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Jesse Bull[*]

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Abstract

I explore the rather common legally permissible practice of police lying to suspects and/or fabricating evidence by analyzing a simple model in which police can fabricate/lie and then the accused chooses whether to confess. When police are not permitted to fabricate/lie, the police presenting evidence, which in this case can be viewed as hard evidence, to the accused conveys information about the accused's chances at trial. However, when police are permitted to fabricate/lie, the evidence does not convey information to the accused. I find that allowing police to lie is helpful in cases where it either leads to a guilty accused confessing when he would otherwise go to trial, or an innocent accused not confessing when he otherwise would confess if police were not allowed to lie. However, allowing police to lie is harmful in cases where it either leads to a guilty accused not confessing when he would confess if the police were not allowed to lie, or an innocent accused confessing when he would not if police were not allowed to lie. These cases are characterized and some policy implications are provided.

JEL Classification: C70, D74, K10.

Viewers of television shows about police often see police officers mislead an accused person about their evidence of the accused's guilt. Often this lying or fabrication is portrayed as convincing a guilty accused person to confess and provide many details of the crime, which sometimes incriminate others involved. This misleading of people accused of crimes is, apparently, quite common in reality and is even legally protected in many states. This differs significantly from the obligation, once a criminal case reaches the discovery phase, the state has to provide evidence to the defense. This paper analyzes whether allowing police to lie to an accused or fabricate evidence at the interrogation stage is beneficial to society.

I study a simple game-theoretic model in which the accused, who knows his guilt or innocence, interacts with a police officer prior to choosing whether to confess for

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an anticipated lenient sentence or continue on to trial. Before interacting with the accused, the police officer observes whether an event occurs. This event could be along the line of a witness identifying the accused or some physical evidence placing the accused at the crime scene. That is, the police officer knows whether some evidence against the accused exists. This is not observed by the accused and is not sufficient to prove guilt with certainty. So I model both the accused's guilt and the existence of this evidence as increasing the probability that the accused is found guilty should he proceed to trial. More specifically, I assume the guilty accused is more likely to be found guilty at trial, regardless of whether the event actually occurs, and the event occurring increases the probability of the accused being found guilty whether he is actually innocent or guilty. I compare allowing police to lie/fabricate to not allowing police to lie/fabricate. I assume that it is preferred for a guilty accused to confess and for an innocent accused to go to trial, and this forms the basis for my comparison. Although I acknowledge that principles of truthfulness are valid arguments against allowing those in a perceived position of authority to mislead citizens, my analysis is only concerned with whether allowing lying/fabricating helps by inducing guilty accused to confess and innocent accused to not confess and continue on to trial.[1] Naturally, I analyze equilibrium behavior with Bayesian updating by the accused, after he observes the behavior of the police.

My results show how the effectiveness of allowing lying by police depends on the probability, as a function of guilt or innocence and whether the event occurred, of the accused being found guilty at trial, the probability of the evidence existing, and the level of punishment when the accused confesses and when the accused is found guilty at trial. There is some tension in that allowing lying can be helpful in two cases, and is harmful in two other cases. The intuition is that when the police officer is allowed to lie/fabricate evidence and wants the accused to confess, he has the incentive to lie so the accused doesn't gain any information from the police's statement/presentation of evidence. So prohibiting lying/fabricating allows the accused to assess the evidence against him. In some cases, not knowing the evidence against him, will lead to the accused confessing and in other cases it will not. When the accused would confess if he knew the evidence actually existed and not confess if he knew the evidence did not actually exist, there is a tension. This occurs both for the innocent type and for the guilty type, although for different probabilities and punishment values.

Whether allowing lying/fabrication by police during interrogation is beneficial depends on the probative properties of the evidence in question. These can vary across cases. So I do not present these as suggestion for formulating law regarding the specifics of interrogation. However, I feel these insights could be useful both for specifying interrogation procedures for police departments and the training of police investigators, and for the assessment, by prosecutors and courts, of confessions due to interrogation.

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[1] I also acknowledge that police misleading those they question may contribute to a distrust of police, but that sort of model is not the focus here.

Motivation and Practical Example

As noted above, police lying during interrogation is legally protected in many states.[2] One particularly troubling example occurred in 2002 and was reported by the Los Angeles Times.[3] Jose "Peps" Ledesma, a member of the Vineland Boyz, a violent gang that controlled most of the illegal drug sales in its area, was accused of the murder of Christian Vargas. He was accused of shooting Vargas outside of 16-year old Martha Puebla's home.

Briefly, the major events of the murder and investigation occurred as follows. A teenage girl, who was a friend of Puebla, and Vargas parked in front of Puebla's home around 2 a.m. on November 27, 2003. The teenage girl, who was not named in the LA Times for her safety, went to Puebla's ground-floor window while Vargas sat in the car. While the girl was talking to Puebla, Vargas was shot and killed.

Ledesma was identified as a suspect. Ledesma and another Vineland Boyz member Mario Catalan were interrogated by Los Angeles Police Department detectives Martin Pinner and Juan Rodriguez. When he was interrogated, Ledesma did not call an attorney, and repeatedly denied involvement in the shooting. Pinner told Ledesma that they had multiple witnesses who would testify that he was the shooter. He then showed Ledesma a "six-pack," which is a binder of photos of possible suspects, with his photo circled, "M.P." written below it, along with "this is the guy who shot my friends boyfriend," and Martha's signature. It was a total fabrication. Martha had actually been unhelpful with the police throughout their investigation and when testifying at the preliminary hearing for Ledesma's murder trial.

