

A Theory of Judicial Deference

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Abstract

In many instances, appellate courts defer to lower courts and administrative agencies; the appellate court allows the other agent's decision to stand even though the appellate court has strong reason to believe that decision incorrect. We provide a model in which such deference is rational. Our model is set in a two-dimensional case space. One dimension reflects "global" facts that are known to everyone; the other dimension reflects "local" facts that are known only to the trial court or agency. The appellate court has a preferred legal rule or partition of the case space into two sets of cases: those decided "1" or "plaintiff prevails" and those decided "0" or "defendant prevails." The initial decision maker may, with some probability, be biased in the sense that it thinks a different partition is best. A one-period model identifies the basic tradeoff the appellate court faces between granting discretion to a potentially biased trial court or agency and ruling as a matter of law. Deference risks that a biased agent will decide the case wrongly from the appellate court's perspective. Ruling as a matter of law on the basis of global facts only ignores local facts and also risks error. The degree of deference granted balances these two risks. Intuitively, the model shows that cases where the global facts are inconclusive are the ones where the grant of discretion is most valuable.

We then extend the model to two periods and investigate the relationship between trial court or agency reputation and the standard of deference. Counter-intuitively, we find that close or hard cases in period 1 are the ones that reveal the most about the underlying preferences of the trial court or agency. As a result, these cases are the most valuable to

the appellate court for tailoring discretion in period 2. Hard cases make good law. We also consider how the model can be applied to any binary decision by a trial court or agency, including decisions like statutory interpretation, the shifting of attorney's fees, and the admission of expert witness testimony.

1 Introduction

Deference plays a critical role in the development and application of judge-made law. Appellate court judges review a trial court's findings of fact for clear error and its conclusion of law *de novo*. On matters involving the application of law to fact (was the defendant negligent?) appellate court judges sometimes defer and other times not.¹ Appellate court judges defer to an agency's – but not a trial court's – interpretation of statutes. With agencies, appellate court judges ask whether the agency's interpretation is reasonable, not whether the interpretation is correct. Appellate court judges defer to trial judge decisions on case management, decisions about whether to grant a new trial or admit expert testimony. Indeed, many appellate briefs and appellate opinions start with boilerplate about the standard of review, shorthand for the amount of deference the appellate court should grant the decision below.

As these examples illustrate, deference allocates the power to make decisions between the appellate courts and the initial decision-maker. In practice, this allocation is often seen as shifting and haphazard. The Supreme Court has stated that the distinction between a question of law and a question of fact is "vexing" and "unclear." Legal scholars complain that the deference step in an opinion provides a post-hoc rationalization for results reached on other grounds (cites).

In this paper, we develop a model of judicial deference to explore four questions: (1) When should appellate courts defer to decisions by agencies or trial court judges? (2) What form should that deference take? (3) What kinds of decisions are likely to receive deference? and (4) What causes the degree of deference to change over time? We show that the black letter law described above and its haphazard application is consistent with a rational appellate court

¹Acknowledging this tendency, Justice Scalia writes "we have in the past reviewed some mixed questions of law and fact on a *de novo* basis, and others on a deferential basis, depending upon essentially practical considerations." *Ornelas v. United States*, 517 U.S. 690, 700 (1996) (Scalia, dissenting).

operating with limited knowledge about some – but not all facts – and limited knowledge about the preferences of the actors it oversees. The optimal allocation of deference turns on the trial court or agency’s reputation and the relative value of "global" versus "local" information.

We first analyze a static model. A potentially biased trial court or agency hears a case. A case consists of two facts. In line with the institutional roles, the trial court or agency knows more than the appellate court. Specifically, the trial court or agency observes both facts; the appellate court sees only one. We assume that the appellate court’s preferred disposition of the case turns on both facts. For example, the appellate court’s preferred disposition of a case might turn on the text of the contract and the demeanor or credibility of the witnesses. The appellate court observes the text of the contract, but not witness testimony. We model as biased a trial court who weighs the fact it alone observes more heavily than the appellate court would prefer. Along similar lines, we might think of a biased agency as one who believes the fact over which it has technical expertise is the most important. In terms of our example, a biased trial court places undue weight on the witness testimony relative to the contractual text.

Quite intuitively, the model first establishes the optimal degree of discretion trades off harnessing the local knowledge of the trial court or agency and preventing abuse. If the appellate court always affirms (broad discretion) every disposition will be based on both facts. Broad discretion, however, comes at a cost of abuse if the trial court or agency is biased. If the appellate court affirms few decisions (narrow discretion), abuse can be prevented. But that means that many decisions will be based on only one fact, not two, increasing the chance of error.

The outcome of the appellate court’s static optimization problem is familiar to lawyers and judges. Suppose that the trial court rules for the plaintiff in a bench trial. In our model, the appellate court will overrule the decision if it sufficiently confident that the defendant should have prevailed instead. That conclusion will be based (1) what the appellate court observes and (2) a "plaintiff-favorable" inference about what it cannot observe. Not all cases will present the same costs and benefits of deference. Take a case where the text of the contract is unclear. The appellate court observes the text. It doesn’t reveal much if anything at all. As a result, witness testimony is critical. The appellate court is thus better off deferring to a possibly biased trial court instead of ruling solely on the basis of ambiguous contractual language. By contrast, consider a case where the text of the contract is pretty clear. The trial court decides the

case "against" the most natural reading of the text of the contract, citing the credibility of witness testimony conflicting with the text. In overruling the trial court, the appellate court can still make an error (it could be that the witness testimony was, in fact, overwhelming), but the error is much less likely to occur than in the case of the ambiguous contract.

Deference is also unproblematic when disagreement fails to raise significant concern. Again take the case of unclear contractual text. As noted, we model a "biased" trial court as weighing witness testimony too much relative to text. But when the text is unclear, such a bias causes little harm. The appellate court wants the disposition to turn almost exclusively on the witness testimony precisely because the global fact — the text — is inconclusive. As the text becomes clearer, the harm to the appellate court when the trial court pays insufficient attention to this evidence increases. Concerns about abuse naturally follow.

Throughout the analysis, the appellate court must decide what inference to make about the unknown fact. Trial court and agency reputation determine this inference. If, on the one hand, the trial court or agency has a good reputation, the appellate court will make an exceedingly strong inference about what it cannot observe. That, in turn, means that the appellate court will seldom overrule a decision: the trial court will be granted lots of discretion. On the other hand, if the trial court or agency has a lousy reputation, the appellate court will make a much weaker inference about the unobserved facts, leading to a much higher rate of reversal. Cases with the same "observable" fact — the same text of the contract — will be decided differently depending on the appellate court's view of the trial court or agency. Trusted trial courts, say, will receive deference. Untrustworthy trial courts won't. Variation in agency and trial court reputations lead to variation in the application of the deference standard. Indeed, although the same legal phrases — clear error, de novo, abuse of discretion — are used for the standard of review, the application of the standard will not be uniform.

After establishing this intuitive baseline, we next investigate what changes the degree of deference over time. We show that the trial court or agency might rule against his own preferences today to appear like a more trusted agent. Unlike the bulk of the literature on courts, in our model the trial court doesn't follow appellate court demands out of a fear of reversal. Instead, it "partially" complies with appellate court preferences to preserve its reputation. The "career concerns" of the trial court or agencies arise out of a desire to

maintain the ability to make future decisions with limited oversight.

Wanting to learn about the initial decisionmaker, we find that the appellate court has an incentive to give the agency or trial court a long leash in the beginning of the relationship. After all, it is only when the trial judge or agency is forced to make a call – i.e., the case lies within the bounds of discretion – that he has the potential to build or destroy his reputation.

Finally, we show that the law of deference changes the most in response to "close" or "hard" cases. In a hard case, the two appellate court choices – affirming the potentially biased trial court or overruling as a matter of law – result in a roughly equal chance that the case will be decided incorrectly. In these cases, bad trial courts are forced to reveal themselves. Recall that an easy case for deference arises when the contractual text is ambiguous. In that case, the fact that trial court weights the witness testimony too much causes little harm. As the text becomes less and less ambiguous, the bad trial court wants to discount this evidence as they are still heavily persuaded by the witness testimony. The good trial court, by contrast, weighs the text and the testimony appropriately from the appellate court's point of view. A hard case is one where the error from the bad court's bias – its incentive to discount some kinds of evidence – is just balanced against the error from ruling on the text alone. And it is precisely this case where, if granted discretion, the bad and good trial courts have the greatest degree of difference in the rate of resolving cases for and against the plaintiff.

