INNOCENT UNTIL PERSUADED TO PLEAD GUILTY: USING COGNITIVE PSYCHOLOGY TO EXAMINE PLEA BARGAINING'S INNOCENCE PROBLEM

A Dissertation

Presented to the Faculty of the Graduate School

Of Cornell University

In Partial Fulfillment of the Requirements for the Degree of

Doctor of Philosophy

By

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August 2017

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Cornell University 2017

ABSTRACT

When people imagine a conviction occurring in the criminal justice system, they typically imagine a group of twelve jurors voting to convict a criminal defendant based on evidence that has been presented to them. However, the vast majority of criminal cases are resolved through plea agreements between the prosecution and a defendant, rather than a jury trial. Despite this, relatively little research has been conducted examining decisions to plead guilty, and the criminal justice infrastructure surrounding guilty pleas. In this thesis I draw on cognitive psychology and the law to identify and examine ways in which injustices may be arising in the current system with a focus on wrongful convictions arising from pleas where innocent defendants plead guilty. First, I show that due to a developmentally earlier cognitive processing style adolescents may be pleading guilty to crimes they did not commit more than adults, through making decisions that do not accord with values relating to guilt and innocence. Second, I show that the structure of the current plea system can lead to cognitive biases in plea decisions that are likely to influence innocent defendants more than guilty defendants, leading to innocent defendants pleading guilty at increased rates under predictable conditions. Finally, I show that current law creates a system in which it is sometimes desirable for innocent defendants to plead guilty, even where there is a low chance of conviction at trial. I draw on these three findings to make recommendations regarding the current plea system and relevant law.

BIOGRAPHICAL SKETCH

Rebecca K. Helm attended Oxford University starting in October 2007 and graduating with a Bachelor of Arts degree (First Class) in Jurisprudence in 2010, and Cornell Law School starting in August 2010 and graduating with an LL.M. in May 2011. She is a qualified lawyer in New York State and England and Wales and practiced law for 18 months before beginning her PhD at Cornell with a concentration in Law, Psychology, and Human Development in August 2013. Her work focuses on using quantitative approaches based on cognitive psychology and brain imaging (fMRI) to investigate how decisions are made in the legal system, and how changing legal standards can promote rational and informed legal judgments. She is especially interested in using this work to promote the enforcement of human rights, and to protect underprivileged participants in the criminal justice system. Her work has been funded by the American Psychology and Law Society, the Cornell Institute of Social Sciences, the Cornell Human Ecology Alumni Association, and the Martha E. Foulk Fellowship, which she was awarded by Cornell University in 2016. While at Cornell, Rebecca has also worked with the Cornell Law School clinical programs, assisting with the representation of clients in the LGBT Clinic, assisting with a collaborative project investigating commercial surrogacy agreements in the International Human Rights Clinic, and supervising students representing refugees as part of the International Refugee Assistance Project.

To my family, and my fiancé, Tom.

ACKNOWLEDGEMENTS

While at Cornell I have received guidance from many inspirational mentors and friends. I would like to thank my Ph.D. advisor Professor Valerie Reyna for her support and guidance over the last four years, as well as my other colleagues in the Reyna laboratory, and Kayla Burd. Working closely with such a committed and talented group of researchers has allowed me to develop my knowledge and skills as a researcher in a challenging and thought-provoking environment, has pushed me to ensure that my work is scientifically thorough and has the ability to be used to improve the legal system, and has made the countless hours spent problem solving much more enjoyable. I am also grateful for the funding that has facilitated my work including grants from the National Science Foundation and the American Psychology and Law Society.

I would like to thank my minor committee members – Professor John Blume, who gave me the inspiration for my current research, and Professor Steve Ceci, who has been a constant source of support and advice, and other faculty members who have supported and inspired me including Professor Valerie Hans, Professor Susan Hazeldean, Professor Sital Kalantry, and Professor Jeff Rachlinski. I would also like to thank my family for supporting me through successes and challenges, and for providing me with many invaluable opportunities – in particular my mother, Katherine, my father, Andrew, my sister, Ali, and my grandmother Lillian. Finally, I would like to thank my fiancé Tom, for being my biggest inspiration in pursuing my dreams, and also a constant source of support as I begin to achieve them. I know I would not be where I am today without you. Thank you all for being such an important part of my time at Cornell.

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Thesis Introduction

When people imagine a conviction occurring in the criminal justice system, they typically imagine a group of twelve jurors voting to convict a criminal defendant based on evidence that has been presented to them. However, the vast majority of criminal cases are resolved through plea agreements between the prosecution and a defendant, rather than a jury trial. For example, in 2015, 97.1% of federal criminal cases were resolved via a plea agreement between the prosecutor and the defendant rather than through a jury trial (United States Sentencing Commission 2014 Sourcebook). In these cases, broadly speaking, the prosecutor will make a plea offer to a defense attorney who will then convey this to the defendant who must decide whether to accept the offer (Caldwell, 2011). If a defendant decides to accept the plea offer they plead guilty and provided the judge accepts the plea, they will then be found guilty of what they pled guilty to (Federal Rules of Criminal Procedure, Rule 11). In deciding whether to accept or reject the plea, judicial focus is largely on whether the plea was knowing and intelligent (see *Brady v United States*, *1970*). This does not depend on the substantive terms of the plea bargain, and because a plea is only considered involuntary when it is the results of "force, threats, or promises" extraneous to the agreement itself, prosecutors have wide latitude in setting the terms of plea arrangements (Blume & Helm, 2014). In *Brady v United States,* the Court even held that

the thread of the death penalty could be used to induce a guilty plea, as long as the plea was knowing and intelligent (*Brady v United States, 1970*).

Traditionally, plea bargaining has been justified as a process involving an in court confession, whereby a defendant can admit to something that they have done in order to receive a reduced sentence (Garrett, 2016). However, research suggests that innocent, as well as guilty defendants, are pleading guilty (see, for e.g., Blume & Helm, 2014; Dervan, 2012; Hessick & Saujani, 2002). Some commentators have justified this as innocent defendants being able to exercise a choice between an uncertain more severe punishment and a certain sure punishment (Bowers, 2008). However, this is only an appropriate justification if innocent defendants are truly choosing to plead guilty in accordance with their preferences, based on the risks and rewards involved. Psychological theory can make important contributions to the debate in this area, by highlighting situations in which defendants may not be making decisions that are truly in accordance with their preferences. In this thesis I present three studies, each drawing on cognitive psychology and psychological theory and examining a different reason why innocent defendants might plead guilty, other than based on their true values and preferences.

In the first paper, "Too young to plead? Risk, rationality, and plea bargaining's innocence problem in adolescents," I present a study demonstrating that certain defendants, particularly adolescents, may be pleading guilty when they are innocent at increased rates due to a hyper-rational reasoning process. This is a developmentally inferior cognitive decision-making process that is responsive to superficial changes in plea offers, but that does not reflect underlying values and preferences (such as not wanting to plead guilty when innocent). In this study I show that

adolescents actually care more about not wanting to plead guilty when they are innocent than adults do, but plead guilty more when asked to assume innocence rather than guilt and make decisions that do not reflect underlying values.

In the second paper, "Guilty or biased? When innocence, but not guilt, can lead to pleading guilty," I show that mock innocent defendants are influenced to a greater extent than mock guilty defendants by a common cognitive bias, the anchoring heuristic. Results suggest that while guilty defendants appear to be making decisions based on weighing up risks and rewards, innocent defendants are influenced by more abstract concepts such as not wanting to plead guilty when innocent. I show that this can lead to innocent defendants being more influenced by cognitive biases, and even pleading guilty more often than guilty defendants under certain predictable conditions.

In the final paper, "Limitations on the ability to negotiate justice: Attorney perspectives on plea bargaining's innocence problem," I interview attorneys to understand how the current system encourages innocent defendants to plead guilty, and how attorney advice may shape this practice. Results suggest that prosecutors are able to offer highly coercive deals which lead innocent defendants to plead guilty even when the risks of conviction are low, due to the fear of a harsh punishment. In addition, results show that attorneys may be reluctant to encourage defendants to go to trial due to a fear of imposing serious risks on a client, despite also encouraging innocent defendants to go to trial more often even when controlling for the probability of conviction at trial.

Based upon these three studies, I conclude with suggestions to improve the plea bargaining system for innocent defendants. These include updating competence to stand trial standards, reducing the cases in which adolescents can plead guilty, improving transparency and

information sharing during the plea process, and promoting sentence rather than charge bargaining to reduce huge discrepancies between plea outcomes and outcomes if convicted at trial.

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Too young to plead? Risk, rationality, and plea bargaining's innocence problem in adolescents.

Thesis Paper 1

Too young to plead? Risk, rationality, and plea bargaining's innocence problem in adolescents.

Thesis Paper 1

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Abstract

The overwhelming majority of both adult and juvenile convictions occur as the result of guilty pleas rather than trial. This means that convictions are often the result of decisions made by defendants rather than jurors. It is therefore important to study decision-making in defendants to ensure convictions are occurring in a fair and principled way. Research suggests that the current plea bargaining system is leading innocent defendants to systematically plead guilty to crimes that they did not commit, and that this may be more widespread in juveniles than adults. The current study uses Fuzzy-Trace Theory to develop and test and explanation of why juveniles are more likely than adults to plead guilty to crimes they did not commit. We show that as predicted juveniles are more likely than adults to plead guilty when they are innocent, and that this is due to a developmental stage in decision-making whereby values are unlikely to be retrieved and applied when making decisions. This has implications for post-conviction claims of innocence by juveniles, procedural rules governing juvenile plea bargaining, and the practice of juvenile plea bargaining more generally.

Too young to plead? Risk, rationality, and plea bargaining's innocence problem in adolescents.

In the current criminal justice system, the overwhelming majority of cases involving both adult and juvenile defendants are resolved via plea bargaining rather than trial (Redlich & Shteynberg, 2016). However, research has suggested that plea bargaining may be an important cause of wrongful convictions, as innocent defendants appear to be pleading guilty to crimes that they did not commit (Blume & Helm, 2014; Dervan, 2012; Dervan & Edkins, 2013; Helm & Reyna, 2017; Redlich, 2009). In fact, in 2017, about 18% of exonerations listed in the National Registry of Exonerations was categorized as involving a guilty plea (National Registry of Exonerations, 2017). The true number of wrongful convictions from guilty pleas is likely higher since exoneration is extremely hard for defendants who have pled guilty (Blume & Helm, 2014).

Research suggests that this phenomena, known as plea bargaining's *innocence problem* may be even more pronounced in adolescents than it is in adults. For example, a recent experimental study showed that juveniles were more than twice as likely as young adults to plead guilty when asked to assume innocence (Redlich & Shteynberg, 2016), and another study showed that a cognitive processing style associated with adolescence (verbatim based processing) may lead to an increased tendency to plead guilty when innocent (Helm & Reyna, 2017). In this paper, we use Fuzzy-Trace Theory (FTT), a psychological theory of memory and decision-making, to explain the mechanisms that may be leading adolescents to plead guilty to crimes they did not commit more than adults, and test this explanation using an experimental design.

Existing Research on Juvenile Plea-Bargaining

Traditionally, the American criminal justice system had adjudicated adolescent defendants within a juvenile justice system, separated from the adult justice system (Cauffman & Steinberg, 2012). Although this system was created to recognize the special needs and immature status of adolescents, starting in the 1980s society has increasingly opted to deal with adolescent offenders more punitively, either within the juvenile justice system, or by re-defining them as adults and trying them in adult criminal court (Cauffman & Steinberg, 2012). This is problematic, because extensive research shows that adolescents are likely to have manifest deficits in legally-relevant abilities due to developmental immaturity (Grisso et al., 2003; Steinberg & Scott, 2003). Important differences have been observed in the cognition of adolescents and adults (Reyna, Chapman, Dougherty, & Confrey, 2012). Differences between adolescents and adults also include less future orientation, worse risk perception, and more susceptibility to peer influence in adolescents when compared to adults (Grisso et al., 2003). Research has also shown important neurodevelopmental differences between adolescents and adults that may be responsible for developmentally immature decision-making (see, for e.g. Blakemore & Choudhury, 2006; Casey, Jones, & Hare, 2008). For example, one conceptualization of mechanisms underlying developmental behavior changes suggest an imbalance between the development of motivational systems in the brain (subcortical regions such as the ventral striatum) and control systems in the brain (prefrontal regions) (Casey, Jones, & Somerville, 2011). Although motivational systems and control systems are both developing, the motivational systems are posited to develop faster, leading to a period with developed motivation, but a lack of top-down control (Casey, Jones, & Somerville, 2011).

These developmental differences between adolescents and adults have been shown to result in important differences between the decision making of adolescents and adults in the adjudicative context. For example, research examining abilities relating to adjudicative competence using the MacArthur Competence Assessment Tool – Criminal Adjudication (Hoge, Bonnie, Poythress, & Monahan, 1999) has shown that adolescents tend to possess less legal knowledge and understanding than adults (Grisso et al., 2003). Importantly, research also suggests that the willingness to falsely take responsibility for an act decreases with age (Redlich & Goodman, 2003).

Research has also directly examined the role of developmental differences when making plea decisions. It has been shown that adolescents are more likely than young adults to make choices that reflect compliance with authority (Grisso, et. al., 2003) and that are overly influenced by short-term benefits (Daftary-Kapur & Zottoli, 2014). Research also suggests that adolescents are often not fully aware of their legal options, and have limited understanding of the plea bargaining process (Daftary-Kapur & Zottoli, 2014). Importantly, research suggests that adolescents may be more likely than adults to plead guilty to crimes they did not commit (Redlich & Shtyenberg, 2016). In their 2016 study, Redlich and Shtyenberg gave hypothetical plea vignettes involving a robbery in a jewelry store to adolescents (aged 13-17) and young adults (aged 18-24). Half of the participants were asked to assume guilt, and the other half were asked to assume innocence. Results showed that when asked to assume guilt there was no significant difference between adolescent and young adult plea decisions, but when asked to assume innocence, adolescents were 2.47 times more likely to plead guilty than adults (Redlich & Shtyenberg, 2016). Notably, interviews with youth and adults who have made real plea decisions also tends to support this result. In interviews with youth and adults who pled guilty,

one study found that more than a quarter of adolescents (26.5%) compared to just under a fifth of adults (19%) claimed to be completely innocent (Zottoli, Daftary-Kapur, Winters, & Hogan, 2016).

Another recent study focused on the influence of cognitive processing type on plea decisions (Helm & Reyna, 2017). This study found (using an adult sample) that cognitive processing typically associated with adolescents led to being less influenced by guilt or innocence when making plea decisions. Importantly, results suggested that this was due to appropriate values not being retrieved during the plea process, rather than due to the extent to which guilt and innocence were considered important (Helm & Reyna, 2017). This implies that adolescents cognitive processing is likely to similarly lead them to be less influenced by guilt or innocence when making plea decisions due to not retrieving appropriate values.

Fuzzy-Trace Theory and Cognitive Processing in Adolescents

FTT is a dual process theory of memory and decision-making (Reyna, 2012). According to FTT, when an individual learns information they will encode both the verbatim details of that information, and the gist (or meaning) of that information in context (Reyna & Kiernan, 1994; 1995). The verbatim representation of the information is literal and precise, whereas the gist representation of the information is fuzzy and meaning-based (Reyna, 2012). For example, if a person is told that there is a 10% chance of rain when deciding to go bungee jumping they will encode this figure (10%) and also the gist of this figure (a low chance). If a person if told there is a 10% chance of death when deciding to go bungee jumping they will also encode this figure (10%) and the gist of this figure (a high chance) (Helm, Hans, & Reyna, in press). Thus, the same verbatim information can have different gists depending on meaning and context.

When a person uses information to make a decision, they can rely on either verbatim-based processing (utilizing verbatim-based representations of information) or gist-based processing (utilizing gist-based representations of information) (Reyna, 2012). Verbatim-based processing is precise and detailed, whereas gist-based processing is more fuzzy and impressionistic (e.g. Reyna & Brainerd, 1992). Gist-based processing is associated with a healthier attitude to risk-taking. This is because verbatim-based processing can result in precise and superficial trade-offs of risk and reward (e.g. 10% chance of death that can be outweighed by benefits of fun activity), whereas gist-based processing focuses on meaning and thus recognizes that even large rewards cannot compensate for certain risks (e.g. the risk of death). This has been supported by research examining risk-taking (Reyna et al, 2011, Reyna & Mills, 2014).

Individuals relying on verbatim-based processing are less likely to access their values (meaning what is important to them) and decide in accordance with them when making decisions (Fujita & Han, 2009, see also Helm & Reyna, 2017). This is because long term representations of values are stored in a gist-based form, as they are meaning-based rather than precise (Fukukura, Ferguson & Fujita, 2013) and also because verbatim-representations fade more quickly over time (Reyna & Kiernan, 1994; 1995), and are too specific to be applicable to a wide variety of decisions (Helm & Reyna, 2017). When people rely on gist-based processing they are more likely to cue these values, due to the similarity between the representations of information involved in the decision and the representations of values, a well-known property of retrieval cueing (see Helm & Reyna, 2017).

According to FTT, gist-based processing is developmentally advanced, and develops with age and experience (Reyna & Ellis, 1994; Reyna et al, 2011). Thus, adolescents are predicted to rely on verbatim-based processing to a greater extent than adults. This prediction has

been confirmed by experimental research (Reyna & Farley, 2006, Reyna et al, 2011, Reyna, Wilhelms, McCormick, & Weldon, 2015).

