **the sentence will only be 1 year**.

What do you tell Mr. Durbin to choose?

You will make your plea recommendation on the next page.

Plea bargain 2—High potential trial sentence/innocent defendant:

Charge information:

Mr. Durbin is charged with **robbery**, which is defined as “*the unlawful taking of personal property from the person of another, or in the person’s presence, against his or her will, by means of force or violence or fear of injury, immediate or future, to his or her person or property, or the person or property of a member of his or her family, or of anyone in his or her company at the time of the robbery. A taking is by means of force or fear if force or fear is used to:*

- (a) Obtain or retain possession of the property;*
- (b) Prevent or overcome resistance to the taking; or*
- (c) Facilitate escape.” (NRS 200.380)*

Recall that Mr. Durbin is innocent.

You are briefly meeting with your client before his plea hearing. He has already been arraigned, which means you had a prior proceeding in which you and your client were informed of the charge (robbery) against him. You did not enter a plea at the arraignment but will have a chance to do so now. This charge typically carries a sentence of **8 years**. The prosecutor has offered a plea deal for **1 year**.

If your client admits guilt to the **robbery** and waives his trial rights, **the sentence will only be 1 year**.

What do you tell Mr. Durbin to choose?

You will make your plea recommendation on the next page.

Plea bargain 3—Low potential trial sentence/guilty defendant:

Charge information:

Mr. Durbin is charged with **robbery**, which is defined as “*the unlawful taking of personal property from the person of another, or in the person’s presence, against his or her will, by means of force or violence or fear of injury, immediate or future, to his or her person or property, or the person or property of a member of his or her family, or of anyone in his or her company at the time of the robbery. A taking is by means of force or fear if force or fear is used to:*

- (a) Obtain or retain possession of the property;*

- (b) *Prevent or overcome resistance to the taking; or*
 (c) *Facilitate escape.*” (NRS 200.380)

Recall that Mr. Durbin is guilty.

You are briefly meeting with your client before his plea hearing. He has already been arraigned, which means you had a prior proceeding in which you and your client were informed of the charge (robbery) against him. You did not enter a plea at the arraignment but will have a chance to do so now. This charge typically carries a sentence of **2 years**. The prosecutor has offered a plea deal for **1 year**.

If your client admits guilt to the **robbery** and waives his trial rights, **the sentence will only be 1 year**.

What do you tell Mr. Durbin to choose?

You will make your plea recommendation on the next page.

Plea bargain 4—Low potential trial sentence/innocent defendant:

Charge information:

Mr. Durbin is charged with **robbery**, which is defined as “*the unlawful taking of personal property from the person of another, or in the person’s presence, against his or her will, by means of force or violence or fear of injury, immediate or future, to his or her person or property, or the person or property of a member of his or her family, or of anyone in his or her company at the time of the robbery. A taking is by means of force or fear if force or fear is used to:*

- (a) *Obtain or retain possession of the property;*
 (b) *Prevent or overcome resistance to the taking; or*
 (c) *Facilitate escape.*” (NRS 200.380)

Recall that Mr. Durbin is innocent.

You are briefly meeting with your client before his plea hearing. He has already been arraigned, which means you had a prior proceeding in which you and your client were informed of the charge (robbery) against him. You did not enter a plea at the arraignment but will have a chance to do so now. This charge typically carries a sentence of **2 years**. The prosecutor has offered a plea deal for **1 year**.

If your client admits guilt to the **robbery** and waives his trial rights, **the sentence will only be 1 year**.

What do you tell Mr. Durbin to choose?

You will make your plea recommendation on the next page.

Appendix B

Attitudes Toward the Criminal Legal System Scale – Martin & Cohn (2004)

First, please answer some questions about your attitudes toward the criminal justice system.

Indicate to what extent you agree with the following statements. Provide a rating from 1 (Strongly disagree) to 5 (Strongly agree).

Juries are the 6-12 laypeople chosen to decide the verdict (outcome) in a case. *Defense attorneys* are lawyers who represent the *defendant*, or person being accused of committing a crime(s).

1. Juries make accurate decisions most of the time. (JR, C)
2. Punishment in this country is basically ineffective. (PN, R, C)
3. Most of our laws are fair and just. (F, L)
4. Juries often base decisions on their prejudices instead of facts. (F, JR, R)
5. Defense attorneys are dishonest if it means they can win a case. (I, DA, R)
6. Judges usually make fair decisions. (F, JG)
7. Police officers unfairly harass certain groups such as minorities and high-school kids. (F, PL, R)
8. Most of our laws are effective at protecting people. (L, C)
9. Lots of police are corrupt and hypocritical. (I, PL, R)
10. Judges are easily “bought off” by corrupt politicians. (I, JG, R)
11. Because police officers are trained so well there is less crime than there might be. (PL, C)
12. Our current system of punishment is effective at preventing crime. (PN, C)
13. Defense attorneys care more about their clients than about making money. (I, DA, C)
14. In general, defense attorneys represent their clients very well. (DA, C)
15. Most prosecuting attorneys are as fair to the victim and defendant as possible. (F, PA)
16. Police officers treat everyone equally because they are able to ignore prejudice. (F, PA)
17. There are too many laws that impose on personal freedom. (F, L, R)
18. Judges tend to let bias and prejudice affect their decisions. (F, JG, R)
19. Prosecuting attorneys are dishonest if it means they can win a case. (I, PA, R)
20. A lot of judges make poor decisions (JG, R, C)
21. Most defense attorneys don’t have the time or resources to do their jobs well. (DA, R, C)
22. Juries make fair decisions most of the time. (F, JR)

23. Defense attorneys aren't fair to victims because they represent criminals. (F, DA, R)
24. The punishment given usually fits the crime. (F, PN)

Note. Subscale identification is given first (I=integrity, C=competence, F=fairness) and is followed by category identification (JG=judges, L=law, PN=punishment, PL=police, DA=defense attorneys, PA=prosecuting attorneys). Items followed by R were reverse coded.

Perceived Inequality of Justice Scale – Pleasence & Balmer (2018)

Now, some questions about your general impression and experience of the criminal justice system.

We are not concerned with the civil justice system. We are concerned with the criminal justice system that deals with things like being a victim or defendant of a property crime, violent crime, organized crime, consensual crime, or white-collar crime.

Thinking about the criminal justice system, to what extent do you disagree or agree with the following statements?

1. People with less money generally get a worse outcome.
2. For issues like these, law is like a game in which the skillful and resourceful are more likely to get what they want.
3. The law always treats both parties fairly, whatever their background, gender, ethnicity, or faith.
4. Judges have their own agendas separate from the law.
5. The decisions and actions of courts are influenced by pressure from the press and politicians.
6. Courts always treat both parties fairly, whatever their background, gender, ethnicity, or faith.

Note. Response categories ranged from 1 (Strongly disagree) to 5 (Strongly agree).

**Support for Procedural Justice Short Scale – Grootelaar & van den Bos
(2018); Grootelaar et al. (2022); Murphy et al. (2023)**

Next, please answer a few more questions about defendants and judges. Indicate to what extent you agree with the following statements. Provide a rating from 1 (Strongly disagree) to 5 (Strongly agree).

1. Defendants should be treated in a just manner.
2. Defendants' opinions should be seriously listened to.
3. Defendants should be treated with respect.
4. Judges should carefully study a defendant's case.
5. Judges should treat all defendants in the same way.

Note. The original scale was adapted for the purposes of the current research.

Chapter 3

Attorneys' Plea Recommendations: The Effects of Cognitive Processing Style

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We have no known conflict of interest to disclose.

Funding for this project was provided by the James T. Richardson Student Research Proposal Award from the University of Nevada, Reno's Interdisciplinary Social Psychology PhD Program and the American Academy of Forensic Psychology (AAFP) Dissertation Grant in Applied Law/Psychology. The first author was supported by the Russell J. and Dorothy S. Bilinski Fund's Dissertation Year Fellowship, a program of the Bilinski Educational Foundation and the University of Nevada, Reno College of Liberal Arts.

The authors thank Victoria Sears and the Nevada Undergraduate Research Award (NURA) for their financial and operational support of this project.

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Abstract

It is widely recognized that attorneys' plea recommendations influence defendants' plea decision-making. Research has recently begun to explore how attorneys' individual-level factors, or characteristics, affect how influential their plea recommendations are for defendants' plea decisions. However, the current research is the first to investigate how attorneys' characteristics affect their own plea recommendations. Using Fuzzy Trace Theory (FTT), this experiment examined whether attorneys' cognitive processing styles—gist versus verbatim processing—influenced their plea recommendations. Moreover, this experiment examined whether attorneys' cognitive processing styles interact with factors from the Shadow of the Trial (SoT) theory. A sample of attorneys ($N = 403$) engaged in a plea simulation in which conviction probability, potential trial sentence, and defendant guilt status were manipulated, and their cognitive processing styles were measured. The results revealed an interaction effect between cognitive processing style and conviction probability, as well as main effects of conviction probability and defendant guilt status for attorneys-participants' plea recommendations. The implications of these findings are discussed in terms of advancing theory and reducing the risk of wrongful convictions via attorneys' plea recommendations.

Keywords: Attorneys, plea recommendations, shadow of the trial, fuzzy trace theory, cognitive processing style

Attorneys' Plea Recommendations: The Effects of Cognitive Processing Style

The practice of plea bargaining began as a way to increase efficiency in the criminal legal system by convicting guilty defendants pretrial, thereby eliminating resources expended in court (Dervan & Edkins, 2013; Gormley, 2022). However, plea bargaining has evolved into a coercive practice wherein most (97%) defendants—even some who are factually innocent—plead guilty to avoid the risk associated with going to trial (e.g., harsher penalties) (U.S. Sentencing Commission, 2017). Such an overreliance on plea bargaining may be related to the issue of increasing wrongful convictions in the United States. This concern is underscored by the fact that a large portion (24%) of exonerees have falsely pled guilty (National Registry of Exonerations, 2024). Thus, researchers and legal scholars have sought to understand what factors influence defendants' plea decisions to reduce the risk of wrongful convictions via false guilty pleas.

The current research sought to address this issue by investigating factors that influence attorneys' plea recommendations. Previous research has demonstrated that attorneys' plea recommendations significantly affect defendants' plea decisions (Henderson & Levett, 2019; Henderson & Shteynberg, 2020; Henderson et al., 2023; Lee et al., 2020), especially innocent defendants (Henderson & Levett, 2018). That is, both guilty and innocent defendants typically follow the advice of their attorneys, but innocent defendants are particularly susceptible to attorney influence in plea bargaining. Research has also shown that attorneys sometimes advise innocent defendants to falsely plead guilty because they believe it will result in the best and least time-consuming outcome (Bordens & Bassett, 1985; Viljoen et al., 2005; Zottoli et al., 2016). As such, this

research shifts the focus to understanding what factors influence *attorneys'* plea recommendations, rather than *defendants'* plea decisions, to reduce the risk of wrongful convictions via false guilty plea recommendations.

To better understand attorneys' plea recommendations, we explored how attorneys' characteristics, or individual-level factors, may shape their plea recommendations. Using Fuzzy Trace Theory (FTT), we examined the effects of attorneys' cognitive processing styles (i.e., gist versus verbatim processing) on their plea recommendations. Because this is the first experiment to examine such effects, we sought to address the research question: *Do attorneys' cognitive processing styles influence their plea recommendations?* Further, as research has shown that defendants' cognitive processing styles influence what factors from the Shadow of the Trial (SoT) theory are important for their plea decisions (Helm & Reyna, 2017; Helm et al., 2018), we also sought to address the research question: *Do attorneys' cognitive processing styles interact with the SoT factors (i.e., conviction probability, potential trial sentence, and defendant guilt status) to predict their plea recommendations?* The findings from this experiment provide a more comprehensive understanding of attorney influence in plea bargaining and help to improve attorney practices to reduce the risk of wrongful convictions via false guilty plea recommendations.

Shadow of the Trial (SoT) Theory

Previous research has identified and empirically tested various factors that influence legal actors' plea decisions, including extralegal factors like defendant characteristics (e.g., Gonçalves, 2022; Redlich & Shteynberg, 2016; Zottoli & Daftary-Kapur, 2019) and legal factors like potential trial sentence and plea discount (e.g.,

Schneider, 2018; Schneider & Zottoli, 2019). Through this research, it has been determined that the main predictors of plea decisions are factors from the Shadow of the Trial (SoT) theory (Mnookin & Kornhauser, 1979). This theory has reliably shown that plea decisions are based on a comparison of legal factors, including conviction probability and potential trial sentence, to the plea offer (Bushway & Redlich, 2012; Bushway et al., 2014). Recently, the theory was expanded to include defendants' guilt status (Wilford et al., 2021). As such, these three factors—conviction probability, potential trial sentence, and defendant guilt status—are the main predictors of plea decisions according to SoT.

SoT has been tested amongst all actors involved in plea negotiations. Bushway and colleagues (2014) examined this theory using survey responses from prosecutors, defense attorneys, and judges. Their findings mostly supported SoT in that conviction probability and potential trial sentence, as compared to the plea sentence, were the main predictors of plea decisions. Still, the researchers confirmed that this theory is too simplistic and does not include all factors that influence plea decisions, including defendants' factual guilt or innocence.

As research has consistently demonstrated that guilty defendants are more likely to accept plea offers than innocent defendants (e.g., Dervan & Edkins, 2013; Redlich & Shteynberg, 2016; Wilford et al., 2020), SoT was recently expanded to include defendant guilt status as another main predictor of plea decisions. Wilford and colleagues (2021) investigated this expanded theory using mock defendants' responses. Their findings demonstrated that the predictive power of SoT increased when defendant guilt status was included (Wilford et al., 2021). Therefore, the expanded SoT includes conviction

probability, potential trial sentence, and defendant guilt status as the main predictors of plea decisions (Bushway & Redlich, 2012; Bushway et al., 2014; Wilford et al., 2021). Recent research has sought to investigate how factors from SoT influence attorneys' plea recommendations for their clients.

Application to Plea Recommendations

The limited research on factors that influence attorneys' plea recommendations have focused primarily on factors from SoT—conviction probability, potential trial sentence, and defendant guilt status. Specifically, researchers have used these factors to predict attorneys' plea recommendations (Cardenas et al., 2023; Hellgren et al., 2022; Henderson, 2021; Kramer et al., 2007). For example, Henderson (2021) demonstrated that conviction probability influenced attorneys' plea recommendations, such that they were more likely to recommend plea acceptance when the conviction probability was high compared to low. Further, Hellgren and colleagues (2022) showed that defendants' claims of innocence had little to no effect on attorneys' plea recommendations. Instead, recommendations of plea acceptance were driven by attorneys' perceived conviction probability, consistent with previous research (Henderson, 2021).

Research has also shown that potential trial sentence influenced attorneys' plea recommendations (Cardenas et al., 2023; Kramer et al., 2007). Cardenas and colleagues (2023) demonstrated that attorneys were more likely to recommend plea acceptance when the potential trial sentence was high compared to moderate. Moreover, Kramer and colleagues (2007) examined the combined effects of conviction probability and potential trial sentence, indicating that attorneys were most likely to recommend plea acceptance when both conviction probability and potential trial sentence are high compared to low.

Nevertheless, the main limitation of SoT is that it performs well at the aggregate level but *not* at the individual level (Bibas, 2004; Edkins & Dervan, 2018). For instance, variation in plea decisions could be due to individual differences, such as non-neutral risk preferences or other non-rational behavior in decision-making.

Fuzzy Trace Theory (FTT)

To better understand individual-level factors that influence plea decision-making, researchers have applied Fuzzy Trace Theory (FTT; Reyna & Brainerd, 1995) to defendants' plea decisions. FTT is a dual-processing theory of memory and decision-making in which people encode information in two different ways: gist or verbatim processing (Reyna, 2012). Verbatim processing involves precise, yet surface-level, mental representations of stimuli. That is, verbatim processing includes details like exact words, numbers, or pictures of a stimulus but not the stimulus itself. Conversely, gist processing involves symbolic mental representations of stimuli that capture essential meaning without precise details. Gist processing includes more substantive information of a stimulus, regardless of exact words, numbers, or pictures. These mental representations affect subsequent decision-making such that they influence what information people rely on for their decisions. Specifically, people who rely on gist mental representations process information in a "fuzzy" but intuitive way, whereas people who rely on verbatim mental representations process information in an analytical way (Reyna et al., 2015). Thus, people who engage in verbatim processing rely on more quantitative information for decision-making, while those who engage in gist processing rely on more qualitative information (Reyna, 2008).

The predictions of FTT have recently been applied to defendants' plea decisions (Helm & Reyna, 2017; Helm et al., 2018; Zottoli et al., 2023). FTT predicts that defendants who rely on verbatim processing are more likely to use precise analyses of risk-reward tradeoffs for plea decisions and thus are more influenced by quantitative information like conviction probability and potential trial sentence. Defendants who rely on gist processing are more likely to use meaningful, categorical distinctions for plea decisions and thus are more influenced by qualitative information like the type of charge (e.g., felony versus misdemeanor) and factual guilt or innocence. Because of this, research has shown that defendants who relied on verbatim processing were more likely to falsely plead guilty, as they focused on quantitative information like trial penalty as opposed to qualitative information like defendant guilt status (Helm & Reyna, 2017; Helm et al., 2018). Despite this research on *defendants'* plea decisions, researchers have yet to investigate how individual-level factors, such as cognitive processing styles, influence *attorneys'* plea recommendations.

Attorney Characteristics

Research on how individual-level factors influence plea decisions has focused on the effects of attorney characteristics on defendants' plea decisions (e.g., Henderson & Shteynberg, 2020). That is, Henderson and Shteynberg (2020) showed that attorney source credibility factors significantly influenced defendants' plea decision-making. Defendants advised to accept the plea were more likely to do so when their attorney was high in trustworthiness compared to low. Further, when the attorney was high in expertise, defendants were more confident in their plea decisions. Thus, this experiment

demonstrated that attorney characteristics affect how influential their plea recommendations are for defendants' plea decisions.

Despite these important findings, research has yet to test the effects of attorney characteristics on their own plea recommendations. In other words, it has been established that attorney characteristics (Henderson & Shteynberg, 2020) and plea recommendations (Henderson & Levett, 2018, 2019; Henderson et al., 2023; Lee et al., 2020) affect defendants' plea decisions, but one question remains: How do attorney characteristics influence their plea recommendations? Consider research on FTT and defendants' plea decisions. The findings revealed that defendants who engaged in verbatim processing were more likely to falsely plead guilty because they focused on quantitative information (e.g., sentence discounts) rather than qualitative information (e.g., guilt or innocence) (Helm & Reyna, 2017; Helm et al., 2018). As research indicates that attorneys advise defendants to plead guilty even when they are innocent (Bordens & Bassett, 1985; Viljoen et al., 2005; Zottoli et al., 2016), it is possible that attorneys rely more on verbatim processing, and such reliance would affect their plea recommendations. The current experiment sought to address this gap in the plea-bargaining literature by testing attorneys' cognitive processing styles—gist versus verbatim processing—on their plea recommendations.

Research Overview

As mentioned, the purpose of this experiment was to address two research questions. First, do attorneys' cognitive processing styles influence their plea recommendations (**RQ1**)? Second, do attorneys' cognitive processing styles interact with the SoT factors (i.e., conviction probability, potential trial sentence, and defendant guilt

status) to predict their plea recommendations (**RQ2**)? To examine these potential effects, we employed similar methods to previous research by manipulating conviction probability, potential trial sentence, and defendant guilt status while measuring attorneys' cognitive processing styles (Helm & Reyna, 2017; Helm et al., 2018). We measured cognitive processing styles rather than manipulating them because to do so would be impractical (Price & Jhangiani, 2018). This research is the first to examine attorneys' cognitive processing styles as an inherent individual difference, meaning it cannot be altered experimentally. As a reminder, conviction probability and potential trial sentence represent verbatim processing because they provide quantitative information regarding the plea, whereas defendant guilt status represents gist processing because it provides qualitative information. Therefore, attorney-participants who rate conviction probability and potential trial sentence as more important for their plea recommendations rely on verbatim processing and those who rate defendant guilt status as more important rely on gist processing.