Ledesma used a pay phone near his cell to call another Vineland Boyz member Javier Covarrubias, and discussed Martha in a mix of English and Spanish, saying, "I need her to disappear. She is dropping dimes." Several days after Martha Puebla testified at the preliminary hearing for Ledesma's murder trial, she was shot and killed, allegedly, by a member of the Vineland Boyz. The LAPD didn't have a properly translated transcription of the call by Ledesma to Covarrubias until the investigation into her murder. Further, neither Martha nor her family were made aware of her having potentially been put in harm's way by the interrogation techniques used by Pinner and Rodriguez.

In 2008, as part of a federal plea bargain to avoid the death penalty, Ledesma, Cavarrubias, and a Vineland Boyz member believed to be the shooter pleaded guilty to the murder of Puebla. However, before federal prosecutors and the LAPD had made progress on Puebla's murder case, Pinner and Rodriguez arrested Juan Catalan, Mario Catalan's brother, and interrogated him. Pinner and Rodriguez told Juan Catalan there were witnesses to him shooting Puebla and showed him six-packs with his photo circled and witness signatures. These were all fabricated. The case against Juan Catalan was eventually dismissed when his attorney was able to acquire video

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[2]See, for example, Magid (2001) and Rubin and Bloomekatz (2008).

[3]See Rubin and Bloomekatz (2008) and the transcript of testimony by LAPD Detective Martin Pinner during the murder trial of Jose Ledesma.

showing Catalan at an LA Dodgers game at the time of the shooting.

The "ruse" used by the LAPD detectives was legal. Further, state and federal courts in the U.S. have repeatedly upheld the right of police to lie to people they have in custody.

Related Literature and Remainder of Paper

To my knowledge there has been little, if any, work, in the economics, and law and economics literatures, focusing on the question of police lying/fabricating during interrogation. Much of the literature on settlement has focused on contract settings and other issues. See, for example, Shavell (1989), Shavell (1993), and Rosenberg and Shavell (2006). Work on plea bargaining, such as Grossman and Katz (1983), has focused more on efficiency issues. There is much recent work on evidence and on the fabrication of evidence that is related. This includes Bull (2008), Bull and Watson (2007), Bull and Watson (2004), Sanchirico (1999), Sanchirico (2000), Sanchirico (2001), Sanchirico and Triantis (2008). Sanchirico (2010) emphasizes the importance of incorporating fabrication into models of evidence.

Sanchirico and Triantis show that evidence fabrication in contract disputes can be helpful by reducing evidence cost. They suggest that allowing fabrication can be helpful. I believe they are the first to suggest situations for which fabrication should be allowed.[4] The setting they study assumes that the dispute goes to trial and focuses on a buyer-seller relationship in which the seller's incentive to perform is critical and the buyer has truthful evidence, in a probabilistic manner, following the seller's decision. Sanchirico and Triantis's main result is that the players can minimize ex ante evidence production cost (to implement a given difference in expected transfer) by inducing large actual transfers and evidence fabrication in evidence states that occur with low ex ante probability, and low actual transfers and little evidence production for those that occur with high ex ante probability. In this sense, there is arbitrage by shifting cost (and transfer amount) to evidence states that occur with low probability. In my model, allowing fabrication by police works in a different way. The simple idea here is that allowing fabrication leads to the suspect not receiving additional information about his chances at trial.

The law literature that has focused on the effects of Miranda rights on police interrogation has touched some upon police lying to suspects. Also the legal psychology literature has investigated issues related to interrogation. Some of these studies have addressed the circumstances that lead to false confessions. Magid (2001) suggests that all interrogation involves some degree of untruthfulness, and discusses limitations on some types of discussion. There is some debate as to whether the evidence on false confessions shows this to be a serious problem. Ofshe and Leo (1997) clearly suggest there are many examples of people who are incarcerated as the result of

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[4]Sanchirico has worked for quite some time on models that incorporate fabrication and Bull (2008) also allows for fabrication, but the novel result of Sanchiricho and Triantis (2008) suggests cases where allowing fabrication can improve efficiency.

police-induced false confession. White (2001) suggests that the empirical evidence indicates that pernicious interrogation practices can lead to false confessions to an extent that societal concern is warranted. Further, White notes that the empirical evidence on police-induced false confessions studied by Leo and Ofshe (1998) "seems to suggest that such confessions are mostly likely to occur in high profile cases." This is because police are under greater pressure to solve the crime and devote a lot more time and resources to doing so than they are able to for lesser crimes. Some studies, such as Weisselberg (2001), focus more on the details of how the Miranda rights are followed regarding questioning of suspects. Kassin, et. al. (2007), based on police survey results, found that 81 percent of suspects waive their Miranda rights. They also reported, "The typical interrogation often, but not always, includes confronting the suspect with evidence of his or her guilt and appealing to his or her self-interests." Additionally, their respondents estimated "that 69.48% of guilty suspects provide a confession" and "23.30% of innocent suspects provide some form of confession." Overall, this line of research is very relevant for the current paper, and faces the problem of the lack of observability of guilt or innocence of the problem in using empirical studies to understand lying by police. I suggest that the issues studied in these papers help to motivate the model presented here.

Additionally, it seems the training police interrogators typically receive may not provide a lot of guidance on the kinds of lies for them to tell suspects. Inbau et al. (2013), which presents "the most contemporary version" of the Reid Technique, the main interrogation method used by police in the U.S. and Canada, devotes fewer than five of 469 pages to "deception." Inbau et al. is often referred to as the "Reid Technique manual." They state the following:

> While the courts have consistently upheld the interrogator's use of deceptive evidence ploys, the interrogator should exercise great caution in utilizing them. In general courts recognize the practical necessity in allowing such tactics so long as they do not result in involuntary or false confessions.