The Influence of Verbatim-Based Processing on Plea Bargaining in Adolescents

Verbatim-based processing is precise and influenced by superficial details, meaning that individuals relying on verbatim-based processing are more likely than individuals relying on gist-based processing to be influenced by superficial details such as the difference between one year of probation and two years of probation, and less likely to be influenced by meaning-based concepts such as factual guilt or innocence. Previous research has shown that, as predicted, individuals thought to be relying more on verbatim-based processing are less likely to be influenced by factual guilt or innocence (Helm & Reyna, 2017).

Because reliance on gist-based processing develops with age and experience, we expect adolescents to rely more on verbatim-based processing than adults, and young adults to rely more on verbatim-based processing than older adults. We therefore expect adolescents in particular to be more influenced by superficial distinctions (such as the distinction between one year of probation and two years of probation) and less influenced by meaning-based concepts, most importantly for this study factual guilt or innocence. This trend should shift during young adulthood, and post-college-aged adults would be expected to be more influenced by meaning-based concepts such as guilt or innocence, and less influenced by superficial distinctions.

This important difference in plea decisions is predicted to occur independently of changes in values (e.g. it does not occur because sentence-length becomes less important with age or because guilt or innocence becomes more important with age). Rather, it occurs because decisions in younger individuals are based on precise superficial details and do not reflect underlying values, and what is important to an individual. This means adolescents are likely to

be systematically making plea decisions that do not reflect what is important to them, due purely to their cognitive processing style. Thus, the shift from verbatim-based processing to gist-based processing can explain findings suggesting that adolescents are more likely to plead guilty to crimes that they did not commit.

This leads to three primary predictions, that will be tested in the current study:

1) The influence of superficial distinctions (such as the distinction between one and two years of probation) is likely to decrease with age, and influence adolescents to a greater extent than adults.
2) The influence of guilt or innocence is likely to increase with age, and influence adults to a greater extent than adolescents.
3) The importance of guilt or innocence to individuals will not change with age, but values related to guilt or innocence will be more easily accessed as individuals begin to rely on gist-based processing, and so will be reflected in decisions more as age increases.

Method

Participants

Participants were 149 adolescents recruited from across the country, 200 college-aged adults recruited from the participant pool at Cornell University, and 187 post-college-aged adults recruited from Amazon Mechanical Turk. Participants completed the study online and participation took around 15 minutes. Adolescent participants ranged in age from 9 – 17 (M = 13.93, SD = 2.39), college-aged adult participants ranged in age from 18 – 22 (M = 19.62, SD = 1.13), post-college-aged adult participants ranged in age from 23 – 60 (M = 38.74, SD = 10.17). 36.2% of our adolescent sample were male, compared to 17.6% of our young adult sample, and

49.2% of our older adult sample. All participants provided consent to take part in the study, and the project was approved by the Cornell Institutional Review Board.

Materials and Procedure

The plea-decision task. Our plea decision task replicated a task used in Helm & Reyna, 2017. Participants were each given four hypothetical plea vignettes and were asked to imagine that they had been arrested and accused of a particular crime. They were given introductory information to enable them to understand the relevant law, procedure, and outcomes, and were given an estimate of the probability that they would be convicted at trial. The four vignettes varied in terms of the type of case involved (theft or arson) and the probability of conviction at trial (30% or 70%). Each participant saw one vignette involving a theft case with a 30% chance of conviction at trial, one vignette involving a theft case with a 70% chance of conviction at trial, one vignette involving an arson case with a 30% chance of conviction at trial, and one vignette involving an arson case with a 70% conviction at trial.

Other details of the plea vignettes (whether the participant was told they were guilty or not guilty, whether there was a sentence length incentive to plead guilty, and whether there was a conviction charge incentive to plead guilty) were manipulated between-subjects. Participants were randomly assigned to a guilt condition (they were told that they were guilty or not guilty in all of the problems they saw), a sentence-length incentive condition (either a 1-year probation sentence was offered for the plea compared to a 2-year probation sentence if convicted at trial, or both plea and conviction at trial would result in a 1-year probation sentence), and a conviction-charge incentive condition (either a misdemeanor was offered for the plea compared to a felony if convicted at trial, or both plea and conviction at trial would result in a felony).

Thus, the experiment had two within-subject's factors each with two levels – probability of conviction at trial (30% or 70%) and case type (theft or arson) and three between-subjects factors – Guilt, Sentence-Length Incentive, and Conviction-Charge Incentive.

Questions about values. Participants were then asked about the extent to which the following values were important to them when making plea decisions – not pleading guilty to a crime I did not commit, not wanting to risk getting a felony conviction, the fact a felony conviction is worse than a misdemeanor conviction, how high the probability of getting convicted at trial was, how long potential sentences were, and the difference in sentence length of the plea compared to the potential outcome of a trial. Participants rated the importance of each of these values on a scale from 1 (*not at all important*) to 7 (*extremely important*).

MacArthur Questions. Participants in our adolescent sample also answered questions taken from the MacArthur Competence Tool for Criminal Adjudication (MacCat-CA) (Hoge, et al., 1999). This was to ensure that they understood the nature of the trial process and plea bargaining. Specifically, participants answered questions about the roles of the defense attorney, the prosecutor, and the jury, and about what a defendant has to admit if they plead guilty, and what the results of a guilty plea would be.

Results

Responses to McArthur questions demonstrated that adolescents did have sufficient understanding of trial and plea procedures to be considered competent by current standards. We therefore did not exclude any participants in our analyses.

Developmental Differences in Values

First, we investigated potential developmental differences in values relating to plea-bargaining by using one-way analyses of variance comparing value ratings across our three

groups – adolescents, college-aged adults, and post-college-aged adults. We found that our groups differed in the extent to which they considered not pleading guilty to a crime they did not commit important (F(2,540)=6.60, p=.001, η_p^2 = .024) (Figure 1). Follow-up pairwise comparisons show that our college-aged sample and our post-college-aged sample found the principle to be significantly less important than our adolescent sample (p=.048, d =.238, and p < .001, d = .390, respectively). Our groups also differed in the extent to which they considered the probability of conviction at trial to be important. (F(2,540)=5.03, p=.007, η_p^2 = .018) (Figure 2). Follow-up pairwise comparisons show that our post-college-aged adult sample found the principle to be significantly less important than our adolescent sample (p =.003, d = .318) and our college-aged adult sample (p = .022, d = .228).

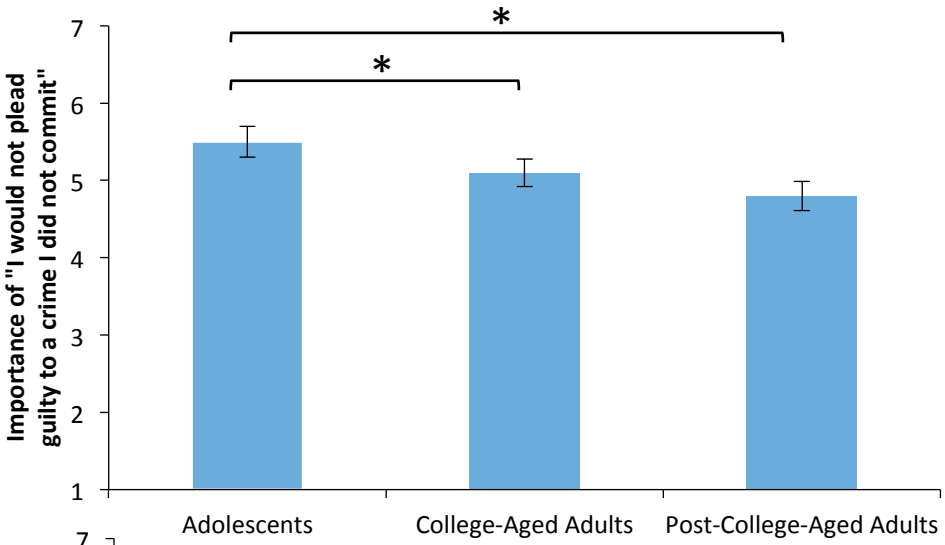

*Figure 1: Importance of "I would not plead guilty to a crime I did not commit" 1 (not at all) -7 (extremely), split by age group. *p<.05. Error bars represent +/- 1 one standard error.*

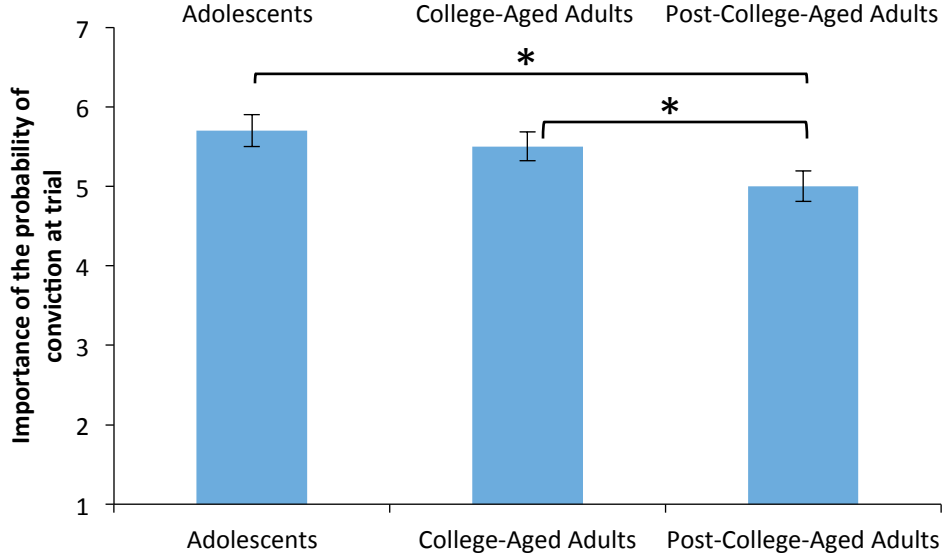

*Figure 2: Importance of probability of conviction at trial 1 (not at all) -7 (extremely), split by age group. *p<.05. Error bars represent +/- 1 one standard error.*

Participants importance ratings of our other values did not differ significantly.

Developmental Differences in Plea Decisions

We conducted a repeated-measures ANOVA in which the dependent variable was plea decisions in order to test our predictions regarding cognitive processing styles in adolescents, young adults, and older adults. We collapsed across case (although note that all significant effects remain when controlling for case), meaning the dependent variable was mean plea decisions across the theft case and the arson case. Plea decisions were scored as 0 (*decided to go to trial*) and 1 (*decided to plead guilty*), giving a dependent variable ranging from 0 (*accepted plea decisions in both cases*) to 1 (*decided to plead guilty in both cases*).

Factors in the ANOVA were probability of conviction at trial (30% or 70%) (within-subjects), guilty or not guilty (between-subjects), sentence-length incentive to plead guilty (whether the outcome from pleading guilty was a 1-year probation sentence compared to a 2-year probation sentence if convicted at trial, or whether pleading guilty and conviction at trial would both result in a 2-year probation sentence), and conviction-charge incentive to plead guilty (whether the outcome from pleading guilty was a misdemeanor compared to a felony if convicted at trial, or whether pleading guilty and conviction at trial would both result in a felony conviction), and population (adolescents, young adults, and older adults).

Significant Results Involving Sentence Length. Results revealed a main-effect of sentence-length incentive, such that overall participants pled guilty more often when there was a sentence-length incentive to do so (i.e. when they would get one year of probation for pleading guilty but two years of probation if convicted at trial, compared to one year of probation either way) ($M_{\text{sentence-lengthincentive}} = .432$, $SE = .019$, $M_{\text{nosentence-lengthincentive}} = .33$, $SE = .018$) ($F(1,524)=15.06$, $p < .001$, $\eta_p^2 = .028$). Results also revealed the predicted interaction between

sentence-length incentive and population, although this result just missed significance (F(2,524)=2.46, p=.086, η_p^2=.009) (Figure 3). Giving a superficial sentence length incentive significantly influenced adolescents (p = .002, η_p^2=.061) but did not significantly influence college-aged adults (p = .062, η_p^2=.017) or post-college-aged adults (p = .624, η_p^2=.001).

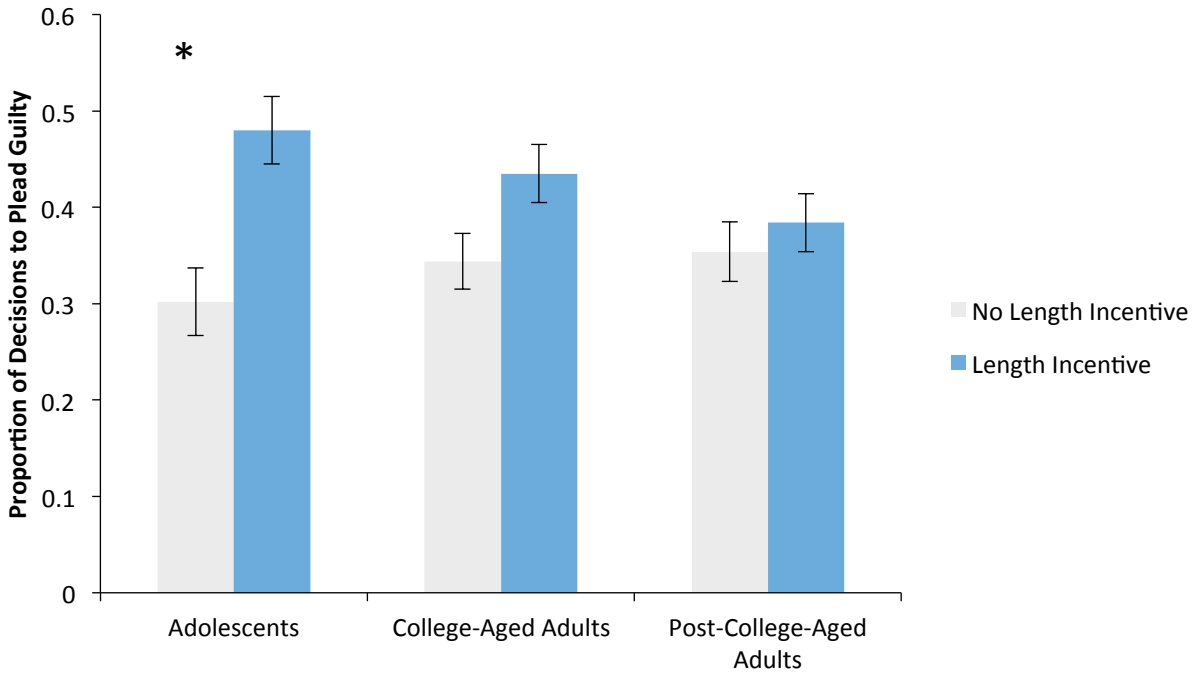

*Figure 3: Significant two-way interaction between sentence-length incentive and population when predicting plea decisions (p=.086). *p<.05. Error bars represent +/- 1 one standard error.*

Significant Effects Involving Guilt. Results revealed a main-effect of guilt, such that overall participants pled guilty more often when they were guilty (M_{guilty} = .50 , SE = .019, $M_{notguilty}$ = .26, SE = .019) (F(1,524)=80.62, p <.001, η_p^2=.133). Results also revealed an interaction between guilt and population (F(2,524)=4.75, p =.009, η_p^2=.018) (Figure 4). While all populations were significantly influenced by guilt, this effect was largest in the older adult

sample (p<.001, η_p^2=.214), then the young adult sample (p<.001, η_p^2=.114), and smallest in the adolescents (p=.011, η_p^2=.042).

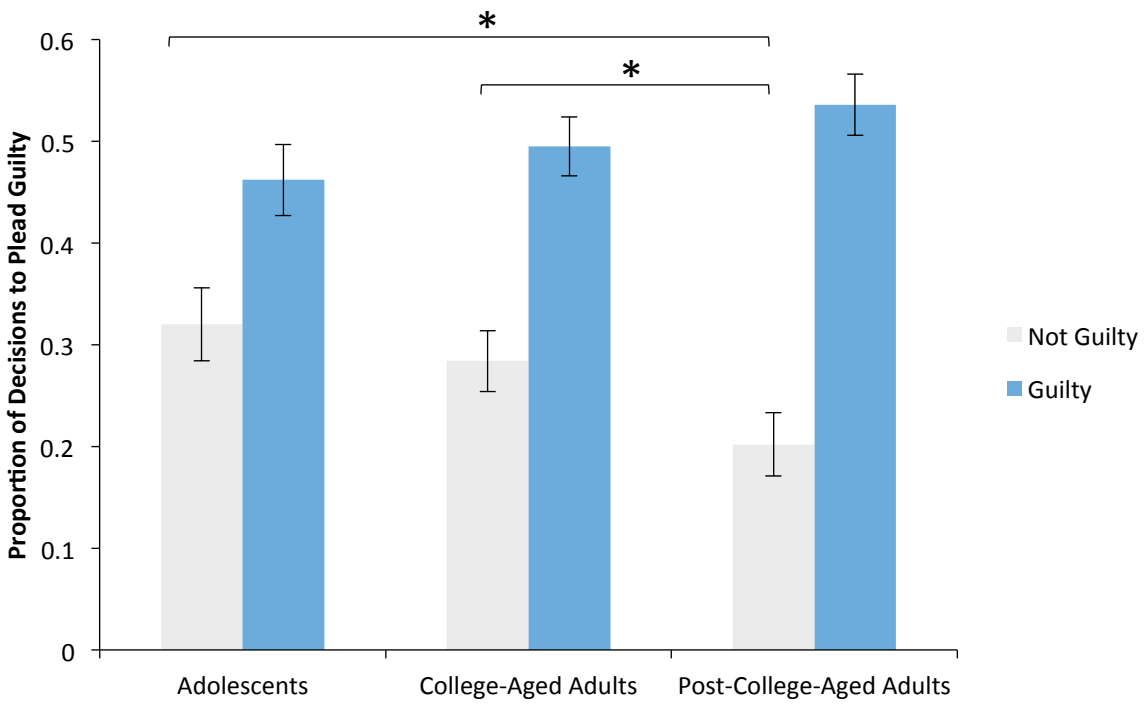

Figure 4: Significant two-way interaction between guilt and population when predicting plea decisions (p=.009). Error bars represent +/ - 1 one standard error. *p<.05.

