Analogical Persuasion

Scott Baker
Washington University in St. Louis

Claudio Mezzetti
University of Queensland

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Abstract

We build a model of analogical persuasion where advocates deploy analogy-based and slippery slope arguments to persuade a judge. The advocates argue by selecting cases to offer as "analogies" to the case they care about. The judge must then decide all the cases and the analogies in sequence. The distance between any two cases reflects the closeness or fit of the legal analogy. We show that an argument based on a chain of analogies (a parade of horribles) can persuade a fully rational judge. Persuasion occurs when (a) the social harm from an improper decision in the case at hand matters less than the social harm from an improper decision in some future connected case; (b) the path of the connected cases drawn by the advocate (his argument) goes through a case where the judge is either uncertain about or doesn't care about its proper resolution (i.e., the resolution that maximizes social welfare). Finally, we study conditions where advocacy competition softens but does not necessarily eliminate the persuasive power of analogical arguments.

1 Introduction

Often a lawyer's best response to a case with bad facts is to argue different, hypothetical, facts, and appeal to the higher justice of equality under the law. If a court finds for the goose, the argument goes, it must also find for the gander. If the court finds for the gander, then the court must rule the same way for all birds, and, then for all animals, including cats and dogs. Thus, and with deep regret (argues the lawyer), the court must kill the goose in order to save the world from the "disaster of biblical proportions" that would inevitably follow.

The key to the slippery slope or parade-of-horribles argument is the undesirable choice in what Schauer (1985) labels the "danger" case. The advocate shows that the judge must either (a) decide the danger case in a way he disfavors (leading to disaster) or (b) draw artificial distinctions between that case and the other cases in the analogical chain (from animals, to birds, to ganders). Rather than face the choice, the advocate suggests, the judge should simply make a different decision in today's case. And while that decision might have a short run cost, these costs are well spent to avoid larger costs in the future. Consider a few real-world examples:

1. In *Obergefell v. Hodges*,[1] the Supreme Court held that the Constitution compelled state officials to grant marriage licenses to same sex couples. In dissent, Chief Justice Roberts echoed arguments made by advocates against marriage equality. He stated: "It is striking how much of the majority's reasoning would apply with equal force to the claim of a fundamental right to plural marriage. If '[t]here is dignity in the bond between two men or two women who seek to marry and in their autonomy to make such profound choices,'. . ., why would there be any less dignity in the bond between three people who, in exercising their autonomy, seek to make the profound

[1] 135 S. Ct. 2071 (2015).

choice to marry?"[2]

2. In *Collin v. Smith*,[3] the town of Skokie, Illinois threatened to fine Nazis for marching in the public square without a permit. In prohibiting the town from doing so, the court embraced the following argument: "The problem with engrafting an exception on the First Amendment for such situations is that they are indistinguishable in principle from speech that 'invite(s) dispute . . .. induces a condition of unrest, creates dissatisfaction with conditions as they are, or even stirs people to anger.' Yet these are among the 'high purposes' of the First Amendment [i.e., this speech must be allowed]. It is perfectly clear that a state many not 'make criminal the peaceful expression of unpopular views.'"[4]

3. In the litigation challenging the Affordable Care Act, the ability to distinguish analogies took center stage. If Congress had the authority to pass an individual mandate to buy health insurance under the Commerce Clause, what would stop Congress for imposing an obligation on individuals to purchase and eat, say, broccoli? What was the limiting principle of Congress's power under the Commerce Clause? In fact, Justice Ginsburg's opinion in *National Federation of Independent Business v. Sebelius*,[5] spent a hefty amount of time distinguishing a hypothetical federal law about vegetables from the individual mandate to purchase health insurance.[6]

4. In *Manning v. Caldwell*,[7] the court considered a Virginia law criminalizing possession of alcohol by "habitual drunkards." Four home-