Our model relates closely to several literatures, two from economics, one from legal scholars, and one from political science.

In the model, the appellate court has both imperfect information about the state of the world and incomplete information about the trial court's type. Economists have studied how a principal might delegate decision-making authority to a biased agent (Holmstrom (1977, 1984); Athey et al. 2005). The delegation models in political science have a similar structure (Huban & Shipan 2006). As in our model, the principal does not know the state of the world. As a result, the principal observes the agent's decision but is unable to condition the agent's incentives on both her decision and the state of the world. The principal must decide when to let the agent take some action on the real line. The incentive compatibility mechanism often is an interval delegation (Amador & Bagwell 2014). Specifically, the principal allows the agent to take actions within the interval and prohibits those outside the interval. Such models do not readily translate into the study of judicial deference. Trial courts and agencies make

decisions that are binary: Should the defendant be liable or not? Should the expert testimony be admitted or not? Does the Constitution allow corporations to lodge religious objections or not? In other words, the action space is dichotomous; the principal thus cannot create an interval. In our model, however, the appellate court has partial knowledge of the state of the world; it knows some “global” facts but not local ones. By setting the model in two dimensions, we are able to translate the action interval into an “interval” in the state space.

Second, our model integrates decisions about the scope of deference with a dynamic model of reputation-building. This aspect of the model draws on the literature on reputation in games with incomplete information. It is well-known that agents might act differently in the face of reputational consideration (Benabou & Laroque 1992; Morris 1998). Bad agents might mimic good ones; good ones might manipulate reported information to avoid appearing bad (Morris 1998). Our model falls within the class of reputation models where decisions do not perfectly reveal the agent’s type. For any case within the bounds of discretion, both good and rogue trial courts and agencies might find the defendant liable or not liable. The information relevant to reputation is the "rate" they do so. Different decision rates allow the appellate court to learn, albeit imperfectly, about the underlying trial court preferences. Our model directly addresses why trial courts and agencies want the appellate courts to hold them in high esteem. There are no monetary transfers between appellate courts and trial courts or agencies. In our model, the incentive for reputation building all comes from the agencies or trial court’s desire for future discretion.

Third, legal scholars have spent time on the standard of review, the key deference step in a judicial opinion (cites). Administrative law scholars have explored the positive question of whether appellate courts treat decisions by agencies different from decisions by trial courts and the normative question of whether they should (cites). We provide a framework that identifies the precise tradeoffs the appellate court faces and explains why the application of the doctrine takes the form it does.

Finally, the paper obviously relates to other models of judicial hierarchy. Reinganum and Daughety (2000) model trial court and appellate court interactions. The trial court finds facts and applies the law. This law isn’t known with certainty, however. Indeed, the appellate court has more information about the law than the trial court. The appellate court takes the findings of fact as given and then makes inferences about the law based on his own informative signal and the litigant’s decision to appeal. In their model, the trial court and the ap-

pellate court share preferences, but have different information about what the ultimate Supreme Court prefers. Our model, by contrast, presents a conflict between courts in the hierarchy over the appropriate dispositions and allows the trial court or agency to improve or destroy its reputation over time.

The paper proceeds as follows. Section 2 presents the one-period model and derives the optimal bounds of discretion in the static setting. Section 3 presents a series of application corresponding to the review of evidentiary rulings; the difference between questions of law, questions of fact, and mixed questions of law and fact; the constitutional fact doctrine; and the review of trial court and agency statutory interpretation. In this section, we show that the bounds of discretion respond intuitively to the relative importance of global and local knowledge in making the proper decision. Section 4 considers a two period model. It explores how deference responds to trial court or agency reputation. It also pinpoints which cases present the most potential to build or destroy the reputational capital of trial courts and agencies. Section 5 concludes.

2 The Model

Consider an interaction between an appellate court and a trial court. The trial court preferences might – but need not – conflict with the appellate court's. The sequence of play in the stage game is as follows. At the beginning of each period, the appellate court announces a legal standard that governs cases; this rule determines the amount of discretion granted the trial court. A "case" is drawn and presented to the trial court. Next the trial court renders judgment according to the legal rule prevailing at the beginning of the period and announces the disposition of the case. We imagine here a bench trial, where the trial court finds the defendant liable or not liable. The appellate court reviews the appeal of the disposition and must decide whether to set that decision aside and, possibly, announce a new legal rule. Traditionally, these settings are labeled mixed questions of law and fact. Examples include: Was the defendant negligent? Did the defendant engage in an intentional misrepresentation? Did the defendant breach his duty under the contract? Specifically, the trial court's decision involves both the assessment of facts and a conclusion whether liability should attach on those facts.

The model is set in a two-dimensional case space. A case is a point (x, y) in the unit square. The elements of a case are facts that speak to the question of

whether the defendant should be liable. The greater x or y , the greater the social harm from the defendant's activity and the greater the need to impose liability. Tracking their respective institutional roles, we assume the trial court knows more about the facts than the appellate court. The trial court alone observes y , while both the trial court and the appellate court observe x . As we gestured to in the introduction, the case might involve a breach of contract with the resolution depending on the text of the contract (observed by both the trial and appellate court) and testimony about the course of dealing between the parties (observed only by the trial court). Each factual element is distributed uniformly (and independently) on the unit interval $[0, 1]$. Each case $(x, y) \in [0, 1]^2$ is thus equally likely to be drawn at the beginning of the period.

The trial court and appellate court both have preferences over the disposition of the case in light of its view of the law. Preferences are defined by a "cut-line" of the unit square such that cases above the line have one disposition and cases below have the other. The appellate court prefers that the defendant be found liable if and only if

$$x + y \geq 1$$

The appellate court receives 0 if the case is decided correctly and it suffers a loss of 1 if the case is decided wrongly.

Trial courts come in two types. The "good" type occurs in the population with probability μ and shares the preferences of the appellate court. Hence, when exercising its discretion, the "good" type decides the case the way the appellate court prefers.

The "bad" type occurs in the population with probability $1 - \mu$. The bad type places more weight on what he alone observes. He still prefers liability in half the cases, but the mixture is different. Specifically, he prefers liability if and only if

$$\frac{cx}{1+c} + \frac{y}{1+c} \geq \frac{1}{2}$$

In this expression, $c \in [0, 1]$ represents the congruence of the appellate court and bad trial court preferences. If, say, $c = 0$, the bad trial court prefers that the defendant be held liable whenever $y > \frac{1}{2}$. Such a trial court consider legally relevant only the facts that he alone observes. If, on the other hand, $c = 1$, the bad trial court shares the appellate court's preference. Like the appellate court, both types of trial courts suffers a loss of 1 if a case is decided in a disfavored way and 0 otherwise.

At the beginning of each period, the appellate court selects the amount of discretion to grant the trial court. Recall that the appellate court observes only x . Hence its review of the trial court decision and any legal standard it announces can depend only on x . The appellate court's announced standard involves two cutpoints, or vertical lines, \underline{x} and \bar{x} . The lines say that if the x element of the case lies below \underline{x} , the trial court must find the defendant not liable as a matter of law. On the other hand, if the x element of the case lies above \bar{x} , the trial court must find the defendant liable as a matter of law. If the x element of the case lies between \underline{x} and \bar{x} , the appellate court grants discretion, affirming any decision reached in the lower court.

The model tracks the way lawyers and judges speak about judicial deference both to lower courts and to administrative agencies. In ruling for the defendant as a matter of law, for instance, the appellate court assumes that y has a high value – that is, the appellate court makes the most "plaintiff-friendly" inference possible. Despite this assumption, the appellate court rules for the defendant based on the location of element x , which is, say, quite small. Within the range of discretion the appellate court defers to the trial court's decision, recognizing that the trial court has a better sense of the y fact than the appellate court.

2.1 One-Period Benchmark

Formally, the timing runs as follows.

- (1) Nature draws a type of trial court.
- (2) The appellate court selects and commits to the discretion bounds.
- (3) Nature draws a case.
- (3) The trial court decides the case.
- (4) Payoffs are realized.
- (5) The appellate court reviews any appeal from below.