Follow-up pairwise comparisons examining innocent participants only showed that innocent adolescents and innocent college-aged adults pled guilty significantly more often than innocent post-college-aged adults (p=.003, and p = .013 respectively). There was no significant difference between adolescents and college-aged adults (p =.330). There were also no significant differences between groups when examining guilty participants.

There was also a three-way interaction among guilt, population, and conviction-charge incentive (whether a participant could get a misdemeanor by pleading when the outcome if convicted at trial would be a felony, or whether the outcome would be a felony either way) ($F(2,524)=4.46$, p = .012, η_p^2 = .017) (Figure 5).

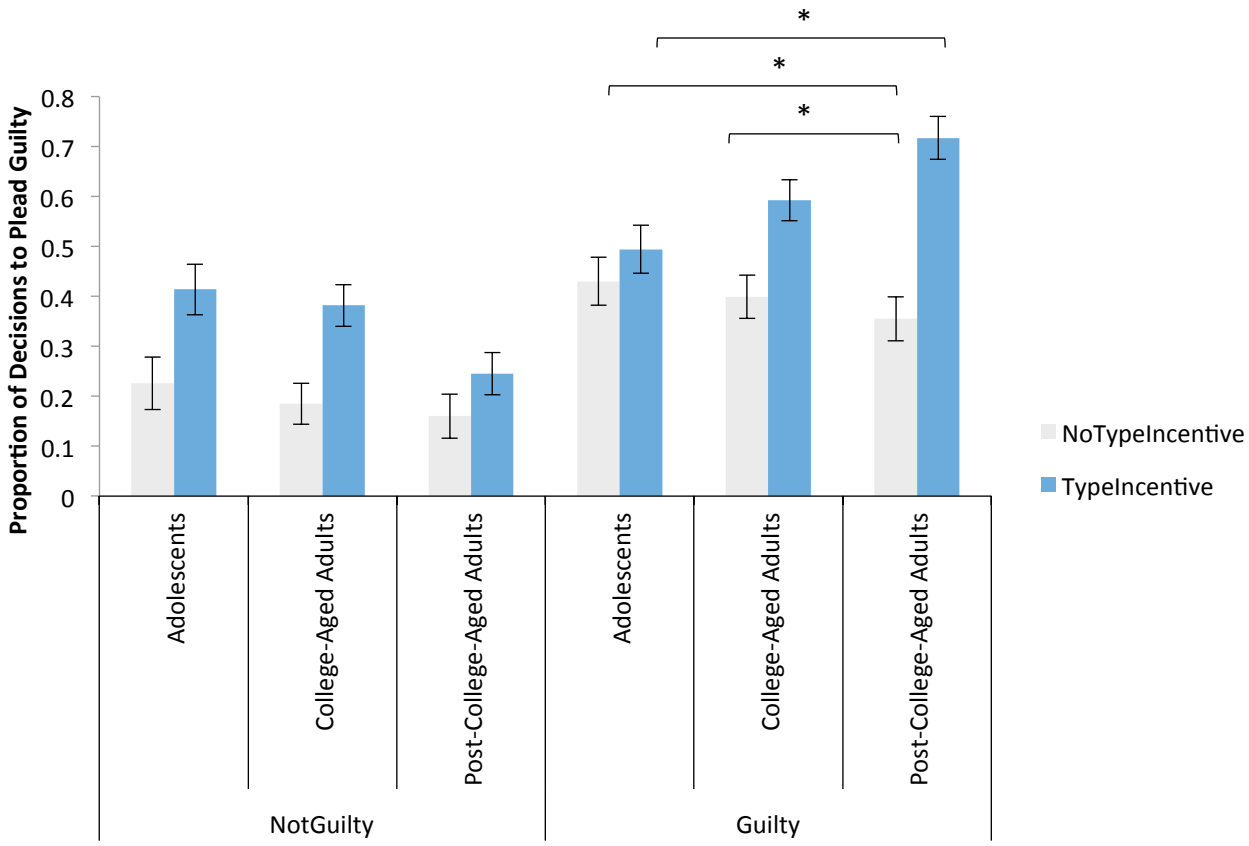

*Figure 5: Significant three-way interaction among conviction-charge incentive, population, and guilt when predicting plea decisions (p=.012). *p<.05. Error bars represent +/ - 1 one standard error.*

When there was no conviction-charge incentive (so participants would get a misdemeanor by pleading guilty or if convicted at trial), all groups pled guilty when they were guilty more often than when they were not guilty. Here, there was no significant difference in the extent to which different populations were influenced by guilt (although we see a trend towards adolescents pleading guilty to crimes they did not commit more often). Where there was a conviction-charge incentive (participants would get a misdemeanor by pleading guilty but would get a felony if convicted at trial), adolescents were not significantly influenced by whether they were guilty or innocent (p = .196, η_p^2 =.022). College-aged adults were more influenced by whether they were guilty or innocent, pleading guilty more when they were guilty (p <.001, η_p^2 =.120). Post-college-aged adults were the most influenced by whether they were guilty or

innocent, again pleading guilty more often when they were guilty (p <.001, η_p^2 =.400). Follow-up pairwise comparisons examining innocent participants only showed that innocent adolescents and innocent college-aged adults pled guilty significantly more often than innocent post-college-aged adults (p=.004, and p = .008 respectively). There was no significant difference between adolescents and college-aged adults (p =.690). Follow-up pairwise comparisons examining guilty participants only showed that guilty post-college-aged adults pled guilty significantly more often than guilty adolescents (p=.001). There were no significant differences between college-aged adults and adolescents (p = .131) or college-aged adults and post-college-aged adults (p = .068).

Other Significant Results. Results revealed a main-effect of conviction-charge incentive such that participants pled guilty more often when there was a charge incentive to do so (i.e. they could get a misdemeanor by pleading guilty whereas the outcome if convicted at trial would be a felony, as opposed to getting a felony either way) ($M_{\text{conviction-chargeincentive}}$ = .468, SE = .019, $M_{\text{noconviction-chargeincentive}}$ = .294, SE = .018) (F(1,524)=43.50, p <.001, η_p^2 =.077). There was also a main-effect of probability, such that participants pled guilty more often when there was a higher chance of conviction at trial (i.e. in our 70% chance of conviction at trial condition, compared to our 30% chance of conviction at trial condition) ($M_{70\%}$ = .523, SE = .018, $M_{30\%}$ = .239, SE = .015) (F(1,524)=198.57, p <.001, η_p^2 =.275).

Results also revealed three significant two-way interactions. First, a two-way interaction between population and probability (F(2,524)=4.02, p=.019, η_p^2 =.015) (Figure 6). There was a significant main-effect of probability in each population, but this effect was largest in our college-aged adult sample. There were no significant differences in decisions made by population when there was a 30% chance of conviction, or when there was a 70% chance of conviction.

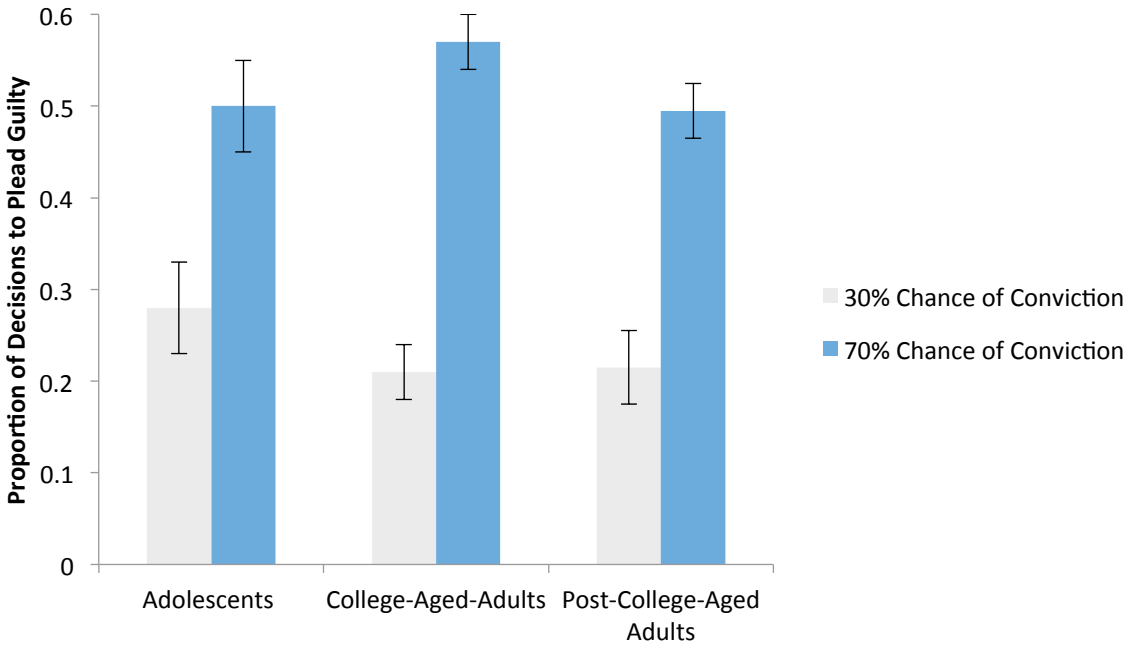

Figure 6: Significant two-way interaction between probability of conviction and population when predicting plea decisions (p=.019). Error bars represent +/ - 1 one standard error.

There was also a significant two-way interaction between probability (30% chance of conviction or 70% chance of conviction) and conviction-charge incentive (whether a participant could get a misdemeanor by pleading when the outcome if convicted at trial would be a felony, or whether the outcome would be a felony either way) ($F(1,524)=19.82$, $p<.001$, $\eta_p^2=.036$). Whether there was a conviction charge incentive made a significant difference regardless of the probability of conviction, such that participants were more likely to plead guilty when there was a conviction charge incentive to do so, but this difference was larger when there was a 70% chance of conviction ($M_{70\%nochargeincentive} = .391$, $SE = .026$, $M_{70\%chargeincentive} = .655$, $SE = .025$, $p <.001$, $\eta_p^2 = .094$; $M_{30\%nochargeincentive} = .197$, $SE = ..022$, $M_{30\%chargeincentive} = .281$, $SE = .021$, $p = .005$, $\eta_p^2 = .015$).

Finally, there was a significant two-way interaction between sentence-length incentive (whether a participant could get one-year of probation when they would get two years if

convicted at trial, or whether they would get one-year of probation either way) and conviction-charge incentive (whether a participant could get a misdemeanor by pleading when the outcome if convicted at trial would be a felony, or whether the outcome would be a felony either way) ($F(1,524)= 4.52$, $p=.034$, $\eta_p^2 = .009$). When there was a conviction-charge incentive, a sentence-length incentive did not make a significant difference ($M_{\text{sentence-lengthincentive}} = .491$, $SE = .027$, $M_{\text{nosentence-lengthincentive}} = .445$, $SE = .025$, $p = .198$, $\eta_p^2 = .006$). When there was not a conviction-charge incentive, a sentence-length incentive did make a significant difference, such that more people pled guilty when they could get a shorter sentence for pleading guilty compared to the possible outcome at trial ($M_{\text{sentence-lengthincentive}} = .373$, $SE = .027$, $M_{\text{nosentence-lengthincentive}} = .215$, $SE = .027$, $p < .001$, $\eta_p^2 = .061$).

Are Adolescent's Values Reflected in Their Decisions?

In order to examine why adolescents rated "I would not plead guilty to a crime I did not commit" as being more important to them than college-aged and post-college-aged adults did but were pleading guilty when innocent more often than post-college-aged adults, and equally often to college-aged adults, we conducted a regression, with plea decisions as outcome, and with population (adolescents, college-aged adults, post-college-aged adults), the importance of "I would not plead guilty to a crime I did not commit", and the interaction between population and the importance of "I would not plead guilty to a crime I did not commit" as predictors.[1]

[1] We also conducted this regression controlling for sentence-length distinction, and conviction-charge distinction, and significant effects remained significant. We also conducted the regression examining decisions with a 70% chance of conviction at trial only and significant effects remained significant. Finally, we conducted the regression examining decisions with a 30% chance of conviction at trial only. In this regression, the interaction between "I would not plead guilty to a crime I did not commit" and population remained significant, but the main effect of population was no longer significant ($p = .130$).

This regression revealed a significant main-effect of population, such that as the population became older, less participants who were told they were innocent accepted plea deals (B = -.193, SE = .077, β = -.517, t = -2.492, p = .013). Innocent adolescents accepted plea deals in 32.57% of cases (SD = .303), innocent college-aged adults accepted plea deals in 28.37% of cases (SD = .279), and innocent post-college-aged adults accepted plea deals in 18.48% of cases (SD = .277).

The regression also revealed a significant interaction between population and the importance of "I would not plead guilty to a crime I did not commit" (B = .046, SE = .013, β = .784, t = 3.446, p = .001). In order to investigate this interaction, we examined the correlations between "I would not plead guilty to a crime I did not commit," and plea decisions in each population separately (Figure 7).

In the post-college aged adults, and in the college-aged adults, there was a negative correlation between the importance of "I would not plead guilty to a crime I did not commit" and plea decisions of innocent participants (rho(92) = -.478, p <.001, and rho(104) = -.439, p = <.001, respectively), such that the more important the principle was, the less participants would plead guilty when innocent. In adolescents there was no significant correlation between the importance of "I would not plead guilty to a crime I did not commit" and plea decisions of innocent participants (rho(72)=.004, p = .973).

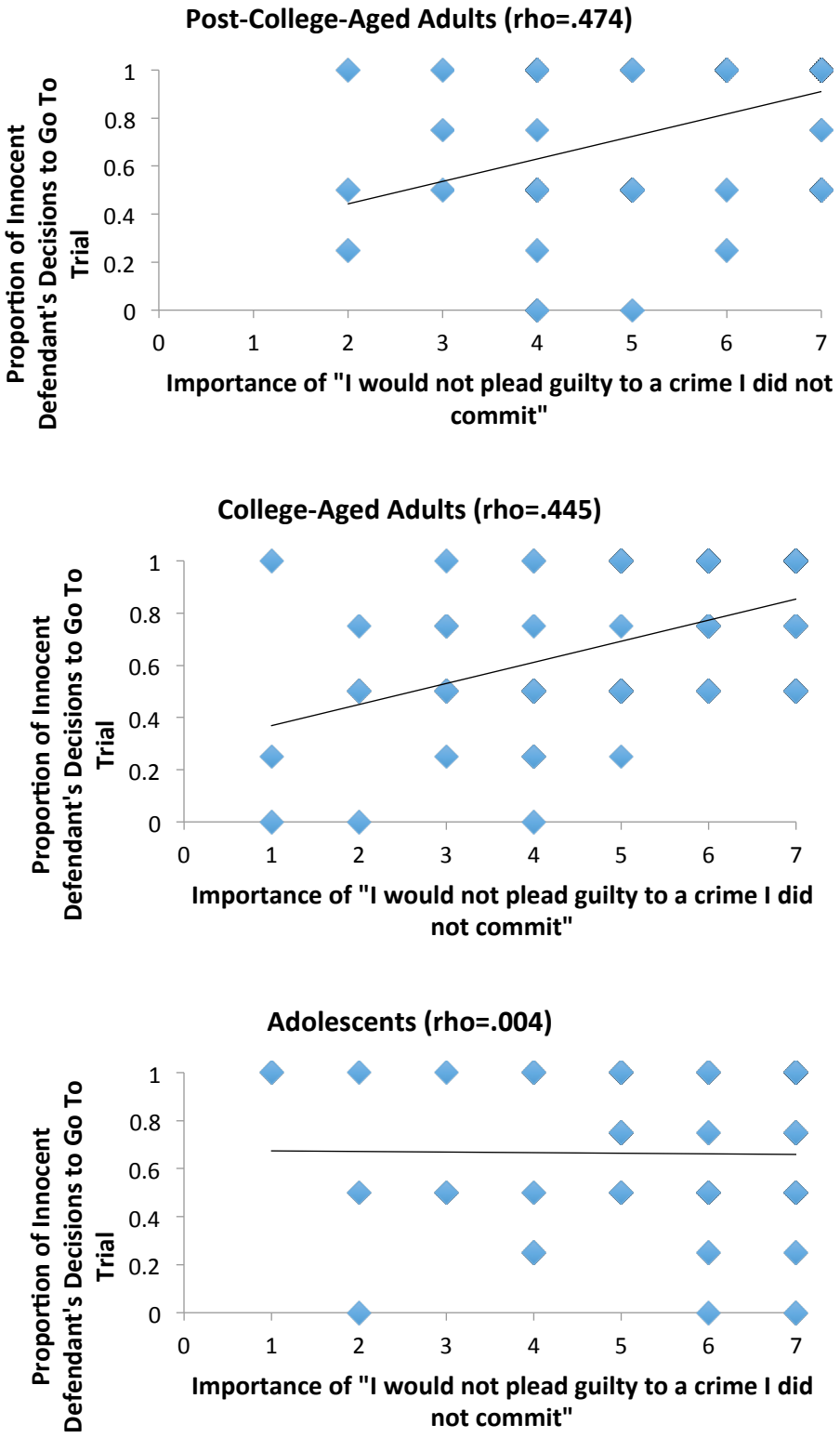

Figure 7: Correlations between the importance of "I would not plead guilty to a crime I did not commit" and plea decisions of innocent participants, split by population.