To address RQ1, we conducted an online experiment using an interactive computer simulation to examine how attorneys-participants' cognitive processing styles influence their plea recommendations. We hypothesized a main effect of attorneys-participants' cognitive processing style such that those who relied on verbatim processing would be more likely to recommend plea acceptance than those who relied on gist processing (**Hypothesis #1**). That is, attorneys who rated conviction probability and/or potential trial sentence as more important for their plea recommendations would provide more plea acceptance recommendations than those who rated defendant guilt status as more important.

To address RQ2, we manipulated conviction probability, potential trial sentence, and defendant guilt status within the simulation to determine whether attorneys-participants' cognitive processing styles moderated effects of the SoT factors for their plea recommendations. We hypothesized a main effect of conviction probability, consistent with previous research (Hellgren et al., 2022; Henderson, 2021). Attorney-participants in the high conviction probability conditions would be more likely to recommend plea acceptance than those in the low conviction probability conditions (**Hypothesis #2**). We also hypothesized a main effect of potential trial sentence, consistent with previous research (Cardenas et al., 2023). Attorney-participants in the high potential trial sentence conditions would be more likely to recommend plea acceptance than those in the low potential trial sentence conditions (**Hypothesis #3**). Further, we hypothesized a main effect of defendant guilt status, consistent with previous research on defendants' plea decisions (Dervan & Edkins, 2013; Redlich & Shteynberg, 2016; Wilford et al., 2020). Attorney-participants in the guilty defendant conditions would be more likely to recommend plea acceptance than those in the innocent defendant conditions (**Hypothesis #4**). Lastly, we hypothesized that attorneys' cognitive processing style would interact with the SoT factors. Attorney-participants in the high conviction probability and potential trial sentence conditions who rely on verbatim processing would be most likely to recommend plea acceptance (**Hypothesis #5**). We expected the same trends from Hypotheses #1 through #5 to be shown for attorneys-participants' confidence (0-100%) in their plea recommendations, willingness to recommend plea (WTRP; 0-100%), and maximum plea sentences they would accept (years/months).

Method

Participants

Based on a power analysis for logistic regression to detect an effect size of odds ratio (OR) of two, we needed to recruit 400 practicing attorneys in the United States to achieve 95% statistical power. Our attorney-participant recruitment strategy was twofold: We recruited via CloudResearch's Connect and a snowball sampling strategy similar to Bushway and colleagues (2014). The combined final sample size was $N = 403$.

CloudResearch Sample

We recruited 337 attorney-participants from Connect, an online source of high-quality data by CloudResearch (CR). In the Connect platform, we included prescreening questions to ensure only practicing attorneys with law degrees could participate in the survey. Further, we included prescreening questions in the survey itself. Any participants who did not answer "yes" to these questions were screened out prior to beginning the survey.

The sample was predominantly female (64.99%) and White (65.88%) with a mean age of 39.63 years ($SD = 12.76$), which generally aligns with the demographic composition of attorneys nationwide (American Bar Association, 2020). Attorney-participants worked mostly in densely populated (20.47%), urban jurisdictions (53.71%) from the southern region (40.95%) of the United States. Each attorney-participant was compensated \$10 for their participation via the Connect platform.

Snowball Sample

We recruited 66 attorney-participants using a snowball strategy (Bushway et al., 2014). Specifically, we emailed state and national criminal defense attorney associations

(e.g., Association of Criminal Defense Lawyers in Nevada, National Association for Public Defense) and public defenders' offices. We contacted 50 organizations and asked them to send the survey invitation to their members. We sent up to two messages to each organization via their contact form or email address listed on their website. Three of these organizations (6%) agreed to send the survey to their members-only listservs. We also reached out to personal contacts of the authors and posted on social media channels (e.g., Facebook, LinkedIn). The survey included prompts on the first and final screens requesting that attorney-participants forward the survey invitation to other attorneys in their personal and professional networks.

The sample was largely female (48.48%) and White (78.79%) with a mean age of 39.61 years ($SD = 11.78$), which also generally aligns with the demographic composition of attorneys in the United States (American Bar Association, 2020). Attorney-participants worked mostly in moderately populated (24.24%), urban jurisdictions (59.09%) from the western region (51.52%) of the United States. Each attorney-participant was compensated \$10 for their participation via Tremendous, wherein they chose between an electronic gift card or donation to pre-identified charities (e.g., NACDL Foundation for Criminal Justice, National Bail Fund Network, etc.).

Design

The current experiment was a 2 (Conviction probability: high, low) \times 2 (Potential trial sentence: high, low) \times 2 (Defendant guilt status: guilty, innocent) between-subjects factorial design. Attorney-participants were randomly assigned to conditions in which conviction probability, potential trial sentence, and defendant guilt status were manipulated. The conviction probability factor was manipulated to be either high (70%)

or low (30%). The potential trial sentence factor was manipulated to be either high (4 years) or low (1 year). The defendant guilt status factor was manipulated by informing attorney-participants whether the defendant was guilty or innocent. Cognitive processing styles were measured using a scale adapted from Helm and Reyna (2017) wherein attorney-participants rated how important each factor was for their plea recommendations. The primary dependent variable was attorneys-participants' plea recommendations for the client to accept or reject the plea offer carrying a 50% sentence reduction from the potential trial sentence. Additional dependent variables included attorneys-participants' confidence (0-100%), WTRP (0-100%), and max plea sentences (years/months).

Materials

The materials for this experiment included an interactive computer simulation (e.g., Wilford et al., 2021), decision questionnaire, and demographic questionnaire. To simulate a plea bargaining scenario, attorney-participants watched a series of three scenes from a first-person point of view. In the first scene, attorney-participants watched a hit-and-run crime. In the second scene, participants were approached by an avatar who was charged with the crime (i.e., the defendant) and asked them to serve as their defense attorney in this case. The defendant then informed attorney-participants whether they were guilty or innocent, and a flashback sequence was presented as evidence of factual guilt or innocence. In the third scene, attorney-participants were approached by another avatar who was the prosecuting attorney and informed them of the conviction probability, potential trial sentence, and plea offer. See Appendix A for a script of the simulation.

The decision questionnaire first asked attorney-participants for their plea recommendation (accept or reject), followed by confidence (0-100%), WTRP (0-100%), and max plea sentences (years/months). Next, attorney-participants were asked a series of questions intended to assess their values when making plea recommendations, as adapted from Helm and Reyna (2017). In particular, it asked attorney-participants about a number of considerations that vary from most gist-based (i.e., qualitative) to most verbatim-based (i.e., quantitative), including: (1) conviction probability, (2) sentence length at trial, (3) sentence length of plea deal, and (4) defendant's guilt or innocence. Attorney-participants rated how important each factor was for their plea recommendation on a 7-point Likert scale ranging from 1 (Not at all important) to 7 (Extremely important) with a midpoint of 4 (Neutral). Higher scores indicated reliance on verbatim processing, whereas lower scores indicated reliance on gist processing. The Cognitive Processing Style (CPS) scale had a Cronbach's alpha of $\alpha = 0.63$, indicating acceptable reliability within this sample (See Appendix B). Lastly, the decision questionnaire included attention and manipulation checks, such as "*What crime was the defendant charged with?*" and "*What was the potential trial sentence?*"

The demographic questionnaire asked attorney-participants for their age, gender identity, and race/ethnicity. It also asked attorney-participants questions regarding their jurisdictions, including region, population, and density. Finally, it asked attorney-participants an open-ended question about their perceptions of plea bargaining.

Procedure

Attorney-participants received participation invites via email or CR Connect with information regarding the experiment and a link to access it. First, the link directed

attorney-participants to a Qualtrics survey in which they received the informed consent and instructions. Second, attorney-participants were directed to the PleaJustice webpage (pleajustice.org) where they entered the simulation and proceeded through the scenes. Third, attorney-participants were redirected back to the Qualtrics survey to complete the decision and demographic questionnaires. Upon completion, attorney-participants were debriefed, thanked, and compensated for their participation.

Results

All analyses were performed using *R* Statistical Software (v4.1.2; R Core Team, 2021). First, we analyzed attorney-participants' responses to the attention and manipulation check questions. The majority (99%) of attorney-participants answered both questions correctly. We performed analyses with and without the data from those who failed attention or manipulation checks. Because the results were not meaningfully different, we report the results using the full data set. In the following sections, we discuss the findings for each dependent variable of interest: attorney-participants' plea recommendations, confidence, willingness to recommend plea (WTRP), and maximum plea sentences.

Plea Recommendations

To test attorney-participants' plea recommendations, we first examined descriptive statistics. Overall, attorney-participants were more likely to recommend their client reject (79%) than accept (21%) the plea offer. Of those who recommended plea acceptance, 24% recommended that their client falsely plead guilty.

Next, we tested Hypotheses #1-5 with a logistic regression model. The model included conviction probability, potential trial sentence, defendant guilt status, cognitive

processing style (CPS), and interaction effects as predictor variables. The dichotomous outcome variable included attorney-participants' plea recommendations (i.e., accept or reject). The original model also included sample source as a predictor variable, revealing a difference between CR-attorneys and snowball-attorneys, $\chi^2(1,401) = 13.28, p < 0.001$. That is, CR-attorneys ($M = 0.25, SD = 0.43$) showed increased odds of recommending plea acceptance compared to snowball-attorneys ($M = 0.05, SD = 0.21$). However, when the model was conducted with and without the data from snowball-attorneys ($N = 66$), the results were not meaningfully different. Thus, we retained all attorney-participants in the final model to conserve statistical power (See Table 1).

Table 1

Regression Coefficients for Predicting Plea Acceptance Recommendations

Variable	<i>b</i>	<i>SE</i>	<i>p</i>	<i>OR</i>	95% CI
Conviction probability	1.108	0.474	0.020*	3.028	[1.195, 7.673]
Potential trial sentence	0.259	0.517	0.617	1.295	[0.470, 3.569]
Defendant guilt status	-1.187	0.695	0.087	0.305	[0.078, 1.190]
CPS	-1.225	0.474	0.010*	0.293	[0.116, 0.744]
Conviction probability*CPS	1.386	0.549	0.012*	3.998	[1.363, 11.73]
Potential trial sentence*CPS	0.826	0.609	0.175	2.284	[1.363, 11.73]
Defendant guilt status*CPS	0.706	0.663	0.287	2.025	[0.692, 7.537]
Conviction probability*Potential trial sentence	-0.151	0.666	0.821	0.860	[0.233, 3.173]

Conviction probability*Defendant guilt status	-0.485	0.856	0.571	0.615	[0.115, 3.298]
Potential trial sentence*Defendant guilt status	-1.829	1.284	0.154	0.161	[0.013, 1.987]
Conviction probability*Potential trial sentence*CPS	-0.644	0.749	0.390	0.525	[0.121, 2.278]
Potential trial sentence*Defendant guilt status*CPS	-0.152	1.317	0.908	0.859	[0.065, 11.35]
Conviction probability*Defendant guilt status*CPS	0.047	0.878	0.957	1.048	[0.188, 5.856]
Conviction probability*Potential trial sentence*Defendant guilt status	1.458	1.477	0.323	4.299	[0.238, 77.72]
Conviction probability*Potential trial sentence*Defendant guilt status*CPS	-0.702	1.547	0.650	0.495	[0.024, 10.27]

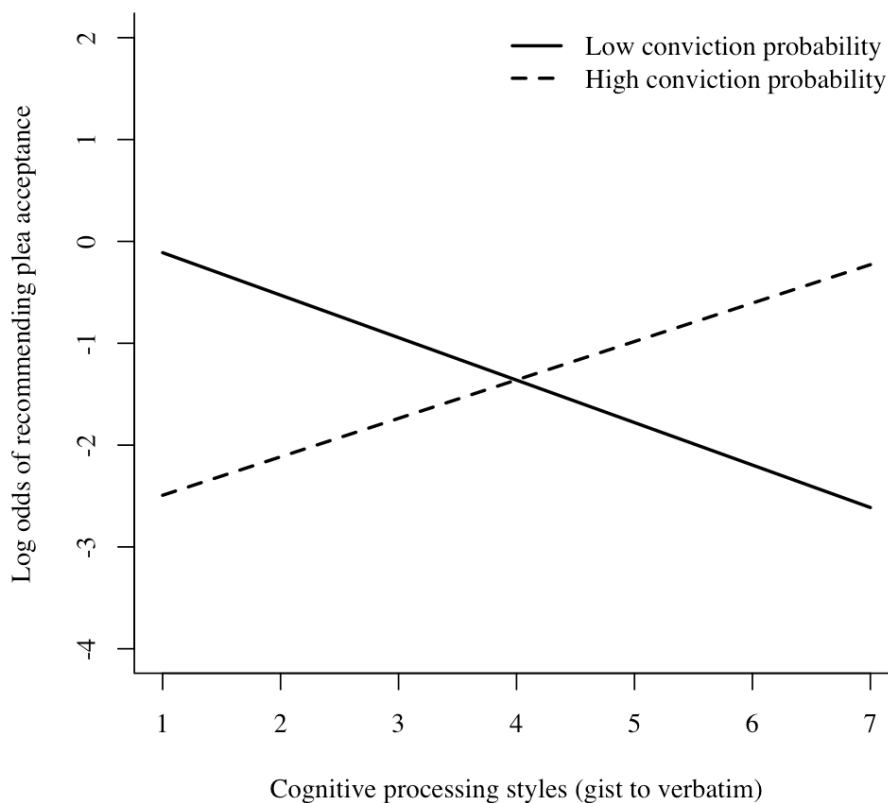
Note. *** indicates significance at $p < 0.001$, ** indicates significance at $p < 0.01$, * indicates significance at $p < 0.05$.

We first examined whether there was a significant interaction between attorneys-participants' cognitive processing style and any of the SoT factors (**Hypothesis #5**). The results revealed a significant interaction effect between cognitive processing style and conviction probability for attorney-participants' plea recommendations, $\chi^2(1,402) = 12.50, p = 0.000$. Because of the significant interaction, we probed the simple effects. When the conviction probability was high, attorney-participants' cognitive processing

style affected their plea recommendations such that verbatim processing increased the odds of recommending plea acceptance compared to gist processing, $z = 2.04, p = 0.04$. When the conviction probability was low, attorney-participants' cognitive processing style affected their plea recommendations such that gist processing increased the odds of recommending plea acceptance compared to verbatim processing, $z = -1.40, p = 0.16$. Therefore, the effect of cognitive processing styles was moderated by conviction probability for attorney-participants' plea recommendations.

No other significant interaction effects were found, $\chi^2s \leq 1.962, ps \leq 0.928$.

Figure 1 displays the log odds of attorney-participants' plea recommendations for the significant interaction effect.

Figure 1***Interaction Effect for Plea Acceptance Recommendations***

We then examined whether there were any main effects (**Hypotheses #1-4**). The results revealed a significant main effect of conviction probability for attorney-participants' plea recommendations, $\chi^2(1,402) = 14.68, p = 0.000$. Attorney-participants in the high conviction probability conditions ($M = 0.28, SD = 0.45$) had over double the odds of recommending plea acceptance as those in the low conviction probability conditions ($M = 0.14, SD = 0.35$). The results also revealed a significant main effect of defendant guilt status for attorney-participants' plea recommendations, $\chi^2(1,402) = 48.36, p > 0.001$. Attorney-participants in the guilty defendant conditions ($M = 0.36, SD = 0.48$) showed increased odds of recommending plea acceptance compared to those in the

innocent defendant conditions ($M = 0.09$, $SD = 0.28$). However, the results did not reveal main effects of cognitive processing style or potential trial sentence for attorney-participants' plea recommendations, χ^2 s ≤ 0.141 , $ps \leq 0.864$. As such, the results did not support the hypotheses that verbatim processing or high potential trial sentence would lead to increased odds of recommending plea acceptance compared to gist processing or low potential trial sentence.

Confidence

To test attorney-participants' confidence, we first visualized the data and compiled descriptive statistics to test for missingness or non-normality of residuals. Next, we tested Hypotheses #1-5 with a multiple linear regression model. The model included conviction probability, potential trial sentence, defendant guilt status, cognitive processing style (CPS), and interaction effects as predictor variables. The continuous outcome variable included attorney-participants' confidence in their plea recommendations (0-100%). The original model also included sample source as a predictor variable, which did not reveal a difference between CR-attorneys and snowball-attorneys, $F(1,401) = 2.268$, $p = 0.133$, $R^2 = 0.006$, $R^2_{adj} = 0.003$. Thus, we retained all attorney-participants in the final model to conserve statistical power.

Prior to hypothesis testing, we categorized attorney-participants based on whether they recommended the defendant accept or reject the plea offer to examine their confidence in the direction of the recommendation. For those who recommended plea acceptance ($N = 85$; 21%), we did not find significant interaction or main effects for any of the variables of interest, F s ≤ 1.299 , $ps \leq 0.923$ (See Table 2).

Table 2***Regression Coefficients for Predicting Confidence of Plea Acceptance******Recommendations***

Variable	<i>b</i>	<i>SE</i>	<i>p</i>
Conviction probability	-9.379	7.218	0.198
Potential trial sentence	-4.815	8.112	0.555
Defendant guilt status	-9.523	12.37	0.444
CPS	1.665	6.666	0.804
Defendant guilt status*CPS	1.868	12.36	0.880
Conviction probability*CPS	3.002	7.819	0.702
Potential trial sentence*CPS	-12.62	16.88	0.457
Conviction probability*Potential trial sentence	1.974	9.712	0.840
Conviction probability*Defendant guilt status	6.821	14.78	0.646
Potential trial sentence*Defendant guilt status	-21.90	22.78	0.340
Conviction probability*Potential trial sentence*CPS	11.04	18.03	0.542
Potential trial sentence*Defendant guilt status*CPS	11.58	18.14	0.525
Conviction probability*Defendant guilt status*CPS	-1.686	17.40	0.923

Conviction probability*Potential trial sentence*Defendant guilt status	13.23	25.17	0.601
Conviction probability*Potential trial sentence*Defendant guilt status*CPS	14.26	26.57	0.298

Note. *** indicates significance at $p < 0.001$, ** indicates significance at $p < 0.01$, *

indicates significance at $p < 0.05$.

For those who recommended plea rejection ($N = 318$; 79%), we found significant interaction and main effects for some of the variables of interest (See Table 3).

Table 3

Regression Coefficients for Predicting Confidence of Plea Rejection Recommendations

Variable	<i>b</i>	<i>SE</i>	<i>p</i>
Conviction probability	-9.429	4.664	0.044*
Potential trial sentence	-0.589	4.507	0.896
Defendant guilt status	-2.547	4.147	0.540
CPS	-4.893	3.766	0.195
Defendant guilt status*CPS	6.682	4.562	0.144
Conviction probability*CPS	3.785	4.755	0.427
Potential trial sentence*CPS	4.007	4.868	0.411
Conviction probability*Potential trial sentence	2.184	6.842	0.749
Conviction probability*Defendant guilt status	15.825	6.062	0.009**

Potential trial sentence*Defendant guilt status	6.253	5.822	0.284
Conviction probability*Potential trial sentence*CPS	-8.334	6.602	0.208
Potential trial sentence*Defendant guilt status*CPS	-5.847	5.970	0.328
Conviction probability*Defendant guilt status*CPS	-3.671	6.042	0.544
Conviction probability*Potential trial sentence*Defendant guilt status	-7.414	8.611	0.390
Conviction probability*Potential trial sentence*Defendant guilt status*CPS	8.683	8.256	0.294

Note. *** indicates significance at $p < 0.001$, ** indicates significance at $p < 0.01$, * indicates significance at $p < 0.05$.