The bad trial court's pure strategy maps the set of cases and the set of discretion bounds into a finding of liability ($\sigma^b(x, y, \underline{x}, \bar{x}) = 1$) or no liability ($\sigma^b(x, y, \underline{x}, \bar{x}) = 0$). The good trial court's strategy, σ^g , is defined similarly. The appellate court's strategy is to pick a pair (\underline{x}, \bar{x}) – that is, bounds of discretion – from the unit interval such that $\underline{x} \leq \bar{x}$.

Given this is a one period interaction, both types of trial courts select their preferred outcome in cases within the range of discretion – the ones with an x element in the interval $[\underline{x}, \bar{x}]$. For cases outside the bounds, the trial courts have

a choice: they can follow the appellate court directive or not. The appellate court has committed to resolve the case as a matter of law in those regions. As a result, the ultimate outcome will be the same no matter what the trial court does. Thus, we assume the trial courts follow the appellate court's instructions outside the bounds.

Anticipating the trial courts' (optimal) behavior, the appellate court sets the discretion bounds to minimize

$$L = \frac{1}{2}\mu[\underline{x}^2 + (1 - \bar{x})^2] + \frac{1}{2}(1 - \mu) \left\{ \underline{x}^2 + (1 - \bar{x})^2 + (1 - c) \left(\left(\frac{1}{2} - \underline{x} \right)^2 + \left(\bar{x} - \frac{1}{2} \right)^2 \right) \right\}$$

or

$$L = \frac{1}{2} \left\{ \underline{x}^2 + (1 - \bar{x})^2 + (1 - \mu)(1 - c) \left[\left(\frac{1}{2} - \underline{x} \right)^2 + \left(\bar{x} - \frac{1}{2} \right)^2 \right] \right\}$$

The optimal breadth of discretion balances two sources of error: (1) a failure to harness "local knowledge," represented by the first two terms in the second expression above and (2) bias, represented by the third term.

Figure 1 provides the illustration. The orange line is the cutline for the appellate court. In cases above the orange line, the appellate court prefers liability. For cases below, the appellate court prefers no liability. The green line represents the cutline for the biased trial court. Again, in cases above the green line, the biased trial court prefers liability. In cases below, it prefers no liability. The two black vertical lines represent the discretion bounds.

To understand the errors the appellate court is trying to minimize, start with bias. Suppose that the case has an element x that lies in the range of discretion. As a result, the appellate court defers and affirms the trial court decision. Such deference will be a mistake if (1) the trial court is bad and (2) the case happens to lie in the area where the two courts disagree. Visually, in figure 1 the red triangle are cases where the appellate court mistakenly affirms the bad trial court's liability finding. The pink triangle are cases where the appellate court mistakenly affirms the bad trial court's finding of no liability. In the appellate court's loss function, these areas are the terms $(1 - c)\left(\frac{1}{2} - \underline{x}\right)^2$ and $(1 - c)\left(\bar{x} - \frac{1}{2}\right)^2$, weighted, of course, by the probability a bad trial court decided the case.

The second error arises because rulings on matters of law are based on lim-

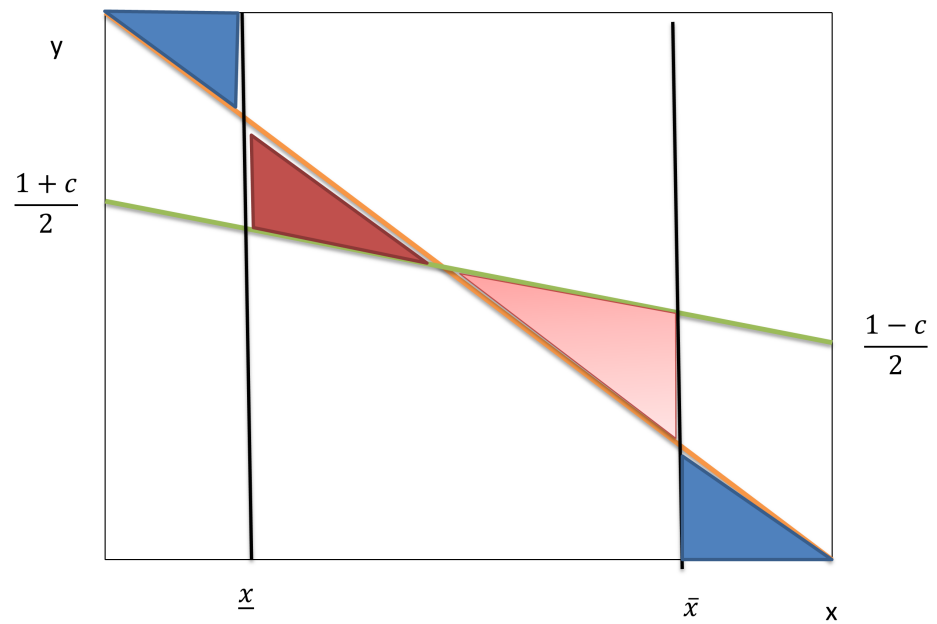


Figure 1: Appellate Court Errors: Static Model

ited information. The appellate court might declare a defendant not liable based solely on a low value of x . The unobserved value of y might be "large," making $x + y > 1$. In this circumstance, the appellate court mistakenly acquits. Likewise, the appellate court might declare a defendant liable as a matter of law based on a high value of x . The unobserved value of y might be small, making $x + y < 1$. In this circumstance, the appellate court mistakenly convicts. In figure 1, the blue triangles represent this kind of error. In the loss function, these areas are the terms \underline{x}^2 and $(1 - \bar{x})^2$. The errors associated with ruling as a matter of law arise irrespective of the type of trial court.

The appellate court seeks to minimize L by selecting the bounds. Solving the first order conditions gives the one-period bounds of discretion.

$$\begin{aligned}\underline{x}^* &= \frac{1}{2} \left(\frac{(1 - \mu)(1 - c)}{1 + (1 - \mu)(1 - c)} \right) \\ \bar{x}^* &= \underline{x}^* + \frac{1}{1 + (1 - \mu)(1 - c)}\end{aligned}$$

Inspection reveals some comparative statics. First, if the bad trial court has perfectly congruent preference ($c = 1$), the appellate court grants complete discretion ($\underline{x}^* = 0$; $\bar{x}^* = 1$). As the bad trial court or agency becomes less congruent (c approaches zero) the appellate court grants less discretion. Second, the amount of discretion increases in the trial court's reputation (\underline{x}^* decreases in μ and \bar{x}^* increases with μ).

Third, the appellate court grants discretion even when it knows for sure that it faces the most biased trial court (when $\mu = c = 0$, \underline{x}^* is $\frac{1}{4}$ and \bar{x}^* is $\frac{3}{4}$). A grant of discretion, albeit limited, permits the appellate court to harness trial court's local knowledge of y even when the biased trial court ignores the value of x when rendering judgment. The local knowledge is most valuable when the case element x is close to $1/2$, meaning the appellate court could easily prefer that the case go either way (the proper outcome depends critically on the local knowledge: whether y is greater than or less than $1/2$).

The one period model formalizes much of what courts and legal scholars say about judicial discretion. Appellate courts defer when the local knowledge of the trial court is important to the resolution of the case. Too much deference creates the opportunity for abuse. The tradeoff between abuse and information-loss turns on the probability that local knowledge would reverse the decision that the appellate court's knowledge indicates is most likely. If, based on what the appellate court can see, it believes strongly that the defendant is not liable, the

local knowledge pointing to liability must be overwhelming for the appellate court to err when it rules as a matter of law. Statistically-speaking, this is unlikely to be true. Thus, the appellate court commits relatively few errors by restricting the trial court's ability to use local information in that case. At the same time, placing bounds on the trial court limits its ability to resolve cases against the appellate court's preferences. The appellate court defers to a trial court's bench decision, in short, where the evidence it can observe doesn't point overwhelmingly in one direction or another.

Consider, as a recent example, the case of *People v. Moore*.² After a bench trial, the defendant was convicted of aggravated unlawful use of a weapon and unlawful use of a weapon by a felon. The police testified that they observed the defendant drop something into the bushes before they approached him. They later found a semi-automatic pistol in that same bush. The defendant appealed, challenging the sufficiency of the evidence. The defendant claimed that "the idea that he would remove a weapon from his person in the vicinity of the police belies common sense; in other words, no one would ever be so foolish and, therefore, there must be some reasonable doubt as to whether the officers testified truthfully." In making its decision on appeal, the appellate court first recited the standard of review, stating "[w]hen a defendant challenges the sufficiency of the evidence ... the reviewing court must decide whether, after viewing the evidence in the light most favorable to the prosecution, any rational trier of fact could have found the elements of a crime beyond a reasonable doubt." The appellate court went on to uphold the conviction, reasoning that "criminals opting to dispose of contraband after becoming aware of police presence is not only believable, but common."