Discussion

FTT predicts that adolescents will be more likely to make plea decisions that are not influenced by meaning-based concepts such as guilt or innocence, but more likely to be influenced by superficial, surface-level details. Importantly, the lack of sensitivity to meaning-based concepts, and guilt or innocence in particular, is predicted to be due to a failure to retrieve appropriate underlying values, rather than due to a difference in those values. In this study we tested the influence of several factors that were predicted to be important when making plea decisions. Specifically, we tested the influence of guilt or innocence (our meaning-based manipulation), the presence of a superficial difference in sentence length between plea and trial (our superficial manipulation), the probability of conviction at trial, and the presence of a conviction-charge distinction between plea and trial (facing a misdemeanor at plea compared to a felony if convicted at trial). We tested the influence of these factors across cases involving theft and cases involving arson. We predicted that the influence of our superficial distinction (getting one year of probation for pleading guilty when the outcome if convicted at trial would be two years of probation, as opposed to getting two years of probation either way) would decrease with age, and would influence adolescents to a greater extent than adults. We also predicted that the influence of our meaning-based distinction (guilt or innocence) would increase with age, and would influence adults to a greater extent than adolescents. Importantly, we predicted that this would not be due to a change in values with age but the fact that values relating to guilt or innocence would be more easily accessed as age increased due to increasing reliance on gist-based processing. Results confirmed all of these predictions (although note that the result involving our superficial sentence-length distinction just missed significance).

The Influence of a Superficial Sentence Length Incentive on Plea Decisions

Results show that as predicted the influence of superficial incentives on plea decisions decreased with age. Specifically, adolescents were significantly influenced by being offered one year of probation for pleading guilty when the possible outcome at trial was two years of probation as opposed to receiving two years of probation either way. Importantly, this result was not moderated by guilt, the presence of a conviction charge distinction (being offered a misdemeanor for pleading guilty when the outcome if convicted at trial would be a felony, compared to receiving a felony either way), or probability. This suggests that even not guilty adolescents, adolescents who will receive a felony for pleading guilty, and adolescents for whom the chance of conviction at trial is low, are influenced by a superficial sentence length incentive. Our college-aged adults and post-college aged adults were not significantly influenced by this incentive (although note that qualitatively the college-aged adults were influenced more than the post-college age adults, suggesting a developmental trend).

The Influence of Guilt and Innocence on Plea Decisions

Our results show that adolescents, college-aged adults, and post-college-aged adults were all influenced by whether they were assumed to be guilty or innocent, pleading guilty more often when they were guilty. This result is consistent with previous findings in the literature showing that guilty defendants do plead guilty more often than not guilty defendants (Bordens, 1984; Gregory, Mowen, & Linder, 1978; Tor, Gazal-Ayal, & Garcia, 2010). As predicted, while all populations were significantly influenced by guilt, this effect was largest in the post-college-aged adult sample, then the college-aged adults sample, and smallest in the adolescent sample. Importantly, this resulted in adolescents and college-aged adults pleading guilty when they were innocent significantly more often than post-college aged adults. This finding supports existing

experimental research (Redlich & Shtyenberg, 2016) and research examining real plea decisions (Zottoli, Daftary-Kapur, Winters, & Hogan, 2016).

Interestingly, this effect also interacted with the presence of a conviction charge incentive (being able to get a misdemeanor by pleading when the outcome if convicted at trial would be a felony, as opposed to the outcome being a felony either way). Adolescents were sensitive to the distinction between guilt and innocence when there was no conviction charge incentive to plead guilty, and there was no significant difference in the extent to which our groups were influenced by guilt or innocence (although there was a trend towards adolescents being less influenced by guilt or innocence). Our group differences were primarily driven by our conviction in which participants could get a misdemeanor by pleading guilty. In this condition, adolescents and college-aged adults pled guilty to crimes they did not commit significantly more often than post-college-aged adults, and adolescents who were guilty pled guilty significantly less often than post-college-aged adults. This suggests that when there are fewer less abstract factors at play, age differences based on guilt or innocence are less pronounced.

The finding that adolescents are least responsive to guilt or innocence is particularly interesting given our value ratings, which show that adolescents cared significantly more about not wanting to plead guilty to a crime that they did not commit than college-aged and post-college-aged adults (and college-aged adults cared equally as much as post-college-aged adults). This supports our prediction that differences in the influence of guilt or innocence between adolescents and adults would not be due to a difference in values. Importantly, our regression analysis confirms our prediction that adolescents values relating to guilt and innocence are not being retrieved during their decision making. Specifically, in our adolescent sample there was no correlation between the importance of "I would not plead guilty to a crime I did not commit" and

plea decisions made regarding crimes they did not commit (crimes they were innocent of). This suggests that adolescents are not responsive to guilt or innocence because they are failing to retrieve and apply appropriate values during their plea decision making (see Fujita & Han, 2009).

Limitations and Future Directions

This study builds on previous work relating to plea decision making in adolescents, and provides support for FTTs predictions that adolescents are likely to be less responsive than adults to guilt or innocence, but more responsive to superficial incentives such as receiving one year of probation rather than two. However, our findings must be interpreted in light of some limitations.

First, our samples were drawn from populations that do not necessarily reflect the populations that those who make plea decisions most frequently come from. Future research should examine these ideas in populations of adjudicated individuals. Second, our experiment involved hypothetical plea vignettes and asking participants to imagine that they were guilty or innocent. There is support for the idea that cognitive tasks do predict real-life risk taking (see Reyna et al., 2011), and using hypothetical situations allowed us to implement a controlled design and run a randomized control trial. In addition, research examining real decisions made by criminal defendants supports the finding that adolescents are likely to plead guilty when innocent more often than adults (Zottoli, Daftary-Kapur, Winters, & Hogan, 2016). However, it is still important to note that our vignettes did differ from rea plea decisions in important ways – for example, participants did not really have to face the consequences of the decision that they made, participants were not truly guilty or innocent of the crimes in the vignettes based on their assigned group, participants did not have advice from an attorney, and participants were not influenced by other pressures that might be present when making a real plea decision. In the future, experimental work should continue to be combined with empirical

analysis of plea cases (to the extent such data can be gathered) and interviews with defendants and attorneys, to gain a full picture of plea decision-making.

Implications for the Criminal Justice System.

The findings of this study could have important implications for the criminal justice system, and in particular the juvenile justice system and the practice of trying juveniles in adult court. First, results can provide insight in cases in which a juvenile is attempting to withdraw a plea and claims that they pled guilty when they were innocent (see Singleton, 2007). Accumulating research showing that juveniles are more likely than adults to plead guilty to crimes they did not commit, and the conditions under which this is most likely, should be presented in court to support arguments that adolescents pled guilty when innocent. Another implication may be that adolescents should not be restricted in making claims of innocence following a plea bargain, to recognize their increased susceptibility to pleading guilty when innocent due to cognitive and social development.

Second, findings can provide insight into regulations that may make plea bargaining more fair and less coercive for juveniles. One relatively conservative option would be to move to a system focused on sentence-bargaining rather than charge-bargaining for juveniles, and to require certain non-superficial distinctions between a plea and an expected sentence at trial. The idea of sentence bargaining is that prosecutors can file only the most appropriate charge and reserve any bargaining for sentencing recommendations (Alschuler, 1976). This would mean that prosecutors could not threaten a felony conviction at trial, and offer a misdemeanor in exchange for pleading guilty. Our results suggest that where this is not done, adolescents are more responsive to whether they are guilty or innocent. In addition, forcing a non-superficial distinction between plea and trial would protect adolescents from being influenced by superficial

incentives due to their cognitive processing style. Attorney advice could also be helpful in reducing this risk, and has been shown to influence defendant decisions in previous research (Viljoen, Klaver, & Roesch, 2005).

Finally, the findings, when taken alongside other findings relating to juvenile plea bargaining may suggest that the law on plea bargaining in juveniles should be changed. Current law does not include developmental factors as relevant to whether an adolescent can plea bargain – for example if an adolescent makes a decision that is not based on values, this does not matter provided they had necessary levels of understanding, reasoning, and appreciation (see Grisso et. at., 2003). However, this decision making could be akin to not being able to decide in accordance with what adolescents really want, and this may be particularly problematic when the decisions made as adolescents are likely to continue to affect them into their adult years (either directly or indirectly). Any abolition of plea bargaining for juveniles would have to be done in such a way that the benefits that can be gained through pleading guilty (such as reduced sentences, see Bowers, 2008) would not be lost. However, research increasingly suggests that in the same way as they are too young to vote, too young to drink alcohol, and too young to rent a home, perhaps adolescents are too young to plead guilty.

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Guilty or Biased? When Innocence, But Not Guilt, Can Lead to Pleading Guilty

Thesis Paper 2

Guilty or Biased? When Innocence, But Not Guilt, Can Lead to Pleading Guilty

Thesis Paper 2

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Abstract

Although much research has examined the role of cognitive biases in legal-decision making, cognitive biases in plea decisions have received little to no attention. Over two experiments, we examine how one cognitive bias, the anchoring heuristic, might be influencing plea decisions of defendants and plea advice of attorneys, using predictions informed by Fuzzy-Trace Theory. As predicted, providing numerical anchors to defendants significantly impacted innocent defendant's decisions but not guilty defendant's decisions. Importantly, this led to innocent defendants pleading guilty more often than guilty defendants under certain predicted conditions. Results also show that attorney advice may be more robust to anchoring effects that defendant's decisions, suggesting a protective effect of attorney advice against anchoring biases. These results provide important insight into injustices that may arise from the current plea system, and policy recommendations are made accordingly.

Guilty or Biased? When Innocence, But Not Guilt, Can Lead to Pleading Guilty

Despite the importance of plea-bargaining in our current criminal justice system, to our knowledge no studies have examined the cognitive biases that could influence a defendant's plea decisions. This is important, since cognitive biases have been shown to have significant influence on many other legal decisions, including the decisions of judges (Guthrie, Rachlinski, & Wistrich, 2001), arbitrators (Helm, Wistrich, & Rachlinski, 2016), jurors (Chapman & Bornstein, 1996; Helm & Dunlea, 2015; Sood, 2013), and even eye-witnesss (Bringham, Bennett, Meissner, & Mitchell, 2014; Caputo & Dunning, 2014; Helm, Ceci, & Burd, 2016).

In this article, we examine the influence of one particular cognitive bias – anchoring – on plea decisions made by a sample of adults (Experiment 1), and plea advice given by a sample of attorneys (Experiment 2). We begin by describing the literature on anchoring, with a focus on anchoring in the legal context. We then describe the plea-bargaining process and how numerical anchors may be introduced in the plea-bargaining process. We then introduce fuzzy-trace theory and outline predictions that innocent defendants are likely to be more influenced by anchors than guilty defendants. Based on these predictions, we design and run a study to examine the effects of numerical anchors on guilty and not guilty defendants, and attorneys who suspect that their clients are either guilty or not guilty. Results support predictions by showing that innocent defendants are more likely than guilty defendants to be influenced by anchors in the plea bargaining process, and also suggests that attorney advice may be more resistant to anchoring and therefore may have a protective effect against plea decisions resulting from cognitive biases.

The Anchoring Heuristic

Biasing factors can influence judgment and decision-making. One common biasing factor is the anchoring heuristic (Kahneman, 2011). Anchors are initial values that can bias subsequent

numerical judgments by being used as a starting point that people fail to sufficiently adjust from (Chapman & Johnson, 1999; Helm, Hans, & Reyna, in press). The initial value tends to "anchor" final judgments so that even when people conclude that an anchor provides no useful information, mentally testing the validity of the anchor causes people to adjust their estimates upward or downward based on that anchor (Tversky & Kahneman, 1974; Guthrie, Rachlinski, & Wistrich, 2001). This has been shown to occur even when an anchor is randomly generated and has no probative value in the decision participants are making. For example, in an early study of anchoring, participants were asked to estimate the percentage of African countries in the United Nations (Tversky & Kahneman, 1974). A starting value between – and 100 was determined by spinning a wheel of fortune, which was pre-set to land on either ten or sixty-five, in the participants' presence. Participants were asked to indicate whether this arbitrary starting value was too high or too low, and then to reach their estimate of the correct percentage. When the wheel landed on sixty-five, participants gave a median estimate of 45% of African countries in the United Nations, when the wheel landed on ten participants gave a median estimate of 25% of African countries in the United Nations (Tversky & Kahneman, 1974).

In the legal context, a biasing effect of anchors has been shown in the context of sentencing where, for example, experimental studies have shown an influence of anchors on judges when sentencing defendants, even when they are told that an initial sentencing suggestion given as an anchor was a mistake (Englich & Mussewiler, 2001) and even when an anchor was determined through a random process that was entirely transparent to them (Englich, Mussweiler, & Strack, 2006). In the damage award context, it has been shown that in personal injury cases anchors systematically influence the compensation awarded to a plaintiff by jurors (Chapman & Bornstein, 1996; Hans, Helm, & Reyna, in preparation; Reyna et al., 2014), and by

judges (Guthrie, Rachlinski, & Wistrich, 2001). Similarly, in settlement talks, litigants can be influenced by the initial offers of their adversaries. A small initial offer can make a final offer appear more generous and make it more likely it will be accepted by a litigant (Korobkin & Guthrie, 1994). Rules have evolved to limit the influence of irrelevant influences in this domain and training programs for legal professionals have been put in place to help them avoid such influences, although these have not eliminated the potential for bias (Englich, 2006).

Anchoring in the Plea-Bargaining Process.

In its simplest form, the plea-bargaining process involves a defendant being accused of a crime, and the prosecutor making a plea offer to the defense attorney, who then conveys this to the defendant who must decide whether to accept the offer (Caldwell, 2011). Where a details of a plea offer change either based on negotiations or changes in evidence in a case, anchoring is likely to occur. There are two primary ways in which anchoring is likely to influence plea decisions. First, through the practice of overcharging (Blume & Helm, 2014; Caldwell, 2011; Kellough & Wortley, 2002; Ross, 1978). This involves the unreasonable multiplying of charges against a defendant, or charging with a more serious offense than the circumstances of the case warrant (Alschuler, 1968). Beginning the plea bargaining process with these more serious charges, can make lesser charges appear less bad, and thus encourage a defendant to plead guilty. Anchoring can also influence plea decisions through probability estimates given to defendants. This is particularly problematic since there is frequently an information imbalance between the defense and the prosecution, such that the prosecution has more information about the likelihood of conviction than the defendant (Blume & Helm, 2014; Douglass, 2001; Hashimoto, 2008). This means that a defendants estimate of their chances of conviction may change, either as a result of attorney advice or their own reasoning. An initial estimate of the probability of conviction could

serve as an anchor, making a subsequent estimate look either smaller or larger than it would otherwise.

Fuzzy-Trace Theory and the Differential Impact of Anchoring on Guilty and Innocent Defendants.

In order to explore the potential biasing effect of anchors on plea decisions, we use fuzzy-trace theory (FTT), a dual process theory of memory and decision-making (Helm & Reyna, in press; Reyna, 2012). According to FTT, when an individual encodes information and uses it to make a decision, they can do so in one of two ways – using gist-based processing or verbatim-based processing (Helm & Reyna, in press; Reyna, 2012; Reyna & Brainerd, 2011). Gist-based processing is processing that draws on representations that capture essential meaning that a person derives from information (Reyna et al., 2014). This means that the processing is fuzzy and impressionistic (Reyna, 2012). Verbatim-based processing is processing drawing on representations that are literal, verdical, and detailed, such as exact wording and precise numbers (Reyna et al., 2014). One of the implications of gist-based processing is that numbers are inherently relative – both the number itself and its context become important (Reyna et al., 2014). When considering whether to go bungee jumping, an individual relying on verbatim-based processing might conduct a direct trade off of risks and rewards involving precise probabilities (e.g. a 10% chance of rain, and a 10% chance of death) (Helm, Hans, & Reyna, in press). In contrast, an individual relying on gist would be likely to consider a low chance of rain and a high chance of death (Helm, Hans, & Reyna, in press). Put another way, the gist of a number can be different depending on its context (see Reyna, 2013; Reyna & Lloyd, 2006). This means that a risk of 12% might be perceived as low relative to 20%, but perceived as high relative to 4% (see Reyna et. al., 2014; Windschitl, Martin, & Flugstad, 2002).

Gist-based processing has been shown to be developmentally advanced, and to have a protective effect against unhealthy risk taking (Reyna & Ellis, 1994; Reyna, Chick, Corbin, & Hsia, 2015). However, the influence of context also makes individuals relying on gist more prone to biases caused by context such as framing effects, the conjunction fallacy, confirmatory bias, and anchoring (see, for example, Helm & Reyna, in press; Liberali, Reyna, Furlan, Stein, & Pardo, 2012; Reyna, 1991; Reyna et al., 2014; Reyna et al, 2015). Individuals relying on verbatim are less influenced by these biases since they are not influenced by context and relative meaning (Helm & Reyna, in press). Reliance on gist or verbatim-based processing can be influenced by individual differences, and also by the nature of a decision given to participants (Brainerd & Reyna, 2005; Reyna, 2012). In the context of plea-bargaining, individuals who have really committed the crimes that they are pleading guilty to are likely to be influenced primarily by the concrete details of a plea deal (i.e. what is the best outcome that I can get given that I committed this crime").

Individuals who are innocent are likely to be influenced by the details of a plea bargain but also influenced by a desire to not plead guilty to a crime that they did not commit. Thus innocent defendants are predicted to engage in more fuzzy and impressionistic processing involving reliance on gist, while guilty defendants are predicted to engage in more specific and detail oriented processing. This has important implications for the impact of biases such as anchoring on guilty and innocent defendants, as it suggests that innocent defendants may be more influenced by these biases than guilty defendants.