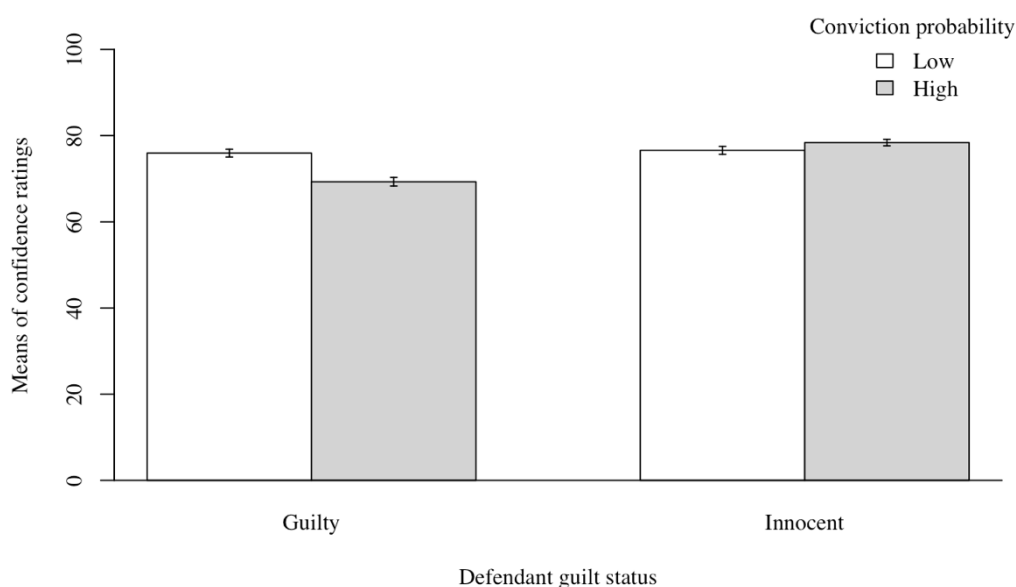
We first examined whether there was a significant interaction between attorneys-participants' cognitive processing style and any of the SoT factors (**Hypothesis #5**). Although we did not find any interaction effects between attorney-participants' cognitive processing style and the SoT factors, we did observe an interaction effect among some of the SoT factors themselves. The results revealed a significant interaction effect between conviction probability and defendant guilt status for attorney-participants' confidence, $F(15,301) = 15.82, p = 0.009, R^2 = 0.072, R^2_{adj} = 0.026$. Because of the significant interaction, we probed the simple effects. When the defendant was guilty, conviction probability affected attorney-participants' confidence such that they were more confident

in low conviction probability conditions than high conviction probability conditions, $t(301) = -2.43, p = 0.02$. When the defendant was innocent, conviction probability affected attorney-participants' confidence such that they were more confident in high conviction probability conditions than low conviction probability conditions, $t(301) = 1.43, p = 0.15$. Therefore, the effect of conviction probability was moderated by defendant guilt status for attorney-participants' confidence.

No other significant interaction effects were found, $F_s \leq 2.610, p_s \leq 0.750$. Figure 2 displays the means of attorney-participants' confidence ratings for the significant interaction effect.

Figure 2

Interaction Effect for Confidence of Plea Rejection Recommendations



Note. Error bars indicate standard errors of the estimates.

We then examined whether there were any main effects (**Hypotheses #1-4**). The results revealed a significant main effect of conviction probability for attorney-

participants' confidence, $F(15,301) = 1.564$, $p = 0.044$, $R^2 = 0.072$, $R^2_{adj} = 0.026$.

Attorney-participants were more confident in the low conviction probability conditions ($M = 76.40$, $SD = 18.20$) than high conviction probability conditions ($M = 76.19$, $SD = 18.16$), $d = 0.110$. However, the results did not reveal main effects of cognitive processing style, potential trial sentence, or defendant guilt status for attorney-participants' confidence, $F_s \leq 1.299$, $p_s \leq 0.896$. As such, the results did not support the hypotheses that verbatim processing, high potential trial sentence, or a guilty defendant would lead attorney-participants to be more confident than gist processing, low potential trial sentence, or an innocent defendant.

Willingness to Recommend Plea (WTRP)

To test attorney-participants' willingness to recommend plea (WTRP), we first visualized the data and compiled descriptive statistics to test for missingness or non-normality of residuals. Next, we tested Hypotheses #1-5 with a multiple linear regression model. The model included conviction probability, potential trial sentence, defendant guilt status, cognitive processing style (CPS), and interaction effects as predictor variables. The continuous outcome variable included attorney-participants' WTRP (0-100%). The original model also included sample source as a predictor variable, revealing a difference between CR-attorneys and snowball-attorneys, $F(1,401) = 12.07$, $p = 0.001$, $R^2 = 0.029$, $R^2_{adj} = 0.027$. That is, CR-attorneys ($M = 35.16$, $SD = 29.47$) were more willing to recommend the plea than snowball-attorneys ($M = 21.94$, $SD = 20.98$). However, when the model was conducted with and without the data from snowball-attorneys ($N = 66$), the results were not meaningfully different. Thus, we retained all attorney-participants in the final model to conserve statistical power (See Table 4).

Table 4***Regression Coefficients for Predicting WTRP***

Variable	<i>b</i>	<i>SE</i>	<i>p</i>
Conviction probability	12.82	5.349	0.017*
Potential trial sentence	2.178	5.607	0.698
Defendant guilt status	-11.61	5.439	0.033*
CPS	-6.597	4.444	0.139
Conviction probability*CPS	-10.16	12.01	0.398
Potential trial sentence*CPS	3.376	6.272	0.591
Defendant guilt status*CPS	3.064	5.751	0.595
Conviction probability*Potential trial sentence	-3.321	7.858	0.673
Conviction probability*Defendant guilt status	-7.045	7.558	0.352
Potential trial sentence*Defendant guilt status	-9.867	7.708	0.201
Conviction probability*Potential trial sentence*CPS	-2.993	8.278	0.718
Potential trial sentence*Defendant guilt status*CPS	-0.270	8.019	0.973
Conviction probability*Defendant guilt status*CPS	-3.396	7.733	0.661

Conviction probability*Potential trial sentence*Defendant guilt status	1.789	10.75	0.868
Conviction probability*Potential trial sentence*Defendant guilt status*CPS	-3.075	10.91	0.778

Note. *** indicates significance at $p < 0.001$, ** indicates significance at $p < 0.01$, * indicates significance at $p < 0.05$.

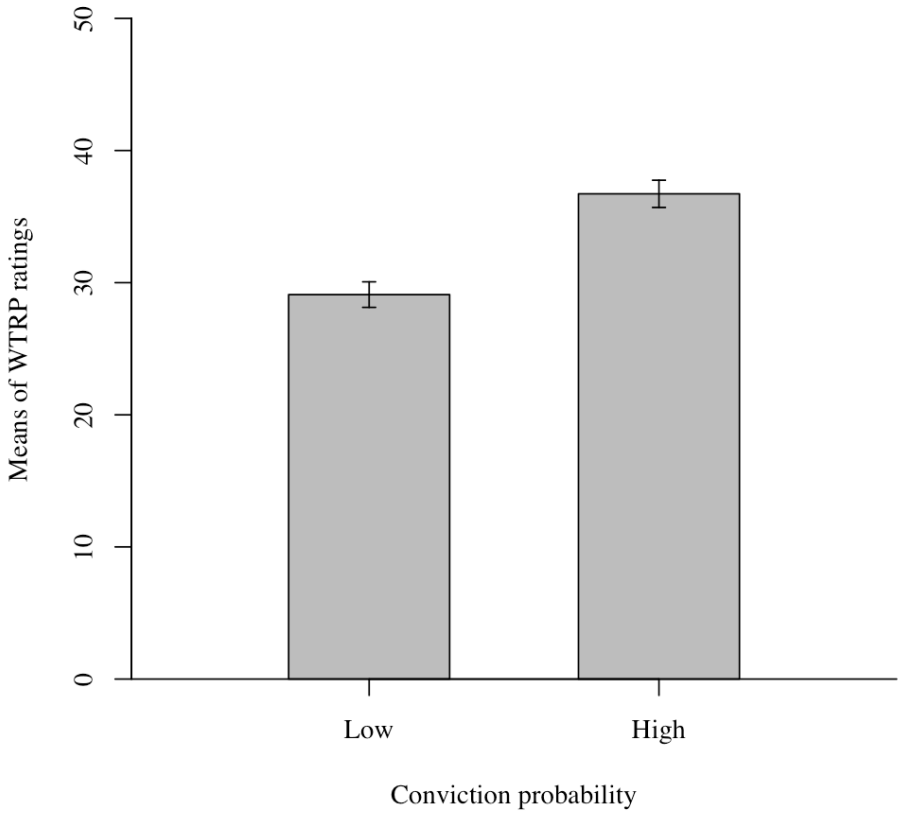
We first examined whether there was a significant interaction between attorneys-participants' cognitive processing style and any of the SoT factors (**Hypothesis #5**). The results did not reveal any significant interaction effects, $F_s \leq 1.280$, $p_s \leq 0.973$. Thus, the results did not support the hypothesis that cognitive processing style would interact with the SoT factors to predict attorneys-participants' WTRP.

We then examined whether there were any main effects (**Hypotheses #1-4**). The results revealed a significant main effect of conviction probability for attorney-participants' WTRP, $F(15,387) = 2.396$, $p = 0.017$, $R^2 = 0.175$, $R^2_{adj} = 0.143$. Attorney-participants were more willing to recommend the plea in the high conviction probability conditions ($M = 39.63$, $SD = 30.20$) than low conviction probability conditions ($M = 30.21$, $SD = 27.91$), $d = 0.268$. The results also revealed a significant main effect of defendant guilt status for attorney-participants' WTRP, $F(15,387) = 2.134$, $p = 0.033$, $R^2 = 0.175$, $R^2_{adj} = 0.143$. Attorney-participants were more willing to recommend the plea in the guilty defendant conditions ($M = 46.49$, $SD = 31.01$) than in the innocent defendant conditions ($M = 24.67$, $SD = 23.62$), $d = 0.727$. However, the results did not reveal main effects of cognitive processing style or potential trial sentence for attorney-participants'

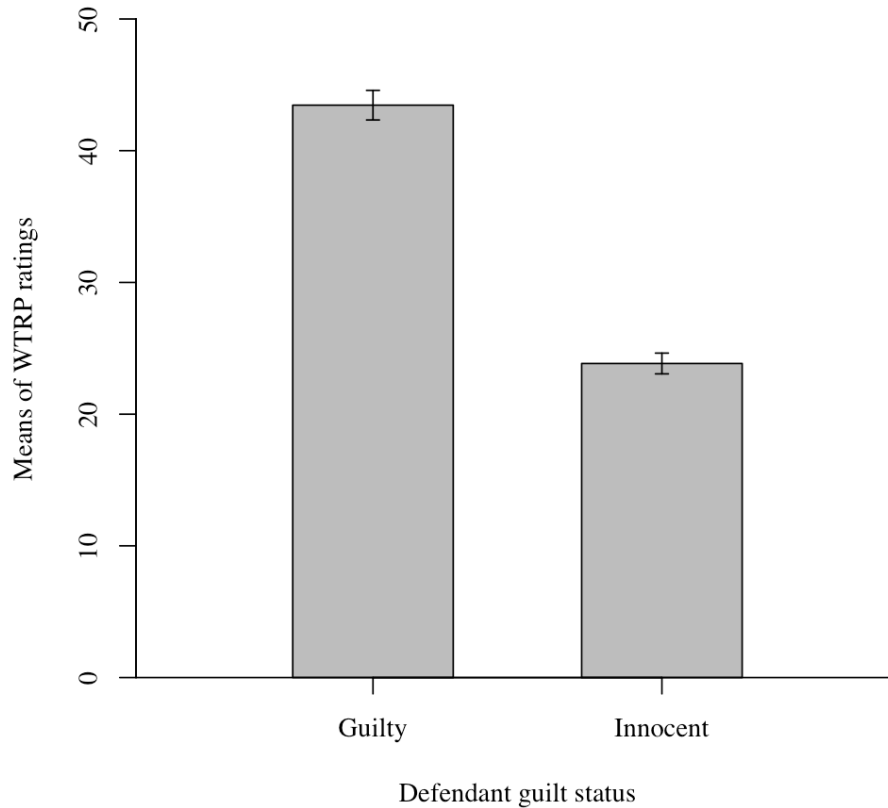
WTRP, $F_s \leq 1.485$, $p_s \leq 0.698$. As such, the results did not support the hypotheses that verbatim processing or high potential trial sentence would lead attorney-participants to be more willing to recommend the plea than gist processing or low potential trial sentence. Figures 3 and 4 display the means of attorney-participants' WTRP ratings for the significant main effects.

Figure 3

Main Effect of Conviction Probability on WTRP



Note. Error bars indicate standard errors of the estimates.

Figure 4***Main Effect of Defendant Guilt Status on WTRP***

Note. Error bars indicate standard errors of the estimates.

Maximum Plea Sentences

To test the maximum plea sentences attorney-participants would accept, we first visualized the data and compiled descriptive statistics to test for missingness or non-normality of residuals. Next, we tested Hypotheses #1-5 with a multiple linear regression model. The model included conviction probability, potential trial sentence, defendant guilt status, cognitive processing style (CPS), and interaction effects as predictor variables. The continuous outcome variable included attorney-participants' max plea sentence (i.e., years/months). The original model also included sample source as a

predictor variable, revealing a difference between CR-attorneys and snowball-attorneys, $F(1,401) = 11.57, p = 0.001, R^2 = 0.028, R^2_{adj} = 0.026$. That is, CR-attorneys ($M = 5.13, SD = 7.90$) would accept longer plea sentences than snowball-attorneys ($M = 1.70, SD = 4.84$). However, when the model was conducted with and without the data from snowball-attorneys ($N = 66$), the results were not meaningfully different. Thus, we retained all attorney-participants in the final model to conserve statistical power (See Table 5).

Table 5

Regression Coefficients for Predicting Maximum Plea Sentences

Variable	<i>b</i>	<i>SE</i>	<i>p</i>
Conviction probability	1.632	1.444	0.259
Potential trial sentence	6.350	1.514	< 0.001***
Defendant guilt status	-0.885	1.469	0.547
CPS	-0.369	1.200	0.759
Conviction probability*CPS	0.370	1.532	0.809
Potential trial sentence*CPS	-1.369	1.693	0.419
Defendant guilt status*CPS	-0.112	1.553	0.943
Conviction probability*Potential trial sentence	0.100	2.122	0.962
Conviction probability*Defendant guilt status	-0.354	2.041	0.863
Potential trial sentence*Defendant guilt status	-2.347	2.081	0.260

Conviction probability*Potential trial sentence*CPS	1.135	2.235	0.612
Potential trial sentence*Defendant guilt status*CPS	2.451	2.165	0.258
Conviction probability*Defendant guilt status*CPS	0.595	2.088	0.776
Conviction probability*Potential trial sentence*Defendant guilt status	-1.194	2.902	0.681
Conviction probability*Potential trial sentence*Defendant guilt status*CPS	-3.319	2.947	0.261

Note. *** indicates significance at $p < 0.001$, ** indicates significance at $p < 0.01$, * indicates significance at $p < 0.05$.

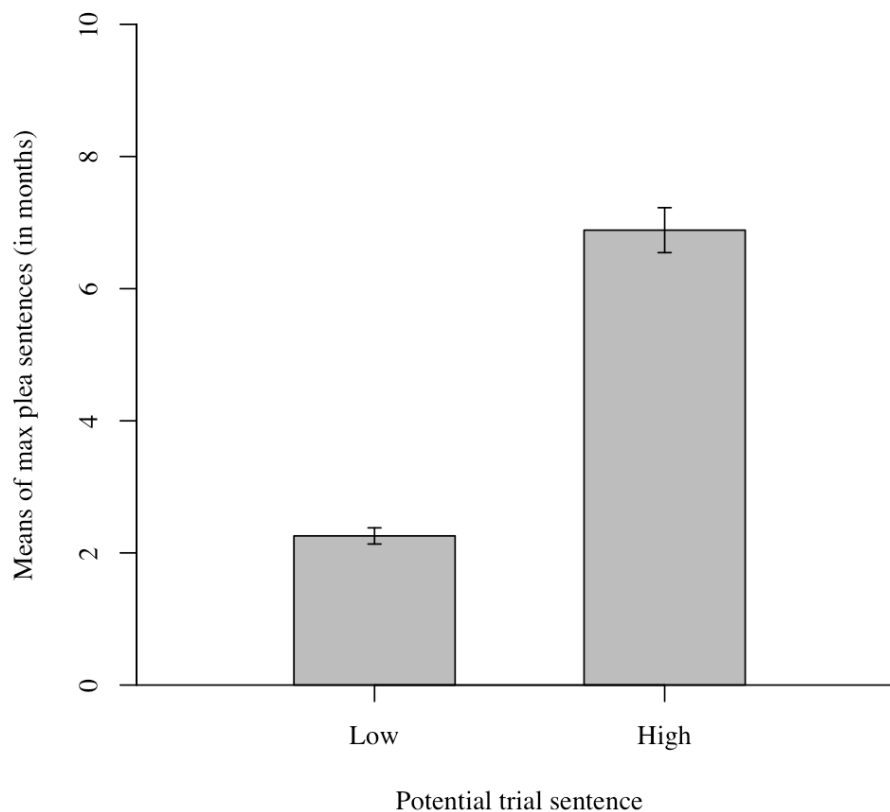
We first examined whether there was a significant interaction between attorneys-participants' cognitive processing style and any of the SoT factors (**Hypothesis #5**). The results did not reveal any significant interaction effects, $F_s \leq 1.132$, $p_s \leq 0.962$. Thus, the results did not support the hypothesis that attorneys-participants' cognitive processing style would interact with the SoT factors to predict max plea sentences.

We then examined whether there were any main effects (**Hypotheses #1-4**). The results revealed a significant main effect of potential trial sentence for attorney-participants' max plea sentence, $F(15,387) = 6.350$, $p < 0.001$, $R^2 = 0.143$, $R^2_{adj} = 0.110$. Attorney-participants would accept longer plea sentences in the high potential trial sentence conditions ($M = 7.49$, $SD = 9.90$) than low potential trial sentence conditions (M

= 2.67, $SD = 3.71$), $d = 0.634$. However, the results did not reveal main effects of cognitive processing style, conviction probability, or defendant guilt status for attorney-participants' max plea sentences, $F_s \leq 1.130$, $p_s \leq 0.759$. As such, the results did not support the hypotheses that verbatim processing, high conviction probability, or a guilty defendant would lead attorney-participants to accept longer plea sentences than gist processing, low conviction probability, or an innocent defendant. Figure 5 displays the means of attorney-participants' max plea sentences for the significant main effect.

Figure 5

Main Effect of Potential Trial Sentence on Maximum Plea Sentences



Note. Error bars indicate standard errors of the estimates.

Discussion

The current research examined the effects of attorney characteristics on their plea recommendations. We tested whether attorneys' cognitive processing styles—gist versus verbatim processing—influenced their plea recommendations, and if such cognitive processing styles interacted with the SoT factors to predict plea recommendations. In sum, the findings from this experiment revealed significant interaction effects for attorneys' plea recommendations and confidence, as well as significant main effects for WTRP and max plea sentences.

The interaction between cognitive processing style and conviction probability on attorneys' plea recommendations has important implications for how wrongful convictions via false guilty plea recommendations can be reduced. Specifically, this effect showed that when the conviction probability was high, attorney-participants' cognitive processing style significantly affected their plea recommendations such that verbatim processing increased the odds of recommending plea acceptance compared to gist processing. According to FTT, cognitive processing styles—particularly the reliance on gist over verbatim processing—are considered to be heuristics because they represent mental shortcuts used to make decisions, often resulting in biases in decision-making (Strough et al., 2011). Researchers suggest that heuristics, and subsequent biases, in legal processes can be reduced via awareness (Olaborede & Meintjes-van der Walt, 2021). To effectively reduce the impact of heuristics and biases through awareness, legal actors could receive training on these effects and how to reduce them, such as actively considering alternative perspectives, seeking out diverse information, practicing critical thinking skills, and engaging in reflective practices. Thus, to reduce wrongful convictions

via false guilty plea recommendations, attorneys could be educated against the effects of heuristics and biases in plea bargaining, especially attorneys' cognitive processing styles.

The interaction between conviction probability and defendant guilt status on attorneys' confidence for plea rejection recommendations offers further insight into attorneys' thought processes when making recommendations. This effect showed that when the defendant was guilty, attorneys were more confident recommending plea rejection in low conviction probability conditions than high conviction probability conditions. When the defendant was innocent, attorneys were more confident recommending plea rejection in high conviction probability conditions than low conviction probability conditions, but this effect was not significant. These findings provide insight into the conditions under which attorneys may recommend that guilty defendants reject plea deals. Specifically, attorneys were more confident recommending plea rejection for guilty defendants when the conviction probability was low—that is, when less evidence supported the defendant's guilt. Although not central to our analyses, these findings contribute to a broader understanding of how attorneys weigh conviction probability and defendant guilt when making plea recommendations. Future research should further explore the relationship between conviction probability and defendant guilt status on attorneys' confidence to determine how confidence relates to the risk of wrongful convictions via false guilty plea recommendations.