In this case, the police officer's testimony, demeanor, and credibility is the local knowledge. The appellate court's application of the recited standard of review reflects the setting of the bounds. The defendant claimed that the global facts – no one would be dumb enough to drop a firearm in a bush in the presence of the police – suggested that the police were lying. The appellate court disagreed with the defendant's assessment of the global facts. It found that the testimony accorded with its view of common practice and, as a result, affirmed the decision below. In terms of the model, the x value of the global facts did not point overwhelmingly in favor of a not guilty disposition. As a result, the appellate court affirmed.

²2013 Il. App (1st) 110793 (2013)

3 Additional Applications

This section further develops the relationship between deference and the relative value of the knowledge the trial court or agency alone possesses. The prior section considered so-called mixed questions of law and fact: Was the defendant negligent? Did the defendant breach his contractual obligations? Appellate courts review many other binary decisions by trial courts and agencies. A litigant can appeal a trial court's decision to shift attorney's fees. A regulated firm can appeal the EPA's adoption of a plant-wide definition of statutory source under the Clean Air Act – a question of statutory interpretation. Litigants can appeal the denial of liability when a defective product causes harm to a third party – a question of law. Here, we explore appellate court deference to any binary decision by a trial court or agency.

Up to now, we assumed that appellate court believed that local and global information were equally important for reaching the correct disposition. A small change to the model allows us to explore the optimal review of the decisions described in the prior paragraph. As above, let x and y represent information relevant to the decision, where higher x or higher y pull in favor of a 1 rather than a 0 decision. x remains global information. It might include, say, the text or legislative history of the statute. y remains local information. It might include the agency's ability to sensibly enforce the statute given a particular interpretation.

Now instead of equal weight, consider what happens if the appellate court places relatively more weight on the global information. In terms of the math, suppose the appellate court's cutline is steeper, formalized by the expression

$$\frac{ax}{1+a} + \frac{y}{1+a} > \frac{1}{2}$$

where $a \in [1, \infty)$. As before, the appellate court prefers one result in half the decisions and a different result in the other half. Now the mixture differs. The higher a is, the more the appellate court cares about the x value relative to y . In the limiting case where a goes to infinity, the appellate court's cutline is vertical at $\frac{1}{2}$, only the value of x matters to the appellate court.

The biased trial court or agency has the same preferences as before, given by

$$\frac{cx}{1+c} + \frac{y}{1+c} \geq \frac{1}{2}$$

Clearly, if $c = a$, the trial court or agency has congruent preferences with the appellate court. If $a = 1$, we have the model in the previous section. With a small change, the appellate court expected loss from the delegation choice $\{\underline{x}, \bar{x}\}$ is

$$\frac{a}{2} \left[\left(\underline{x} - \frac{a-1}{2a} \right)^2 + \left(\frac{a+1}{2a} - \bar{x} \right)^2 \right] + \frac{(1-\mu)(a-c)}{2} \left[\left(\frac{1}{2} - \underline{x} \right)^2 + \left(\bar{x} - \frac{1}{2} \right)^2 \right]$$

Figure 2 illuminates the errors the appellate court seeks to minimize. The black line is the appellate court's (now steeper) cutline. The green line is the trial court or agency's cutline. The blue triangle is the error committed by the appellate if it makes the decision "0" based solely on the value of x . The pink triangle is the error committed by the appellate court if it makes a decision "1" based solely on the value of x . These are the areas where the appellate court grants no discretion. The green triangles are the errors associated with delegating decisionmaking to a potentially biased trial court or agency. For those cases, the trial court deploys its local information in rendering a decision, but can do so in a way the appellate court potentially disfavors.

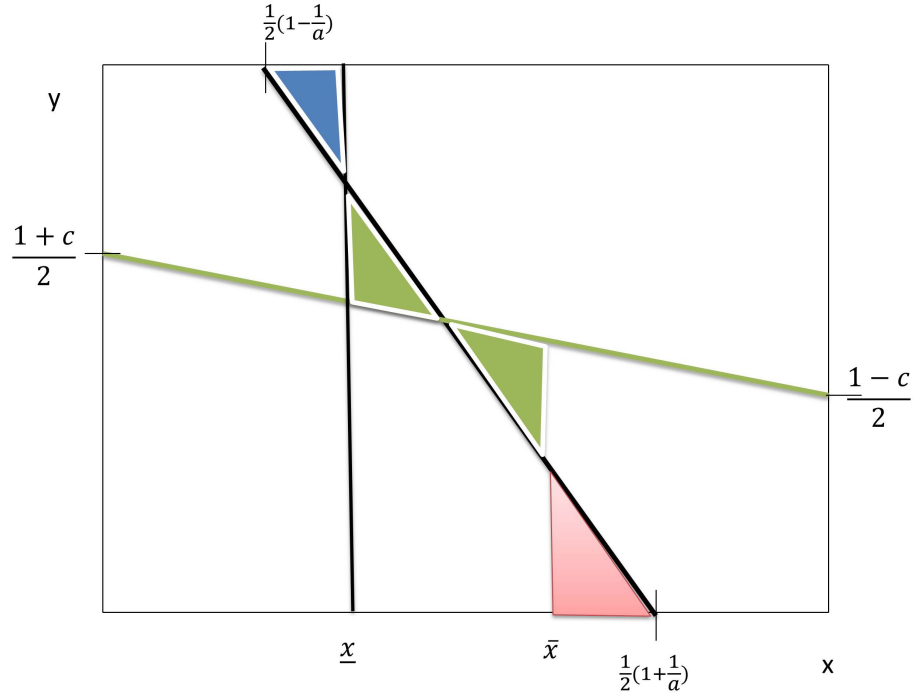


Figure 2: Appellate Court Errors: Steeper Cutline

The optimal bounds are:

$$\begin{aligned} \underline{x}^* &= \frac{1}{2} \left(\frac{(a-1) + (1-\mu)(a-c)}{a + (1-\mu)(a-c)} \right) \\ \bar{x}^* &= \underline{x}^* + \frac{1}{a + (1-\mu)(a-c)} \end{aligned}$$

Notice first that, when $a = 1$, the bounds are those derived in the prior section. Second, as a goes to infinity, the appellate court grants no discretion, setting $\underline{x} = \bar{x} = \frac{1}{2}$.³ In the circumstance, the appellate court doesn't value the agency's or trial court's local information. It therefore makes the decision based

³To see this point, investigate $\lim_{a \rightarrow \infty} \underline{x}^*$. This limit has the form $\frac{\infty}{\infty}$, applying L'Hopital's

on the location of the global information and makes no errors. More specifically, the discretion granted to the trial court decreases with the value of the local information to the appellate court: as a increases \underline{x}^* goes up and \bar{x}^* goes down.

With this comparative static in hand, consider three applications.

3.1 Statutory Interpretation

Agency interpretation of statutes are granted some deference under Chevron. Appellate courts grant trial courts no deference. Why the difference? Under the familiar two-step Chevron analysis, the appellate court first decides whether the text of the statute is ambiguous. If so, it grants deference to the agency's construction when it is reasonable.

This doctrinal analysis falls directly out of our model. Suppose that x represents the clarity of the statute. When x is close to $1/2$, the text does not offer much guidance to an appellate judges seeking to elaborate a regulatory scheme. The text is thus ambiguous. Turn now to step 2: the idea that the appellate judge should defer to any reasonable interpretation by the agency. In interpreting the statute, the agency will rely on its expertise; this expertise constitutes its local knowledge y . The amount of discretion granted the agency should depend on the value of the agency's specialized expertise and its reputation for prudent decision-making. Trial courts, by contrast, will not know much of anything relevant to the construction of the statute that the appellate court doesn't also know (y is not very important). As a result, the appellate court grants much less deference to the trial court.