[2] Id. at 2622.
[3] 578 F.2d 1197 (7th Cir. 1977).
[4] Id. at 1206 (citations omitted).
[5] 567 U.S. 519, (2012).
[6] Id. at 615-16. See also Rosen and Schmidt (2013) for a discussion of the history of the slippery slope argument under the Affordable Care Act.
[7] 900 F.3d 139 (4th Cir. 2018).

less individuals claimed that addiction caused them to possess and consume alcohol in violation of the criminal statute. Thus, the argument went, the state was punishing their status rather than their conduct, which was not justified. Fear of the slippery slope induced the Fourth Circuit to rejected this compulsion argument. The court stated:

> Every criminal act can be alleged to be the result of some compulsion. If human behavior is viewed as something over which human beings lack control, and for which they are not responsible, the implications are boundless. The examples extend beyond the discrete context of substance addiction. For instance, child molesters could challenge their convictions on the basis that their criminal acts were the product of uncontrollable pedophilic urges and therefore beyond the purview of criminal law. The same could be said not only of sex offenders, but of stalkers, domestic abusers, and others driven by impulses they were allegedly powerless to check.[8]

Occasionally the slippery slope argument persuades like in *Collin* and *Manning*. Other times it fails like in *Obergefell* and *Sebelious*. Why?

We build an economic model to investigate this question. The model makes two assumptions. First, we assume that the judge knows the best action to take in the case before him (rule for the goose), and in the hypothetical "danger" case (prevent a disaster of biblical proportions).

Second, we assume the judge values equal treatment under the law. As articulated in Scalia (1989):

> As a motivating force of the human spirit, that [equal treatment] value cannot be overestimated. Parents know that chil-

[8] Id. at 148 (citation omitted).

> dren will accept quite readily all sort of arbitrary substantive dispositions – no television in the afternoon, or no television in the evening, or even no television at all. But try to let one brother or sister watch television when the others do not, and you will feel the fury of the fundamental sense of justice unleashed.

In other words, the judge knows he cannot be arbitrary. If he rules for the goose, he must rule for the gander as well. But must he also rule for cats and dogs, and then disaster?

Based off these two assumptions, our model yields four result about the creation of precedent and how advocates can use the fact that a case creates precedent to persuade.

Before turning to the results, we pause here to say a word about the model of precedent we develop. In the model, the court cares about getting the current case right. The court also cares about precedent (both past precedent, and the precedent that the current case creates). The court pays a cost when it decides "like" cases differently, but how alike or different one case is from another depends on their factual similarity. We allow the precedential weight on the "matching" of a decision to a prior precedent to depend on the entire history of the past decisions (the precedent "stock") and/or the distance between the facts of any two cases.

Thus, the model can fruitfully describe a judge who "counts" the relative number of prior precedential decisions for and against a position as well as a judge who must pay some effort cost to distinguish prior precedent. In the latter instance, the effort cost might relate to the distance between the two cases: i.e., the closeness of the analogy.

After laying out this framework, we first consider the setting where a single advocate attempts to make a slippery slope argument to a fully rational judge.

As noted, we assume there is an instant or current case. In this case, the judge strictly prefers to allow the activity (same sex marriage, say) and the advocate prefers to disallow the activity. There is also a danger case. In that case, the judge strictly prefers to disallow the activity (group marriage, say). In making her argument, the advocate locates an analogy somewhere between the instant case and the danger case. The judge knows that, over time, he must decide the instant case, the analogy, and the danger case.

We find that the advocate's choice of analogy matters. If the analogical case is too close to either the instant case or the danger case then the slippery slope argument fails. If the instant case and the analogical case are factually similar and the danger case is factually far afield, the advocate has made it too easy to distinguish both the instant case and the analogical case from the danger case.

The same analysis holds when the advocate locates his case snugly against the danger case. In making that choice, the advocate will have let the judge off the hook. The judge will permit the conduct in the instant case and restrict the conduct in the analogical and danger cases. The judge will do so because he will find it painless to distinguish the analogical case and the current case since they are factually quite distinct. In other words, if the advocate locates his analogy right next to the danger case, she will not create enough distinguishing costs to compel the judge to render the same decision in all three cases.