The main effects of conviction probability and defendant guilt status on attorneys' WTRP not only advance new theoretical knowledge in the plea-bargaining literature but also replicate and expand on findings from recent research on attorneys' plea recommendations. For example, Hellgren and colleagues (2022) found that defendants'

claims of guilt or innocence had little to no effect on attorneys' plea recommendations; instead, recommendations of plea acceptance were driven by perceived conviction probability. Our findings partially replicated these effects by demonstrating that attorneys were more willing to recommend the plea when conviction probability was high as opposed to low. However, contrary to these effects, we found that defendant guilt status significantly influenced attorneys' WTRP such that they were more willing to recommend the plea when the defendant was guilty as opposed to innocent. It is possible that we were able to uncover this effect because our methodology (i.e., interactive computer simulation) allowed us to manipulate defendants' *factual* guilt status, rather than defendants' *claims* of guilt or innocence. Therefore, the findings advance knowledge on how factors from SoT influence attorneys' plea recommendations.

The main effect of potential trial sentence on attorneys' max plea sentence also replicates and expands on findings from recent research on attorneys' plea recommendations. Specifically, Cardenas and colleagues (2023) showed that attorneys would accept longer plea sentences when the potential trial sentence was high as opposed to moderate, demonstrating an anchoring effect in attorneys' plea recommendations. Our findings replicated this effect by demonstrating that attorneys would accept longer plea sentences when the potential trial sentence was high as opposed to low. In other words, attorneys' max plea sentences were anchored to the potential trial sentence such that estimates of acceptable plea sentences increased as the potential trial sentence increased, regardless of the defendant's guilt. Despite the lack of an effect for attorneys' cognitive processing style on max plea sentences, this anchoring effect further demonstrates the need for awareness and education regarding heuristics and biases in plea bargaining.

Future research should further explore the different types of heuristics and biases that influence attorneys' plea recommendations to determine how the risk of wrongful convictions via false guilty plea recommendations can be reduced.

Intellectual Merit and Broader Impacts

Altogether, the findings from the current research have both intellectual merit and broader impacts. For intellectual merit, this research advanced theoretical knowledge and helped to develop a more complete picture of attorney influence in plea bargaining. The limited research on attorneys' plea recommendations has focused on factors from SoT (Cardenas et al., 2023; Hellgren et al., 2022; Henderson, 2021; Kramer et al., 2007). Although SoT performs well at the aggregate level, it tends to have less predictive power at the individual level (Bibas, 2004; Edkins & Dervan, 2018). Thus, this experiment shifted the focus to examine the influence of attorney characteristics, or individual-level factors, on plea recommendations using cognitive processing styles from FTT. Further, we investigated the relationship between attorneys' cognitive processing styles and the SoT factors on their plea recommendations. By testing and comparing these effects, this research not only advances knowledge in the plea-bargaining field, but also across different fields of study. That is, we integrated theories from multiple fields of study (e.g., criminology, judgment and decision-making) to better understand the socio-cognitive and behavioral processes that occur in plea bargaining.

For broader impacts, this research has the potential to reduce the risk of wrongful convictions via false guilty plea recommendations. As previous research has shown, attorneys' plea recommendations significantly influence defendants' plea decisions (Henderson & Levett, 2019; Henderson & Shteynberg, 2020; Henderson et al., 2023; Lee

et al., 2020), especially innocent defendants (Henderson & Levett, 2018). To further investigate attorney influence in plea bargaining, this experiment examined factors that influence attorneys' plea recommendations to determine how attorney practices can be adapted to reduce false guilty plea recommendations. For example, our findings demonstrated that attorneys' cognitive processing styles significantly influenced their plea recommendations. Because cognitive processing styles are a type of heuristic that often result in biases in decision-making, they can be reduced through awareness and education. Therefore, to reduce wrongful convictions via false guilty plea recommendations, attorneys could be educated against the effects of heuristics and biases in plea bargaining.

Limitations and Future Directions

Despite the implications of these findings, this research has some limitations. First, we used samples of practicing attorneys that work in various positions (e.g., criminal defense, civil litigation, etc.) in the legal/law industry, rather than specialized samples of criminal defense attorneys. Attorneys make up 19% of the population in the United States, and only 1% of attorneys practice criminal defense (American Bar Association, 2020). Because of this, criminal defense attorneys are extremely expensive and time-consuming to recruit. Thus, recruiting solely criminal defense attorneys was not feasible for the current experiment. Now that these effects have been shown with practicing attorneys, future research should attempt to replicate these findings using specialized samples of criminal defense attorneys to increase generalizability.

Second, our findings revealed significant effects of sample source for attorneys' plea recommendations, WTRP, and max plea sentences. The sample of snowball-

attorneys comprised of mostly criminal defense attorneys, whereas the sample of CR-attorney was more mixed in terms of positions in the legal/law industry. The sample of snowball-attorneys were less likely to recommend plea acceptance, less willing to recommend the plea, and would accept shorter plea sentences than CR-attorneys. This effect was reflected in the open-ended responses from snowball-attorneys. For instance, one criminal defense attorney stated, “I would negotiate further to get the jail time down, but [the defendant] is likely going to have to serve some custodial sentence.” Although plea negotiations were beyond the scope of this experiment, future research should explore how attorneys navigate plea negotiations to better understand the strategies and considerations that influence their recommendations.

Conclusion

The current research examined the effects of attorney characteristics on their plea recommendations using FTT. Specifically, we investigated the influence of attorneys’ cognitive processing styles (i.e., gist versus verbatim processing) on their plea recommendations, and if such cognitive processing styles interacted with the SoT factors (i.e., conviction probability, potential trial sentence, and defendant guilt status) to predict plea recommendations. The results revealed an interaction between cognitive processing style and conviction probability for attorneys’ plea recommendations. Reliance on verbatim processing and high conviction probability increased the odds of recommending plea acceptance. The results also revealed main effects for attorneys’ confidence, WTRP, and max plea sentences. As these findings shed light on factors that influence attorneys’ plea recommendations, they can be used to reduce the risk of wrongful convictions via false guilty plea recommendations. That is, previous research has shown that

defendants—especially innocent defendants—typically follow the advice of their attorney (Henderson & Levett, 2018, 2019; Henderson & Shteynberg, 2020; Henderson et al., 2023; Lee et al., 2020). Moreover, research has demonstrated that attorneys sometimes advise their clients to falsely plead guilty to receive the best outcome (Bordens & Bassett, 1985; Viljoen et al., 2005; Zottoli et al., 2016). Thus, this research uncovered the circumstances in which attorneys' might recommend that innocent defendants falsely plead guilty to determine how such false guilty plea recommendations can be reduced.

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Appendix A

Interactive Computer Simulation Script – Scenario 1 (Hit & Run)

The simulation opens with a black background and the following white text on the screen:

“At 6 PM
June 26th
An incident occurs.”

The defendant approaches a vehicle, opens the door, and climbs inside. They then put the key in the ignition and appear to be driving the car. The defendant expresses a surprised face as a black background fades into a courtroom.

PROSECUTOR:

- Good afternoon, my name is Mr. Clark and I will be prosecuting this case on behalf of the State, Your Honor. »

DISTRICT COURT JUDGE:

- Good afternoon. What is the nature of this case, Mr. Clark? »

PROSECUTOR:

- The defendant, John Durbin, is accused of being involved in a hit-and-run occurring around 6pm on the 26th of June. »
- In accordance with State law, a hit-and-run occurs when the operator of a motor vehicle damages public or private property and fails to report it. »
- According to the police report, there was property damage exceeding \$1,000, which resulted from a collision in a store parking lot. »
- There is a witness willing to testify that they saw the defendant's car come into contact with the victim's car and then drive off without checking for or reporting damages. »
- This is a textbook hit-and-run, which is considered a serious misdemeanor punishable by significant fines and/or time in jail. »
- We request a court date be set by the State as soon as possible. »

DISTRICT COURT JUDGE:

- The defendant, John Durbin, is being charged with leaving the scene of an accident involving property damage. »
- At this time, he will be held until counsel has been appointed. »
- It is so ordered. »

A black background fades into the defense attorney's office.

- You have been assigned to represent the defendant, John Durbin, in this case. »

The defendant appears in the defense attorney's office.

DEFENDANT:

- Thank you for representing me. I can't believe this is happening. I think I remember the day Mr. Clark is referring to... »

The flashback sequence begins where the defendant sticks their key into the ignition of their car and the sequence extends beyond the defendant's same surprised reaction from the beginning of the simulation.

Here, the simulation shows two different sequences depending on whether the defendant is guilty or innocent.

If innocent:

At this point in the flashback, the defendant is behind the steering wheel of their car, thinking:

DEFENDANT:

- Oh!

The rearview mirror is shown, viewing the taillight of an adjacent car.

- Oh! I'm close to that car, I better be careful when I pull out.

The defendant turns their head around, and then it is shown that the defendant also turns the steering wheel as well.

- I'm glad I was careful!

The car is then shown to drive off into the distance.

The flashback sequence ends and the simulation is cued back to the defendant in the defense attorney's office.

DEFENDANT:

- I know it was tight when I pulled out, but I didn't actually come into contact with that person's car. »
- When I looked in my mirror, the other car was fine! I know I'm **innocent**. »

If guilty:

At this point in the flashback, the defendant is behind the steering wheel of their car, thinking:

DEFENDANT:

- Did I hear something?

In the flashback, the rearview mirror is shown, viewing the taillight of an adjacent car. The defendant's head then turns around.

- I think I saw a scratch but I'm not sure. What should I do?

The car drives away into the distance, showing a discrete but notable scratch on the left taillight of the car that was next to the now-empty parking spot that the defendant's car previously was in.

The flashback sequence ends and the simulation is cued back to the defendant in the defense attorney's office.

DEFENDANT:

- I know it was tight when I pulled out, but I thought I just barely grazed that person's car. »
- I must have missed some of the damage I caused when pulling out. I must be **guilty**. »

A black background fades into the prosecutor's office.

- The prosecutor in this case, Mr. Clark, is interested in seeing whether the case could be resolved without a trial. »

Here, the simulation shows two different sequences depending on whether the conviction probability is low or high.

If low:

PROSECUTOR:

- Based on the evidence, I would estimate that your client has a **30 percent** chance of being convicted if this case goes to trial. »

If high:

PROSECUTOR:

- Based on the evidence, I would estimate that your client has a **70 percent** chance of being convicted if this case goes to trial. »

Here, the simulation shows two different sequences depending on whether the potential trial sentence is low or high.

If low:

PROSECUTOR:

- If this case does go to trial, I will be seeking the maximum penalty of **1 year** in jail. »
- However, if the defendant agrees to plead guilty now, I am prepared to recommend that the judge sentence him to **6 months** instead of **1 year** in jail. »

If high:

PROSECUTOR:

- If this case does go to trial, I will be seeking the maximum penalty of **4 years** in jail. »
- However, if the defendant agrees to plead guilty now, I am prepared to recommend that the judge sentence him to **2 years** instead of **4 years** in jail. »

The attorney-participant is then redirected back to Qualtrics to complete the survey.

Appendix B

Cognitive Processing Style (CPS) Scale – Helm and Reyna (2017)

Next, please answer a few more questions about your plea recommendation. Indicate to how **important** each factor was for your plea recommendation using the following considerations. Provide a rating from 1 (Not at all important) to 7 (Extremely important).

1. Conviction probability
2. Sentence length at trial
3. Sentence length of plea deal
4. Defendant's guilt or innocence

Note. The original scale was adapted for the purposes of this experiment.

Chapter 4

Prospect or Fuzzy Trace? A Model Comparison for Attorneys'

Plea Recommendations

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We have no known conflict of interest to disclose.

Funding for this project was provided to the first author by the James T.

Richardson Student Research Proposal Award from the University of Nevada, Reno's Interdisciplinary Social Psychology PhD Program and the American Academy of Forensic Psychology (AAFP) Dissertation Grant in Applied Law/Psychology. The first author was supported by the Russell J. and Dorothy S. Bilinski Fund's Dissertation Year Fellowship, a program of the Bilinski Educational Foundation and the University of Nevada, Reno College of Liberal Arts.

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Abstract

The current research tested and compared two emerging theories in the plea-bargaining literature—Prospect Theory (PT) and Fuzzy Trace Theory (FTT)—for attorney decision-making. To test these theories, we examined the influence of factors from PT (i.e., diminishing sensitivity and reference dependence) to determine whether PT or FTT better predict attorneys' plea decisions. A sample of attorneys ($N = 403$) engaged in a plea simulation wherein defendant guilt status and potential trial sentence were manipulated. The results revealed significant effects of defendant guilt status and potential trial sentence for attorneys' plea recommendations and related thought processes. These findings demonstrated that attorneys' plea decisions were driven by categorical distinctions in potential trial sentences (e.g., low vs. high), consistent with FTT. However, their sentencing preferences exhibited reference dependence, as defendant guilt status influenced the extent to which potential trial sentence shaped the maximum plea sentences they would accept, consistent with PT. Thus, the findings reflect aspects of PT and FTT, indicating that attorneys' plea recommendations are influenced by both categorical reasoning and reference-dependent decision-making. The implications of these findings are discussed in terms of advancing theory and reducing the risk of wrongful convictions via attorneys' plea recommendations.

Keywords: Attorneys, plea recommendations, prospect theory, fuzzy trace theory, defendant guilt, potential trial sentence

Prospect or Fuzzy Trace? A Model Comparison for Attorneys'

Plea Recommendations

Some researchers and legal scholars argue that the practice of plea bargaining is coercive for defendants because sentence discrepancies between potential trial sentences and plea offers are too large, leading them to be wrongfully convicted via false guilty pleas (e.g., Schneider, 2018; Schneider, & Zottoli, 2019). This may be, in part, due to the legal precedent for plea bargaining in the United States. That is, the Supreme Court ruled in *Brady v. United States* (1970) that plea bargains are constitutional if a defendant pleads guilty to ensure a certain outcome with lesser penalty, as opposed to an uncertain outcome with risk of greater penalty at trial. As plea bargaining involves risk and uncertainty, it is necessary to investigate how such factors affect legal actors' (e.g., attorneys, defendants, etc.) decision-making. Researchers have recently applied two theories to better understand defendants' plea decisions—Prospect Theory (PT; Bartlett & Zottoli, 2021; Edkins & Dervan, 2018; Garnier-Dykstra & Wilson, 2021) and Fuzzy Trace Theory (FTT; Helm & Reyna, 2017; Helm et al., 2018; Zottoli et al., 2023).

The current experiment sought to compare these two emerging plea-bargaining theories by investigating factors that influence *attorney* decision-making. There is limited research on factors that influence attorneys' plea recommendations, and those few experiments focused primarily on factors from the Shadow of the Trial (SoT) theory—conviction probability, potential trial sentence, and defendant guilt status (Cardenas et al., 2023; Hellgren et al., 2022; Henderson, 2021; Kramer et al., 2007). Although SoT performs well at the aggregate level, it tends to have less predictive power at the individual level (Bibas, 2004). For example, variation in plea decisions could be due to

factors related to risk and uncertainty, such as risk-reward tradeoffs or other non-neutral risk preferences in decision-making. Thus, this research aimed to bridge gaps in the plea-bargaining literature by testing and comparing other emerging theories that predict how people make decisions in the face of risk and uncertainty, including PT (Bartlett & Zottoli, 2021; Edkins & Dervan, 2018; Garnier-Dykstra & Wilson, 2021) and FTT (Helm & Reyna, 2017; Helm et al., 2018; Zottoli et al., 2023), on attorney decision-making.

Previous research has empirically tested PT for defendants' plea decisions and found that, when conviction probability was low, defendants were risk-averse and thus more likely to accept worse plea sentences as compared to the potential trial sentence (Bartlett & Zottoli, 2021). However, this effect only occurred as a function of *categorically* meaningful changes in conviction probability, indicating the findings might be more consistent with predictions of FTT (Zottoli et al., 2023). These experiments used potential trial sentence as the reference point for changes in conviction probability. If guilt status was used as a reference point (Edkins & Dervan, 2018), it is possible that changes in potential trial sentences would influence attorneys' plea recommendations differently. Further, research has yet to test other aspects of PT, such as diminishing sensitivity, for plea decisions. As such, the current research advances the plea-bargaining literature by testing factors from PT—diminishing sensitivity and reference dependence—on attorneys' plea recommendations.

Using these central aspects of PT, we examined the effects of defendant guilt status and potential trial sentence on attorneys' plea recommendations. Because this is the first experiment to examine such effects, we sought to address the research question: *Do factors from PT—diminishing sensitivity and reference dependence—influence attorneys'*

plea recommendations? Moreover, as recent research has suggested that defendants' plea decisions might actually follow aspects of FTT more closely (Zottoli et al., 2023), we also sought to address the research question: *Does PT or FTT better predict attorneys' plea recommendations?* The findings from this experiment advance theory in the plea-bargaining literature and have the potential to influence public policy and procedures regarding plea bargaining.

Prospect Theory (PT)

Previous research has applied Prospect Theory (PT; Kahneman & Tversky, 1979) to better understand factors that influence defendants' plea decisions (Bartlett & Zottoli, 2021; Edkins & Dervan, 2018; Garnier-Dykstra & Wilson, 2021). PT is a theory from behavioral economics that predicts how people make risky decisions in the face of uncertainty based on subjective evaluations of outcome probability. There are three central principles of PT: *loss aversion*, *diminishing sensitivity*, and *reference dependence* (Kahneman & Tversky, 1979, 1984; Tversky & Kahneman, 1981). Loss aversion refers to the tendency for people to be risk-averse when faced with uncertain outcomes that lead to gains and risk-seeking when faced with uncertain outcomes that lead to losses. Diminishing sensitivity refers to the tendency for people to be less sensitive to changes in value as gains or losses get further away from the original value. Lastly, reference dependence refers to the tendency for people to classify gains and losses based on a reference point and evaluate outcomes accordingly.

The predictions of loss aversion and reference dependence from PT have been applied to defendants' plea decisions (Bartlett & Zottoli, 2021; Edkins & Dervan, 2018; Garnier-Dykstra & Wilson, 2021). Consistent with loss aversion, Bartlett and Zottoli

(2021) showed that when the conviction probability was low, defendants were risk-averse and thus more likely to accept worse plea sentences relative to the expected value of trial. As such, larger sentence discounts were necessary for defendants to accept plea offers when the conviction probability was high. However, follow-up research suggested that defendants' plea decisions were influenced only by *categorically* meaningful changes in conviction probability and potential trial sentence, indicating the findings might be more consistent with predictions of FTT (Zottoli et al., 2023).

Consistent with reference dependence, research has shown that defendants evaluate plea bargains relative to their current situation, shaping whether they perceive the offer as a gain or a loss when making plea decisions (Edkins & Dervan, 2018; Garnier-Dykstra & Wilson, 2021). For instance, Edkins and Dervan (2018) demonstrated that defendants' circumstances (i.e., collateral consequences) determine whether they view the plea offer as a gain or a loss, which influenced whether they were more risk-averse or risk-seeking in their plea decisions. Particularly, innocent defendants tended to view the plea offer as a loss, making them more likely to take the risk of going to trial—unless pretrial detention was introduced. Together, these findings illustrate how principles of PT—loss aversion and reference dependence—offer a valuable framework for understanding the psychological mechanisms underlying defendants' plea decision-making.

Fuzzy Trace Theory (FTT)

Researchers have also applied Fuzzy Trace Theory (FTT; Reyna & Brainerd, 1995) to better understand factors that influence defendants' plea decisions (Helm & Reyna, 2017; Helm et al., 2018; Zottoli et al., 2023). FTT is a dual-processing theory of

memory and decision-making that predicts people encode information in two different ways: gist versus verbatim processing (Reyna, 2012). Verbatim processing involves precise yet surface-level mental representations of stimuli, including details like exact words, numbers, or pictures of a stimulus, but not the stimulus itself. Gist processing involves symbolic mental representations of stimuli that capture essential meaning without precise details. Such mental representations of stimuli affect subsequent decision-making. People who rely on gist mental representations process information in a “fuzzy” but intuitive way, while people who rely on verbatim mental representations process information in a more analytical way (Reyna et al., 2015).