In this way, the model captures the reasoning behind *Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc.*⁴ In rationalizing why courts should defer to the reasonable interpretation by an agency of an ambiguous statute, Justice Stevens stated

In these cases, the Administrator's interpretation represents a reasonable accommodation of manifestly competing interests, and is entitled to deference: the regulatory scheme is technical and complex, [n39] the agency considered the matter in a detailed and reasoned fashion, [n40] and the decision involves reconciling conflicting

rule, gives us

$$\lim_{a \rightarrow \infty} \underline{x}^* = \frac{1}{2} \left(\frac{1 + (1 - \mu)}{1 + (1 - \mu)} \right) = \frac{1}{2}$$

⁴467 U.S. 837 (1984).

policies. [n41] Congress intended to accommodate both interests, but did not do so itself on the level of specificity presented by these cases. Perhaps that body consciously desired the Administrator to strike the balance at this level, thinking that those with great expertise and charged with responsibility for administering the provision would be in a better position to do so; perhaps it simply did not consider the question at this level; and perhaps Congress was unable to forge a coalition on either side of the question, and those on each side decided to take their chances with the scheme devised by the agency. For judicial purposes, it matters not which of these things occurred.

Judges are not experts in the field, and are not part of either political branch of the Government.

We find that the amount of Chevron deference is a function of (1) the relative value of local information (the parameter, a); (2) the agency reputation (the parameter, μ); and (3) the congruence of preferences (the parameter, c). Each of these parameters is likely to differ across issues and across agencies. As a result, our model would not predict a consistent amount of Chevron deference across cases or agencies. That predicts accords with some of the available evidence. In a study of Supreme Court opinions, Eskridge and Bauer (2008) find "that the Court usually does not apply Chevron to cases that are, according to Mead and other opinions, Chevron-eligible. Moreover, in analyzing how Chevron is applied in the cases where it is invoked by the Court, we found little doctrinal consistency." (pp. 1090-1091). In addition, Levy and Glicksman (2010) present five case studies demonstrating so-called "agency-specific" precedent. They found that "judicial precedents tend to rely most heavily on other cases involving the agency under review . . . even for generally applicable administrative law principles. . . Both the articulation and application of the doctrine often began over time to develop their own unique characteristics within the precedents concerning the specific agency. In some cases, these formulations deviated significantly from the conventional understanding of the relevant principles." (p. 500) Given the importance of reputation, such a finding flows naturally from our model. The courts treat agencies different because they have different reputations. More interesting, in section 4, we show how those reputations are likely to change over time.

3.2 Question of Law versus Mixed Question of Law and Fact

Black letter law teaches that appellate courts review questions of law de novo. Mixed questions of law and fact are subject to varied levels of deference. That, of course, begs the definitional inquiry: what is a question of law and what is a mixed question of law and fact? Moreover, are these separate sets or is it a continuum? Are some trial courts decisions more "fact-like" and others more "law-like"? The model reveals an instrumental definition of what these often-used phrases mean. A question of law arises where the appellate court can reach the appropriate decision without the aid of local information – places where global information largely determines the correct outcome.

For example, when deciding whether the Lanham Act allows a seller to trademark a color, the Supreme Court didn't need to know anything within the sole province of the trial court. The trial court decision was, as a result, granted no deference: the Supreme Court labeled the decision a pure question of law. Likewise, take the issue of whether a complaint states an injury sufficient to confer standing. To make the appropriate determination, the appellate court need only look at the complaint, which is easy to access. In this context, review is de novo; there is no reason to defer to the trial court's review of the same complaint.

On the other hand, consider a trial court's decision to issue a preliminary injunction. Technically, appellate review is governed by the abuse of discretion standard. In deciding on a preliminary injunction, "judges consider the extent of the irreparable harm, each party's likelihood of prevailing at trial, and any other public or private interests implicated by the injunction." The decision to award injunction relief is hard to make without access to the trial court's knowledge. The trial court, for instance, will be intimate with the evidence the parties intend to present. He therefore is in the best position to judge the probability of success. To apply de novo review without making an error, this evidence needs to be readily available to the appellate court. But that might not be the case without a large expenditure of appellate court resources. Cost concerns of the appellate court render the evidence, in effect, local information, leading to some limited deference.

Finally, the model suggests differing degrees of deference, depending on relative value of local and global information and the reputation of the initial decision-maker. We should thus not be surprised that on occasion de nove re-

view appears, in practice, deferential or abuse of discretion appears, in practice, to offer little deference.

3.3 Constitutional Facts

In *Bose v. Consumer Union of United States*, the Supreme Court held that appellate judges must make an independent judgment whether defamatory speech involved actual malice. This is an example of the constitutional fact rule: Appellate court judges are not to defer to the trial court's interpretation of the legal significance of certain facts when those facts implicate constitutional rights, especially First Amendment rights. Indeed, in *Bose*, the Supreme Court stated :

The requirement of independent appellate review reiterated in *New York Times v. Sullivan* is a rule of federal constitutional law.... It reflects a deeply held conviction that judges-and particularly members of this Court-must exercise such review in order to preserve the precious liberties established and ordained by the Constitution. The question whether the evidence in the record in a defamation case is of the convincing clarity required to strip the utterance of First Amendment protection is not merely a question for the trier of fact. Judges, as expositors of the Constitution, must independently decide whether the evidence in the record is sufficient to cross the constitutional threshold that bars the entry of any judgment that is not supported by clear and convincing proof of "actual malice."

What makes constitutional facts different from regular facts? Our model suggests a way to understand this doctrine. Any decision burdening constitutional rights should turn on the something that all the courts can see: global facts. The reason: the decision becomes easier to justify because it is not based on look and feel of evidence before a single trial court. In these cases, the appellate court has two choices: it can uncover y itself or it can rule on the basis of only x . The appellate court does not have the option of relying on the local information of the trial court.

4 Two Period Model

Consider now a two period model. The two periods are identical, except that the loss from an incorrect disposition in period 2 is given by $\lambda > 1$. Thus, for the initial decisionmaker and the appellate court, period 2 cases are more important than period 1 cases. The period 1 case might be an employment discrimination case involving a single plaintiff, whereas the period 2 case involves a demand for structural change in the workplace. All courts realize the payoffs after the game concludes. If a case arises within the discretion bounds in period 1, the appellate court observes the trial court's resolution: liable or not liable. If, in equilibrium, the bad and good trial courts resolve cases differently that resolution will impact the trial court's reputation. The appellate court can then use this information in allocating discretion in the second period.

Before proceeding, here are few examples to motivate the two-period model.

1. A trial court is a district court in Texas. The Federal Circuit hears appeals in multiple cases from this circuit concerning claim construction.
2. A trial court makes multiple decisions granting or denying preliminary injunctive relief. The regional circuit court hears the appeals.
3. A trial court hears multiple cases involving discrimination. Each time, they grant the employer summary judgment. The plaintiff appeals.
4. The SEC issues a series of regulations. The regulations are challenged. The DC Circuit must decide how much deference to grant the SEC's interpretation of the law.

In the two period game, the appellate court's strategy consists of allocation of discretion in each period $t = 1, 2$. Trial courts use cutoff strategies mapping the cases and discretion bounds into findings of liable ($\sigma_t^g = 1$ and $\sigma_t^b = 1$) or not liable ($\sigma_t^g = 0$ and $\sigma_t^b = 0$). We assume that the good trial court is conscientious as it shares the appellate court's preferences. More important, in every period, it always does what the appellate court prefers. Formally, the good type's strategy at time t is given by

$$\begin{aligned}\sigma_t^g &= 1 \text{ if } y_t \geq 1 - x_t \\ \sigma_t^g &= 0 \text{ otherwise}\end{aligned}$$

The bad trial court's strategy is

$$\begin{aligned}\sigma_t^b &= 1 \text{ if } y_t \geq y_t^*(x_t) \\ \sigma_t^b &= 0 \text{ otherwise}\end{aligned}$$

In this expression, $y_t^*(x_t)$ says that the bad trial court finds the defendant liable if y_t exceeds some threshold and not liable otherwise. That cutoff depends on the location of the global fact and can (and will) account for reputational considerations going forward.