Taken together, this suggests the advocate take a Goldilocks approach to the location of the analogy: not too close to the instant case or the danger case.

Beyond that, our analysis reveals another more subtle effect. The advocate must place his analogy relatively closer to the danger case than the instant case. The reason is to ensure that the judge prefers a sequence of three decisions restricting the conduct (thus allowing the advocate to win the instant case) to a sequence of three decisions that allow the conduct (where the advocate loses the instant case). The reason resonates: If the analog case is closer to the danger case it probably should be decided the same way, and the court knows for sure that it should restrict conduct in the danger case. As a result, if the court feels compelled by a desire for equal treatment to decide the three cases the same way, it should pick a course where it restricts all the conduct rather than permits all the conduct.

Accounting for these concerns, we derive conditions under which an "interval of persuasion" exists where the advocate can prevail so long as she finds an analogical case in this interval.

Notably, the plaintiff's persuasive argument has the following form: if you (the court) decide the instant case, a case where you wish to permit the activity, you (the court) will be compelled via a chain of analogical reasoning and deference to precedent to eventually decide the danger case as permissible too. You (the court) don't want to do that; so better to just restrict the conduct at issue in the instant case.

Our next result shows how the advocate gains from being able to bring multiple analogical cases to the attention of the judge. Persuasion now depends on both on the sum of the analogical location (i.e., how close the analogies are to the instant case and the danger case) and the differences between the analogies (i.e., how close the analogies are to each other).

Building on these insights, we investigate the limit result: what happens if the advocate can bring as many cases as she wants? We find conditions under which it is optimal for the advocate to space these cases equidistant from each other; thereby creating a chain-of-analogies. We also show that persuasion, in that extreme circumstance, turns on the cost to the court of making one completely arbitrary distinction in violation the norm of equal treatment: that is, the cost the court pays to decide two factually identical cases differently.

Finally, because the slippery slope argument can run both ways, our final result comes from tackling the issue of advocacy competition. We consider a competing advocate who can also locate analogies for the court to consider, including unmasking past precedent which is on point. We assume that the competing advocate prefers that the court permit the activity in the instant case. The competing advocate decides where – and whether – to locate her own analogical case knowing that there is another lawyer with opposing preferences offering up her own analogies.

We first find the conditions under which the competing advocate can break any slippery slope argument by locating his analogy (e.g., past precedent) as close as possible to the instant case.

In this setting, the competing advocate's argument takes the following form: If you (the court) restrict the activity in the instant case, you (the court) will be forced to restrict the activity in another identical case by, for example, overruling past precedent. If the court upholds, say, a state restriction on gay marriage out of fear of the slippery slope, the court must also uphold a state restriction on interracial marriage out of fear of the same slippery slope. The latter is already decided and overturning it would cause the court great harm.

We next show conditions under which the competing advocate is better off remaining silent in the face of a chain-of-analogy argument by his opponent. The competing advocate remains silent because by introducing more cases into the judicial decision-making process the competing advocate creates additional distinguishing costs for the judge. And distinguishing costs incentivize the judge to match his decisions across all the cases – which is exactly what the competing advocate is trying to avoid. By bringing a case on his own, the competing advocate, in effect, shoots himself in the foot.

The paper unfolds as follows: the remainder of this introduction discusses the related literature. Section 2 develops the general model and shows the persuasive power of an advocate who can bring up one analogical case for the court to consider. Second 3 considers an advocate who can make multiple analogical arguments. Section 4 introduces a competing advocate, demonstrating his optimal argument and presents the results as to his ability to break a slippery slope argument. Section 5 offers a short conclusion. Proofs not found in the text appear in the appendix.

LITERATURE REVIEW.—Primarily, our model relates to other economic models of persuasion. These models study the gathering and strategic revelation of evidence. They can be usefully grouped into three categories: (1) cheap talk models (Crawford and Sobel, 1982); (2) disclosure models (Grossman and Hart, 1980; Shavell, 1994; Che and Kartik, 2009); and (3) Bayesian persuasion models (Kamenica and Gentzkow, 2011).