Much of their discussion focuses on the rulings various state courts have made regarding this issue. However, a small portion of their discussion, particularly that which discusses court views on deception extrinsic and intrinsic to the facts of the case provides a small amount of guidance on the kinds of deception that may pose problems either for reliable confessions or for court-admissible confessions. Given the serious nature of these issues, this is a rather small amount of suggestions for police interrogators.[5] These issues are discussed further in Section 3

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[5]Certainly, they suggest that police only interrogate those suspects thought to be guilty, but as mentioned above, there are potentially issues with police being able to always assess those who are guilty or deceptive. While I could have studied a model that added the police assessment of guilt, the model studied here gets at the heart of the question without the added complexity.

The rest of the paper is organized as follows. Section 1 presents the basic model. The analysis is presented in Section 2. The implications of the model are discussed in Section 3. Section 4 concludes.

1 A Model of Interrogation and Plea Bargain

This section describes the model of interaction between a police officer, denoted by P, and a person accused of a crime, who is denoted by A. I assume that the accused knows whether he is guilty (G) or innocent (I), but P does not. The notion that the police officer potentially is aware of evidence against the accused and can convey that or fabricate evidence/lie is modeled by P observing whether an event occurs D or not N, while A does not, and then choosing whether to represent to A that the event occurred. A claim that the event occurred is denoted by d, and a claim that it did not occur is denoted by n. P's statement about whether the event occurred may involve a cost, which is denoted by γ. After observing P's choice, A chooses whether to confess. If A does not confess, the case goes to trial, and the court finds A guilty with a probability that depends on whether A is guilty and whether the event occurred. The timing is represented below.

Timing

1. A observes his guilt or innocence: $x \in \{G, I\}$. P does not observe x.

2. P observes whether event occurs. Denote by $e \in \{D, N\}$, where $e = N$ means the event did not occur and $e = D$ means the event did occur. The probability that the event occurs depends on x and is given by $q(x)$.

3. P makes announcement $m \in \{d, n\}$. The cost of the announcement is given by $\gamma : \{d, n\} \times \{D, N\} \to \mathbf{R}$. Also, A becomes aware of a reduction in punishment due to confessing instead of going to trial.

4. A confesses $(a = 1)$ or does not confess $(a = 0)$.

5. If the offer was rejected, they go to trial. The probability A is found guilty at trial is denoted by ρ, where $\rho : \{G, I\} \times \{D, N\} \to [0, 1]$. The cost of litigating to each side is c_A and c_P.

The reduction in punishment mentioned at time 3 could be either an anticipated reduction or one implied by police, but is not a choice variable for P. [6] In practice confession by an accused may not preclude a trial, but it would still be socially optimal

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[6]Even if the police imply a reduction, they typically would not have a lot of flexibility to set it. Often anticipated leniency can be a motivation for a suspect to confess. See, for example Magid (2001), and Ofshe and Leo (1997). Further, it has been suggested that the "minimization" technique, which involves the interrogator seeking to minimize the crime by providing scenarios that lend moral justification for the crime, can lead to the belief that leniency will follow even if leniency was not explicitly promised. See Kassin and McNall (1991). Inbau et al. (2013) discuss promises

that the guilty confess and the innocent not confess. An accused confessing during interrogation typically provides a much stronger case against him. So the model here simply assumes that the confession does not result in trial.

I assume that $q(G) > q(I)$ or that the event is more likely to occur if the accused is guilty. This can be thought of as whether the event occurs provides some information to the court about the accused's guilt or innocence, which relies on the prosecution being prohibited from fabricating evidence at trial.[7] That is, the evidence is probative.

The probability that A is found guilty at trial $\rho(x, m)$ is assumed to depend on the values of x and e in the following way: $\rho(G, D) > \rho(G, N) > \rho(I, D) > \rho(I, N)$. Thus, the guilty accused is more likely to be found guilty at trial, regardless of whether the event actually occurs, and the event occurring increases the probability of the accused being found guilty whether he is actually innocent or guilty. Note that the event occurring/the evidence actually existing is not sufficient for the accused to be convicted with certainty.[8]

Going to court is costly for both P and A. For simplicity assume $c_P(a) = c_A(a) = c(a)$. Let

$$c(a) = \begin{cases} 0 & \text{if } a = 1 \text{ (if accepts/confesses)} \\ k > 0 & \text{if } a = 0 \text{ (if does not accept/confess)} \end{cases}.$$

Assume the set of possible punishments is given by $F = \{H, R, 0\}$, where $f \in F$ denotes the length of sentence imposed on the accused. H denotes the punishment imposed on A if he is found guilty at trial, and R denotes the punishment imposed on A if he accepts P's offer (confesses). The idea is that the punishment is less severe if A confesses so $H > R > 0$. If A is found not guilty, his punishment is 0.

Generally, P's payoff could be given by $u_p(f, \gamma(m, e), c(a))$. I assume that P is only concerned with a conviction, regardless of the penalty imposed. The idea is that the punishment imposed under the plea agreement is sufficiently high that P is roughly indifferent between an immediate conviction resulting from a confession or conviction later at trial. This rules out that P may wish for a suspect he suspects is

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of leniency that are not considered coercion. These include promises to recommend a low bail or to say the suspect cooperated with investigators (p. 424). Importantly, they also state (p. 369), "As with threats, although to a lesser degree, a promise of leniency may have the effect of inducing an innocent person to confess." They also state, "To allow a suspect to believe that it may be beneficial if he tells the truth, the Reid Technique takes advantage of one of the fundamental principles of human nature..." In *United States v. Harris* the court stated, "Police are free to solicit confessions by offering to reduce the charges, so an offer of leniency was not coercion."

[7]Additionally, whether the event occurs provides some information to P about A's guilt or innocence so P updates his belief that A is guilty. However, the assumed preferences for police, which seem to fit with the observations in Magid (2001), and Ofshe and Leo (1997).