To solve the model, start at the period 2 and work backward. The appellate court will bring into that period some beliefs about the trial court based on the decisions rendered in period 1. Denote the second period reputation μ_2^l and μ_2^{nl} , depending on the dispositional outcome in period 1: liable or not liable. The appellate court's initial prior is uninformative and equals $\frac{1}{2}$. Given that the game ends, the second period strategy for the bad trial court is simple: Decide according to its preferences in the range of discretion and follow the appellate court's directives outside that range. We thus have the one period model discussed in section 2. The only difference is that the appellate court sets the bounds of discretion based on its updated beliefs about the reputation of the trial court or agency. The updated beliefs will be defined precisely in a moment.

We start with our analysis with the equilibrium definition.

Definition 1 *A profile $\{\underline{x}_t^*, \bar{x}_t^*, \sigma_t^{*b}, \mu_t\}$ forms a perfect Bayesian equilibrium of the game if (1) given beliefs μ_t and the bad trial court's equilibrium strategy $(\sigma_1^{*b}, \sigma_2^{*b})$, the appellate court's delegation strategy $(\underline{x}_t^*, \bar{x}_t^*)$ minimizes its expected future losses at any point in time; (2) given beliefs μ_t and the appellate court's equilibrium strategy, the bad trial court's strategy minimizes its expected future losses at any point in time; (3) the appellate court's beliefs obey Bayes rule whenever possible.*

Look at the figure 3. It illustrates the bad trial court's second period expected loss. The red area is the loss from having to resolve cases where the bad trial court prefers liability as "not liable" as a matter of law. The blue area is the bad trial court's expected loss from having to resolve cases where the bad trial court prefers no liability as "liable" as a matter of law. In the range of discretion, the trial court has discretion and therefore rules as he prefers, suffering no loss. As is apparent from the picture, the bad trial court's expected

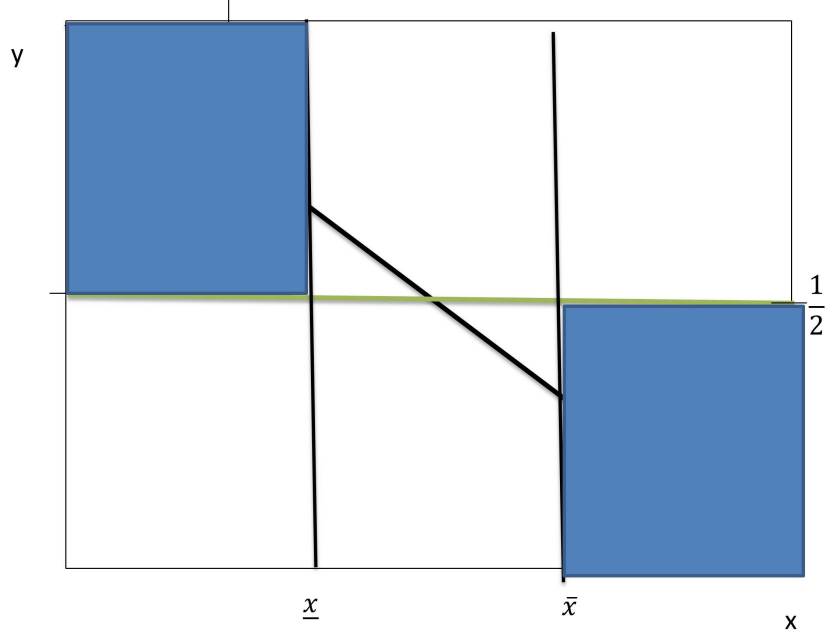


Figure 3: Trial Court Second Period Losses

loss in period 2 is determined by the scope of discretion. That scope, in turn, depends on the trial court's reputation – a reputation that the bad trial court can build or destroy in period 1. Formally, the bad trial court's expected loss in period 2 is $\lambda W(\mu)$, where

$$W(\mu) = \frac{c}{2} [x_2(\mu)^2 + (1 - \bar{x}_2(\mu))^2] + \left(\frac{1-c}{2} \right) [x_2(\mu) + 1 - \bar{x}_2(\mu)]$$

Because of the symmetry in the model, we have $x_2(\mu) = 1 - \bar{x}_2(\mu)$. The bad trial court's second period loss thus reduces to

$$W(\mu) = cx_2(\mu)^2 + (1-c)x_2(\mu)$$

A few properties of the trial court's second period loss are worth mentioning.

1. As the discretion granted decreases, the trial court is strictly worse off in period 2.
2. As its reputation improves, the trial court is strictly better off in period 2].

[Note to NYU audience; from this point forward we will be assuming that $c = 0$; this is a work in progress and we haven't solved for the more general case yet].

Now move back to period one. For cases with an x value with no discretion, both the good and bad trial court follow the same strategy: they hold the defendant liable or not liable as a matter of law. Cases outside the bounds thus have no impact on the trial court's reputation. As a result, the appellate court bases the second period delegation choice on its prior. For cases inside the period 1 bounds, the appellate court understands the strategies of the good and bad trial courts. As a result, the appellate court uses this information and the outcome of the case to update its beliefs about the trial court reputation. Specifically, if the trial court found the defendant liable in the range of discretion, its reputation in period 2 is given by

$$\mu^l(x_1) = \frac{x_1}{x_1 + 1 - y_1^*}$$

The numerator is the likelihood that the good trial court drew a value of y above $(1 - x_1)$ and, as a result, found the defendant liable. The denominator is that probability plus the chance that the bad court drew a sufficiently high value of y to also find for the plaintiff. Upon observing x_1 and a finding of no liability, the appellate court's beliefs are

$$\mu^{nl}(x_1) = \frac{1 - x_1}{(1 - x_1) + y_1^*}$$

The equilibrium of the two period game could be one of three types. In the first type, there is "pooling." The bad trial court perfectly mimics the behavior of the good trial court, setting $y_1^* = 1 - x_1$.

In the second type, the bad trial court acts "sincerely" and sets $y_1^* = \frac{1}{2}$. In the third type, there is "partial sincerity." The bad trial court decides some – but not all cases – against its own preferences in order to appear more like a good or trustworthy trial court and thereby preserve its future discretion.

Our first proposition demonstrates the impossibility of a pooling equilibrium in this game.

Proposition 2 *There does not exist an equilibrium where the bad trial court perfectly mimics the behavior the good trial court in period 1.*

Proof

See the appendix

The intuition for this result is simple. For any global fact, the appellate court knows the probability that good trial court will decide in favor of the defendant (that happens when the local fact, y , lies below $1 - x_1$). It also knows the probability that a good trial court will decide against the defendant (that happens when the local fact, y , lies below $1 - x_1$). It thus knows the relative "rate" the good trial court will find the defendant liable and not liable. For example, if $x_1 = 1/2$, the good trial court is equally likely to find the defendant liable and not liable. If, on the other hand, $x_1 = 1/4$, the appellate court expects the good trial court to find the defendant not liable 75 percent of the time. Suppose that the bad trial court followed the same strategy as the good trial court: deciding the same proportion of cases for and against the defendant. Given this equilibrium strategy, the appellate court would never change its beliefs about the trial court's reputation following a disposition in period 1. Knowing this, the bad trial court would have an incentive to deviate and find fewer defendants not liable in cases with global facts below $1/2$ (which, after all, is what the bad trial court wants to do) – contradicting our initial assumption about the bad court's pooling behavior. Having ruled out pooling, we now turn to a description of the other kinds of equilibria.

Proposition 3 *There exists a value of λ denoted by λ^* , such that the bad trial court always decides cases according to its preferred disposition in period 1 if $\lambda < \lambda^*$ (i.e., the equilibrium involves complete sincerity). On the other hand, if $\lambda > \lambda^*$, the bad trial court decides some cases against its preferred disposition in period 1 to preserve its reputation and enhance the amount of discretion it receives in period 2 (i.e., the equilibrium involves partial sincerity).*

Proof

See the appendix

Figure 4 presents the case of partial sincerity. For any global fact in the range of discretion, the bad trial court knows that the appellate court will draw inferences from the case disposition. As noted above, the bad trial court has an incentive to find "too many" defendant liable in cases with global facts below $1/2$ and "too few" defendants not liable in cases with global facts above $1/2$. If, say, the bad trial court acts truthfully, it might suffer a large decrease in discretion in period 2. If, instead, the bad trial court increases the proportion of defendants it finds not liable (if the global fact lies below $1/2$) or liable (if the global fact lies above $1/2$), it begins to look more and more like a good trial court. As a result, the bad trial court can mitigate the contraction in discretion that results in period 2. Basically, in equilibrium, the bad trial court sets its first period strategy so that the pain from losing discretion in the second period just equals 1, the cost from deciding a case incorrectly in period 1. By shifting its cutline closer to the good trial court's, the bad trial court suffers a smaller and smaller reputation hit when it decides a case in period 1. How close it moves depends on the value of λ – the weight it places on being able to decide on its own accord in period 2.