The predictions of FTT have been applied to defendants’ plea decisions. Consistent with FTT, research has shown that defendants who relied on verbatim processing were more likely to use precise analyses of risk-reward tradeoffs (i.e., quantitative information) for their plea decisions and thus were more influenced by factors like conviction probability and potential trial sentence (Helm & Reyna, 2017; Helm et al., 2018). Defendants who relied on gist processing were more likely to use meaningful, categorical distinctions (i.e., qualitative information) for their plea decisions and thus were more influenced by factors like the type of charge (e.g., felony versus misdemeanor) and defendant guilt status. Because of this, defendants who relied on verbatim processing were more likely to falsely plead guilty, as they focused on quantitative information like sentence discrepancies rather than qualitative information like factual guilt or innocence.

More recently, the predictions of FTT have been used to better understand how defendants’ evaluations of conviction probability and potential trial sentence influence

their plea decisions (Zottoli et al., 2023). Although Bartlett and Zottoli (2021) used PT to guide their predictions, Zottoli and colleagues (2023) suggested that their results might be better explained by FTT. Specifically, FTT predicts changes in conviction probabilities that are meaningfully similar (e.g., 80% and 90% conviction probability) would affect decision-making similarly because they have the same “gist”. Further, according to FTT, larger sentence discounts would be necessary for defendants to accept plea offers when the conviction probability is high because the plea sentence is likely too close to the potential trial sentence to create meaningful, gist-based distinctions. On the other hand, when the conviction probability is low, the plea sentence is likely far enough away from the potential trial sentence to create meaningful, gist-based distinctions. Zottoli and colleagues (2023) supported these predictions by demonstrating that defendants’ plea decisions were influenced only by *categorically* meaningful distinctions in conviction probability and potential trial sentence.

Application to Plea Recommendations

Despite these important findings, there are two limitations of the previous research that the current experiment sought to address. First, researchers have yet to test another central principle of PT: diminishing sensitivity. As a reminder, diminishing sensitivity refers to the tendency for people to be less sensitive to changes in value as gains or losses get further from the original value (Kahneman & Tversky, 1979, 1984; Tversky & Kahneman, 1981). Plea bargaining represents a unique case in which this phenomenon can be examined. Consider sentence discrepancies between the plea offer and potential trial sentence as an example. Diminishing sensitivity predicts that legal actors (e.g., attorneys, defendants, judges, etc.) would be less sensitive to changes in

potential trial sentences as they get further away from the plea offer. Therefore, the current experiment predicts that differences in attorneys' plea acceptance recommendation rates will progressively decrease as the potential trial sentence increases. Such a phenomenon is imperative to investigate because the findings could explain *how* potential trial sentences (relative to the plea offer) are coercive for defendants, as attorneys might recommend innocent defendants accept pleas to avoid harsher punishment at trial.

Second, researchers have yet to consider the role of defendants' *factual* guilt or innocence. That is, if defendant guilt status was used as a reference point (Edkins & Dervan, 2018), it is possible that changes in potential trial sentences will influence attorneys' plea recommendations differently. For instance, if a defendant is guilty, attorneys might view trial as a loss—leading them to be more risk-averse and thus provide more plea acceptance recommendations. Conversely, if a defendant is innocent, attorneys might view the trial as a gain—leading them to be more risk-seeking and thus provide fewer plea acceptance recommendations. The effects of defendant guilt status would be exacerbated as the potential trial sentence increases. Depending on whether their client is guilty or innocent, attorneys' plea recommendations would either decrease or increase in a stepwise fashion relative to the potential trial sentence. In other words, the influence of potential trial sentence on attorneys' plea recommendations might be reference dependent on defendant guilt status, indicating that such recommendations may be more aligned with predictions from PT. Hence, this experiment advances the plea-bargaining literature by testing factors from PT—diminishing sensitivity and reference dependence—on attorneys' plea recommendations.

Research Overview

As mentioned, the purpose of this experiment was to address two research questions. First, do factors from PT—diminishing sensitivity and reference dependence— influence attorneys’ plea recommendations (**RQ1**)? Second, does PT or FTT better predict attorneys’ plea recommendations (**RQ2**)? To examine these effects, we employed similar methods to previous research by manipulating defendant guilt status and potential trial sentence (Bartlett & Zottoli, 2021; Edkins & Dervan, 2018). As a reminder, potential trial sentence represents diminishing sensitivity because attorney-participants would be less sensitive to changes in sentences as they get further away from the plea offer. Defendant guilt status represents reference dependence because it is the point from which attorney-participants would evaluate potential outcomes as gains or losses.

To address RQ1, we conducted an online experiment using an interactive computer simulation to investigate the effects of diminishing sensitivity and reference dependence on attorneys’ plea recommendations. We hypothesized a main effect of defendant guilt status, consistent with previous research on defendants’ plea decisions (Dervan & Edkins, 2013; Redlich & Shteynberg, 2016; Wilford et al., 2020). That is, attorney-participants would be more likely to recommend plea acceptance in the guilty defendant conditions than the innocent defendant conditions (**Hypothesis #1**). We also hypothesized a main effect of potential trial sentence, consistent with research on attorneys’ plea recommendations (Cardenas et al., 2023). Attorney-participants would be more likely to recommend plea acceptance in the high potential trial sentence conditions than moderate and low potential trial sentence conditions (**Hypothesis #2**). Further, we hypothesized that differences in plea acceptance recommendation rates would

progressively decrease as the potential trial sentence increased (i.e., the difference between 2 and 4 years would be greater than the difference between 4 and 20 years) (**Hypothesis #3**). Put differently, attorney-participants would be less sensitive to changes in potential trial sentence as it gets further away from the plea offer, consistent with diminishing sensitivity.

In addition to these effects, we expected that when defendant guilt status is used as a reference point (Edkins & Dervan, 2018), attorney-participants would view sentence discrepancies between the plea offer and potential trial sentence differently. If their client is guilty, they would view trial as a loss, leading them to be more risk-averse and thus provide more plea acceptance recommendations. If their client is innocent, they would view trial as a gain, leading them to be more risk-seeking and thus provide fewer plea acceptance recommendations. These effects would be exacerbated as the potential trial sentence increased. Thus, we hypothesized an interaction between defendant guilt status and potential trial sentence, consistent with reference dependence (**Hypothesis #4**). When the defendant is guilty, attorney-participants' plea acceptance recommendations would progressively increase as the potential trial sentence increased. When the defendant is innocent, attorney-participants' plea acceptance recommendations would progressively decrease as the potential trial sentence increased. We expected the same trends from Hypotheses #1 through #4 to be shown for attorney-participants' confidence (0-100%) in their plea recommendations, willingness to recommend plea (WTRP; 0-100%), and maximum plea sentence they would accept (years/months).

To address RQ2, we employed similar methods to previous research to examine the effects of potential trial sentence. Specifically, research has shown that defendants'

plea decisions were only influenced by *categorically* meaningful changes in conviction probability and potential trial sentence (Bartlett & Zottoli, 2021; Zottoli et al., 2023). Thus, it is possible that attorneys' plea recommendations will be affected similarly in response to changes in potential trial sentence. If attorney-participants are influenced by *each* change in potential trial sentence, then the results would support predictions of PT. Conversely, if attorney-participants are influenced only by *categorically* meaningful changes in potential trial sentence, then the results would support predictions of FTT. Such comparisons not only advance theory in the plea-bargaining literature but also inform public policy and procedure regarding coercion in potential trial sentences via attorneys' plea recommendations.

Method

Participants

We recruited participants for the current experiment at the same time as the previous experiment (See Chapter 3). That is, attorney-participants took part in both experiments within the same survey. To reduce order effects, the experiments were counterbalanced such that the order in which attorney-participants received each experiment was randomized, with one half completing the two experiments in one order and the other half completing them in the reverse order.

Design

The current experiment was a 2 (Defendant guilt status: guilty, innocent) \times 3 (Potential trial sentence: low, moderate, high) between-subjects factorial design. Participants were randomly assigned to conditions in which defendant guilt status and potential trial sentence were manipulated. The defendant guilt status factor informed

attorney-participants whether the defendant was guilty or innocent. The potential trial sentence factor varied the length of the potential trial sentence to be either low (2 years), moderate (4 years), or high (20 years). The primary dependent variable was attorneys-participants' plea recommendations for their client to accept or reject the plea offer carrying a 50% sentence reduction from the potential trial sentence. Additional dependent variables included attorneys-participants' confidence (0-100%), WTRP (0-100%), and max plea sentences (years/months).

Materials/Procedure

The materials and procedure for this experiment were the same as the previous experiment, including an interactive computer simulation, decision questionnaire, and demographic questionnaire (See Chapter 3). All materials remained the same, with the exception of two changes to the plea simulation. First, attorney-participants watched a drug possession crime—instead of a hit-and-run crime—to correspond with changes in potential trial sentence. Second, attorney-participants were not informed of the conviction probability. See Appendix A for a script of the simulation. Despite these changes to the materials, the procedure for this experiment was the same as the previous experiment.

Results

All analyses were performed using *R* software (v4.1.2; R Core Team, 2021). First, we analyzed attorney-participants' responses to the attention and manipulation check questions. The majority (99%) of attorney-participants answered both questions correctly. We performed analyses with and without the data from those who failed attention or manipulation checks. Because the results were not meaningfully different, we report the results using the full data set. In the following sections, we discuss the findings for each

dependent variable of interest: attorney-participants' plea recommendations, confidence, willingness to recommend plea (WTRP), and maximum plea sentences.

Plea Recommendations

To test attorney-participants' plea recommendations, we first explored descriptive statistics. Overall, attorney-participants were more likely to recommend their client reject (59%) than accept (41%) the plea offer. Of those who recommended plea acceptance, 23% recommended that their client falsely plead guilty.

Next, we tested Hypotheses #1-4 with a logistic regression model. The model included defendant guilt status, potential trial sentence, and their interaction term as predictor variables. The dichotomous outcome variable included attorney-participants' plea recommendations (accept or reject). The original model also included sample source as a predictor variable, revealing a difference between CR-attorneys and snowball-attorneys, $\chi^2(1,401) = 4.155, p = 0.042$. That is, CR-attorneys ($M = 1.88, SD = 0.33$) showed increased odds of recommending plea acceptance compared to snowball-attorneys ($M = 1.81, SD = 0.40$). However, when the model was conducted with and without the data from snowball-attorneys ($N = 66$), the results were not meaningfully different. Thus, we retained all attorney-participants in the final model to conserve statistical power (See Table 1).

Table 1***Regression Coefficients for Predicting Plea Acceptance Recommendations***

Variable	<i>b</i>	<i>SE</i>	<i>p</i>	<i>OR</i>	95% CI
Defendant guilt status	-2.086	0.405	< 0.001***	0.124	[0.056, 0.275]
Potential trial sentence	-0.901	0.357	0.011*	0.406	[0.202, 0.817]
Interaction	0.503	0.569	0.376	1.654	[0.543, 5.041]

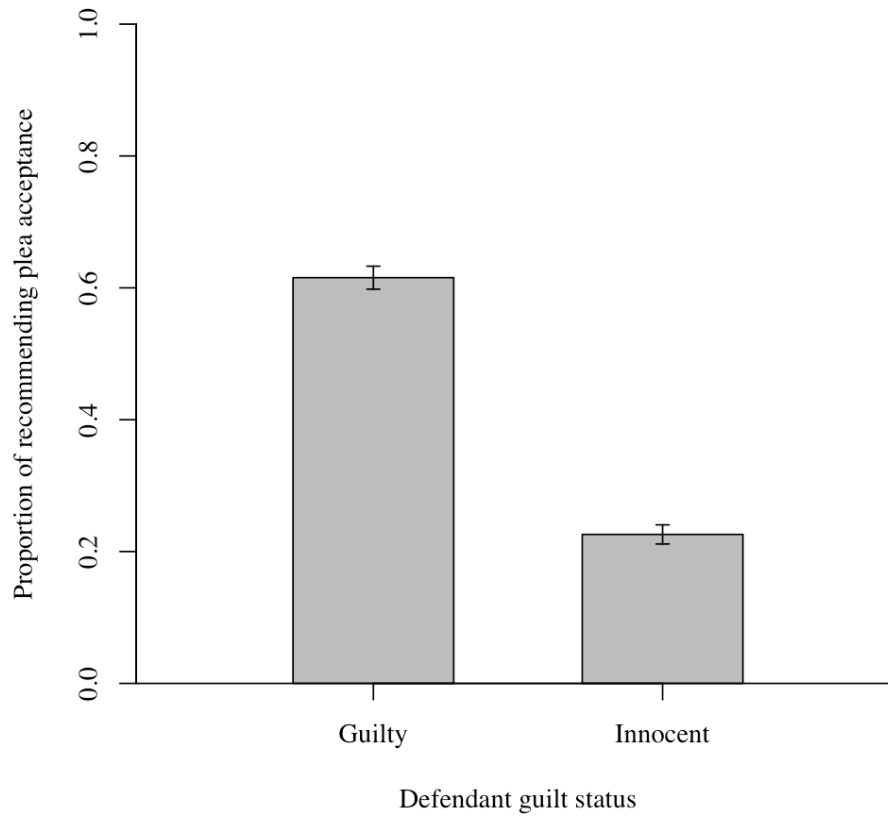
Note. *** indicates significance at $p < 0.001$, ** indicates significance at $p < 0.01$, *

indicates significance at $p < 0.05$.

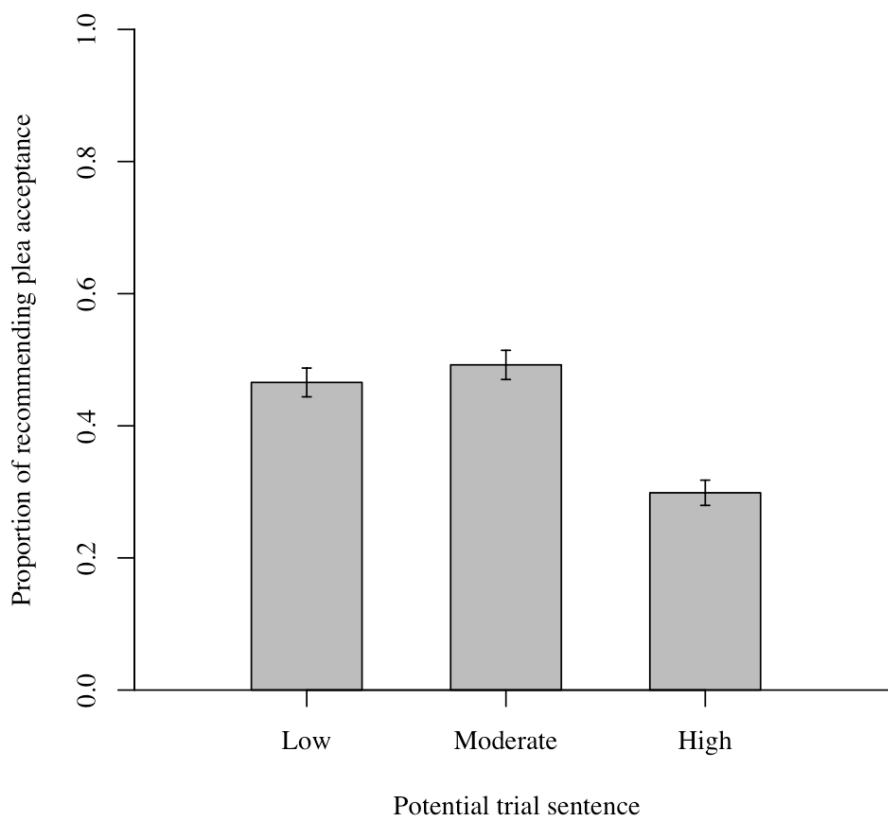
We first examined whether there was a significant interaction between defendant guilt status and potential trial sentence (**Hypothesis #4**). The results did not reveal an interaction for attorney-participants' plea recommendations, $\chi^2(1,402) = 1.071, p = 0.585$. Thus, the results did not support the hypothesis that defendant guilt status and potential trial sentence would interact to predict attorney-participants' plea recommendations, consistent with reference dependence.

We then examined whether there were any main effects (**Hypotheses #1-3**). The results revealed a significant main effect of defendant guilt status for attorney-participants' plea recommendations, $\chi^2(1,402) = 65.37, p < 0.001$. Attorney-participants in the guilty ($M = 0.62, SD = 0.49$) defendant conditions showed increased odds of recommending plea acceptance compared to those in the innocent ($M = 0.23, SD = 0.42$) defendant conditions. The results also revealed a significant main effect of potential trial sentence for attorney-participants' plea recommendations, $\chi^2(1,402) = 13.52, p = 0.001$. Attorney-participants in the high ($M = 0.30, SD = 0.46$) potential trial sentence conditions showed decreased odds of recommending plea acceptance compared to those in the

moderate ($M = 0.49$, $SD = 0.50$) and low ($M = 0.47$, $SD = 0.50$) potential trial sentence conditions. The planned comparisons for each potential trial sentence condition demonstrated a significant effect between high and low potential trial sentence conditions, $z = 2.84$, $p = 0.00$. These comparisons also demonstrated a significant effect between high and moderate potential trial sentence conditions, $z = 3.27$, $p = 0.00$. However, the comparisons did not show a significant effect between low and moderate potential trial sentence conditions, $z = -0.44$, $p = 0.66$. As such, the results did not support the hypothesis that attorney-participants would be less sensitive to changes in potential trial sentence as they got further away from the plea offer, consistent with diminishing sensitivity. Figures 1 and 2 display the proportions of attorney-participants' plea recommendations for the significant main effects.

Figure 1***Main Effect of Defendant Guilt Status on Plea Acceptance Recommendations***

Note. Error bars indicate standard errors of the estimates.

Figure 2***Main Effect of Potential Trial Sentence on Plea Acceptance Recommendations***

Note. Error bars indicate standard errors of the estimates.

Confidence

To test attorney-participants' confidence in their plea recommendations, we first visualized the data and compiled descriptive statistics to test for missingness or non-normality of residuals. Next, we tested Hypotheses #1-4 with a multiple linear regression model. The model included defendant guilt status, potential trial sentence, and their interaction term as predictor variables. The continuous outcome variable included attorney-participants' confidence in their plea recommendations (0-100%). The original model also included sample source as a predictor variable, which did not reveal a

difference between CR-attorneys and snowball-attorneys, $F(1,401) = 1.443$, $p = 0.993$, $R^2 < 0.001$, $R^2_{adj} = -0.002$. Thus, we retained all attorney-participants in the final model to conserve statistical power.

Prior to hypothesis testing, we categorized attorney-participants based on whether they chose to accept or reject the plea offer to examine their confidence in the direction of the recommendation. For those who recommended plea acceptance ($N = 167$; 41%), we found a significant main effect of defendant guilt status for attorney-participants' confidence, but no other main effects or interaction effects were found (See Table 2).

Table 2

Regression Coefficients for Predicting Confidence of Plea Acceptance

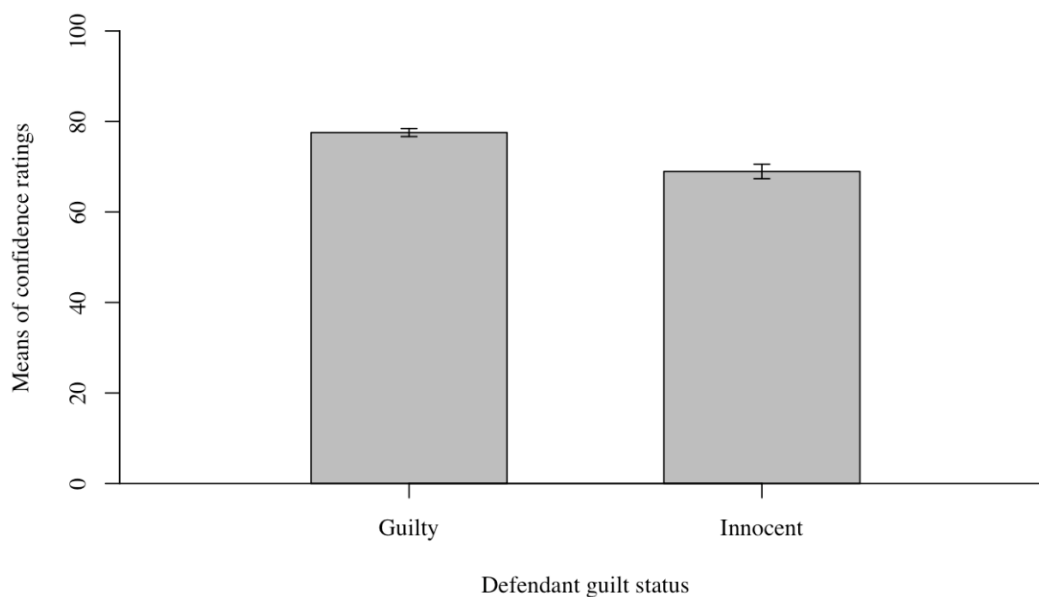
Recommendations

Variable	<i>b</i>	<i>SE</i>	<i>p</i>
Defendant guilt status	-3.718	6.219	0.030*
Potential trial sentence	-4.366	4.583	0.058
Interaction	-2.661	8.143	0.504

Note. *** indicates significance at $p < 0.001$, ** indicates significance at $p < 0.01$, * indicates significance at $p < 0.05$.