[8]If the event occurring would lead to conviction with certainty, lying/fabricating by police may be viewed differently.

guilty to go to trial to potentially receive a longer sentence.[9] This simplification is given by the following. Let

$$v = \begin{cases} 1 & \text{if } f > 0 \\ 0 & \text{if } f = 0 \end{cases}.$$

So

$$u_P = w(v) - \gamma(m, e) - c(a),$$

where $w(1) > w(0)$. I assume that A is concerned with the length of his sentence and let

$$u_A = z(f) - c(a),$$

where $z(H) < z(R) < z(0) = 0$.

Since A doesn't observe whether the event occurs, but observes P's statement m, A has an updated belief, given m and x, about ρ, which is denoted by $\phi(x, m)$.

2 Analysis of Lying/Fabrication by Police

The analysis of whether allowing police to lie/fabricate evidence is helpful or harmful is interesting only if the decision of one type of the accused is potentially influenced by the police officer's information. This requires that for one type of A, he would prefer to confess when the event has occurred and to not confess when the event has not occurred. If this were not the case, it would be that either, regardless of their

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[9]It also rules out that the police officer simply wishes to question the accused to try to assess whether the suspect is guilty. If the police office believes the accused is guilty, it is reasonable to assume the police officer wants a conviction. Since I am considering a situation where the accused is being asked to confess, this makes sense.

Additionally, common police investigation techniques begin with a pre-interrogation interview and then follow with interrogation once the police officer is convinced that the person is being deceptive (see, for example, Kassin, Appleby, Perillo (2010)). So, it seems, that only those believed to be guilty are interrogated. However, it has been suggested that the typical police training in the U.S. and Canada may not prepare investigatores to detect deception much, if any better, than untrained people are able to. Meissner and Kassin (2002) tested "experienced samples of police investigators" from Florida and Ontario by asking them to watch an interview of someone who may or may not have committed a mock crime. They found that the "overall accuracy" for police investigators and untrained student participants "was not significantly different." They note, "Despite the assumption that such programs enhance accuracy, however, published psychological research has generally failed to demonstrate performance increments as a function of special training or prior law enforcement experience (Bull, 1989; DePaulo & Pfeifer, 1986)." Further, they suggest that police investigators were significantly more confident in their judgments

In the survey of law enforcement interrogators by Kassin et al. (2007), responding interrogators on average said that they can assess truthfulness of an accused with 77 percent accuracy, which is presented as suggesting overconfidence given the findings of Vrij (2000). Further, since it seems that police-induced false confessions mostly occur in high profile cases, which result in pressure on police to solve the crime and allows them more time to interrogate suspects (see White (2001)) this assumption seems to fit the relevant case.

beliefs about whether the event occurred, both types would confess or both types would not confess. Further, note that if type I is the one for whom whether the event occurs matters, then, due to the assumptions on ρ, type G will confess regardless of his belief about whether the event occurred.

Observation 1: *To analyze allowing P to lie/fabricate evidence requires assuming that at least one type of A will condition his behavior on P's announcement, which is equivalent to assuming for some $x \in \{G, I\}$, $\rho(x, D)z(H) - k < z(R) < \rho(x, N)z(H) - k$.*

Theorem 1 shows that when it is costless for P to make a statement/present evidence and A conditions on P's statement, P will not be truthful. In this case, P's statement is a cheap message so if A conditions his action on P's statement, P will have the incentive behave in the same manner regardless of whether P observes the event. Given the simple setting here, I focus on perfect Bayesian equilibria.

Theorem 1: *If it is costless for P to present evidence/make a statement, in equilibrium, regardless of whether the event is actually observed by P, P's statement will be uninformative unless A's behavior does not depend on P's announcement (both types of A will behave the same regardless of any inference from P's announcement). That is, P will not select a value of m following D that differs from the value of m he selects following N.*

Proof: Without loss of generality, consider whether it's possible to have an equilibrium such that following D P selects d and following N he selects n. First, consider the case in which at least one type of A conditions his behavior on P's announcement m. This implies, for some x, $\rho(x, D)z(H) - k < z(R) < \rho(x, N)z(H) - k$. Since P will always prefer that A confess, following either $e = D$ or $e = N$, P will deviate.

If, instead, the behavior of A^I and A^G is not influenced by whether D or N occurred, there is an equilibrium such that following D P selects d and following N he selects n. This is because although A will update his belief about ρ given P's choice of e, it will not influence A's behavior. *Q.E.D.*

Given the preferences of P and the properties of ρ, adding a cost for P to disclose or fabricate evidence has little effect on the results.

Lemma 1: *Assume A interprets d to mean "D occurred," and for some x, $\rho(x, D)z(H) - k < z(R) < \rho(x, N)z(H) - k$. P will always disclose d following D. Following N, if P's expected payoff is high enough to offset the cost, P will disclose d. Otherwise, P will disclose n.*

Proof: With a cost of "lying" that is larger than the cost of "truth telling" and an interpretation of d to mean that D occurred (and n to mean that N occurred), P will

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not disclose n following D because n will deter at least one type of A from confessing and disclosure of n is more costly to P.

Further, P's decision following N depends on the cost of disclosing d. If $w(1) - \gamma(d, N) > \psi(n)\rho(G, N)w(1) + [1 - \psi(n)]\rho(I, N)w(1) - \gamma(n, N) - k$. Q.E.D.

So P's decision when he bears a cost to make a statement depends on the relative cost of lying to that of truth-telling. With cost, it's the case that either the cost is high enough that P will not lie/fabricate evidence or the cost is low enough that P will lie/fabricate evidence. In the case where the cost is high enough that P does not lie/fabricate, there is no need to be concerned with whether P should be allowed to lie/fabricate. In the case where the cost is low enough that P will lie/fabricate, the cost is not relevant for understanding the effect of allowing lying/fabricating on whether A behaves in a way that is socially desirable. Given this, I focus on the case where P's statements/lying/fabricating are costless.