Having described the equilibria, next we consider what makes the law of deference change over time. Unremarkably, the scope of deference embeds and flows with the trial court's reputation. More interesting, the model allows us to explore what kind of cases cause the law to change the most. A first period case located at $1/2$ falls within the bounds of discretion in the first period. But that case is a poor candidate for learning about the trial court. In that case, the exercise of discretion contains little useful information. By contrast, a "close" case – one where the appellate court is almost indifferent between deciding as a matter of law or granting discretion – carries a great deal of information. In those cases, the bad trial court decides a much higher fraction of cases different from the good trial court. Our final result is tied to this insight. The grant of discretion moves the most in response to "close" cases. Formally, we have the following proposition.

Proposition 4 *The law governing discretion reacts the most when the trial court confronts "close cases", defined as cases where the appellate court is indifferent between finding as a matter of law and granting discretion.*

Proof. See the appendix

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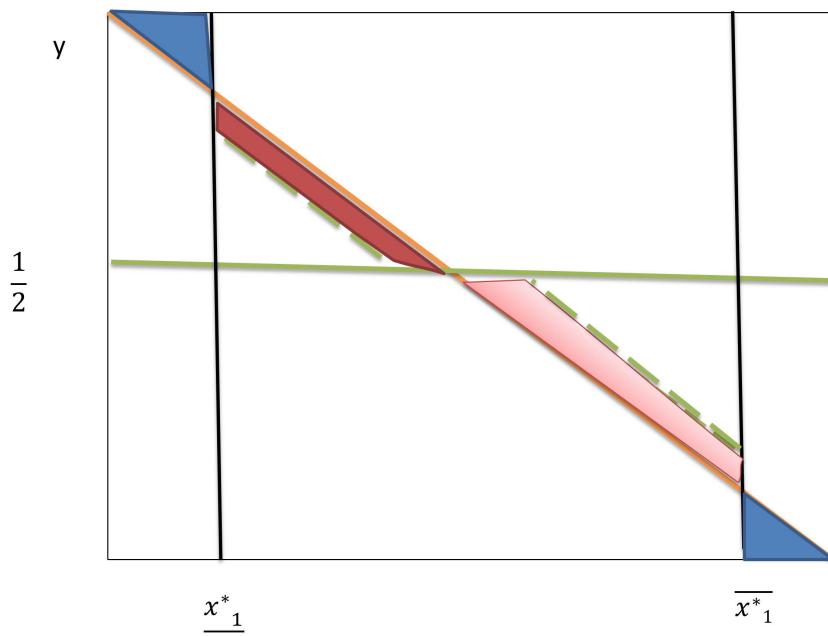


Figure 4: Appellate Court Expected Losses: Partially Sincere Equilibrium

5 Conclusion

[TBD]

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7 Appendix

Proof of Proposition 1

We focus on the behavior of the trial courts when the global facts are below $\frac{1}{2}$ (Because the model is symmetric, the behavior above $\frac{1}{2}$ will be the mirror image). In these cases, the bad trial court prefers to find the defendant liable "more often" than the good trial court. Below $\frac{1}{2}$, define the bad trial court's strategy as $y^*(x_1) = 1 - x_1 - \Delta(x_1)$. We will now focus on what determines the equilibrium strategy $\Delta(x_1)$. The appellate court's belief must be consistent with the strategies of the good and bad trial courts and derived via Bayes rule. We have

$$\mu_l(x_1) = \frac{pr[liability|good]_{\frac{1}{2}}}{pr[liability|good]_{\frac{1}{2}} + pr[liability|bad]_{\frac{1}{2}}}$$

or

$$\mu_l(x_1) = \frac{1 - (1 - x_1)}{1 - (1 - x_1) + 1 - (1 - x_1 - \Delta(x_1))} = \frac{x_1}{2x_1 + \Delta(x_1)}$$

The numerator is the probability that the local fact lies in the interval $[1 - x_1, 1]$ and, as a result, the good trial court finds the defendant liable. The denominator is that value plus the probability the local fact lies in the interval $[1 - x_1 - \Delta(x_1), 1]$ and, as a result, the bad trial court finds the defendant liable. Notice that the prior $(1/2)$ gets factor out of the top and bottom of the fraction and thus goes away.

By the same logic, we have

$$\mu_{nl}(x_1) = \frac{1 - x_1}{(1 - x_1) + 1 - x_1 - \Delta(x_1)} = \frac{1 - x_1}{2(1 - x_1) - \Delta(x_1)}$$

Given an equilibrium strategy $\Delta(x_1)$, the bad trial court's second period payoff if it finds the defendant not liable in period 1 is

$$\lambda W(\mu_{nl}) = \lambda \underline{x}_2(\mu_{nl}) = \lambda \left(\frac{\frac{1}{2}(1 - \mu_{nl})}{1 + (1 - \mu_{nl})} \right)$$

The bad trial court's second period payoff if it finds the defendant liable in period 1 is

$$\lambda W(\mu_l) = \lambda x_2(\mu_{nl}) = \lambda \left(\frac{\frac{1}{2}(1 - \mu_l)}{1 + (1 - \mu_l)} \right)$$

The increase in the second period losses from finding the defendant liable (and destroying some reputation) is given by

$$\lambda[W(\mu_l) - W(\mu_{nl})] = \lambda \left[\frac{\frac{1}{2}(1 - \mu_l)}{1 + (1 - \mu_l)} - \frac{\frac{1}{2}(1 - \mu_{nl})}{1 + (1 - \mu_{nl})} \right] = \frac{\lambda}{2} \left(\frac{\mu_{nl} - \mu_l}{(2 - \mu_l)(2 - \mu_{nl})} \right)$$

A pooling equilibrium occurs if $\Delta(x_1) = 0$. In that case, the good and bad trial courts follow the same strategy for every value of x_1 . Thus, we have $\mu_{nl}(x_1) = \mu_l(x_1) = \frac{1}{2}$ (the first period disposition teaches the appellate court nothing about the trial court's type). Given these beliefs, from above, we know that

$$\lambda[W(\mu_l) - W(\mu_{nl})] = 0$$

Suppose, in period one, that the bad trial court heard a case in the range of discretion with a local fact $\frac{3}{4}$ and a global fact $\frac{1}{8}$. The bad trial court suffers a loss of 1 if it finds the defendant not liable (since $y > \frac{1}{2}$). At the same time, if the bad trial court mimics the good trial court it would find the defendant "not liable" (since $\frac{3}{4} + \frac{1}{8} < 1$). The bad trial court's expected (two period) loss from mimicking is

$$1 + \lambda W(\mu_{nl})$$

If instead the bad trial court deviated and found the defendant liable, its expected payoff is

$$\lambda W(\mu_l)$$

Because $W(\mu_l) = W(\mu_{nl})$ in the proposed pooling equilibrium, it is immediate that $\lambda W(\mu_l) < 1 + \lambda W(\mu_{nl})$. The bad trial court can deviate and increase its payoff. Thus, the proposed pooling equilibrium does not exist.

Proof of Proposition 2

Part (a)

Suppose that the bad trial court always acts truthfully. It sets

$$\Delta^*(x_1) = \frac{1}{2} - x_1$$

Under this strategy, the bad trial court follows its preferences in period 1 – it

finds the defendant liable if $y > \frac{1}{2}$ and not otherwise.