We first examined whether there was a significant interaction between defendant guilt status and potential trial sentence (**Hypothesis #4**). The results did not reveal a significant interaction for attorney-participants' confidence, $F(2,161) = 0.689$, $p = 0.504$, $R^2 = 0.077$, $R^2_{adj} = 0.049$. Thus, the results did not support the hypothesis that defendant guilt status and potential trial sentence would interact to predict attorney-participants' confidence, consistent with reference dependence.

We then examined whether there were any main effects (**Hypotheses #1-3**). The results revealed a significant main effect of defendant guilt status for attorney-participants' confidence, $F(1,161) = 4.822, p = 0.030, R^2 = 0.077, R^2_{adj} = 0.049$. Attorney-participants were more confident in the guilty ($M = 77.55, SD = 19.37$) defendant conditions than innocent ($M = 68.96, SD = 21.82$) defendant conditions, $d = 0.428$. However, the results did not reveal a significant main effect of potential trial sentence for attorney-participants' confidence, $F(2,161) = 2.906, p = 0.058, R^2 = 0.077, R^2_{adj} = 0.049$. As such, the results did not support the hypothesis that attorney-participants would be more confident in the high potential trial sentence conditions than moderate or low potential trial sentence conditions. The planned comparisons for each potential trial sentence condition demonstrated a significant effect between low and moderate potential trial sentence conditions, $t(164) = 2.55, p = 0.01$. These comparisons did not show significant effects between low and high potential trial sentence conditions or moderate and high potential trial sentence conditions, $ts \leq 0.425, ps \leq 0.062$. Therefore, the results did not support the hypothesis that attorney-participants would be less sensitive to changes in potential trial sentence as they got further away from the plea offer, consistent with diminishing sensitivity. Figure 3 displays the mean proportions of attorney-participants' confidence for the significant main effect.

Figure 3***Main Effect of Defendant Guilt Status on Confidence for Plea Acceptance******Recommendations***

Note. Error bars indicate standard errors of the estimates.

For those who recommended plea rejection ($N = 238$; 59%), we found a significant main effect of defendant guilt status for attorney-participants' confidence, but no other main effects or interaction effects were found (See Table 3).

Table 3***Regression Coefficients for Predicting Confidence of Plea Rejection Recommendations***

Variable	<i>b</i>	<i>SE</i>	<i>p</i>
Defendant guilt status	9.430	5.486	0.000***
Potential trial sentence	2.095	5.797	0.621
Interaction	10.87	8.061	0.210

Note. *** indicates significance at $p < 0.001$, ** indicates significance at $p < 0.01$, * indicates significance at $p < 0.05$.

We first examined whether there was a significant interaction between defendant guilt status and potential trial sentence (**Hypothesis #4**). The results did not reveal a significant interaction for attorney-participants' confidence, $F(2,230) = 1.572$, $p = 0.210$, $R^2 = 0.073$, $R^2_{adj} = 0.053$. Thus, the results did not support the hypothesis that defendant guilt status and potential trial sentence would interact to predict attorney-participants' confidence, consistent with reference dependence.

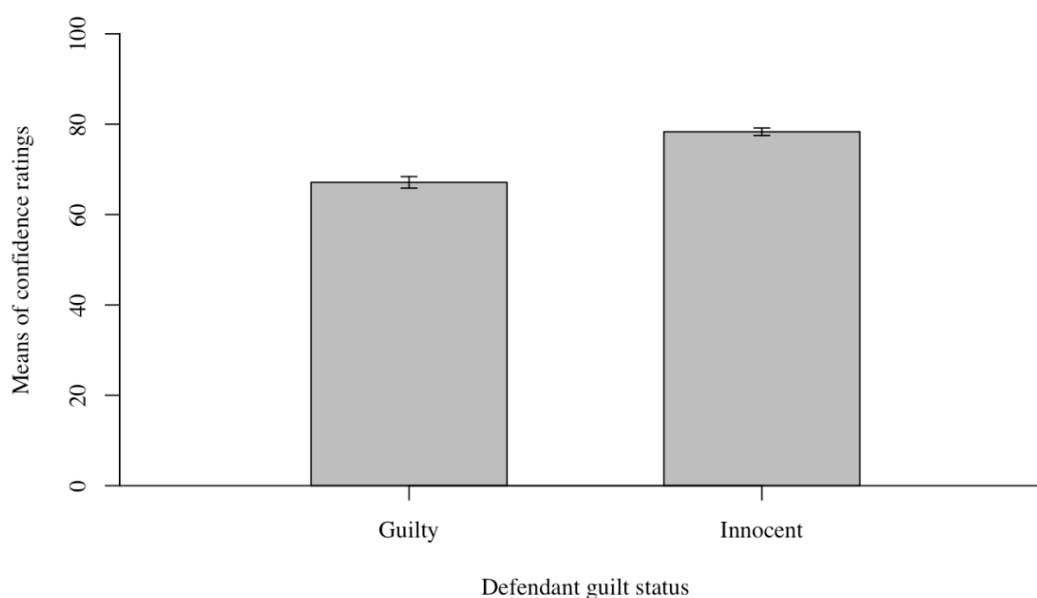
We then examined whether there were any main effects (**Hypotheses #1-3**). The results revealed a significant main effect of defendant guilt status for attorney-participants' confidence, $F(1,230) = 14.50$, $p = 0.000$, $R^2 = 0.073$, $R^2_{adj} = 0.053$. Attorney-participants were less confident in the guilty ($M = 67.13$, $SD = 22.03$) defendant conditions than innocent ($M = 78.32$, $SD = 20.97$) defendant conditions, $d = 0.525$. However, the results did not reveal a significant main effect of potential trial sentence for attorney-participants' confidence, $F(2,230) = 0.477$, $p = 0.621$, $R^2 = 0.073$, $R^2_{adj} = 0.053$. As such, the results did not support the hypothesis that attorney-participants would be more confident in the high potential trial sentence conditions than moderate or low

potential trial sentence conditions. The planned comparisons for each potential trial sentence condition did not show significant effects between any of the potential trial sentence conditions, $ts \leq 0.166$, $ps \leq 0.475$. Therefore, the results did not support the hypothesis that attorney-participants would be less sensitive to changes in potential trial sentence as they got further away from the plea offer, consistent with diminishing sensitivity. Figure 4 displays the mean proportions of attorney-participants' confidence for the significant main effect.

Figure 4

Main Effect of Defendant Guilt Status on Confidence for Plea Rejection

Recommendations



Note. Error bars indicate standard errors of the estimates.

Willingness to Recommend Plea (WTRP)

To test attorney-participants' willingness to recommend plea (WTRP), we first visualized the data and compiled descriptive statistics to test for missingness or non-

normality of residuals. Next, we tested Hypotheses #1-4 with a multiple linear regression model. The model included defendant guilt status, potential trial sentence, and their interaction term as predictor variables. The continuous outcome variable included attorney-participants' WTRP (0-100%). The original model also included sample source as a predictor variable, revealing a difference between CR-attorneys and snowball-attorneys, $F(1,401) = 9.804$, $p = 0.033$, $R^2 = 0.011$, $R^2_{adj} = 0.009$. That is, CR-attorneys ($M = 47.11$, $SD = 34.64$) were more willing to recommend the plea compared to snowball-attorneys ($M = 37.30$, $SD = 30.12$). However, when the model was conducted with and without the data from snowball-attorneys ($N = 66$), the results were not meaningfully different. Thus, we retained all attorney-participants in the final model to conserve statistical power (See Table 4).

Table 4

Regression Coefficients for Predicting WTRP

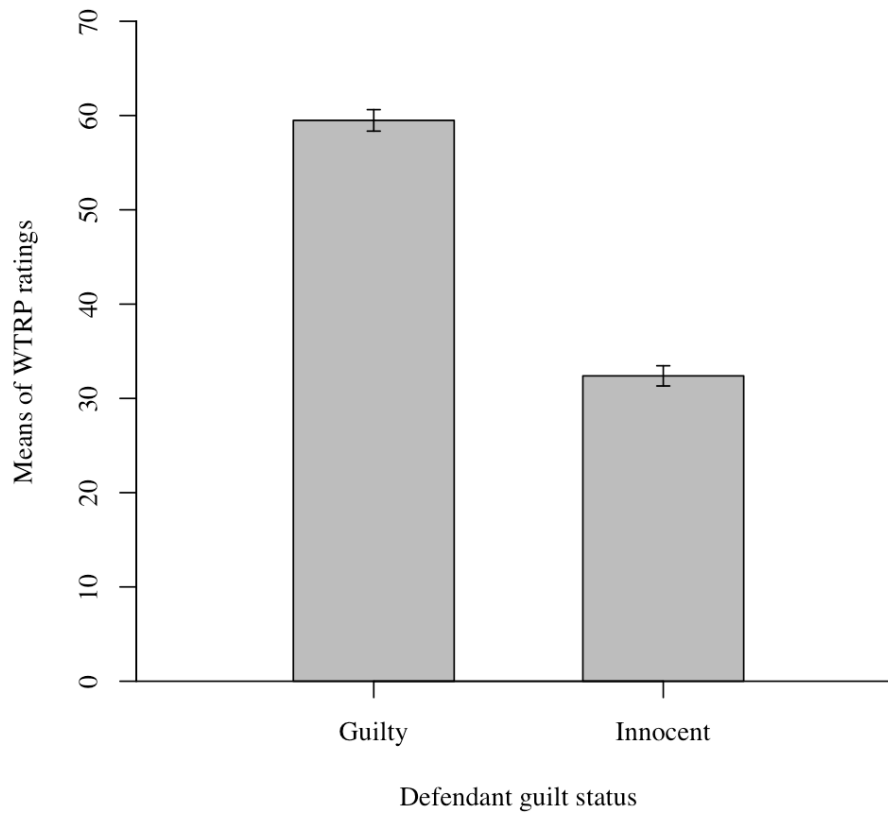
Variable	<i>b</i>	<i>SE</i>	<i>p</i>
Defendant guilt status	-30.77	5.449	< 0.001***
Potential trial sentence	-14.00	5.337	0.009**
Interaction	7.284	7.534	0.334

Note. *** indicates significance at $p < 0.001$, ** indicates significance at $p < 0.01$, * indicates significance at $p < 0.05$.

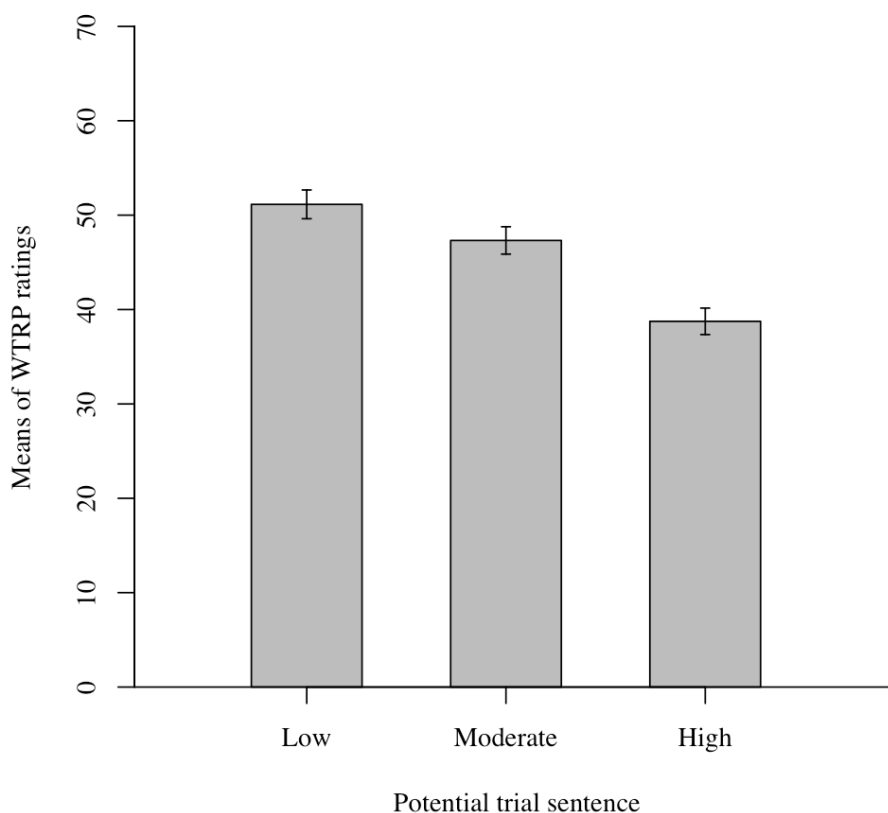
We first examined whether there was a significant interaction between defendant guilt status and potential trial sentence (**Hypothesis #4**). The results did not reveal a significant interaction for attorney-participants' WTRP, $F(5,397) = 7.284$, $p = 0.334$, $R^2 = 0.178$, $R^2_{adj} = 0.168$. Thus, the results did not support the hypothesis that defendant guilt

status and potential trial sentence would interact to predict attorney-participants' WTRP, consistent with reference dependence.

We then examined whether there were any main effects (**Hypotheses #1-3**). The results revealed a significant main effect of defendant guilt status for attorney-participants' WTRP, $F(5,397) = 5.646, p < 0.001, R^2 = 0.178, R^2_{adj} = 0.168$. Attorney-participants were more willing to recommend the plea in the guilty ($M = 59.49, SD = 31.80$) defendant conditions than innocent ($M = 32.39, SD = 30.88$) defendant conditions, $d = 0.865$. The results also revealed a significant main effect of potential trial sentence for attorney-participants' WTRP, $F(5,397) = 2.623, p = 0.009, R^2 = 0.178, R^2_{adj} = 0.168$. Attorney-participants were more willing to recommend the plea in the low ($M = 51.14, SD = 34.85$) potential trial sentence conditions than moderate ($M = 47.32, SD = 32.81$) and high ($M = 38.75, SD = 33.63$) potential trial sentence conditions, $d = 0.852$. The planned comparisons for each potential trial sentence condition demonstrated a significant effect between high and low potential trial sentence conditions, $t(400) = 3.04, p = 0.00$. These comparisons also demonstrated a significant effect between high and moderate potential trial sentence conditions, $t(400) = 2.09, p = 0.04$. However, the comparisons did not show a significant effect between low and moderate potential trial sentence conditions, $t(400) = 0.91, p = 0.36$. As such, the results did not support the hypothesis that attorney-participants would be less sensitive to changes in potential trial sentence as they got further away from the plea offer, consistent with diminishing sensitivity. Figures 5 and 6 display the mean proportions of attorney-participants' WTRP for the significant main effects.

Figure 5***Main Effect of Defendant Guilt Status on WTRP***

Note. Error bars indicate standard errors of the estimates.

Figure 6***Main Effect of Potential Trial Sentence on WTRP***

Note. Error bars indicate standard errors of the estimates.

Maximum Plea Sentences

To test the maximum plea sentences attorney-participants would accept, we first visualized the data and compiled descriptive statistics to test for missingness or non-normality of residuals. Next, we tested Hypotheses #1-4 with a multiple linear regression model. The model included defendant guilt status, potential trial sentence, and their interaction term as predictor variables. The continuous outcome variable included attorney-participants' max plea sentence (i.e., years/months). The original model also included sample source as a predictor variable, which did not reveal a difference between

CR-attorneys and snowball-attorneys, $F(1,401) = 4.688, p = 0.408, R^2 = 0.002, R^2_{adj} = -0.001$. Thus, we retained all attorney-participants in the final model to conserve statistical power (See Table 5).

Table 5

Regression Coefficients for Predicting Maximum Plea Sentences

Variable	<i>b</i>	<i>SE</i>	<i>p</i>
Defendant guilt status	-4.857	6.191	0.433
Potential trial sentence	62.41	6.064	< 0.001***
Interaction	-31.77	8.560	0.000**

Note. *** indicates significance at $p < 0.001$, ** indicates significance at $p < 0.01$, * indicates significance at $p < 0.05$.

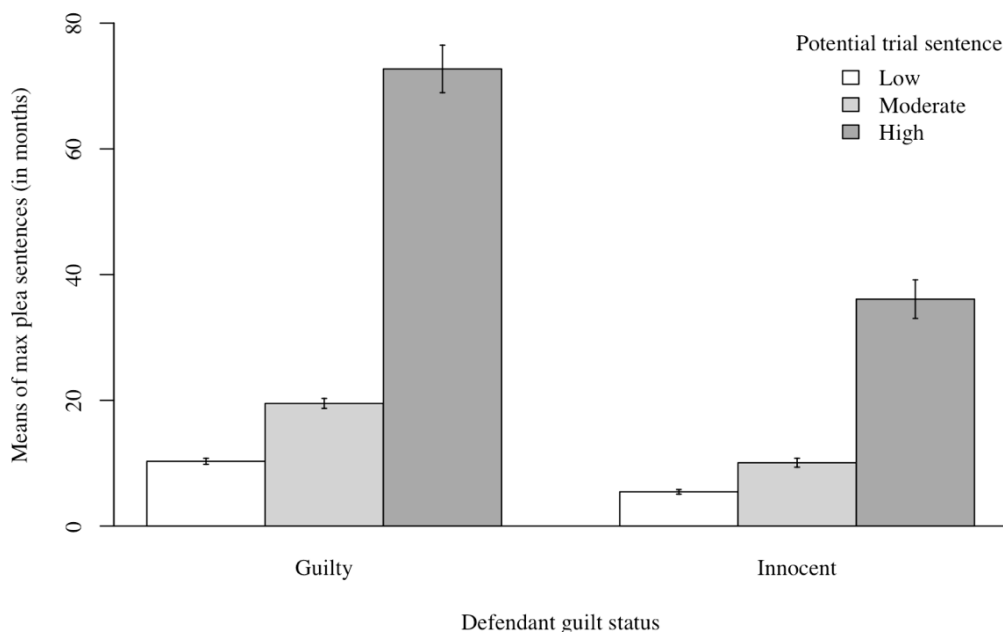
We first examined whether there was a significant interaction between defendant guilt status and potential trial sentence (**Hypothesis #4**). The results revealed a significant interaction effect for attorney-participants' max plea sentences, $F(5,397) = 34.42, p = 0.000, R^2 = 0.302, R^2_{adj} = 0.294$. Because of the significant interaction, we probed the simple effects. When the defendant was guilty, potential trial sentence significantly affected their max plea sentence such that they would accept longer sentences in the high potential trial sentence conditions than moderate and low potential trial sentence conditions, $t(2, 400) = 10.0, p = 0.00$. Similarly, when the defendant was innocent, potential trial sentence significantly affected their max plea sentence such that they would accept longer sentences in the high potential trial sentence conditions than moderate and low potential trial sentence conditions but to a lesser degree, $t(400) = 5.12, p = 0.00$. Therefore, the effect of potential trial sentence was moderated by defendant guilt status

for attorney-participants' max plea sentences, consistent with reference dependence.

Figure 7 displays the means of attorney-participants' max plea sentences for the significant interaction effect.

Figure 7

Interaction Effect for Maximum Plea Sentences



Note. Error bars indicate standard errors of the estimates.