It is intuitive to think of lying/fabricating as corresponding to P selecting n when D has occurred or d when N has occurred. Since there are only two possible events and two statements/evidence for P it is reasonable to think of this kind of meaning being attached to P's statements/evidence. The important idea is that, by Theorem 1, when P can lie there is not an equilibrium in which A behaves differently following N and D because A does not obtain information from P's statement/evidence. When P is not permitted to lie/fabricate, A obtains information from P's statement/evidence. Regarding the cost structure, the cost being sufficiently high is analogous to a binary cost setting, as discussed in Bull (2008), where P cannot lie.[10] When the cost is sufficiently low, it is similar to the costless setting. Unlike the model studied by Bull (2008) there is not a contract or court imposing outcomes conditional on P's behavior.

Type x's Behavior and the Effects of Lying/Fabrication

I now focus on describing the effects of allowing lying/fabrication of evidence. As described in Observation 1, for the lying/fabricating to influence the behavior of the accused requires that for either type G or I, the accused wishes to confess if D has occurred and wishes to not confess if N has occurred. That is, for some $x \in \{G.I\}$,

$$\rho(x, D)z(H) - k < z(R) < \rho(x, N)z(H) - k.$$

So the two cases that are relevant are:

1) $\rho(G, D)z(H) - k < \rho(G, N)z(H) - k < \rho(I, D)z(H) - k < z(R) < \rho(I, N)z(H) - k,$

which implies type I's behavior is influenced by P's announcement and type G confesses, and

2) $\rho(G, D)z(H) - k < z(R) < \rho(G, N)z(H) - k < \rho(I, D)z(H) - k < \rho(I, N)z(H) - k,$

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[10]See also Bull and Watson (2004) and (2007).

which implies type G's behavior is influenced by P's announcement.

Given the assumptions on ρ, the ordering of A's payoffs from going to trial in the various states of the world is fixed. So the different possible cases are only determined by the relative value of the accused's payoff from confessing $z(R)$. When for the accused of type x, it's the case that $\rho(x, D)z(H) - k < z(R) < \rho(x, N)z(H) - k$, type x would confess if he knew that D had occurred and would go to trial if he knew that N had occurred. When P is not allowed to lie/fabricate, the accused is informed as to whether the event occurred and will behave as described. However, when P is allowed to lie, he always says d, as noted above. So then A's decision depends on his expected payoff of going to trial, which is given by $q(x)\rho(x, D)z(H) + [1 - q(x)\rho(x, N)z(H) - k$, versus his payoff from confessing $z(R)$.

The decision for both type G and type I is similar, but, as assumed, it is socially optimal for type G to choose to confess and for type I to go to trial. Since it's preferred that the two types choose opposite actions, I evaluate the types separately.

I begin with the case where allowing P to lie potentially influences the decision of type I of the accused. Then I analyze cases where, instead, type G's decision is influenced. Naturally, these cases depend on ρ, z, H, R, and k. I take these as given, and later discuss some policy implications of the values of the punishment values.

Type I's Decision is Influenced by P's Announcement

It's possible that allowing police to lie/fabricate evidence during interrogation could lead to type I confessing when he would not confess if police were not allowed to lie.

Theorem 2: *Consider $\rho(I, D)z(H) - k < z(R) < \rho(I, N)z(H) - k$. When lying/fabricating is not allowed the innocent accused will not confess in N. However, when lying is allowed and $\frac{z(R)+k}{z(H)} < q(I)\rho(I, D) + [1 - q(I)]\rho(I, N)$, the innocent accused will confess, even following N.*

Proof: When P cannot lie, in equilibrium A^I does not confess following N and confesses following D, which is implied by the assumption

$$(a) \quad \rho(I, N)z(H) - k > z(R) > \rho(I, D)z(H) - k.$$

When P is allowed to lie, A^I confesses if

$$(b) \quad z(R) > q(I)\rho(I, D)z(H) + [1 - q(I)]\rho(I, N)z(H) - k,$$

which is equivalent to

$$\frac{z(R) + k}{z(H)} < q(I)\rho(I, D) + [1 - q(I)]\rho(I, N).$$

To show that values of q and ρ exist so that (a) and (b) can be satisfied, combine the left hand side of (a) with (b) to yield

$$\rho(I,N)z(H) - k > q(I)\rho(I,D)z(H) + [1 - q(I)]\rho(I,N)z(H) - k.$$

Simplifying yields

$$\rho(I,N) < \rho(I,D),$$

which holds by assumption. Q.E.D.

So when $\rho(I,D)z(H) - k < z(R) < \rho(I,N)z(H) - k$ and $\frac{z(R)+k}{z(H)} > q(I)\rho(I,D) + [1 - q(I)]\rho(I,N)$, allowing police to lie/fabricate evidence during interrogation results in an innocent accused confessing who would not confess if lying/fabricating were not allowed. As noted above, when this is the case, type G, the guilty accused, confesses regardless of P's statement.

So in this case when lying/fabricating is allowed, both the guilty and innocent accused will confess. This does not fit with the socially optimal outcome of the guilty confessing and the innocent going to trial. The possibility of an innocent person confessing to obtain a reduced sentence instead of risking going to trial is a very real concern. In my model, although there is some possibility of an innocent person being found guilty at trial, that probability is less than the probability that a guilty person is found guilty.

However, it may be the case that allowing P to lie/fabricate evidence during interrogation is helpful in that it induces type I who would confess following D to not confess.