It is also important to consider the impact of anchors on attorneys, whose advice may be influenced by the same anchors that defendant's decisions are influenced by. Attorneys may have an advantage over defendants in avoiding anchoring biases because although experience in an

area has been associated with increased reliance on gist and thus increased gist-based biases (see for example Reyna et al., 2015), attorneys deal with plea offers frequently and so may have a more robust idea of the contextual meaning of specific numbers and details of plea offers that can not so easily be influenced by one anchor.

The Current Study

In the current study, we use hypothetical plea decisions to probe the influence of anchors on those accused of crimes (Experiment 1), and attorneys representing those accused of crimes (Experiment 2). We introduce anchors based on initial estimates of the probability of conviction in a case, and then ask all participants to make a final decision in a case with a fixed probability of conviction at trial. We ask those accused of hypothetical crimes to decide how they would plead in these hypotheticals, and attorneys what advice they would give to a client in these hypotheticals.

Based on FTT, and specifically the reasoning described above, we predict that:

1. Innocent defendants will rely on less precise trade offs of risk and reward due to a focus on values in addition to specific details of a plea.
2. Innocent defendants will be more influenced by anchors than guilty defendants.
3. Attorney advice will be less influenced by anchors than the decisions of those accused of a crime.

Experiment 1 Method and Results

Experiment 1 Method

Participants. Participants were 151 adults recruited from the participant pool at Cornell University. Participants completed the study online and participation took around 15 minutes. Participants received course credit for their participation. Participants ranged in age from 18 – 23

years old (M = 19.47, SD = 1.09), and were 71.4% female. All participants provided consent to take part in the study, and the project was approved by the Cornell Institutional Review Board.

The Plea-Decision Task. Participants were given a hypothetical plea vignette involving a theft. They were told they had been accused of grand theft (a felony) and would have to decide whether to plead guilty or go to trial. By pleading guilty they would get a misdemeanor for sure (for petty theft), and by going to trial they were risking a felony conviction (for grand theft), which they would receive if convicted. They were also given a short description of relevant laws including the distinction between felonies and misdemeanors. Participants were either told that they were guilty of petty theft (our guilty condition), or not guilty of theft at all (our not guilty condition). They were given an initial estimate of the probability of conviction at trial – either 10%, 30%, or 70%. This initial probability acted as our anchor – the 10% probability was intended to make the 30% probability in a later decision look big, and the 70% probability was intended to make the 30% probability in a later decision look small. Participants were asked to make an initial decision based on this information as to whether they thought they would want to plead guilty or not guilty. After making an initial decision about what they would do, participants were told that there had been a change in the case and there was now a 30% chance they would be convicted at trial. They were then asked to make a final decision about whether they would plead guilty to petty theft, or go to trial and have a 70% chance of no conviction and a 30% chance of a felony theft conviction. This gave a 2 guilt (guilty or not guilty) x 3 anchor (10% anchor, 30% anchor, or 70% anchor) design. After making their final plea decision, participants were asked for their confidence in that decision on a scale from 1 (not at all confident) to 10 (extremely confident). We used this to calculate signed confidence – a measure ranging from -10 (completely confident in going to trial) to +10 (completely confident in pleading guilty).

Value Ratings. In order to test our prediction that not guilty individuals would be more driven by values, we also asked our participants to rate the importance of two values relating to guilt and innocence – "I would not plead guilty to a crime I did not commit," and "If I have done something wrong I think I should admit it." Participants rated the importance of these statements to them on a 7-point scale from 1 (not at all important) – 7 (extremely important).

Experiment 1 Results

We conducted our primary analyses examining the influence of our manipulations on plea decisions using an analysis of variance (ANOVA) design, to easily compare our plea decision results to our signed confidence plea decision results, and our confidence results, and because ANOVAs are robust to having a dichotomous outcome variable (see Lunney, 1970; Cleary & Angel, 1984). We also ran a logistic regression with effects coding to check our ANOVA results, and significant results from our ANOVAs remained significant.

The relationship between probability, guilt, and initial plea decisions. As background, we conducted an analysis of variance, examining the influence of guilt and innocence, and probability of conviction (10% chance of conviction at trial, 30% chance of conviction at trial, or 70% chance of conviction at trial) on the decision to go to trial (coded as 0) or plead guilty (coded as 1) in the initial plea decision that participants made. This analysis revealed a main effect of probability ($F(2,147)=14.528$, $p<.001$, $\eta_p^2 = .165$). When there was a 70% probability of conviction at trial, participants pled guilty significantly more than when there was a 10% probability of conviction at trial ($p<.001$) and than when there was a 30% probability of conviction at trial ($p<.001$). This analysis also revealed a significant two-way interaction between guilt and probability ($F(2,147)=8.704$, $p<.001$, $\eta_p^2 = .106$) (Figure 1). Participants in the not guilty condition showed no effect of probability of conviction on plea decisions

(F(2,75)=1.985, p=.145, η_p^2 = .050). Participants in the guilty condition showed a significant main effect of probability of conviction on plea decisions (F(2,72)=27.174, p<.001, η_p^2 = .430). When there was a 70% chance of conviction, participants pled guilty significantly more than when there was a 10% chance of conviction (p<.001) or than when there was a 30% chance of conviction (p<.001). When there was a 30% chance of conviction, participants pled guilty significantly more than when there was a 10% chance of conviction (p=.001). This meant that when there was a 30% chance of conviction, there was no significant effect of guilt (p = .210, η_p^2 = .032), when there was a 10% chance of conviction not guilty participants pled guilty more often (p=.001, η_p^2 = .208) and when there was a 70% chance of conviction guilty participants pled guilty more often (p=.025, η_p^2 = .100).

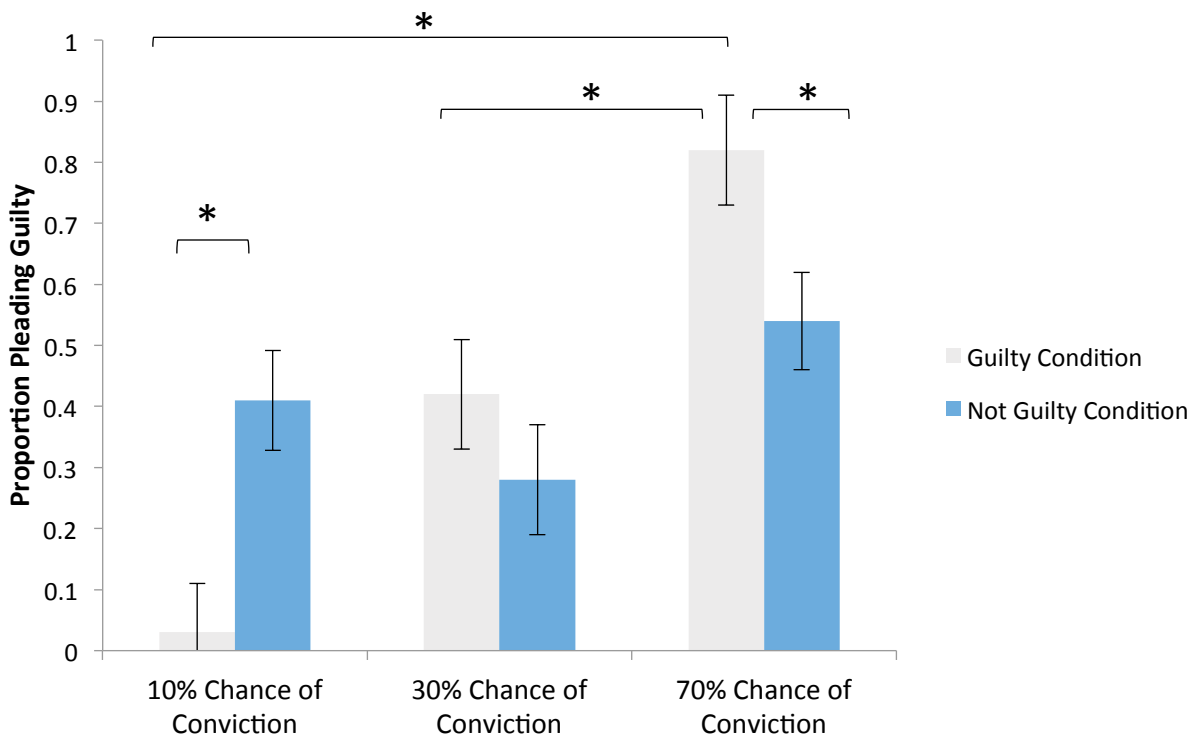

*Figure 1. Significant two-way interaction between probability of conviction and guilt of participant. *p<.05. Error bars represent +/1 one standard error.*

The relationship between anchors, guilt, and final plea decisions. We conducted an analysis of variance, examining the influence of guilt and innocence, and anchor (original estimate of probability of conviction at trial – 10% chance of conviction at trial, 30% chance of conviction at trial, or 70% chance of conviction at trial) on the decision to go to trial (coded as 0) or plead guilty (coded as 1) in the final plea decision (in which every participant was told they had a 30% chance of being convicted at trial).

Results revealed a significant two-way interaction between guilt and anchor ($F(2,145) = 9.907$, $p < .001$, $\eta_p^2 = .120$) (Figure 2). Follow-up comparisons showed that anchor significantly influenced not guilty participants ($F(2,75) = 13.099$, $p < .001$, $\eta_p^2 = .259$), but did not significantly influence guilty participants ($F(2,70) = 1.027$, $p = .363$, $\eta_p^2 = .029$). In the not guilty condition, participants pled guilty significantly more often when they had seen an initial estimate of a 10% chance of conviction, compared to when they had seen an initial estimate of a 30% chance of conviction ($p = .001$) and compared to when they had seen an initial estimate of a 70% chance of conviction ($p < .001$). This meant that when participants initially saw an anchor of 70% chance of conviction, they pled guilty significantly more often when they were guilty ($p = .023$, $\eta_p^2 = .103$). When participants initially saw an anchor of 30% (the same as the final estimate), there was no significant difference in pleads based on guilt or innocence. When participants initially saw an anchor of 10% chance of conviction, they pled guilty significantly more often when they were not guilty ($p < .001$, $\eta_p^2 = .243$). The main effects of guilt and anchor were not significant.

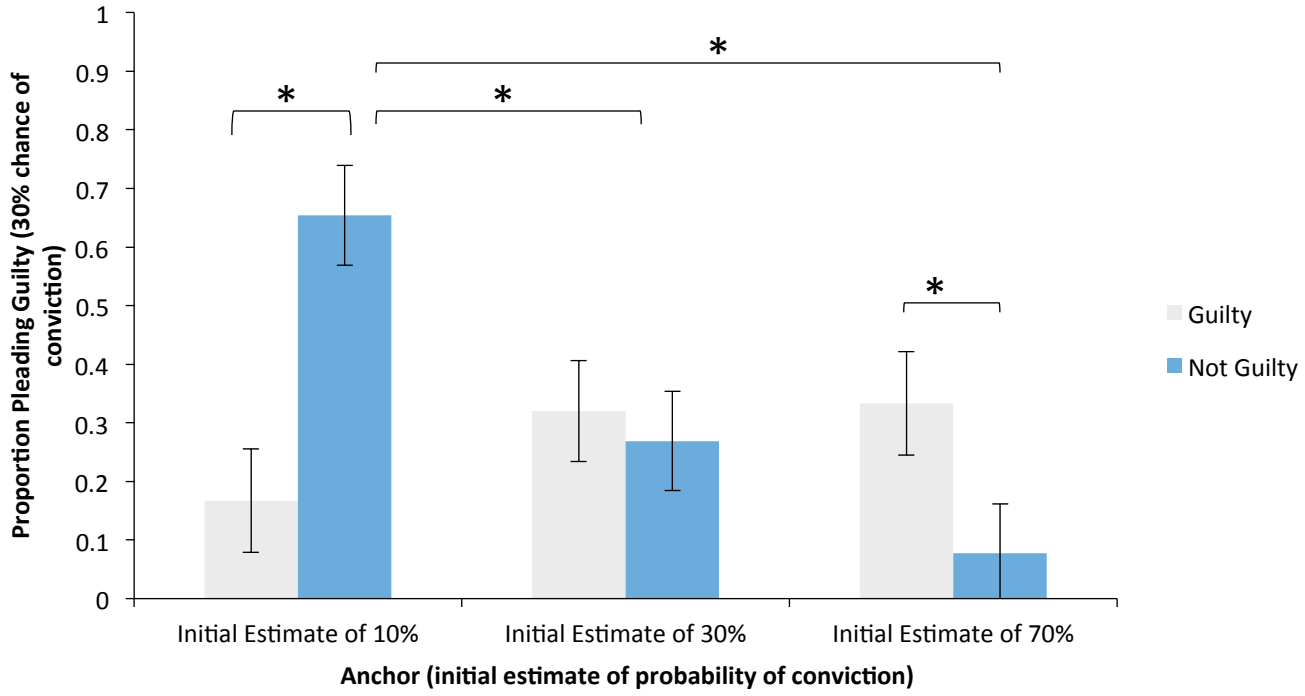

*Figure 2. Significant two-way interaction between anchor and guilt of participant. *p<.05. Error bars represent +/1 one standard error.*

We then conducted the same analysis using our signed confidence measure, from -10 (complete confidence in going to trial) – 10 (complete confidence in pleading guilty). This analysis revealed a main effect of probability ($F(2,145) = 3.688$, $p=.027$, $\eta_p^2 = .048$). When participants had previously seen a 10% chance of conviction anchor, they were significantly less confident towards going to trial, and more confident towards pleading guilty in the subsequent decision with a 30% chance of conviction than when they had previously seen a 70% chance of conviction anchor ($M_{10\%} = -1.082$, $SE = .829$, $M_{70\%} = -4.165$, $SE = .829$, $p= .009$). This analysis also revealed an interaction between guilt and probability ($F(2,145)=10.826$, $p<.001$, $\eta_p^2 = .130$). The directions of this effects replicated the same effect in our decision analyses. Finally, we used the same predictors (guilt and anchor) to predict participant's confidence in their plea decisions

(from 1 (not at all confident) – 10 (completely confident)). This analysis revealed no significant main-effects or interactions.

The relationships between values and plea decisions in guilty and not guilty participants. Overall, the mean importance rating on our 7-point scale for the principle "I would not plead guilty to a crime I did not commit" was 5.51, *SD* = 1.63 (*M* = 5.69, *SD* = 1.6 in the not guilty condition, and *M* = 5.32, *SD* = 1.65 in the guilty condition), the mean importance rating for "If I have done something wrong, I think I should admit it" was 4.69, *SD* = 1.94 (*M* = 4.70, *SD* = 2.05 in the not guilty condition, and *M* = 4.68, *SD* = 1.83 in the guilty condition). To examine whether participants in the not guilty condition were engaging in more qualitative, value-driven processing than those in the guilty condition, we investigated the relationship between the participant's value ratings and plea decisions in participants in our guilty condition and our not guilty condition. Relevant values were "I would not plead guilty to a crime I did not commit" and "If I have done something wrong then I think that I should admit it."

In our guilty condition, there was no significant relationship between the endorsement of either value, and plea decisions. Participants who pled guilty and participants who chose to go to trial did not significantly differ in the extent to which they endorsed either principle ($F(1,72)=.012$, $p= .912$, $\eta_p^2 = .00$ and $F(1,72)=.819$, $p=.368$, $\eta_p^2 = .011$, for "I would not plead guilty to a crime I did not commit" and "If I have done something wrong then I think I should admit it," respectively). In our not guilty condition, participants who went to trial rated the principle "I would not plead guilty to a crime I did not commit," more highly than those who pled guilty ($M_{trial} = 5.96$ $SD = 1.94$ $M_{plea} = 5.12$, $SD = 1.34$, $F(1,76)=4.912$, $p=.03$, $\eta_p^2 = .061$). They did not differ in the extent to which they endorsed "If I have done something wrong I should admit it" ($F(1,76)=.090$, $p = .765$, $\eta_p^2 = .001$).

Experiment 2 Method and Results

Experiment 2 Method

Participants. Participants were 189 criminal defense attorneys, recruited via defense attorney listservs in New York, Tennessee, Wisconsin, Wyoming, Vermont, Idaho, Iowa, Arizona, and Rhode Island. Participants completed the study online and participation took around 10 minutes. Participants received a small amount of monetary compensation for their participation. Participants were 57.6% male. All participants provided consent to take part in the study, and the project was approved by the Cornell Institutional Review Board.

The Plea-Decision Task. Participants were given a hypothetical plea vignette involving a theft. They were told to imagine that they were representing a client who had been accused of grand theft (a felony) and the client had to decide between pleading guilty and going to trial. By pleading guilty they would get a misdemeanor for sure (for petty theft), and by going to trial they were risking a felony conviction (for grand theft), which they would receive if convicted. Participants were either told to imagine that they suspect the client is guilty of petty theft (our guilty condition) or not guilty of theft at all (our not guilty condition). They were given an initial estimate of the probability of conviction at trial – either 10%, or 30%. This initial probability acted as our anchor. Attorneys were asked what they would advise the client in this situation – to plead guilty or to go to trial. After making this initial decision about what they would advise the client in this situation, they were told that there had been a change in the case and there was now a 30% chance the client would be convicted at trial. They were then asked to indicate whether they would advise the client to plead guilty to petty theft, or go to trial and have a 70% chance of no conviction and a 30% chance of a felony theft conviction. This gave a 2 guilt (guilty or not guilty) x 2 anchor (10% anchor, 30% anchor) design. After deciding on their final advice,

attorneys were asked for their confidence in this advice on a scale from 1 (not at all confident) to 10 (extremely confident). We used this to calculate signed confidence – a measure ranging from -10 (completely confident in advising the client to go to trial) to +10 (completely confident in advising the client to plead guilty).