We then examined whether there were any main effects (**Hypotheses #1-3**). The results did not reveal a significant main effect of defendant guilt status for attorney-participants' max plea sentences, $F(5,397) = 0.785$, $p = 0.433$, $R^2 = 0.302$, $R^2_{adj} = 0.294$. As such, the results did not support the hypothesis that attorney-participants would accept longer sentences in the guilty defendant conditions than innocent defendant conditions. Further, the results revealed a significant main effect of potential trial sentence for attorney-participants' max plea sentences, $F(5,397) = 10.29$, $p < 0.001$, $R^2 = 0.302$, R^2_{adj}

= 0.294. Attorney-participants would accept longer sentences in the high ($M = 52.88$, $SD = 60.28$) potential trial sentence conditions than moderate ($M = 14.42$, $SD = 12.81$) and low ($M = 8.04$, $SD = 7.38$) potential trial sentence conditions, $d = 0.179$. The planned comparisons for each potential trial sentence condition demonstrated a significant effect between high and low potential trial sentence conditions, $t(400) = -10.0$, $p < 0.00$. These comparisons also demonstrated a significant effect between high and moderate potential trial sentence conditions, $t(400) = -8.56$, $p < 0.00$. However, the comparisons did not show a significant effect between low and moderate potential trial sentence conditions, $t(400) = -1.38$, $p = 0.17$. Therefore, the results did not support the hypothesis that attorney-participants would be less sensitive to changes in potential trial sentence as they got further away from the plea offer, consistent with diminishing sensitivity.

Discussion

The current research explored the effects of factors from PT—diminishing sensitivity and reference dependence—on attorneys' plea recommendations. That is, we tested both main and interaction effects of defendant guilt status and potential trial sentence. In sum, the findings from this experiment revealed significant main effects for attorneys' plea recommendations, confidence, and WTRP, as well as a significant interaction effect for max plea sentences.

The main effects of defendant guilt status and potential trial sentence on attorneys' plea recommendations have important implications for how these factors contribute to false guilty plea recommendations. The effect of defendant guilt status demonstrated that attorneys were more likely to recommend plea acceptance when the defendant was guilty as opposed to innocent, consistent with previous research on

defendants' plea decisions (Dervan & Edkins, 2013; Redlich & Shteynberg, 2016; Wilford et al., 2020). However, the effect of potential trial sentence demonstrated that attorneys were less likely to recommend plea acceptance when the potential trial sentence was high as opposed to moderate or low, contrary to research on attorneys' plea recommendations (Cardenas et al., 2023). This deviation from previous research could be due to manipulations of the current experiment, as the high potential trial sentence conditions were intended to represent "overcharging"—a prosecutorial practice wherein defendants are charged with more severe crimes than the facts of the case support (Haby & Brank, 2013). Although not statistically significant, attorneys' plea acceptance recommendations increased from low to moderate potential trial sentence conditions before significantly declining under high potential trial sentence conditions. These findings suggest that attorneys were more likely to recommend plea acceptance as the potential trial sentence increased, but this trend did not persist when overcharging was introduced. Still, the findings showed that attorneys were more likely to recommend *false* guilty pleas under high and moderate potential trial sentence conditions, suggesting that addressing sentence disparities between trial and plea outcomes could help reduce the risk of wrongful convictions via false guilty plea recommendations.

The main effects of defendant guilt status on attorneys' confidence for both plea acceptance and rejection recommendations offer further insight into their thought processes when making recommendations. Specifically, attorneys were more confident recommending plea acceptance when the defendant was guilty, and more confident recommending plea rejection when the defendant was innocent. These findings suggest that attorneys are more confident when their recommendations align with the defendant's

factual guilt or innocence. Although not central to our analyses, these findings enhance our understanding of how defendant guilt status may shape attorneys' confidence in their plea recommendations. Future research should continue to explore the effects of defendant guilt status on attorneys' confidence to determine how it relates to the risk of wrongful convictions via false guilty plea recommendations.

The main effects of defendant guilt status and potential trial sentence on attorneys' WTRP also offers insight into attorneys' thought processes when making plea recommendations. These effects demonstrated that attorneys were more willing to recommend the plea when the defendant was guilty and the potential trial sentence was low. Because attorneys provided more plea acceptance recommendations in the guilty defendant and low potential trial sentence conditions, it stands to reason that they were more willing to recommend the plea in those conditions. However, there is a notable difference in the effect of potential trial sentence for attorneys' plea recommendations and WTRP. Specifically, attorneys' plea acceptance recommendations increased from low to moderate potential trial sentences before significantly decreasing for high potential trial sentences. On the other hand, attorneys' WTRP progressively decreased as the potential trial sentence increased. Upon further exploration of this effect, we found that attorneys were more willing to recommend false guilty pleas than true guilty pleas when the potential trial sentence was low. The reverse effect was found when the potential trial sentence was moderate or high. While not the focus of our analyses, these findings enhance understanding of attorneys' thought processes when making plea recommendations, further highlighting how such factors contribute to false guilty plea recommendations. Future research should continue to explore the effects of potential trial

sentence and defendant guilt status on attorneys' WTRP to determine how they relate to the risk of wrongful convictions via false guilty plea recommendations.

Lastly, the interaction between defendant guilt status and potential trial sentence on attorneys' max plea sentences replicate and expand on findings from recent research. That is, Cardenas and colleagues (2023) showed that attorneys would accept longer plea sentences when the potential trial sentence was high as opposed to moderate. Our findings replicated this effect by demonstrating that when the defendant was guilty, attorneys would accept longer sentences under high potential trial sentence conditions compared to moderate and low potential trial sentence conditions. A similar trend emerged when the defendant was innocent, but to a lesser extent. Therefore, the current research revealed an anchoring effect of potential trial sentence on attorneys' max plea sentences that persisted despite the defendant's factual guilt or innocence. However, defendant guilt status influenced the extent to which potential trial sentence affected attorneys' sentencing preferences. Specifically, attorneys would accept longer plea sentences in all three potential trial sentence conditions when the defendant was guilty rather than innocent, consistent with reference dependence. The impact of these cognitive heuristics could be problematic, as they have the potential to bias attorneys' decision-making and affect their ability to best serve clients when negotiating plea bargains. Future research should continue to explore the effects of anchoring and reference dependence on attorneys' sentencing preferences to determine how they relate to the risk of wrongful convictions via false guilty plea recommendations.

Comparing PT and FTT

In addition to the described findings, the current research sought to empirically test and compare factors from PT and FTT on attorneys' plea recommendations. Specifically, we aimed to determine if attorneys' plea decisions were influenced by *each* change in potential trial sentence (i.e., consistent with PT), or only by *categorically* meaningful changes in potential trial sentence (i.e., consistent with FTT). To test these effects, we examined factors from PT, including diminishing sensitivity and reference dependence. For diminishing sensitivity, the planned comparisons for each dependent variable of interest—attorneys' plea recommendations, confidence, WTRP, and max plea sentences—did not support the hypothesis that attorneys would be less sensitive to changes in potential trial sentence as they got further away from the plea offer. In fact, significant effects were only found between categorically meaningful distinctions in potential trial sentence (e.g., high vs. low). For reference dependence, the results for most dependent variables of interest did not support the hypothesis that attorneys would view potential trial sentences differently depending on the defendant's guilt or innocence. The only interaction between these factors emerged for attorneys' maximum plea sentences, wherein defendant guilt status influenced the extent to which potential trial sentence shaped their sentencing preferences. These findings align with the principle of reference dependence, though not in the way we predicted.

Overall, our findings appear to align more with the predictions of FTT than PT for attorneys' plea recommendations, consistent with recent research on defendants' plea decisions (Bartlett & Zottoli, 2021; Zottoli et al., 2023). In particular, Zottoli and colleagues (2023) demonstrated that defendants' plea decisions were influenced only by

categorically meaningful distinctions in conviction probability and potential trial sentence. Our findings replicate and expand on these findings by demonstrating that attorneys' plea recommendations, and other related thought processes, were influenced only by categorically meaningful changes in potential trial sentence. Still, future research should continue to explore the predictions of FTT and PT for attorneys' plea recommendations, as such comparisons not only advance theory in the plea-bargaining literature but also inform public policy and procedure regarding coercion in potential trials sentences via attorneys' plea recommendations.

Intellectual Merit and Broader Impacts

The findings from the current research have both intellectual merit and broader impacts. For intellectual merit, this experiment advanced theoretical knowledge in the plea-bargaining literature by testing and comparing factors from two emerging theories on attorneys' decision-making. As discussed, recent research demonstrated that defendants' plea decisions were only influenced by *categorically* meaningful changes in conviction probability and potential trial sentence (Bartlett & Zottoli, 2021; Zottoli et al., 2023). Theoretically, attorneys' plea recommendations should not follow the same patterns as defendants' plea decisions because they differ in their skills and experiences with the legal system; and ultimately, attorneys do not suffer the same consequences as defendants for their plea decisions. Our findings suggest that attorneys' plea recommendations and related thought processes reflect similar patterns observed in defendants' plea decisions, indicating that such effects extend across different legal actors. By testing and comparing factors from these theories, the current research not only advances knowledge in the plea-bargaining field, but also across different fields of

study. Specifically, we integrated theories from multiple fields of study (e.g., behavioral economics, judgment and decision-making) to better understand the socio-cognitive and behavioral processes that occur in plea bargaining.

For broader impacts, the current research could inform public policy and procedure regarding coercion in potential trial sentence and how to reduce it via attorneys' plea recommendations. Our findings revealed that attorneys provided more plea acceptance recommendations under moderate potential trial sentence conditions, followed by low and high moderate potential trial sentence conditions. However, attorneys provided more *false* guilty plea recommendations under moderate potential trial sentence conditions, followed by high and low potential trial sentence conditions. Given that the findings demonstrated attorneys provided more false guilty plea recommendations under moderate and high potential trial sentence conditions, policies can be put in place to ensure sentence discrepancies between potential trial sentences and plea offers are reduced. The current legal precedents suggest that large sentencing discounts and even threats of the death penalty do not constitute coercion in plea decisions (*Bordenkircher v. Hayes*, 1978; *Brady v. United States*, 1970). Nevertheless, false guilty pleas contribute to approximately a quarter of wrongful convictions in the United States (National Registry of Exonerations, 2024), indicating that this practice might be coercive for innocent defendants.

Limitations and Future Directions

Despite implications of these findings, the current research has some limitations. First, we collected data for this experiment at the same time as the previous experiment (See Chapter 3). Because these specialized samples of attorneys are difficult and

expensive to recruit, attorney-participants took part in both experiments within the same survey for efficiency. To reduce order effects, the experiments were counterbalanced such that the order in which attorney-participants receive each experiment was randomized, with one half completing the two experiments in one order and the other half completing them in the reverse order. Still, the effects of crime type might have influenced attorneys' decision-making. That is, one experiment depicted a misdemeanor (hit-and-run) crime, whereas the other experiment depicted a felony (drug possession) crime. Research has demonstrated that crime type significantly influenced legal actors' judgments and decision-making, indicating that more serious crimes led to stronger biases (Pearson et al., 2018). These effects may have influenced our findings, as attorneys generally showed higher plea acceptance recommendations for the felony crime compared to the misdemeanor crime. Future research should replicate the current findings using different crime types to increase generalizability.

Second, our findings did not align with predictions from PT regarding diminishing sensitivity but instead supported predictions from FTT. However, the absence of this effect may be attributed to methodological limitations. That is, previous research examining factors from PT and FTT in defendants' plea decisions included extended levels of each factor to identify distinctions between groups (Bartlett & Zottoli, 2021; Zottoli et al., 2023). For example, Zottoli and colleagues (2023) examined seven different levels of conviction probability to investigate changes in defendants' plea decisions. Since we examined a specialized population of attorneys, acquiring a sample large enough to ensure sufficient power to detect effects across additional conditions was not feasible for this experiment. Future research should expand on the current findings by

extending levels of potential trial sentence to better understand factors that influence attorneys' plea recommendations.

Conclusion

The current experiment tested factors from PT—diminishing sensitivity and reference dependence—to determine whether PT or FTT better predict attorney plea decision-making. To test these factors, we investigated the effects of defendant guilt status and potential trial sentence on attorneys' plea recommendations and related thought processes. The results revealed significant main effects of defendant guilt status and potential trial sentence for attorneys' plea recommendations. A guilty defendant and low potential trial sentence increased the odds of recommending plea acceptance. The results also showed significant effects for attorneys' confidence in their plea recommendations, WTRP, and max plea sentences. Broadly, these findings indicate that attorneys' plea decisions are influenced by categorical distinctions in potential trial sentences (e.g., high vs. low), consistent with FTT. However, their sentencing preferences also exhibit reference dependence because defendant guilt status affected the extent to which potential trial sentence shaped the maximum plea sentences they would accept, consistent with PT. Thus, the findings reflect factors from both PT and FTT, suggesting that attorneys' plea recommendations are influenced by multiple cognitive heuristics and biases. The findings not only advance theoretical knowledge in the plea-bargaining literature but also inform public policy and procedure to reduce coercion in plea bargaining via attorneys' plea recommendations.

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Appendix A

Interactive Computer Simulation Script – Scenario 2 (Drug Possession)

The simulation opens with the defendant drinking with a friend at a house party. The sequence pans to another avatar who sells drugs to the friend, who then places the drugs in her purse.

Following, the friend asks the defendant to hold her purse as the screen fades into a black background with white text on the screen:

“A few hours later...”

The defendant is sitting in the front seat of his vehicle and the sequence pans to his cellphone, which indicates that he has texted the friend to ask where she is. A police officer approaches the vehicle, who then finds the drugs in the friend’s purse in the passenger seat of the defendant’s vehicle as a black background fades into a courtroom.

PROSECUTOR:

- Good afternoon, my name is Mr. Clark and I will be prosecuting this case on behalf of the State, Your Honor. »

DISTRICT COURT JUDGE:

- Good afternoon. What is the nature of this case, Mr. Clark? »

PROSECUTOR:

- The defendant, Ethan Foster, is accused of drug possession occurring around 10pm on the 26th of June. »
- In accordance with State law, drug possession occurs when a person has custody of drugs that are recognized by statute as being illegal. »
- According to the police report, there were illegal drugs found in the defendant's car. »
- There is a witness willing to testify that they saw the defendant take drugs from another person at a party. »
- This is a textbook drug possession, which is considered a serious felony punishable by significant fines and/or time in jail. »
- We request a court date be set by the State as soon as possible. »

DISTRICT COURT JUDGE:

- The defendant, Ethan Foster, is being charged with drug possession. »
- At this time, he will be held until counsel has been appointed. »
- It is so ordered. »

A black background fades into the defense attorney’s office.

- You have been assigned to represent the defendant, Ethan Foster, in this case. »
The defendant appears in the defense attorney's office.

DEFENDANT:

- Thank you for representing me. I can't believe this is happening. I think I remember the night Mr. Clark is referring to... »

Here, the simulation shows two different sequences depending on whether the defendant is guilty or innocent.

If innocent:

The flashback sequence demonstrates that the defendant was offered drugs at the house party and turned them down.

DEFENDANT:

- I know I was offered drugs at the party, but I didn't actually take them. I know I am **innocent**. »

If guilty:

The flashback sequence demonstrates that the defendant was offered drugs at the house party and took them.

DEFENDANT:

- I was offered drugs at the party and I took them. I know I am **guilty**. »

A black background fades into the prosecutor's office.

- The prosecutor in this case, Mr. Clark, is interested in seeing whether the case could be resolved without a trial. »

Here, the simulation shows three different sequences depending on whether the potential trial sentence is low, moderate, or high.

If low:

PROSECUTOR:

- If this case does go to trial, I will be seeking the maximum penalty of **2 years** in jail. »
- However, if the defendant agrees to plead guilty now, I am prepared to recommend that the judge sentence him to **1 year** instead of **2 years** in jail. »

If moderate:

PROSECUTOR:

- If this case does go to trial, I will be seeking the maximum penalty of **4 years** in jail. »
- However, if the defendant agrees to plead guilty now, I am prepared to recommend that the judge sentence him to **2 years** instead of **4 years** in jail. »

If high:

PROSECUTOR:

- If this case does go to trial, I will be seeking the maximum penalty of **20 years** in prison. »
- However, if the defendant agrees to plead guilty now, I am prepared to recommend that the judge sentence him to **10 years** instead of **20 years** in prison. »

The attorney-participant is then redirected back to Qualtrics to complete the survey.

Chapter 5: Summary Discussion

The purpose of this dissertation was to investigate factors that influence attorneys' plea recommendations via dominant decision-making theories from the plea-bargaining literature. Using theory-driven and ecologically valid approaches, we examined the effects of key factors from Shadow of the Trial (SoT) theory (Bushway & Redlich, 2012; Bushway et al., 2014; Wilford et al., 2021), Fuzzy Trace Theory (FTT) (Helm & Reyna, 2017; Helm et al., 2018; Zottoli et al., 2023), and Prospect Theory (PT) (Bartlett & Zottoli, 2021; Edkins & Dervan, 2018; Garnier-Dykstra & Wilson, 2021) on attorneys' plea recommendations across three articles (Chapters 2-4). Chapter 2 examined the influence of factors from SoT, including conviction probability, potential trial sentence, and defendant guilt status. Chapter 3 examined the influence of factors from FTT, including gist versus verbatim processing. Chapter 4 examined the influence of factors from PT, including diminishing sensitivity and reference dependence.

Collectively, the findings from these experiments advance theory and enhance our understanding of attorney influence in plea bargaining. Specifically, this research applies theories traditionally used to explain and predict defendants' plea decisions to gain deeper insight into attorney decision-making. Hence, the three articles in this dissertation employ distinct theoretical perspectives and methodological approaches to examine factors influencing attorneys' plea recommendations. The following sections review the findings of each article and conclusions derived from them.

Article Summaries

Chapter 2

Chapter 2, “*Attorney Influence in Plea Bargaining: Factors That Impact Attorneys’ Recommendations*,” describes two online experiments that investigated the influence of factors from SoT—conviction probability via evidence strength, potential trial sentence, and defendant guilt status—on mock attorneys’ plea recommendations. Experiment 1 examined the effects of evidence strength and potential trial sentence. The results revealed significant main effects for both factors. Thus, the findings demonstrated that strong evidence and high potential trial sentence increased the odds of mock attorneys recommending plea acceptance.

Experiment 2 examined the effects of evidence strength, potential trial sentence, and defendant guilt status. The results revealed significant main effects for potential trial sentence and defendant guilt status. These findings demonstrated that high potential trial sentence and a guilty defendant increased the odds of mock attorneys recommending plea acceptance. However, the findings did not replicate the effect of evidence strength on mock attorneys’ plea recommendations from Experiment 1.

The current research provides evidence that factors from SoT affect attorneys’ plea recommendations. That is, the first experiment revealed that factors from the original SoT—evidence strength and potential trial sentence—influenced mock attorneys’ plea recommendations. When defendant guilt status was introduced in the second experiment, evidence strength no longer had an impact on their recommendations.

These findings contradict the results of recent research on attorneys’ plea recommendations. For instance, Hellgren and colleagues (2022) found that attorneys’

plea recommendations were largely driven by perceived conviction probability, with little to no influence from defendants' claims of guilt or innocence. We concluded that our methodology allowed us to uncover the effect of defendant guilt status, as this research is the first to examine the influence of defendants' *factual* guilt or innocence rather than their *claims* of guilt or innocence. Because of this, we successfully replicated a well-established finding regarding defendants' plea decisions (Dervan & Edkins, 2013; Redlich & Shteynberg, 2016; Wilford et al., 2020) and provided evidence of the influence of SoT factors on attorneys' plea recommendations. Moreover, these findings reveal the circumstances in which attorneys might recommend their clients falsely plead guilty (e.g., when the potential trial sentence is high). Therefore, this research could be used to educate defense attorneys against factors that contribute to false guilty plea recommendations.

Chapter 3

Chapter 3, "*Attorneys' Plea Recommendations: The Effects of Cognitive Processing Style*," describes an online experiment that investigated the influence of factors from FTT—gist versus verbatim processing—on practicing attorneys' plea recommendations and other related thought processes. Further, this experiment examined whether attorneys' cognitive processing styles interacted with any of the factors from SoT to predict their plea recommendations. The results uncovered significant effects for each dependent variable of interest: attorney-participants' plea recommendations, confidence, willingness to recommend plea (WTRP), and maximum plea sentences.