Theorem 3: *Consider $\rho(I,D)z(H) - k < z(R) < \rho(I,N)z(H) - k$. When lying/fabricating is not allowed the innocent accused will confess in D. However, when lying is allowed and $\frac{z(R)+k}{z(H)} > q(I)\rho(I,D) + [1 - q(I)]\rho(I,N)$, the innocent accused will not confess, even following D.*

Proof: When P cannot lie, in equilibrium A^I does not confess following N and confesses following D, which is implied by

$$(c) \quad \rho(I,N)z(H) - k > z(R) > \rho(I,D)z(H) - k.$$

When P is allowed to lie, A^I does not confess, which is implied by

$$(d) \quad z(R) < q(I)\rho(I,D)z(H) + [1 - q(I)]\rho(I,N)z(H) - k.$$

This is equivalent to

$$\frac{z(R) + k}{z(H)} > q(I)\rho(I,D) + [1 - q(I)]\rho(I,N).$$

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To show that values of q and ρ exist so that (c) and (d) can be satisfied, combine the right hand side of (c) with (d) to yield

$$q(I)\rho(I,D)z(H) + [1 - q(I)]\rho(I,N)z(H) - k > \rho(I,D)z(H) - k.$$

Simplifying yields

$$\rho(I,N) < \rho(I,D),$$

which holds by assumption. *Q.E.D.*

In this case allowing lying/fabricating during interrogation is helpful because it results in the innocent accused being uninformed about whether police have the particular evidence in question and the innocent accused does not confess. Being in a situation where the innocent accused would confess, suggests that, at least for that particular case, the reduced punishment and the punishment for someone found guilty at trial are not properly set.

Whether allowing lying/fabricating by police is helpful or harmful depends on which case applies, which is described as follows.

Corollary 1: *Suppose* $\rho(I,N) < \frac{z(R)+k}{z(H)} < \rho(I,D)$. *If*

$$\frac{\rho(I,D) - \frac{z(R)+k}{z(H)}}{\rho(I,D) - \rho(I,N)} < q(I),$$

allowing lying is harmful. If

$$\frac{\rho(I,D) - \frac{z(R)+k}{z(H)}}{\rho(I,D) - \rho(I,N)} > q(I),$$

allowing lying is helpful.

Type G's Decision is Influenced by P's Announcement

I now consider the case where type G's behavior is influenced by his belief about whether the event occurred.

It's possible that allowing police to lie/fabricate evidence during interrogation could lead to type G confessing when he would not confess if police were not allowed to lie. However, it's also possible that allowing police to lie/fabricate evidence during interrogation could lead to type G not confessing when he would confess if police were not allowed to lie. I explore both of these scenarios and the situations under which they occur.

I begin with the case where allowing lying/fabricating is helpful in that it induces the guilty accused to confess when he would not if lying/fabricating were not allowed.

Theorem 4: *Consider $\rho(G, D)z(H) - k < z(R) < \rho(G, N)z(H) - k$. When lying/fabricating is not allowed the guilty accused will not confess in N. However, when lying is allowed and $\frac{z(R)+k}{z(H)} < q(G)\rho(G, D) + [1 - q(G)]\rho(G, N)$, the guilty accused will confess, even following N.*

Proof: The proof is analogous to that for Theorem 2 and is, thus, omitted.

When the police officer cannot lie/fabricate, the guilty accused knows whether the event has occurred and can accurately assess his prospects of going to court. So, here, the guilty accused confesses only when the event has occurred, and does not confess when the event has not occurred. However, when the police officer is allowed to lie/fabricate, the accused gets no information from the police officer's statement. So, when the guilty accused's prior beliefs make confessing optimal, the guilty accused confesses.

In some sense this fits with the somewhat common argument for allowing lying/fabrication in interrogation, which suggests that if an accused is swayed by a bit of lying then he is probably guilty. However, as in Theorem 2, this may not be a reasonable logic in that an innocent person accused of a crime may confess to avoid the risk of a harsher punishment should he lose at trial.

Further, it may be that allowing lying/fabricating is unhelpful with respect to a guilty accused.

Theorem 5: *Consider $\rho(G, D)z(H) - k < z(R) < \rho(G, N)z(H) - k$. When lying/fabricating is not allowed the guilty accused will confess in D. However, when lying is allowed and $\frac{z(R)+k}{z(H)} > q(G)\rho(G, D) + [1 - q(G)]\rho(G, N)$, the guilty accused will not confess, even following D.*

Proof: The proof is analogous to that for Theorem 3 and is, thus, omitted.

So when type G's decision is influenced by P's announcement, allowing lying can be helpful or harmful, which is described below.

Corollary 2: *Suppose $\rho(G, N) < \frac{z(R)+k}{z(H)} < \rho(G, D)$. If*

$$\frac{\rho(G, D) - \frac{z(R)+k}{z(H)}}{\rho(G, D) - \rho(G, N)} < q(G),$$

allowing lying is helpful. If

$$\frac{\rho(G, D) - \frac{z(R)+k}{z(H)}}{\rho(G, D) - \rho(G, N)} > q(G),$$

type G allowing lying is harmful.

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3   Some Implications of Allowing Fabrication

The probabilities, cost of going to court, punishments, and punishment payoffs are taken as given. It is clear that generally allowing lying/fabrication cannot always help.

Although in practice we cannot observe either whether an accused person is actually guilty or innocent or the values of ρ, we can consider reasonable relationships between ρ and q to provide some guidance in applying the results.[11] This also emphasizes a general tension regarding the reduction (or anticipated reduction) in sentence or severity of charges the accused receives for confessing. If the sentence when the accused confesses is too low/the punishment for being found guilty at trial is too high, the innocent accused may be induced to confess.

Observation 2: *Taking q, ρ, k, and $z(H)$ as given, a larger value of $|z(R)|$ reduces the scope for being in the range where allowing lying by police is helpful. However, if $|z(R)| < |z(H)|$, there is scope for being in the range where allowing the police to lie is harmful.*

I suggest that this fits with the general reluctance of courts to allow threats of harsh punishments for not confessing and with promises of considerable leniency for the suspect confessing.