Experiment 2 Results

We first conducted an analysis of variance examining the influence of our two between-subject's factors – guilt (suspect client is guilty or suspect client is innocent) and probability of conviction (10% or 30%) on attorneys' plea advice in the initial decision they made (where the probability of conviction was 10% in the 10% conviction, and 30% in the 30% condition). This ANOVA revealed a significant main effect of guilt, such that attorneys advised clients to plead guilty more often when they suspected that they were guilty (M_{guilty} =.340 SE = .040, $M_{\text{notguilty}}$ = .127, SE = .041, F(1,200)=13.91, p<.001, η_p^2 =.065). In addition, the ANOVA revealed a significant main effect of probability, such that attorneys advised clients to plead guilty more often when there was a 30% chance of conviction at trial, compared to a 10% chance ($M_{10\%}$ = .165, SE = .041, $M_{30\%}$ = .302, SE = .040, F(1,200)=5.70, p = .018, η_p^2 =.028).

Next, we conducted the ANOVA looking at the influence of guilt (guilty or not guilty) and anchor (the initial probability of conviction an attorney had seen – 10% or 30%) on their advice in their subsequent decision, where the probability of conviction was 30%. This ANOVA revealed a main effect of guilt, such that attorneys advised clients to plead guilty more often when they suspected that they were guilty (M_{guilty} =.408 SE = .047, $M_{\text{notguilty}}$ = .208, SE = .046, F(1,185)=9.181, p=.003, η_p^2 =.047). There was no significant main effect of anchor, although the trend was that attorneys would advise clients to plead guilty more often when they had previously seen an anchor of a 10% probability of conviction ($M_{10\%anchor}$ = .349, SE = .046,

$M_{30\%anchor}$ = .268, *SE* = .047, F(1,185) =1.510, *p* = .221, η_p^2 =.008). There was no significant interaction between guilt and anchor.

We then conducted the same analysis using our signed confidence measure, from -10 (complete confidence in advising the client to go to trial) – 10 (complete confidence advising the client to plead guilty). Again, this analysis revealed a main effect of guilt, such that attorneys were more confident in advising clients to go to trial when they suspected that they were not guilty (M_{guilty} = -1.354, *SE* = .666, $M_{notguilty}$ = -4.240 *SE* = .656, F(1,185)=9.520, *p*=.002, η_p^2 =.049). Again, the main effect of probability was in the expected direction but was not significant (F(1,185)=2.580, *p* = .110, η_p^2 =.014), and the interaction between guilt and probability was not significant.

Finally, we used the same predictors (guilt and anchor) to predict attorney's confidence in their plea advice (from 1 (not at all confident) – 10 (completely confident)). This analysis revealed one significant effect – a significant interaction between guilt and anchor (F(1,185)=9.059, *p* = .003, η_p^2 =.047) (Figure 3).

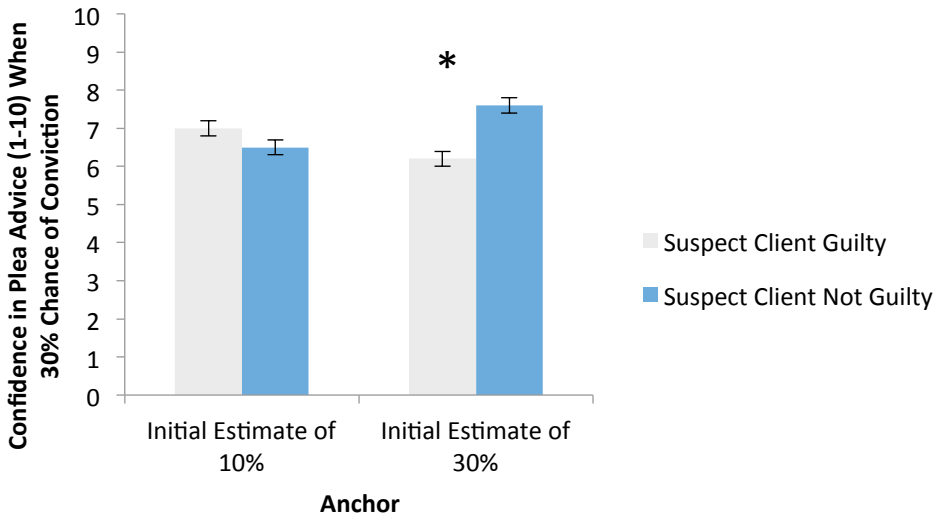

*Figure 3. Significant two-way interaction between anchor and guilt of participant when predicting confidence in advice. *p<.05. Error bars represent +/1 one standard error.*

When attorneys had previously seen an estimate of a 10% probability of conviction, their confidence in their advice was not influenced by whether they suspected the client was guilty or innocent (p = .195, η_p^2 =.018). When attorneys had previously seen an estimate of a 30% probability of conviction, they were more confident in their advice when the suspect was not guilty (p = .005, η_p^2 =.083).

Discussion

In this paper, we tested the influence of the anchoring heuristic, in the form of pre-estimates of the probability of conviction at trial given, on defendants making hypothetical plea decisions and on attorneys advising hypothetical defendants making plea decisions. We predicted that guilty defendants would be more likely to engage in more precise cognitive processing, weighing up risks and rewards when making plea decisions, whereas innocent defendants would be more likely to engage in fuzzier processing, influenced not only by the details of the plea deal itself but also by values such as not wanting to plead guilty to something that you haven't done. This was predicted to lead to innocent defendants being more influenced by the anchoring heuristic, which is expected influence those relying on fuzzier processing to a greater extent (see Hans & Reyna, 2011; Reyna et al., 2014). Finally, we predicted that attorneys may be less influenced by an anchor in a particular case because even if attorneys rely on fuzzier processing, they have other anchors influencing them too – for example probabilities and outcomes in previous cases that they have worked in. Results provided support for each of these predictions.

Guilty Defendants Rely More on Precise Details

When making their initial plea decisions, our mock defendants were in one of three groups – a group in which there was a 10% probability of conviction, a group in which there was

a 30% chance of probability of conviction, or a group in which there was a 70% chance of conviction. All mock defendants were told that they would get a misdemeanor for sure if they pled guilty, but would get a felony conviction if convicted at trial. Importantly, in these scenarios we saw that innocent participants were not significantly influenced by the probability of conviction, but guilty participants were – pleading guilty most often when there was a 70% chance of conviction at trial, and least often when there was a 10% chance of conviction at trial. The fact that guilty defendants are sensitive to changes in the probability of conviction supports our prediction that guilty defendants are conducting precise trade offs of risk and reward, while the fact that innocent defendants are not sensitive to these changes supports our prediction that they are influenced by something more abstract than precise trade offs, such as underlying values (e.g. I do not want to plead guilty to something that I did not do). This was further confirmed by the results of our correlational analysis, where innocent defendants were pleading guilty less often the more they endorsed the principle "I would not plead guilty to a crime I did not commit," whereas guilty defendants showed no relationship between endorsing the principle "If I have done something wrong then I think I should admit it," and plea decisions. This suggests that innocent defendants are engaging in fuzzier, value driven decision making, while guilty defendants are engaging in more precise trading off of risks and rewards.

Innocent Defendants Are More Influenced by Anchors

Results also support our prediction that this reliance on fuzzier, value driven decision making will make innocent defendants more susceptible to the anchoring heuristic. After all participants had made a decision in our initial plea vignette (with a 10%, 30%, or 70% chance of conviction at trial), they all made a final decision in which they were told that there was a 30% chance of conviction at trial. We expected that for defendants relying on fuzzier processing,

having seen a 10% anchor previously would make the 30% chance of conviction look big, while having seen a 70% anchor would make the 30% look small, and the anchors would influence decisions accordingly (leading to more guilty pleas for those who had seen the 10% anchor, and less guilty pleas for those who had seen the 70% anchor). This prediction was confirmed by our results. Specifically, mock defendants in our guilty condition were not influenced by our anchor manipulation but mock defendants in our not guilty condition were, pleading guilty more when they had seen the 10% anchor and pleading guilty less when they had seen the 70% anchor. Importantly, the result of this was that when the 10% anchor had previously been seen, innocent defendants pled guilty significantly more often than guilty defendants. Signed confidence results also displayed this trend, supporting the validity of the finding.

The Influence of Anchors On Attorneys

Our results show that, as predicted, anchors influenced attorneys less than they influenced mock defendants. This may be because attorneys were reasoning in a more precise way, although existing research suggests those with more expertise tend to reason in a more fuzzy way (see Reyna, et al., 2015). Therefore, it may be that as predicted, attorneys are protected from anchoring effects in a single case because they also have other relevant reference anchors from other cases. It is important to note, that while our attorneys were not significantly influenced by our anchor condition, they showed a trend in the same direction as our mock defendants and so may not be completely immune from the influence of anchors. Future research should investigate this in more detail. In addition, attorneys were influenced by whether they suspected that a client was guilty or innocent, even when the probability of conviction at trial remained the same. Attorneys confidence in their plea advice was also influenced by the presence of an anchor and the suspected guilt of the client. Attorneys were particularly confident in their advice when they

had not seen a previous different anchor (but had seen the 30% chance of conviction in both decisions) and where they suspected the client was not guilty. Future research should explore why this is the case, and the influence that it could have on plea decisions.

Limitations and Future Directions

This study provides initial support for the contention that innocent defendants may be processing plea deals in a fuzzier way and thus may be more influenced by associated heuristics and biases (such as the anchoring heuristic). It also suggests that attorney advice may have a protective effect against influence of anchors. However, our findings must be interpreted in light of some limitations. First, our study participants were all young adults and were not drawn from an adjudicated population. Future research should test our predictions in a wider sample pool, and in particular in an adjudicated population, in order to ensure results apply to the populations who are likely to be making plea decisions. Secondly, our plea vignettes were hypothetical and so might not reflect what people would do if they were really in these situations. For example, our hypotheticals did not involve interaction with an attorney (or interaction with a defendant in the case of the attorneys), having to really suffer the consequences of a decision, or considering external pressures such as the financial and time costs of trial. Future work should combine this experimental research with interviews of attorneys and criminal defendants, to further explore this phenomenon and confirm the extent to which it exists in real cases. Finally, we only examine one type of heuristic in this study, the anchoring heuristic. Future work should examine the influence of other heuristics, such as framing and base-rate neglect, that are also predicted to influence those relying on fuzzier processing to a greater extent.

Importance for the Criminal Justice System.

If confirmed by future research, the findings of this study have important implications for the criminal justice system. Our results also suggest that defendant's exposure to non-relevant anchors should be limited to avoid biases based on these anchors. This may mean avoiding giving probability estimates or estimates of a "low" or "high" chance of conviction to defendants until the accuracy of these estimates is as clear as possible. One way to facilitate this may be to mandate increased and open discovery during plea negotiations, as suggested by Professor Stephanos Bibas (Bibas, 2004). This would put defense counsel in the position to be able to provide clients with estimates as to the likelihood of conviction at trial accurately, and efficiently. Another way to facilitate this would be to reduce the ability of prosecutors to threaten serious felony charges in cases where they are not an appropriate final charge. In these cases, the initial felony threat may act as an anchor and influence the perception of future possible outcomes at trial or plea offers.

These findings may also be used by defendants who pled guilty and subsequently want to argue that they were actually innocent (although note that this is difficult to do, see Blume & Helm, 2014). The findings can provide insight into the role of cognitive bias in decisions to plead guilty, and the types of cases in which innocent defendants are likely to be influenced by these biases. The findings can also be utilized by attorneys who should be willing to share advice with clients and put probabilities and magnitudes in a particular case in context. If attorneys are indeed less influenced by cognitive biases, their advice, if deployed correctly, could protect clients from these biases.

In addition to these more conservative implications and suggestions, the findings of this study cut at the heart of justifications for the practice of plea bargaining. The traditional model of

plea decision making is known as the bargaining in the shadow of trial model (Bibas, 2004; Bushway, Redlich, & Norris, 2014). This is a rational actor model (Bushway, Redlich, & Norris, 2014). That is, a defendant is expected to plead guilty if an offered sentence is less than or equal to her expected value of going to trial. For example, if the expected sentence if convicted is 10 years and there is an 80% chance of trial, then a plea to a sentence of less than 8 years (80% of 10) represents a rational choice for a risk-neutral defendant (a defendant not affected by the degree of uncertainty in a choice) (Helm & Reyna, 2017). This model presumes that defendants are trading off probabilities of conviction at trial (risks) and consequences. This model has been used to justify plea bargaining, and in particular the practice of innocent defendants pleading guilty, because defendants can conduct a costs and benefits analysis based on a plea offer and the probable outcome at trial. This means that defendants are expected to plead guilty when this is a more valuable and better option for them (Bowers, 2008). Our results suggest that while guilty defendants might be engaging in this type of processing, innocent defendants are not. If innocent defendants cannot engage in this costs and benefits analysis, they are likely to be pleading guilty when doing so is not the right option based on such an analysis, and even in cases where the probability of conviction at trial is low. As our results indicate this could even lead to innocent defendants pleading guilty more often than guilty defendants, particularly in situations where it is unlikely they would be found guilty at trial. In its extreme case, this could lead to a system that convicts more innocent defendants than guilty ones, undermining core principles of the criminal justice system.

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Limitations on the Ability to Negotiate Justice: Attorney Perspectives on Plea Bargaining's Innocence Problem

Thesis Paper 3

Limitations on the Ability to Negotiate Justice: Attorney Perspectives on Plea Bargaining's Innocence Problem

Thesis Paper 3

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Abstract

Existing research has shown that innocent defendants are pleading guilty, and that this may sometimes be a sensible option given the current system. In this study, we interview criminal defense attorneys to investigate the extent to which innocent defendants are pleading guilty, the situations in which this may be the right thing for them to do given the current system, and the relationship between attorney advice and innocent defendants pleading guilty. Results suggest that attorneys are often limited in the extent to which they can really negotiate justice for their clients due to the nature of the current system, in which the sensible option may be to plead guilty even when innocent and even when the chances of conviction are not high, due to the threat of serious consequences at trial compared to the consequences of a plea. In addition, results suggest that attorneys are reluctant to impose risks on a client by advising taking a case to trial. Recommendations for the current system are made based on these findings.

Limitations on the Ability to Negotiate Justice: Attorney Perspectives on Plea Bargaining's Innocence Problem

Negotiated pleas, where a defendant agrees to plead guilty in exchange for a reduced sentence rather than exercise their right to a jury trial, became the primary means of disposing of criminal cases in the late 1960s and early 1970s as a result of rising crime rates (Blume & Helm, 2014; Stuntz, 2006). By 2015, 97.1% of federal cases that were resolved were resolved via a plea agreement between the prosecutor and the defendant rather than a jury trial (United States Sentencing Commission 2014 Sourcebook). This practice is well-known and often accepted as an efficient way to dispose of cases. For example, in the case of *Missouri v Frye,* Justice Kennedy, speaking for a majority of the court stated that "The potential to conserve valuable prosecutorial resources and for defendants to admit their crimes and receive more favorable terms at sentencing means that a plea agreement can benefit both parties (*Missouri v Frye,* 2012). This rationale has been used to justify plea bargaining through the idea that defendants can get a reduced sentence by confessing to something that they have done (see, Garrett, 2016). However, academics and legal commentators have noted that characteristics of the current plea bargaining system mean that it is not just operating in a way that allows defendants to get a reduced sentence by confessing to something that they have done, but also to encourage or even coerce innocent defendants into pleading guilty (see, for example, Blume & Helm, 2014; Caldwell, 2011; Dervan & Edkins, 2013; Helm & Reyna, 2017; Zottoli, Daftary-Kapur, Winters, & Hogan, 2016).

Some commentators have argued that it is not a problem that innocent defendant's plead guilty because innocent defendants should be able to enjoy the benefits of pleading guilty, including reducing or altogether avoiding custody (Bowers, 2008). However, other research

suggests that prosecutors may be encouraging those who are unlikely to be convicted at trial to plead guilty by offering highly coercive plea offers (Bushway & Redlich, 2012; Zottoli et al., 2016). The force of these arguments should be evaluated based on knowledge of how plea bargaining operates in practice. More specifically, we need to understand when and why are innocent defendants pleading guilty.

Research has investigated and evaluated the practice of plea bargaining, and the likelihood of innocent defendants pleading guilty, through experimental work (for example Dervan & Edkins, 2013; Grisso et al., 2003; Helm & Reyna, 2017; Tor, Gazal-Ayal, & Garcia, 2010) or through interviews with defendants who have made plea decisions (Daftary-Kapur & Zottoli, 2014; Zottoli et al., 2016). However, little research has investigated the perspectives of attorneys on innocent defendants pleading guilty. This is an important perspective, since experimental research involves decision-makers with no experience of real pleas and real defendants may have an incentive to claim that they are innocent when this is not the case. Interviewing attorneys can therefore complement experimental work and interviews of real defendants. It can also provide important insight into the types of advice that attorneys give to clients choosing whether to plead guilty, and how attorney advice might be influencing innocent defendants deciding whether to plead guilty.

In this paper, we interview criminal defense attorneys about their real experiences with the plea system, and the advice they would give in hypothetical cases. Building on previous research examining the practice of innocent defendants pleading guilty, and the influence of attorney advice on plea decisions (discussed below), we focus on three primary issues: how often attorneys believe innocent defendants plead guilty, if and when attorneys believe that innocent

defendants should plead guilty given the current system, and the influence that attorney advice may have on this practice.