The results revealed an interaction between cognitive processing styles and conviction probability for attorneys' plea recommendations. When the conviction

probability was high, verbatim processing increased the odds of recommending plea acceptance compared to gist processing. When the conviction probability was low, gist processing increased the odds of recommending plea acceptance compared to verbatim processing. These findings highlight the role of cognitive processing styles in attorneys' decision-making, suggesting the way attorneys interpret and evaluate case information can influence their plea recommendations.

The results revealed an interaction between conviction probability and defendant guilt status for attorneys' confidence in their plea rejection recommendations. When the defendant was guilty, attorneys were more confident recommending plea rejection under low conviction probability conditions than high conviction probability conditions. When the defendant was innocent, attorneys were more confident recommending plea rejection under high conviction probability conditions than low conviction probability conditions, but this effect was not significant. These findings suggest that attorneys are more confident recommending that guilty defendants reject plea deals when there is less evidence supporting their guilt, offering further insight into attorneys' thought processes when making recommendations.

The results revealed main effects of conviction probability and defendant guilt status for attorneys' WTRP. Attorneys were more willing to recommend the plea when conviction probability was high as opposed to low. In addition, attorneys were more willing to recommend the plea when the defendant was guilty as opposed to innocent. These findings indicate that both conviction probability and defendant guilt status influence attorneys' WTRP, replicating and building upon recent research on attorneys' plea recommendations (Hellgren et al., 2022).

The results also revealed a main effect of potential trial sentence for attorneys' maximum plea sentences. Attorneys would accept longer plea sentences when the potential trial sentence was high as opposed to low, indicating that their max plea sentences were anchored to the potential trial sentence. This suggests that attorneys' estimates of acceptable plea sentences increased as potential trial sentence increased, regardless of defendant guilt status. These findings replicate and extend recent research on attorneys' sentencing preferences (Cardenas et al., 2023), underscoring the need for further investigation into cognitive heuristics and biases that influence attorneys' plea recommendations.

Taken together, the current research provides evidence that factors from FTT influence attorneys' plea recommendations. Specifically, the findings showed that the effects of attorneys' cognitive processing styles were moderated by SoT factors, affecting their plea recommendations and related thought processes. Further, this research replicated and expanded recent research on attorneys' plea recommendations (Cardenas et al., 2023; Hellgren et al., 2022), which emphasizes the importance of raising awareness and providing education about heuristics that can bias attorneys' decision-making. Thus, attorneys could be educated against the effects of heuristics and biases in plea bargaining to reduce wrongful convictions via false guilty plea recommendations.

Chapter 4

Chapter 4, "*Prospect or Fuzzy Trace? A Model Comparison for Attorneys' Plea Recommendations*," describes an online experiment that investigated the influence of factors from PT and FTT to determine which theory more accurately predicts attorneys' plea decisions. To compare these theories, we examined factors from PT—diminishing

sensitivity and reference dependence—by manipulating defendant guilt status and potential trial sentence and measuring their effects on practicing attorneys' plea recommendations and related thought processes. The results uncovered significant effects for each dependent variable of interest: attorney-participants' plea recommendations, confidence, willingness to recommend plea (WTRP), and maximum plea sentences.

The results revealed main effects of defendant guilt status and potential trial sentence for attorneys' plea recommendations. Attorneys showed increased odds of recommending plea acceptance when the defendant was guilty as opposed to innocent. On the other hand, attorneys showed decreased odds of recommending plea acceptance when the potential trial sentence was high as opposed to moderate or low. Still, attorneys provided more *false* guilty plea recommendations when the potential trial sentence was high or moderate as opposed to low. These findings identified situations in which attorneys may advise clients to falsely plead guilty, emphasizing the need for policy and procedural reforms to mitigate the influence of potential trial sentence.

The results revealed main effects of defendant guilt status for attorneys' confidence in plea acceptance and rejection recommendations. Attorneys were more confident recommending plea acceptance when the defendant was guilty as opposed to innocent. Conversely, attorneys were more confident recommending plea rejection when the defendant was innocent as opposed to guilty. These findings offer further insight into attorneys' thought processes when making plea recommendations, indicating they are more confident when their recommendations are consistent with defendant guilt status.

The results revealed main effects of defendant guilt status and potential trial sentence for attorneys' WTRP. Attorneys were more willing to recommend the plea when

the defendant was guilty as opposed to innocent. Additionally, attorneys were more willing to recommend the plea when the potential trial sentence was low as opposed to moderate or high. These findings reinforce the influence of both defendant guilt status and potential trial sentence on attorneys' plea recommendations, further underscoring the need for policy and procedural reforms to reduce the impact of potential trial sentence.

Lastly, the results revealed an interaction between defendant guilt status and potential trial sentence for attorneys' maximum plea sentences. When the defendant was guilty, attorneys would accept the longest sentences under high potential trial sentence conditions, followed by moderate and low potential trial sentence conditions. A similar trend was shown when the defendant was innocent, but to a lesser extent. This suggests that attorneys' sentencing preferences were anchored to the potential trial sentence; however, this effect was reference dependent on the defendant's factual guilt or innocence. These findings shed light on the cognitive and contextual factors that shape attorneys' decision-making, emphasizing the need for further research on how such effects impact plea-bargaining outcomes.

Altogether, the current research provides evidence that factors from PT influence attorneys' plea recommendations. Though support for diminishing sensitivity was not found, attorneys' sentencing preferences aligned with predictions of reference dependence, as the influence of potential trial sentence was moderated by defendant guilt status. Nevertheless, follow-up analyses revealed that such effects were only shown for *categorically* meaningful changes in potential trial sentence. These findings indicate that FTT may provide a better framework for understanding factors that influence attorneys' plea recommendations, consistent with recent research on defendants' plea decisions

(Zottoli et al., 2023). This research not only contributes to theoretical advancements in the plea-bargaining literature but also reveals the underlying mechanisms that contribute to false guilty plea recommendations.

Collective Conclusions

The described articles provide the foundation for better understanding factors that influence attorneys' plea recommendations. Across all three articles, defendant guilt status was the most consistent effect. That is, attorneys showed increased odds of recommending plea acceptance when the defendant was guilty as opposed to innocent, aligning with the well-established literature on defendants' plea decisions (e.g., Dervan & Edkins, 2013; Redlich & Shteynberg, 2016; Wilford et al., 2020). This effect, along with effects of conviction probability and potential trial sentence, demonstrated that factors from SoT influence attorneys' plea recommendations. However, we found evidence that factors from FTT and PT also influence attorneys' plea recommendations. Thus, this research suggests that attorneys' plea recommendations are influenced by factors from *all* dominant decision-making theories in the plea-bargaining literature. These findings demonstrate the complexity of attorneys' decision-making processes in plea bargaining, highlighting the need for continued research to refine theory and inform policies that reduce the risk of wrongful convictions via false guilty plea recommendations.

Notably, the findings of this research are consistent with existing research on defendants' plea decisions. To demonstrate this, defendant guilt status influenced attorneys' plea recommendations in the same way it affected defendants' plea decisions. Moreover, attorneys' plea recommendations were shaped by their cognitive processing styles and other heuristics, mirroring patterns of defendants' decision-making. These

findings suggest that attorneys are not immune to cognitive biases and heuristics in their decision-making, despite their legal training and experience. Understanding these influences are crucial for informing policy and procedural changes to reduce false guilty plea recommendations.

Intellectual Merit

Beyond these conclusions, the current research has intellectual merit, as the findings advance knowledge in the plea-bargaining literature by testing factors from dominant decision-making theories on attorneys using diverse methodological paradigms. In the following sections, we describe how this research helped to develop a better understanding of attorney influence in plea bargaining, and why this was an important topic to study.

Theoretical Test and Comparison

Research on factors that influence attorneys' plea recommendations is limited, with most studies primarily examining factors from SoT. While SoT effectively predicts outcomes at the aggregate level, its predictive power diminishes at the individual level (Bibas, 2004; Bushway & Redlich, 2012; Edkins & Dervan, 2018). For instance, variations in plea decisions may result from individual differences, such as non-neutral risk preferences or other non-rational behavior in decision-making.

To account for these limitations of SoT, two theories have recently emerged in the plea-bargaining literature: FTT and PT. Although research on these theories focus on defendants' decision-making, they have shown how people generally make decisions in the face of risk and uncertainty. Consistent with FTT, defendants' cognitive processing styles influenced their plea decisions (Helm & Reyna, 2017; Helm et al., 2018). On the

other hand, defendants' plea decisions were influenced by cognitive heuristics like loss aversion and reference dependence, consistent with PT (Bartlett & Zottoli, 2021; Edkins & Dervan, 2018; Garnier-Dykstra & Wilson, 2021). Note that these two theories (FTT and PT) are not necessarily mutually exclusive; rather, they provide different theoretical frameworks by which to evaluate patterns in plea outcomes.

Despite these considerations, we anticipated that attorneys' plea recommendations might differ from defendants' plea decisions. Unlike defendants, attorneys possess specialized skills and extensive experience in the legal system. Moreover, attorneys do not personally bear the consequences of plea decisions, which further distinguish their decision-making from those of defendants. Still, the current findings revealed that attorneys' plea recommendations often mirrored patterns observed in defendants' plea decisions. Specifically, attorneys' plea decision-making was influenced by cognitive processing styles and other heuristics, suggesting their decisions are not immune to bias. Notably, our findings indicate that attorneys' plea recommendations reflect aspects from *all* the dominant plea decision-making theories—SoT, FTT, and PT. This convergence suggests that while attorneys and defendants exhibit similar decision-making patterns, the underlying processes may differ. As such, the theory that best captures defendants' plea decisions may not fully explain attorneys' plea recommendations, underscoring the complexity of attorney decision-making and the need for further theoretical development to account for these nuances.

Diverse Methodological Paradigms

To test and compare factors from the dominant theories of plea decision-making on attorneys, the current research employed diverse methodological paradigms. In the

first article, we examined the influence of factors from SoT using a vignette-based design with mock attorneys. However, vignette-based designs have limited verisimilitude due to their lack of experimental realism. This is particularly problematic when studying plea decision-making, as the process inherently involves risk and uncertainty, which are challenging to accurately replicate in a controlled experiment. To address this issue, researchers have started incorporating behavioral paradigms to examine plea decision-making. For example, one experiment simulated a plea-bargaining scenario wherein mock attorney–client pairs deliberated over their plea decisions (Cardenas et al., 2023). These findings revealed that potential trial sentences had a significant impact on plea decisions, with higher sentences leading to more plea acceptance recommendations.

The benefits of such interactive methods, as opposed to vignette-based methods, are: (1) increased participant attentiveness and engagement, and (2) greater generalizability of findings to real-world settings (i.e., improved ecological validity). Despite the benefits, these methods also present certain drawbacks, especially with attorney samples. Attorneys are a hard-to-reach population due to the demands of their profession, including heavy caseloads and demanding schedules. As a result, recruiting a sufficient number of attorney participants to detect experimental effects is both time-consuming and difficult, particularly for studies employing interactive paradigms.

Researchers have recently introduced interactive computer simulations to facilitate participant recruitment while maintaining ecological validity of plea-bargaining studies (e.g., Cardenas et al., 2023; Henderson et al., 2023; Wilford et al., 2021; 2024). For example, studies using interactive computer simulations to investigate defendants' plea decisions found that the results replicated previous research (Henderson et al., 2023),

with participants reporting that the simulations were more engaging than vignettes and that their decisions reflected what they would likely choose in real-life situations (Wilford et al., 2024). Still, these experiments have primarily focused on defendants' plea decisions. Since recruiting attorney samples are more challenging than recruiting defendant samples, we developed two interactive computer simulations for the second and third articles to examine the influence of factors from FTT and PT on attorneys' plea decision-making.

We used the PleaJustice webpage (pleajustice.org) to develop interactive computer simulations to study attorneys' plea recommendations. This open-source, non-proprietary platform supports a network of approximately 50 users across 30 institutions and 6 countries. To date, six peer-reviewed publications have used this simulation, though they primarily focused on defendants' decision-making. To explore attorneys' decision-making, we oversaw the creation of new computer-animated, two-dimensional (2D) assets for the PleaJustice webpage. In collaboration with the creator of the PleaJustice simulation and an animator from the Computer Science department at the University of Nevada, Reno (UNR), we created a new defendant "sprite"—2D bitmaps that are integrated into a larger scene—and two static backgrounds to further increase immersiveness of the simulation for attorneys. The defendant sprite was designed to present as either male or female, and the backgrounds portrayed environments of a defense attorney's office and prosecutor's office. All other necessary assets, such as crime videos and prosecutor sprite, were already available on the platform. The tools developed for this research, including the new assets and simulations, will be publicly shared on the PleaJustice webpage for future investigations of attorney decision-making.

Broader Impacts

In addition to intellectual merit, the current research has broader impacts, as the findings have important implications for the criminal legal system. Specifically, this research could impact attorneys practices in plea bargaining by educating legal professionals, informing public policy and procedural changes, and ultimately improving outcomes for people who come into contact with the criminal legal system. In the following sections, we discuss how the findings from this research support these implications.

The findings from this research could help educate legal professionals by highlighting the cognitive and contextual factors that influence attorneys' decision-making. In the first article, we demonstrated that factors from SoT—conviction probability, potential trial sentence, and defendant guilt status—influenced attorneys' plea recommendations. In the second article, we showed that such effects were moderated by attorneys' cognitive processing styles. While it is beneficial for attorneys to use contextual factors and evaluations of these factors to inform their plea recommendations, it could also introduce bias into their decision-making. For example, attorneys' cognitive processing styles shape how they interpret factors like conviction probability and defendant guilt status, potentially increasing the likelihood of false guilty plea recommendations in certain situations. Thus, legal professionals could be educated against these effects to decrease false guilty plea recommendations. Such understanding would be essential in reducing the risk of wrongful convictions via false guilty pleas, as research has shown that defendants—particularly innocent defendants—typically follow

the advice of their attorneys for plea decisions (e.g., Henderson & Levett, 2018; Henderson & Shteynberg, 2020; Henderson et al., 2023).

The findings from this research could inform public policy and procedure by uncovering the circumstances in which attorneys' might recommend that their clients falsely plead guilty. In the third article, we illustrated that defendant guilt status and potential trial sentence influenced attorneys' plea recommendations and related thought processes. Further, we demonstrated that the effects of potential trial sentence on attorneys' sentencing preferences were reference dependent on the defendant's guilt or innocence. This effect is particularly problematic when prosecutors engage in overcharging—a practice wherein defendants are charged with more severe crimes or a greater number of crimes than the facts of the case support (Haby & Brank, 2013). Since high potential trial sentences lead to more false guilty plea recommendations, policies against overcharging could be implemented at the state or federal level. Likewise, courtrooms could establish procedures to reinforce due process safeguards.

Together, the findings from this research could be used to educate legal professionals about risk factors that contribute to false guilty plea recommendations and promote the fair administration of plea bargaining through legal reform. That is, educating legal professionals would result in knowledgeable attorneys, while informing public policies and procedures would result in safeguards against the potentially coercive effects of plea bargaining. These broader impacts serve a greater purpose of improving outcomes for people who come into contact with the criminal legal system in the United States. As 24% of exonerees falsely pled guilty (National Registry of Exonerations, 2024), reducing the risk of wrongful convictions via false guilty pleas is of the utmost

importance. By taking a more holistic approach to understanding factors that influence attorneys' plea recommendations, this research has the potential to achieve such a purpose and inspire future research to do the same.

Recommendations and Future Directions

The current research supports three key recommendations and future research directions. First, research should continue investigating specialized populations within the context of plea bargaining. Attorney samples, in particular, are more challenging and resource-intensive to recruit compared to convenience samples. However, understanding attorneys' decision-making and thought processes are essential given their central role in the plea-bargaining process. While this research offers significant insights into these processes, certain limitations remain that future research should address. For example, future research should focus on recruiting defense attorney samples, as obtaining specialized samples of defense attorneys was not feasible for the current research. Examining defense attorneys specifically could offer a more nuanced understanding of how their legal expertise, ethical obligations, and professional experiences shape plea decisions.

Second, research should continue to explore how individual differences affect legal actors' decision-making. Limited research has investigated how attorneys' characteristics influence their plea recommendations (Henderson & Shteynberg, 2020), and the current research was the first to examine the effects of attorneys' cognitive processing styles. These cognitive processing styles play a crucial role in shaping plea recommendations by influencing how attorneys perceive and evaluate case evidence. However, we measured attorneys' cognitive processing styles rather than manipulating

them, as this research was the first to examine cognitive processing styles as an inherent individual difference (Price & Jhangiani, 2018). Now that the effects have been established, future research should aim to experimentally manipulate attorneys' cognitive processing styles to provide a more detailed understanding of how these styles impact plea recommendations. Moreover, other individual differences may be relevant in this context. For instance, investigating the impact of attorneys' susceptibility to biases (Stark & Milyavsky, 2019) or the type of attorney (e.g., court-appointed versus privately retained; Henderson & Shteynberg, 2022) would be crucial in understanding factors that contribute to false guilty plea recommendations. Such research could help identify additional factors that influence attorneys' decision-making and inform interventions aimed at reducing bias in plea bargaining.

Lastly, research should continue to develop more ecologically valid methods for studying legal decision-making. Replicating the real-world conditions under which legal decisions occur is a challenge in controlled experiments. In particular, plea decisions involve inherent risk and uncertainty, with outcomes that can have profound and lasting consequences for people involved. Because of this, the current research developed interactive computer simulations to offer a more immersive and realistic environment, allowing for the examination of legal decision-making while maintaining ecological validity. Still, future research should strive to create methods that more closely replicate the plea-bargaining process, such as examining how collateral consequences (e.g., deportation, mandatory registration) or pretrial detention impact attorneys' decision-making (Edkins & Dervan, 2018). By doing so, research could provide a more

comprehensive understanding of how attorneys make plea recommendations, ultimately leading to more effective policies and practices in the criminal legal system.

Reflections on the Lessons Learned

Through the dissertation process, I gained a deep appreciation for the complexity of attorneys' plea decision-making and the value of theoretical integration in empirical research. Initially, I expected attorneys' legal training and experience to buffer them from the cognitive heuristics and biases observed in defendants' plea decisions. However, our findings revealed that attorneys are also susceptible to cognitive processing styles and other heuristics. This discovery emphasized the importance of approaching legal actors not only as professionals but also as human decision-makers influenced by risk and uncertainty.

I also learned the critical role of methodological innovation in capturing the complexities of legal decision-making. Developing interactive simulations not only enhanced the ecological validity of the current research but also underscored both the challenges and rewards of working with specialized populations. This process required thoughtful adaptation to the needs and characteristics of these groups, which deepened my appreciation for tailored research approaches. Additionally, collaborating across disciplines to design these simulations reinforced the value of interdisciplinary research in legal psychology. This experience has equipped me with a more nuanced understanding of how collaborative, innovative methods can drive meaningful contributions to both research and practice in the legal field.

Ultimately, this dissertation taught me that improving plea bargaining outcomes requires a nuanced, theory-driven understanding of all actors involved. It reinforced my

commitment to research that not only advances theory but also holds potential to inform policies and practices aimed at reducing wrongful convictions and promoting justice. As I move forward in my career, I am committed to continuing work that bridges empirical research and real-world legal challenges, with the goal of contributing to a more equitable and evidence-informed legal system.

Conclusion

The current research investigated factors that influence attorneys' plea recommendations. Despite their significant role in defendants' plea decisions, there is limited research examining factors that shape attorneys' decision-making in plea bargaining. This dissertation includes three articles, with each article focusing on a different theoretical framework from the plea-bargaining literature. The first article examined how factors from SoT—conviction probability, potential trial sentence, and defendant guilt status—influenced attorneys' plea recommendations. The second article examined how factors from FTT—gist versus verbatim processing—influenced attorneys' plea recommendations. The third article examined how factors from PT—diminishing sensitivity and reference dependence—influenced attorneys' plea recommendations. The findings from this research provided valuable insights into the cognitive and contextual factors that shape attorneys' plea recommendations, offering potential implications for improving attorney practices and informing public policy and procedural reforms.

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