On the other hand, if $|z(R)|$ is too high, the incentive for the guilty accused to confess is reduced. To some extent how society views "type I" and "type II" errors influences how to interpret the findings of the model. Generally, an innocent accused being convicted is considered a type I error, while a guilty accused being found innocent is considered a type II error. Here, the distinction between the two is a bit less clear since there is scope for an accused who does not confess to be convicted at trial. The innocent accused confessing is clearly a type I error, but the guilty not confessing may not constitute a type II error as he may be convicted at trial (with a higher probability than the innocent). Typically, a tradeoff between type I and type II errors is considered. Whether the accused is guilty or innocent affects whether the value of $z(R)$ potentially causes a type I or type II error.[12]

Here, I focus on the probative properties of the evidence, which are represented by ρ and q in considering the tradeoffs. The values of ρ represent how persuasive the evidence is, at trial, against the guilty and against the innocent. The likelihood of the evidence being available when the accused is type x is given by $q(x)$.

Returning to Corollaries 1 and 2, note that $\rho(x, D) - \frac{z(R)+k}{z(H)} < \rho(x, D) - \rho(x, N)$ in both cases considered, for $x = I, G$. Let $\beta(x) \equiv \rho(x, D) - \rho(x, N)$. If the evidence,

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[11]As noted above, this makes the question better suited for theoretical analysis than empirical analysis.

[12]One might imagine that guilty and innocent accused have different payoffs from the same sentences. However, since I do not have a strong sense of how to set these relative to each other and presume that everyone dislikes time in prison, I've not made this distinction.

when it exists, is quite convincing at trial regardless of the accused's type, we should expect that $\beta(x)$ is large for both $x = I$ and $x = G$. In this case, allowing lying has more scope for inducing both types of accused to confess.

Observation 3: *Suppose $\beta(x)$ is large for both $x = I$ and $x = G$. There is more scope for allowing lying to be helpful by inducing the guilty to confess, and harmful by inducing the innocent to confess.*

Some intuition is that neither type gets information when lying is allowed and the effect of the event having actually occurred is damaging to both types.

However, if the innocent accused can easily refute the evidence, if it exists, so that $\beta(I)$ is small, there is less scope for allowing lying to cause harm by inducing the innocent to confess.

Observation 4: *Suppose $\beta(G)$ is large and $\beta(I)$ is small. There is more scope for allowing lying to be helpful by inducing the guilty to confess, and by inducing the innocent to not confess.*

If $q(G)$ is large relative to $q(I)$, the accused being guilty significantly increases the likelihood that the event is observed. We may expect this to correspond to a large value of $\beta(x)$ for both $x = I$ and $x = G$. In this case, there is more scope for allowing lying to be helpful.

Observation 5: *Suppose $q(G)$ is much larger than $q(I)$. There is more scope for allowing lying to be helpful by inducing the guilty to confess, and by inducing the innocent to not confess.*

Some intuition is that neither type gains information from the police officer's statement, but the probability of the event occurring for the innocent type is much lower than that for the guilty type.

These observations indicate that the effects of allowing lying depend a great deal on the nature of the evidence in question. These deal with the probative features of the evidence as they relate to the extent to which the evidence shows an increased probability that the accused committed the crime. Similar types of evidence may have different features following different suspected crimes. So, to some extent, views on whether lying/fabricating by police should be allowed depend on one's view about the nature of the evidence police are likely to lie about or fabricate. However, given that lying/fabricating is currently allowed, these findings suggest general guidelines for police policy and training regarding the kinds of lying and fabrication that should be allowed.

The discussion of lying about evidence and fabrication of evidence and related cases presented in Inbau et al. (2013) suggests that courts make a distinction between lies told about evidence and "manufactured documentation," especially when it is

about laboratory tests. Lies about evidence are often not viewed as coercive, and, thus, are allowed. That use of fabricated laboratory test results, such as a document showing that someone's DNA is a match for that found at a crime scene, is not permitted during interrogation certainly fits with Observations 3 and 4. However, allowing lies about test results may not. It seems that the typical limitations are based on what is deemed coercive–not on what procedures are least likely to elicit false confessions. The results here suggest that the probative nature of the purported evidence and the accused's ability to refute such evidence, should it exist, at trial are of critical importance to whether it might induce an innocent person to confess. This suggests that in order to minimize the risk of false confessions police ought to be trained to account to be sensitive to these factors and courts ought to incorporate these ideas into their standards. It also suggests that coercion may not be clearly defined.

4   Conclusion

This paper presented a simple model of interrogation in which a police officer has the opportunity to lie to an accused person about whether the police have some evidence/have observed an event. The primary focus was on how allowing police to lie/fabricate evidence affects the behavior of the accused in choosing whether to confess. Ideally, the guilty accused would confess and the innocent accused would not confess/go to trial. As demonstrated, allowing lying can be helpful or harmful with respect to each type of accused. This interesting tension was explored. In addition to the punishment payoffs and cost of going to court, the probability the event occurs and the effect of the event occurring on the probability the accused is found guilty at trial are important for addressing whether allowing lying/fabrication is beneficial. The results have some implications for the usefulness of allowing police to lie/fabricate based on the probative nature of the evidence. Further the results suggest a need for updating the way that police interrogators are trained and the standards that courts apply.