The Practice of Innocent Defendants Pleading Guilty

Blume and Helm (2014) identified three reasons why innocent defendants might (and do) plead guilty – defendants charged with minor or relatively minor offenses might plead guilty to get out of jail, defendants who have prevailed during the appellate process might plead guilty in exchange for a sentence of time served, and defendants might plead guilty due to fear of a harsh punishment (Blume & Helm, 2014). Empirical research examining real legal decisions has confirmed that innocent defendants do plead guilty. In 2017, about 18% of exonerations listed in the National Registry of Exonerations were categorized as involving a guilty plea (National Registry of Exonerations, 2017), and the true number of wrongful convictions from guilty pleas is likely higher since exoneration is particularly hard for defendants who have pled guilty (Blume & Helm, 2014). In one study, Dr. Russell Covey examined guilty plea rates among defendants in a case that produced a large number of exonerees (Covey, 2013). He classified participants in the case as innocent, maybe innocent, or guilty, and found that 77% of those classified as innocent pled guilty, compared to 88% of those classified as guilty, and 89% of those classified as maybe innocent (Covey, 2013).

More controlled experimental designs have also examined the extent to which innocent defendants might be pleading guilty. Rates of guilty pleas among innocent defendants and the populations and tasks involved in the studies are displayed in Table 1. Current research suggests that innocent defendants plead guilty between 12.9% and 77% of the time, depending on the particular decision being made and important details such as the probability of conviction at trial, and the potential penalties involved. For example, innocent (and guilty) defendants are more

likely to plead guilty when doing so can help them avoid jail time (Redlich & Shteynberg, 2016) or a felony conviction (Helm & Reyna, 2017), and when there is higher chance that they will be convicted at trial (Helm & Reyna, 2017).

Table 1: Summary of studies involving examining when innocent defendants plead guilty.

Study	Type	Study Task	Population	Innocents Pleading Guilty (%)
Covey, 2013	Real	Pleas in the Rampart, CA case	Adult	77
Redlich & Shteynberg, 2016	Experimental	Plea in hypothetical involving robbery. Varied in terms of whether plea offer included jail. Chance of being found guilty at trial was high (75%)	Juvenile	31.8
			Young Adult	12.9
Dervan & Edkins, 2013	Experimental	Plea when students who didn't cheat were accused of cheating and offered a plea deal, or the chance to go before an academic review board.	Young Adult	56.4
Tor, Gazal-Ayal, & Garcia, 2010	Experimental	Plea when told to imagine charged with an academic violation when innocent – could plead (and fail the class) or have a 60% chance of suspension from university and a 40% chance of exoneration.	Young Adult	20
Helm & Reyna, 2017	Experimental	Plea when told to imagine charged with theft or arson. Probability of conviction either 30% or 70%.	Adult (college-age and post-college-age)	Approx. 29
Helm & Reyna, in preparation	Experimental	Plea when told to imagine charged with theft or arson. Probability of conviction either 30% or 70%.	Adolescent	Approx. 31

The Influence of Attorney Advice on Plea Decisions

As experts on the legal system tasked with advising clients, attorneys have an important role in the plea bargaining process (Alschuler, 1975, Hessick & Saujani, 2002). This is particularly true since the advice of attorneys has been shown to be be an important predictor of defendant plea decisions (Viljoen, Klaver, & Roesch, 2005). Importantly, some legal scholars have argued that attorneys actually have a bias towards plea bargaining in legal cases, whereby attorneys persuade their clients to enter into plea agreements (Alschuler, 1975; Blumberg, 1979).

If this is true, attorney advice could be leading innocent clients to plead guilty even where the chance of conviction at trial is not high. The cases of *Missouri v Frye* and *Lafler v Cooper* establish that a defendant's Sixth Amendment right to effective assistance of counsel extends into conduct during the plea bargaining process. This means that a defendant has a right to effective assistance from a defense attorney when deciding whether to accept or reject a plea bargain. In *Frye,* it was found that defense counsel was ineffective because of failing to convey a plea offer to a defendant. In *Lafler,* it was found that defense counsel was ineffective when incompetent advice caused the defendant to reject a guilty plea and proceed to trial. Justice Kennedy delivered the majority opinion which held that the proper test is whether, absent the ineffective counsel, a defendant would have accepted an offered plea that was less severe than his eventual sentence, and the trial court would have accepted the terms of that plea. This could make attorneys less likely to recommend going to trial even for innocent defendants, as trial usually carries a risk of a worse outcome than would be gained through a plea. This is could be true even when there is a very low chance of conviction at trial (in the case of many innocent defendants), as research suggests that prosecutors will offer particularly appealing offers in these cases (Bushway & Redlich, 2012; Champion, 1989).

A small number of studies have examined attorney plea recommendations. One study, using an experimental design, showed that probability of conviction, potential sentences, and defendant preference all influenced attorney plea advice (Kramer, Wolbransky, & Heilbrun, 2007). Another study has shown that attorneys can be influenced by the race of a client when giving plea advice – feeling that they could obtain better plea deals with a Caucasian client than with a minority client, even when controlling for perceptions of guilt (Edkins, 2011). However, relationship between guilt and innocence, attorney advice, and plea decisions has not previously

been examined in the literature. Specifically, research has not investigated how attorneys perceive plea bargaining's innocence problem, and how attorney advice might influence innocent defendants planning to plead guilty. Under what circumstances do attorneys think that innocent defendants should plead guilty? Could attorney advice be leading innocent defendants to plead guilty? Are attorneys influenced by their own perceptions of the guilt of a client, even when controlling for the perceived probability of conviction at trial? In this study, we seek to answer these questions through interviewing attorneys and asking attorneys to make decisions in hypothetical plea vignettes.

Method

Participants.

Participants were 189 criminal defense attorneys, recruited via defense attorney listservs in New York, Tennessee, Wisconsin, Wyoming, Vermont, Idaho, Iowa, Arizona, and Rhode Island (note that some attorneys chose to leave some questions blank and so we did not have our full sample of 189 attorneys for all questions so the number of attorneys responding to each question is reported). Participants completed the study online and participation took around 10 minutes. Participants were 57.6% male and received a small amount of monetary compensation for their participation. All participants provided consent to take part in the study, and the project was approved by the Cornell Institutional Review Board.

The Survey Instrument.

Participants were first asked whether they had any experience advising clients on whether to accept plea bargains and could select an answer of yes, no, or prefer not to answer. They were then asked our series of questions assessing plea bargaining's innocence problem.

How often do innocent defendants plead guilty? Participants were asked whether they had ever been involved in a case where a client chose to plead guilty despite maintaining their innocence (and selected yes, no, or prefer not to answer), and whether they had ever advised a client who they believed was innocent to plead guilty (and selected yes, no, or prefer not to answer). They were then asked roughly what proportion of defendants who plead guilty they think are completely innocent, or guilty of a lesser crime than the one they end up pleading guilty to. We asked participants for a written response, and told them that they could just write NA if they felt unable to give a figure.

When should innocent defendants plead guilty? Next, we asked participants whether there were cases in which they believed that innocent defendants should plead guilty and if so, what the characteristics of these cases were.

The influence of attorney advice. Participants were then asked questions probing attorney advice to clients. First, they were asked whether they have ever encouraged a client who wished to take a plea deal to go to trial. Second, they were asked whether they have ever encouraged a client who wished to go to trial to take a plea deal.

Experimental Task Assessing Attorney Advice.

Participants were also given two hypothetical plea vignettes and were asked to decide whether a client should go to trial or plead guilty in the vignettes. One (Case 1) involved a young girl who had been caught with marijuana, and the other (Case 2) involved an adult who was accused of sexual assault. In both cases, the defendant claims that they are innocent and must chose to plead guilty in exchange for a misdemeanor conviction or go to trial and risk getting convicted of a felony. We randomly assigned half of the participants to see additional facts in the hypotheticals which meant that pleading guilty (even to a misdemeanor) would have particularly

harmful consequences for the client - likely rejection of a citizenship application (in the marijuana case) or the loss of a career as a teacher (in the sexual assault case). Participants would either see both cases with these additional consequences, or neither case with these additional consequences. In each case, we asked participants to estimate the percentage likelihood of the defendant being guilty, and the percentage likelihood of the defendant being found guilty at trial. The order of these questions was counterbalanced. We then asked them what they would advise the defendant to do in the hypothetical, and asked them to give a short justification for their response We used these answers to examine the relationships between probability of conviction at trial, guilt and innocence, and plea advice, in a real task. Following completion of all tasks, attorneys completed some short demographics questions.

Results

One hundred and sixty-six participants answered our questions about experiences with the plea-bargaining system. Of our 166 participants, 163 (98.19%) stated that they had experience advising clients on whether to accept plea bargains, one stated that they did not have experience advising clients on whether to accept plea bargains (0.60%), and two said that they preferred not to answer (1.20%).

How Often Do Innocent Defendants Plead Guilty?

When asked whether they had ever been involved in a case where a client chose to plead guilty despite maintaining their innocence, 148 (89.16%) of our participants said yes, 14 (8.43%) of our participants said no, and 4 (2.41%) of our participants said that they preferred not to answer. Seventy-four (44.58%) of our participants said that they had advised a client who they

believed was innocent to plead guilty, 78 (46.99%) said that they had not, and 14 (8.43%) preferred not to answer that question.

Thirty attorneys provided an estimate of the proportion of defendants who plead guilty that they believe to be innocent, or guilty of a lesser offense than the one they pled guilty to. Estimates varied widely from less than 5% to 70% (M = 23.82, SD = 19.59), and the results are displayed in Figure 1.

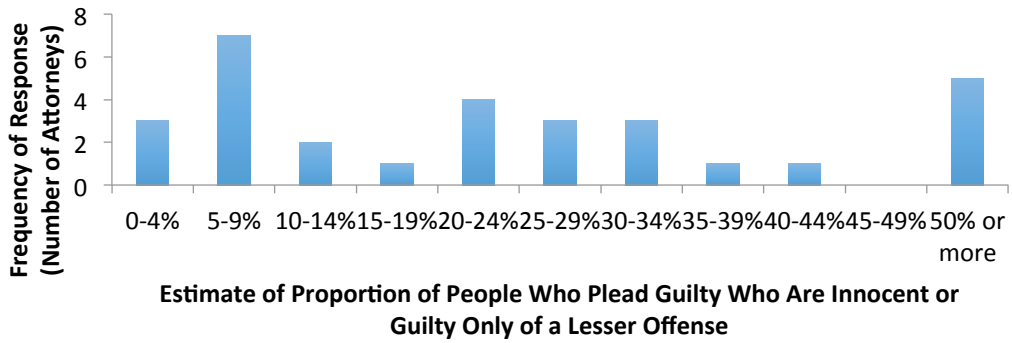

Figure 1: Attorney estimates of the proportion of people who plead guilty who are actually innocent, or guilty of a letter offense than they plead guilty to.

Should Innocent Defendants Ever Plead Guilty?

We asked attorneys whether they believed there were cases in which innocent defendants should plead guilty. One hundred and forty-two attorneys gave a yes or no response to this question. Of those attorneys, 104 (73.2%) said there were cases in which innocent defendants should plead guilty given the current system. Thirty-eight (26.8%) said that innocent defendants should not ever plead guilty. Attorneys who said that innocent defendants should plead guilty were asked to elaborate on the circumstances in which they thought this was the case. The majority of responses fitted into four general (and overlapping) themes – when possible outcomes at trial were very severe, where a cost-benefit analysis favored taking the plea (e.g. because of strong evidence against a defendant and a good plea offer), where pleading guilty would benefit the client through faster and easier resolution of the case (e.g. getting them out of

jail, or avoiding the pressure of trial), and avoiding significant repercussions through a plea. Table 2 shows a summary of the number of attorneys who identified each theme, and some sample responses for each theme. Note that some attorneys identified more than one theme.

Table 2: Responses when asked whether there are cases in which innocent defendants should plead guilty.

Theme	Number of Attorneys	Sample Responses
Severe outcome at trial	32	*Many innocent people take deals when facing draconian mandatory penalties. Faced with decades of prison and offered a year or two, rational people don't even gamble.* *Even if the risks of losing are extremely small, the consequences of losing can change a client's life where the consequences of a plea will not.* *If the risks of conviction are great, even if the likelihood is low, it may make sense.* *The state has such incredible leverage and power in many cases, it can be in someone's best interest to accept a plea to eliminate their risk of catastrophic consequences.*
Cost-benefit analysis / Chance of conviction and sentences involved	58	*Where it is unlikely they will be successful at trial AND the plea deal is for a substantially less crime or minor sentence* *When the evidence is overwhelming and the stakes are very high, like mandatory minimum sentences to be avoided.* *Yes – it is a pure costs benefit analysis especially where there are immigration or job related consequences that can be avoided by a plea.* *When the likelihood of conviction and a substantially worse outcome outweighs the likelihood of acquittal or a substantially better outcome.*
Faster and easier resolution	9	*I have been involved in cases where it would have taken my clients longer than the sentence stimulated in the plea offer to go through trial and litigate the case.* *Clients in pretrial custody with a preexisting criminal record can benefit from pleading guilty to a petty charge for the sole reason that they can get out of custody and resume their lives.* *Unfortunately, clients may have to plead guilty to save money due to incarceration while waiting for trial.* *When a person has been held in jail for several weeks without the means to bond out and the offense is relatively minor, clients often lose their motivation to fight.*
A plea offer than avoids any significant repercussions	11	*Yes, an innocent client might plead guilty if the consequences would not hamper future activity such as job qualifications, or movement.* *A plea that avoids significant repercussions and eliminates the risk of these things is usually worth it.* *An obvious case is where the conviction will be of no practical consequence.*

Several attorneys gave examples of cases in which they had likely innocent clients who chose to plead guilty. For example – a case where a likely innocent client was charged with a felony where a loss of life was involved but could plead guilty to a misdemeanor and be released from jail, a case in which a likely innocent client was charged with sexual assaults (and threatened with a 40-year felony sentence) and could pled guilty to disorderly conduct and be sentenced to pay only court costs, and a case in which a likely innocent client was accused of murder and could plead guilty to being an accessory after the fact and be sentenced to time served (8 months in jail) and probation. Many attorneys also noted that the ultimate decision as to whether to plead guilty (when innocent or otherwise) was with the client. Another recurring theme was mandatory sentences (laws in some states that require defendants convicted of certain crimes to serve predefined terms, see Subramanian, & Delaney, 2014). Mandatory sentences were mentioned by 15 attorneys as a reason that innocent defendants pled guilty, due to the harsh outcomes mandated upon conviction at trial, and discrepancies between these outcomes and plea offers.

The Influence of Attorney Advice.

When asked whether they had ever encouraged a client who wished to take a plea deal to go to trial, 118 of our attorneys gave a yes or no answer. Of these attorneys, 80 (67.80%) said that they had encouraged a client who wished to take a plea deal to go to trial, and 38 (39.20%) said that they had not. When asked whether they had ever encouraged a client who wanted to go to trial to accept a plea deal, 143 of our attorneys gave a yes or no answer. Of these attorneys, 129 (90.21%) said that they had encouraged a client who wanted to go to trial to accept a plea deal, and 18 (12.59%) said that they had not. These results suggest that attorneys are advising

clients who want to go to trial to plead guilty more often than they are advising clients who want to plead guilty to go to trial.

We then examined the reasons that attorneys gave for encouraging a client who wanted to go to accept a plea deal to go to trial (note that not all attorneys gave a reason and some attorneys gave more than one reason (Figure 2). Attorney responses fit broadly into six overlapping themes – because the client doesnt appreciate the long-term consequences of the plea, because the client is irrational due to being scared, because the client underestimates the chance of success at trial / there is a good chance of success at trial, because that the plea offer was bad and the client had little to lose by going to trial, and because the client was innocent. Attorneys who said that they had not encouraged a client who wanted to plead guilty to go to trial also gave reasons for this. These reasons fit broadly into three themes (which sometimes overlapped) –that trial is unpredictable, the jury could be biased, and they do not want to impose risk on a client, that it is the clients decision what to do, and that it is unethical to do so.

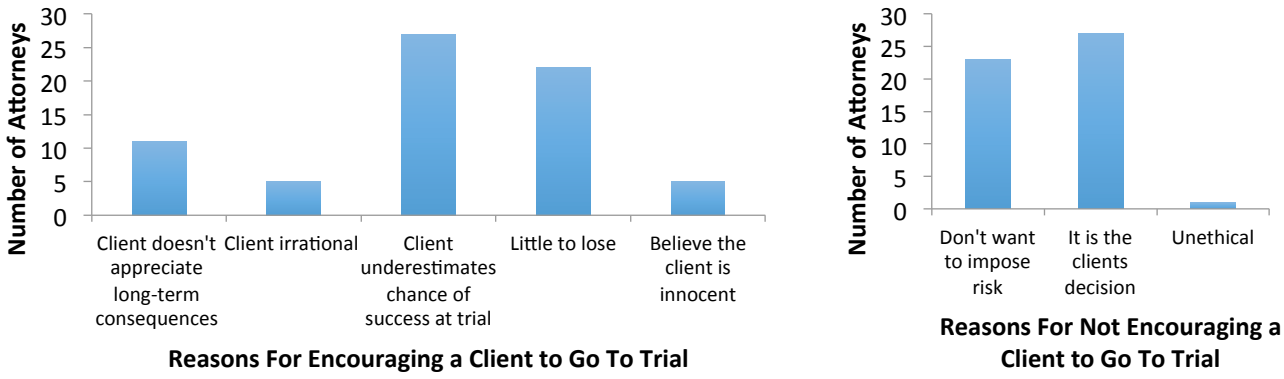

Figure 2: Reasons given by attorneys for encouraging a client to go to trial rather than plead guilty, and for not encouraging a client to go to trial rather than plead guilty.