Consider the smallest value of a global fact where the appellate court grants discretion in period 1. Denote this value (which of course we will have to solve for) as \underline{x}_1^* . Under the candidate sincere equilibrium, the appellate court's consistent second period beliefs are given

$$\mu_l = \frac{\underline{x}_1^*}{\underline{x}_1^* + \frac{1}{2}}$$

and

$$\mu_{nl} = \frac{1 - \underline{x}_1^*}{1 - \underline{x}_1^* + \frac{1}{2}}$$

Next let us check for a profitable deviation. Take a case with a global fact \underline{x}_1^* and a local fact $y > \frac{1}{2}$ where the combination is such that $\underline{x}_1^* + y < 1$. In the proposed equilibrium, the bad trial court finds the defendant in this case liable. The bad trial court's payoff from following the proposed equilibrium strategy and finding the defendant liable is

$$\lambda W(\mu_l)$$

If he deviates and finds the defendant not liable (thereby ruling against his own preferences in period 1), his expected payoff is

$$1 + \lambda W(\mu_{nl})$$

The deviation is unprofitable if

$$1 + \lambda W(\mu_{nl}) > \lambda W(\mu_l)$$

or

$$1 > \lambda[W(\mu_l) - W(\mu_{nl})]$$

Using the equilibrium beliefs derived above – and plugging in for the value of $W(\mu_l) - W(\mu_{nl})$ – we have

$$1 > \frac{\lambda}{2} \left(\frac{\mu_{nl} - \mu_l}{(2 - \mu_l)(2 - \mu_{nl})} \right) = \frac{\lambda}{2} \left(\frac{[\frac{1}{2} - \underline{x}_1^*]}{(1 + \underline{x}_1^*)(2 - \underline{x}_1^*)} \right)$$

To complete the description of this equilibrium, we need to unlock the value of

\underline{x}_1^* . Consider the value of λ , call it λ^* , where the following equality holds.

$$\frac{1}{2} \left(\frac{\frac{1}{2} - x_1^*}{(1 + x_1^*)(2 - x_1^*)} \right) = \frac{1}{\lambda^*}$$

If $\lambda \leq \lambda^*$, the bad trial court prefers to act sincerely at global fact x_1^* .

To complete the description of the equilibrium with sincerity, suppose that the bad trial court acts sincerely. In that case, the two period expected loss is given by

$$\frac{1}{2} \underline{x}_1^2 + (1 - \mu_0) \int_{\underline{x}_1}^{\frac{1}{2}} \Delta(x_1) dx + \underline{x}_1 V\left(\frac{1}{2}\right) + \int_{\underline{x}_1}^{\frac{1}{2}} V(x) dx$$

We have the following first order condition:

$$x_1^* - (1 - \mu_0) \Delta(x_1) + V\left(\frac{1}{2}\right) - V(x_1^*; \Delta(x_1)) = 0$$

where

$$V(x_1) = [2x_1 + \Delta(x_1)]L(\mu_l) + [2(1 - x_1) - \Delta(x_1)]L(\mu_{nl})$$

. Define x_1^* as the solution to the above expression when $\Delta(x_1) = \frac{1}{2} - x_1$. That pins down x_1^* . All that is left to check is that at x_1^* , the bad trial court is indeed acting optimally by acting sincerely. That condition is ensured by equation (___).

Part (b)

A partially sincere equilibrium occurs when $\Delta(x_1) \in (0, \frac{1}{2} - x_1)$ for some value of x_1 that lies within the range of discretion. Given the value of $\Delta(x_1)$, we first compute the equilibrium consistent beliefs. They are:

$$\begin{aligned} \mu_l &= \frac{x_1}{2x_1 + \Delta(x_1)} \\ \mu_{nl} &= \frac{1 - x_1}{2(1 - x_1) - \Delta(x_1)} \end{aligned}$$

Given $\Delta(x_1) \in (0, x_1 - \frac{1}{2})$, the bad trial court is finding some defendant "not liable" that he prefers to find liable (he is partially mimicking). Again, we need to check whether a deviation is profitable, given the second period bounds associated with the appellate court's consistent beliefs.

Take a case that presents a conflict of interest for the bad trial court: a case where the bad trial court is finding the defendant "not liable" where it

would prefer to find liability instead. The bad trial court's payoff under the equilibrium strategy involving "partial" mimicry is

$$1 + \lambda W(\mu_{nl})$$

The reason: This trial court is finding against its own interest (and suffering a loss of 1) in period 1 to preserve the discretion associated with having the (enhanced) reputation μ_{nl} in period 2. If the bad trial court deviates, its payoff is

$$\lambda W(\mu_l)$$

Under this deviation, the bad trial court avoids the loss in the first period, but does so at a cost of having discretion in the second period based on a (lower) reputation of μ_l . For the deviation to be "weakly" unprofitable requires that

$$1 + \lambda W(\mu_{nl}) = \lambda W(\mu_l)$$

Or

$$\frac{1}{\lambda} = W(\mu_l) - W(\mu_{nl})$$

Now again plug in for $W(\mu_l)$ and $W(\mu_{nl})$ using the equilibrium second period bounds under the consistent beliefs. We get

$$\frac{1}{\lambda} = \frac{\frac{1}{2}[\mu_{nl} - \mu_l]}{(2 - \mu_l)(2 - \mu_{nl})} = \frac{1}{2} \left(\frac{\Delta}{(3x_1 + 2\Delta)(3(1 - x_1) - 2\Delta)} \right)$$

This expression pins down the equilibrium value of Δ^* for every x_1 and λ . Notice, however, that Δ^* can never be greater than $\frac{1}{2} - x_1$. If the expression above requires this in order for it to hold, the bad trial court will be truthful for a case with that value of the global fact.

With respect to x_1^* , the appellate court sets this bound to minimize

$$\frac{1}{2}x_1^2 + (1 - \mu_0) \int_{x_1}^{\frac{1}{2}} \int_{1-x_1-\Delta(x_1)}^{1-x_1} dy dx + x_1 V\left(\frac{1}{2}\right) + \int_{x_1}^{\frac{1}{2}} V(x) dx$$

For any given x_1 , we therefore have

$$V(x_1) = [2x_1 + \Delta(x_1)]L(\mu_l) + [2(1 - x_1) - \Delta(x_1)]L(\mu_{nl})$$

The next step is to take the first order condition of the appellate court's two period minimization problem with respect to x_1 . Recall that the two period expected loss is given by

$$\frac{1}{2}\underline{x}_1^2 + (1 - \mu_0) \int_{\underline{x}_1}^{\frac{1}{2}} \Delta(x_1) dx + \underline{x}_1 V\left(\frac{1}{2}\right) + \int_{\underline{x}_1}^{\frac{1}{2}} V(x) dx$$

We have the following first order condition:

$$x_1^* - (1 - \mu_0)\Delta(x_1^*) + V\left(\frac{1}{2}\right) - V(x_1^*; \Delta(x_1^*)) = 0$$

which completes the equilibrium description.

Proof of Proposition 3

Proof. Define the range of discretion in period two as

$$r(\mu) = \bar{x}_2^*(\mu) - \underline{x}_2^*(\mu)$$

For cases where x_1 is located below $\frac{1}{2}$, define the relative "reaction" of the law to a finding of liability or no liability as

$$\Delta(x_1) = r(\mu_{nl}(x_1)) - r(\mu_l(x_1))$$

The proposition states that this reaction is larger the further x_1 is from $\frac{1}{2}$. Consider two cases with elements x_1' and x_1'' within the range of discretion in the first period, where $\underline{x}_1' < \underline{x}_1'' < \frac{1}{2}$. Imagine that the trial court found the defendant not liable. In that case, Bayes rule implies that $\mu_{nl}(x_1') > \mu_{nl}(x_1'')$. Recall that, as the trial court reputation improves, the lower bound in period two decreases and the upper bound increases. Therefore, $\underline{x}_2^*(\mu_{nl}(x_1')) < \underline{x}_2^*(\mu_{nl}(x_1''))$ and $\bar{x}_2^*(\mu_{nl}(x_1')) > \bar{x}_2^*(\mu_{nl}(x_1''))$. As a result,

$$\lambda(\mu_{nl}(x_1')) = \bar{x}_2^*(\mu_{nl}(x_1')) - \underline{x}_2^*(\mu_{nl}(x_1')) > \bar{x}_2^*(\mu_{nl}(x_1'')) - \underline{x}_2^*(\mu_{nl}(x_1'')) = \lambda(\mu_{nl}(x_1''))$$

By similar logic,

$$\lambda(\mu_l(x_1')) = \bar{x}_2^*(\mu_l(x_1')) - \underline{x}_2^*(\mu_l(x_1')) < \bar{x}_2^*(\mu_l(x_1'')) - \underline{x}_2^*(\mu_l(x_1'')) = \lambda(\mu_l(x_1''))$$

And so,

$$\Delta(x'_1) > \Delta(x''_1)$$

The same method of proof applies to cases where x_1 lies above $1/2$. ■