Since the results, and the question generally, depend on whether the accused is actually guilty, it is, unfortunately, difficult to produce testable implications. However, this lack of observability of guilt or innocence suggests that this question is better suited to a theoretical, instead of empirical, study. A study based on experiments involving mock criminal activity could potentially be used to test the implications of this study. As the punishment payoffs for the plea bargain/confessing and being found guilty at trial, may vary widely in practice, the major focus for drawing practical conclusions was the probabilities, given guilt or innocence and whether the event occurred/evidence existed, and the probability, as a function of the accused's guilt or innocence, of the event occurring. If the evidence in question is quite likely to exist when the accused is guilty and not very likely to exist when the accused is innocent, there can be more scope for allowing lying/fabricating to be helpful. How-

ever, when the innocent cannot refute the evidence at trial, if it exists, there is more scope for allowing lying/fabricating to be harmful because it induces the innocent to confess. As the use of the ruse against Juan Catalan, in the Martha Puebla murder case discussed in the Introduction, suggests, it may be difficult for an innocent person to refute the evidence. If Catalan had not been at a Dodgers game and there had not been a video recording of him, he likely would have had much more difficulty producing "rock solid" evidence that he was somewhere else at the time of Puebla's murder. However, it may be that in many cases an innocent person can provide a credible alibi.

It is not clear what features of the evidence are most common in practice. I suspect that much of the evidence police officers choose to lie about during interrogation is evidence that, if it existed, would be quite damaging at trial to an innocent accused. Naturally, if one feels that police only arrest guilty suspects and/or that an innocent accused ought to be able to easily refute the evidence they are being lied to about, then one may favor allowing police to lie/fabricate evidence during interrogation. I suggest that, as in Juan Catalan's case, in practice, this is not always the case. However, using insights about the properties of evidence may help avoid false confessions and allow lying about evidence to help induce guilty suspects to confess. I recommend that police training as well as court treatment of lies about evidence during interrogation take this into account, and suggest that more work in this area is needed.

References

Bull, Jesse. 2008. "Mechanism Design with Moderate Evidence Cost." *Contributions in Theoretical Economics*, 8, article 15.

Bull, Jesse and Joel Watson. 2007. "Hard Evidence and Mechanism Design." *Games and Economic Behavior*, 58, 75–93.

Bull, Jesse and Joel Watson. 2004. "Evidence Disclosure and Verifiability." *Journal of Economic Theory*, 118: 1–31.

Bull, Ray. 1989. "Can Training Enhance Detection of Deception?" In J.C. Yuille (Ed.), *Credibility Assessment* (83–99). London: Kluwer Academic Publishers.

DePaulo, B.M., J.I. Stone and G.D. Lassiter. 1985. "Deceiving and Detecting Deceit." In B.R. Schlenker (Ed.) *the Self and Social Life* (323–370). New York: McGraw-Hill.

Grossman, Gene M. and Michael L. Katz. 1983. "Plea Bargaining and Social Welfare." *The American Economic Review*, 73, No. 4: 749–757.

Inbau, Fred E., John E. Reid, Joseph P. Buckley, and Brian C. Jayne. 2013. *Criminal Interrogation and Confessions*, 5th Edition. Jones & Bartlett Learning.

Kassin, Saul M., Sara C. Appleby, and Jennifer Torkildson Perillo. 2010. "Interviewing Suspects: Practice, Science and Future Directions." *Legal and Criminological Psychology*.

Kassin, Saul M., Richard A. Leo, Christian A. Meissner, Kimberley D. Richman, Lori H. Colwell, Amy-May Leach, and Dana La Fon. 2007 "Police Interviewing and Interrogation: A Self-Report Survey of Police Practices and Beliefs." *Law and Human Behavior*, 31: 381–400.

Kassin, Saul M. and Karlyn McNall. 1991. "Police Interrogations and Confessions: Communicating Promises and Threats by Pragmatic Implication." *Law and Human Behavior* 15: 233–251.

Leo, Richard A. and Richard Ofshe. 1998. "The Consequences of False Confessions: Deprivations of Liberty and Miscarriages of Justice in the Age of Psychological Interrogation." *Journal of Criminal Law and Criminology*, 88: 429.

Magid, Laurie. 2001. "Deceptive Police Interrogation Practices: How Far Is Too Far?" *Michigan Law Review*, 99:168–1210.

Meissner, Christian A. and Saul M. Kassin. 2002. "'He's Guilty!': Investigator Bias in Judgments of Truth and Deception." *Law and Human Behavior*, 26: 469–480.

Ofshe, Richard J. and Richard A. Leo. 1997. "The Decision To Confess Falsely: Rational Choice and Irrational Action." *Denver University Law Review*, 74: 979–1122.

Rosenberg, David and Steven M. Shavell. 2006. "A Solution to the Problem of Nuisance Suits: The Option to Have the Court Bar Settlement." *International Review of Law and Economics*, 26: 42.

Rubin, Joel and Ari B. Bloomkatz. 2008. "Interrogation, then Revenge." *Los Angeles Times.* July 2, 2008.

Sanchirico, Chris. 1999. "Relying on the Information of Interested - and Potentially Dishonest - Parties." it American Law and Economics Review.

Sanchirico, Chris. 2000. "Games, Information, and Evidence Production: With Application to English Legal History." *American Law and Economics Review*, 2: 342–380.

Sanchirico, Chris. 2001. "Character Evidence and the Object of Trial." *Columbia Law Review*, 101: 1227.

Sanchirico, Chris. 2010. "Models of Evidence: Survey and Assessment." University of Pennsylvania Institute for Law & Economics Research Paper No. 10-28.

Sanchirico, Chris and George Triantis. 2005. "Evidentiary Arbitrage: the Fabrication of Evidence and the Verifiability of Contract Performance." *Journal of Law, Economics, and Organization*, 24:1.

Shavell, Steven M. 1993. "Suit versus Settlement When Parties Seek Nonmonetary Judgments." *Journal of Legal Studies*, 22: 1.

Shavell, Steven M. 1989. "Sharing of Information Prior to Settlement or Litigation." *Rand Journal of Economics*, 20: 183–195.

Weisselberg, Charles D. 2001. "In the Stationhouse after Dickerson." *Michigan Law Review*, 99: 1121–1167.

White, Welsh S. 2001. "Miranda's Failure to Restrain Pernicious Interrogation Practices." *Michigan Law Review*, 99: 1211–1247.