Second, we examined the reasons why attorneys did or did not encourage a client who wanted to go to trial to accept a plea deal (see Figure 3). Attorney responses to why they have

encouraged a client to take a plea deal rather than go to trial fit broadly into five themes (which often overlapped) – because chances of success at trial are small, because of the serious potential consequences of trial, because of the unpredictability of trial, because the clients initial decision is based on an unrealistic view of a trial, and because of the costs of trial. Note that not all attorneys gave a reason for their answer, and that some attorneys gave more than one reason. The two most popular reasons were that they have encouraged clients to take plea deals where the chances of success at trial are very low, or the consequences if convicted are severe.

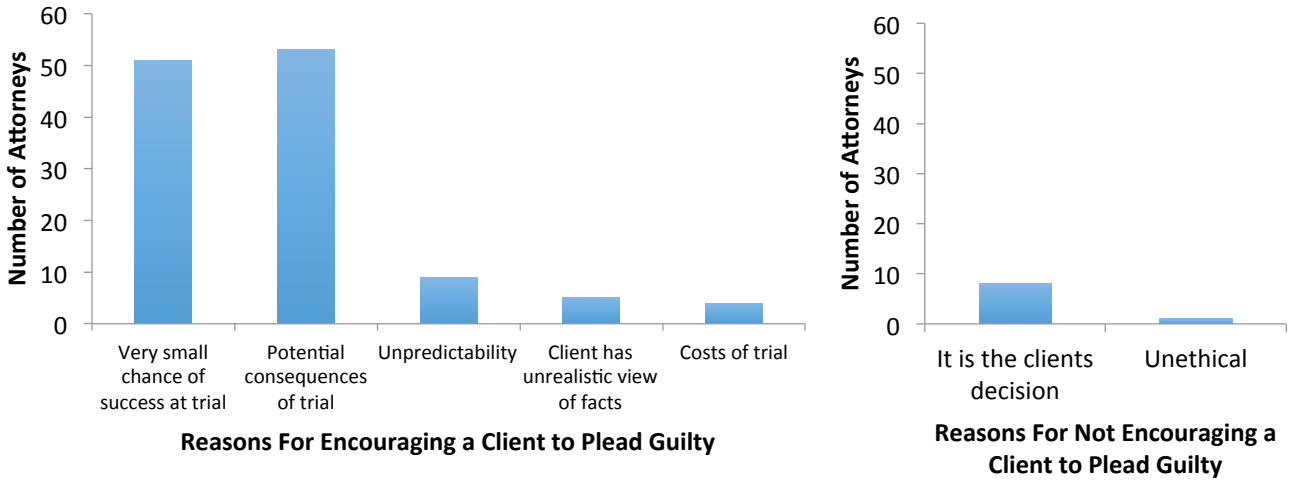

Figure 3: Reasons given by attorneys for encouraging a client to plead guilty rather than go to trial, and for not encouraging a client to plead guilty rather than go to trial.

We identified two primary reasons why attorneys would not encourage a client to accept a plea (although note that many attorneys in this category did not provide reasons) – that it is the clients decision what to do, and that it is unethical to do so.

Experimental Task Assessing Attorney Advice

Finally, we analyzed the results of our experimental task in which we gave attorneys case facts from two cases (Case 1 involving a school girl accused or marijuana possession, and Case 2 involving an adult accused of sexual assault). One hundred and eighty-nine attorneys answered

these questions. Overall, attorneys advised the defendant to plead guilty more in Case 1 (M_{case1}=.55, SD = .50, M_{case2}= .37, SD = .49, p<.001 (Fishers Exact Test)). Attorneys also thought that the defendant in Case 1 was more likely to be guilty (M_{case1}=65.12, SD = 24.58, M_{case2}= 47.00, SD = 20,56, t(170)=8.54, p<.001), and that the defendant in Case 1 was more likely to be convicted at trial (M_{case1}=77.34, SD=16.12, M_{case2} = 62.68, SD =20.77, t(170)=8.19, p<.001). Ninety-five attorneys were in our condition where a misdemeanor conviction would have its normal consequences in each case. Ninety-four attorneys were in our condition where a misdemeanor conviction would have an abnormally severe impact (by impacting immigration status in Case 1, or through causing the loss of a career as a teacher in Case 2).

In both cases, we conducted a logistic regression using our misdemeanor impact condition, attorney estimates of the probability of conviction at trial, and attorney estimates of defendant guilt, to predict plea advice. We also controlled for gender which was not the same across our experimental manipulations (in our normal misdemeanor condition, 37% of participants were male, and in our severe misdemeanor condition, 48% of participants were male). The results for Case 1 (marijuana) and Case 2 are displayed in Table 3.

Table 3: Logistic regression results using impact of misdemeanor, probability of conviction at trial estimate, probability of guilt estimate, and gender, to predict plea advice (0=Go to trial, 1=Plead guilty).

	B	*SE*	Wald	*OR*
Case 1 (Marijuana)				
Misdemeanor Impact (0,1)	-1.90	.393	23.30	6.65*
Prob. of conviction estimate	.046	.013	11.68	.955*
Prob. of guilt estimate	.016	.008	3.84	.985*
Gender (0,1)	-.054	.387	.020	.947
Case 2 (Sexual Assault)				
Misdemeanor Impact (0,1)	-.419	.430	.950	1.52
Prob. of conviction estimate	.081	.015	31.01	.922*
Prob. of guilt estimate	.025	.013	3.84	.975*
Gender (0,1)	.250	.422	.334	.779

*p≤.05

Finally, we looked specifically at attorneys who had stated that there was a less than 50% chance that the defendant was guilty in each case, to specifically examine the decisions of attorneys who believed the defendant was probably innocent.

In Case 1, 29 attorneys thought that there was a less than 50% chance that the defendant was guilty. Of these attorneys, 45% recommended that the defendant plead guilty. A logistic regression showed that in this group attorneys in the condition with a severe impact of a misdemeanor were less likely to recommend pleas (B=-2.873, *SE* = 1.085, *Wald* = 7.012, *OR* =17.70, *p*=.008), but there was no significant influence of likelihood of conviction at trial, or gender. We examined the reasons why these attorneys, who thought there was a less than 50% chance that the client was guilty, would recommend a guilty plea. Responses referred to the fact that she would be unlikely to win at trial (e.g. *She seems unlikely to win at trial*) and the more serious consequences of a felony conviction (e.g. *The plea would mean that she would not lose her civil rights, would not have a felony conviction on her record…I would want to protect her in case of future police contact. The risks of a felony conviction along with a lifetime of consequences associated with that conviction are too great to accept in this scenario when compared with the far less significant consequences of explaining a misdemeanor charge*).

In Case 2, 65 attorneys thought that there was a less than 50% chance that the defendant was guilty. Of these attorneys, 22% recommended that the defendant plead guilty. A logistic regression showed that in this group attorneys who thought there was a higher chance of conviction at trial were more likely to recommend pleading guilty (B=.091, *SE* = .026, *Wald* = 11.92, *OR* =.913, *p*=.001), but there was no significant influence of our misdemeanor manipulation, or gender. We examined the reasons why these attorneys, who thought there was a less than 50% chance that the client was guilty, would recommend a guilty plea. Responses

referred to the fact that the risk of trial would be high (e.g. *The risk is too high for a trial, but I would not push the client to make this decision*), that juries in child sexual abuse cases often believe the child (*e.g. It will be his word against the client and juries are liable to believe the child*), and that the likely penalty if convicted would be very serious (e.g. *He would face decades in prisons and many other severe repercussions from a felony conviction of this nature. No one could risk the mandatory felony penalties on sex crimes when offered a misdemeanor*).

Discussion

This study provides what is, to our knowledge, the first empirical study of attorney perspectives on plea bargaining and attorney plea recommendations. Although our data is only from a relatively small sample of attorneys, it confirms concerns that have been raised in the legal literature and the psycho-legal literature regarding the extent to which innocent defendants are pleading guilty and procedures in the current plea system that seem to encourage this practice (see Blume & Helm, 2014; Dervan, 2012; Dervan & Edkins, 2013; Covey, 2013; Hessick & Saujani, 2002). Results provide important insight into the extent of this practice, the extent to which some innocent defendants should plead guilty in the current system, and how attorney advice might influence this practice.

How Often Do Innocent Defendants Plead Guilty?

Scholars supporting plea bargaining have argued that innocent defendants would be unlikely to find plea offers attractive, going as far as to describe the problem of innocent defendants pleading guilty as "barely a perceptible theoretical ripple" when compared with other costs in the plea bargaining system (Easterbrook, 1992; Schulhofer, 1992). However, accumulating research suggests that innocent defendants might be pleading guilty fairly

frequently (for example Dervan & Edkins, 2013; Grisso et al., 2003; Helm & Reyna, 2017; Tor, Gazal-Ayal, & Garcia, 2010). Our results support this accumulating research. They indicate that almost all of our attorneys have experience dealing with clients who claim to be innocent but plead guilty, and almost half of our attorneys have advised clients who they believe to be innocent to plead guilty. Importantly, when asked about the proportion of defendants who plead guilty but are really innocent or guilty only of a lesser charge, there was very little consensus among attorneys, with estimates ranging from less than five percent to over fifty percent, and many choosing not to give a response at all. This is understandable since it is very difficult for an attorney to know whether a client is factually innocent or guilty. However, importantly, 27 of the 30 attorneys who answered this question believed that of the defendants who plead guilty 5% or more are factually innocent or guilty of a lesser charge. If true, this would make plea bargaining a very important cause of wrongful conviction (although note that wrongful convictions resulting from plea are likely to be convictions for lesser sentences than those resulting from trial), and certainly more of a problem than a barely perceptible theoretical ripple.

Should Innocent Defendants Ever Plead Guilty?

Our results suggest that in the current system the majority of attorneys believe that there are cases in which innocent defendants should plead guilty. Scholars have argued that innocent defendants are able to, and should be able to, enjoy the benefits of pleading guilty (Bowers, 2008; Easterbrook, 1992). According to these arguments, persons at risk of unjust conviction may prefer a certain (but low) punishment in a plea bargain to the risk of conviction and higher punishment after trial (Easterbrook, 1992), and this can lead to less punishment for defendants who are truly innocent (Bowers, 2008).

These arguments are based on the idea that defendants will be able to rationally weigh the costs and benefits of a plea offer in a sensible way. Our results suggest that attorneys do recognize this type of costs-benefits analysis as one reason that innocent defendants should plead guilty. However, importantly, our research suggests that from the perspective of attorneys there are other reasons that innocent defendants should be pleading guilty. For example, sometimes defendants are threatened with such harsh punishments at trial (something that is exacerbated by mandatory minimum sentences) and offered very lenient plea deals – for example a sentence of time served (8 months) and a misdemeanor conviction when threatened with a murder conviction if convicted at trial. This kind of discrepancy is likely to lead to innocent defendants pleading guilty even when there is only a very small probability of conviction at trial, and the gravity of the threatened punishment does not truly give defendants a fair choice in this situation. This problem can be exacerbated by the practice of vertical "overcharging," whereby prosecutors include different substantive offences in an initial charge with the intent to dismiss one or more of them (Ross, 1978).

The Influence of Attorney Advice

Our research suggests that attorneys are more likely to encourage a client who wants to go to trial to enter a plea bargain than to encourage a client who wants to plea bargain to go to trial. Responses suggest that this is due to a reluctance to be partly responsible for imposing a large risk on a client, especially when consequences conviction at trial could be severe (even if chances of this outcome are low). This is logical, especially in light of *Lafler v Cooper,* since a client who goes to trial and gets convicted will know they could have got a better outcome by pleading guilty, and may blame the attorney for encouraging them to take a risk. Attorneys who had not ever encouraged a client who wanted to take a plea bargain also often said that they did

not do so because the decision was up to the client, although note that this consideration was important to far fewer attorneys when asked whether they had ever encouraged a client who wanted to go to trial to accept a plea bargain (8 attorneys, compared to 26). The results of our experimental task confirm that even in cases in which attorneys think a client is innocent, they may encourage them to plead guilty (45% of attorneys in our first case and 22% of attorneys in our second case who were less than 50% sure the defendant was guilty said they would advise them to plead guilty). Responses suggest that although some attorneys based this advice on a high chance of conviction at trial, attorneys were also influenced by a reluctance to expose clients to the risks of a severe outcome if convicted at trial.

The fact that attorneys appear to be advising clients who want to plead guilty to go to trial less than they are advising clients who want to go to trial to plead guilty could mean attorneys may be contributing to additional innocent defendants pleading guilty to crimes they did not commit (which as noted above is not necessarily a bad thing given the current system). However, the results of our experimental task show that attorneys are influenced by the extent to which they think that a client is guilty or innocent, even when controlling for the probability of conviction at trial. This confirms that attorneys are more reluctant to encourage defendants who they believe are innocent to plead guilty.

Limitations and Future Directions

The findings of our study should be interpreted in light of some important limitations. First, several attorneys completing our hypothetical plea scenarios noted that not enough information had been provided for them to truly assess the cases. In addition, we did not include preferences of defendants in our vignettes, and the vignettes were hypothetical and differed in important respects from real legal cases. Another limitation of this work is that it relied on self-

report responses by a sub-set of attorneys. Our findings are therefore influenced by which attorneys chose to participate in the study, and what they chose to report to us. Our findings should also be considered alongside reports of defendants about their interactions with attorneys which suggest that in some cases the interaction of clients and attorneys may be limited (Zottoli et al., 2016). Results should be interpreted with these limitations in mind, and future research should investigate the findings of this study further when considering real legal cases in which attorneys have advised clients.

Implications for the Criminal Justice System

A theme that has come out of this study is that in the current system there are cases in which, from a practical perspective, innocent defendants *should* plead guilty, even when the chances they will be convicted at trial are not high. Importantly, a leading reason for this is that there is such a discrepancy between a plea offer and the outcome if convicted at trial that exercising the right to a trial becomes too risky even when the chances of conviction are low. The severe risks that can result from going to trial also appear to be making attorneys reluctant to advise clients to go to trial, since attorneys do not want to be responsible for imposing the risk of a severe conviction on a client when they could have received a much more lenient sentence in exchange for pleading guilty. This undercuts justifications that have been made for innocent defendants pleading guilty, since it takes away the consent of the defendant and the ability of the attorney to prevent the conviction of innocent defendants. When confronted with the chance of a possible murder conviction vs. a misdemeanor, defendants and attorneys often do not truly have a choice even where the chances of conviction are low. However, our results did indicate that attorneys are influenced by the suspected guilt or innocence of a client and the probability that

the client will be convicted at trial. This suggests that they are able to negotiate justice based on appropriate factors, although in some cases their hands may be tied by the current system.

Solutions to this problem might be for trial judges to more carefully monitor the discrepancy between original charges and a charge pleaded to, in order to ensure that prosecutors are not offering deals that are effectively coercive. Another option would be to eliminate charge bargaining and only allow sentence bargaining. This would mean that prosecutors could offer a reduced sentence but not a reduced charge in exchange for pleading guilty (Alschuler, 1976). This would allow defendants pleading guilty to enjoy some benefit, without being so persuasive so as to coerce innocent defendants into pleading guilty. This would also reduce the reported impact of mandatory minimum sentences. If it is really the case that someone who has committed a certain crime should get a certain sentence, this should be the case for all people who have committed that crime, not just for those who chose to exercise their right to a jury trial. Reducing the discrepancy between outcomes if convicted at trial and outcomes when pleading guilty would allow attorneys to appropriately advise their clients absent the fear of their client receiving a disproportionately high punishment, thus improving their ability to effectively negotiate justice and protect innocent defendants.

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THESIS DISCUSSION

In these papers, I have presented studies to illustrate that innocent defendants are likely to be systematically pleading guilty for reasons other than based on values and free choice given specific risks and benefits. Despite the fact that the vast majority of cases in the criminal justice system are currently resolved via plea rather than via trial, the infrastructure of the criminal justice system and procedural rules to protect defendants are largely still built around the idea of convictions via jury trial. Based on the research presented in this thesis and accumulating other research examining innocent defendants are pleading guilty, regulation should be introduced to protect innocent defendants in the criminal justice system.

One important change is that adolescent defendants should not be able to enter into plea agreements. Evidence from multiple studies now shows that adolescents are more likely than adults to plead guilty to crimes they did not commit, and my research suggests that this is due to a temporary stage in their cognitive development whereby a hyper-rational reasoning process makes them susceptible to superficially appealing offers, and prevents them from retrieving important values when making decisions. This developmental stage is highly likely to be temporary, and thus it is not appropriate for adolescents to be making decisions that could negatively influence the rest of their lives, especially under such potentially coercive circumstances.

In addition, transparency should be increased during plea negotiations so that defense counsel and the defendant are in a position to evaluate the prosecution case accurately. As far as possible, threats and estimates of conviction should not be made prematurely, to avoid risks of biases from anchoring. Finally, ideally plea bargaining would be restricted to sentence

bargaining rather than charge bargaining. This would restrict the prosecutions ability to threaten the defendant with severe felony sentences in order to encourage a plea for a more lenient misdemeanor sentence. This severe sentence could act as an anchor making the lenient sentence look more appealing. Interviews with attorneys also confirm the influence of severe sentences in coercing innocent defendants into pleading guilty, with little to no real choice. These severe sentences are also restricting attorney's ability to bargain, since they are understandably reluctant to impose risks of very severe sentences on a client.

Ultimately, in a system whose infrastructure requires the vast majority of cases to be dealt with via plea bargain rather than trial it is inevitable that some defendants who are innocent will chose to plead guilty when carefully weighing up risk and reward. However, these changes would help to ensure that innocent defendants only plead guilty as a result of an informed choice, and not due to fear of harsh sentencing, susceptibility to cognitive bias, and developmental immaturity. Thus, while not eliminating plea bargaining's innocence problem, these reforms could help us to move closer towards the ideal of defendants being innocent until proven guilty, rather than innocent until persuaded to plead guilty.