In the cheap talk model, the agent reveals coarse evidence to the principal: a range of possible values of the underlying state. The principal updates his beliefs about the location of the true state and selects his best action. So long as the preference conflict between the agent and the principal is not too large, the parties can successfully communicate. The agent sends a coarse message, the principal hears that message and takes an action in response.

In a disclosure model, the agent decides whether to disclose some piece of verifiable information or keep it secret. The motivating example is a seller of a house. The seller wants to persuade the buyer to buy, and at a high price. The seller knows about any latent defects. The buyer does not. The question is what inference the buyer should make from the seller's silence. The classic result comes from Grossman and Hart (1980): complete unraveling and full disclosure of the private information.

In the Bayesian persuasion model, the agent can commit to a process that generates evidence (i.e., information related to the true state). The agent persuades the principal by selecting a signaling technology that splits the realization of the posterior in a way favorable to the agent's preferred position while ensuring it is still Bayes consistent (the expected posterior equals the prior).

Notably, the agent doesn't make analogical arguments in any of these dominant models of persuasion.[9] The agent doesn't leverage the principal's desire for consistency to change his behavior. There is no call for distinguishing precedent or a concern about how the principal's actions today will impact what decisions he can make in the future. By contrast, these features play a starring role in the analogical persuasion we model.

On the law side, two substantial contributions bear on our project. Schauer (1985) represents the first attempt to define the features of the slippery slope argument. Schauer suggests that these arguments might be persuasive for two reasons.

First, the court in the instant case might not be able to write clearly enough to limit the reach of its holding, opening the gates for future courts or juries to mistakenly apply the precedent in the danger case. Rather than risk this, the court decides not to start down the slope in the first place.

Second, future judges or juries might not know where to draw the line between permissible and impermissible conduct, and without this knowledge they might be uncomfortable doing so. Not wanting to foist these costs on others, the court decides against its short term interest in the instant case.

Under either reason Schauer discusses, what makes the slippery slope argument persuasive is that judges understand that they will fail to successfully communicate to future decision-makers the grounds of the decision.

Unlike Schauer (1985) our model does not involve a failure of commu-

[9] Ellison and Holden (2014) use analogies, but for a different purpose; in their paper, a principal instructs agents via analogies rather than rules when it is too hard to define the appropriate rules because communication is costly. Analogies in our paper are used to persuade rather than communicate. Baker and Mezzetti (2012) investigates how a court will optimally learn about the contours of the law over time, when it rely on precedent and when it will take a closer look at a case; unlike here that model is not about persuasion.

nication. Each judge understands the precedent cases. The opinions are written clearly. Nobody makes a mistake about what they mean. Indeed, we assume a single judge with consistent preferences doing what is best for her (or society) over the long run of cases. Such a judge doesn't "forget" what happened in the past. Rather than focus on communication failure, we study the role of a judicial preference for treating like cases alike and whether that preference in and of itself can be leveraged to generate persuasion.

Volokh (2003) builds on Schauer (1985) and represents a taxonomy of slippery slope arguments. Volokh focuses on how a decision today (say to allow gun registration) might change the environment, and thereby change the course of future decisions. His leading example is gun registration. Allowing for registration, he submits, might allow the government to collect information on the location of gun owners. And that information, then, makes it easier to implement a policy of gun confiscation by making enforcement cheaper. As a result, the policy of gun confiscation becomes cost-justified, but only after a decision to allow for registration is in place. Fearing the follow on confiscation, a rational actor might object to gun registration, even if she would support such an action in isolation (i.e, if he could prevent how it changes future decisions). As is apparent, this analysis has a flavor of the rational addict model– where today's choices alters the cost/benefit trade-off between choices tomorrow (e.g., consuming drugs today makes consuming drugs tomorrow more attractive). (Becker and Murphy, 1988).

Our approach differs from Volokh's. We focus on where the advocate should locate his analogies, what happens if he can make more than one analogy (and where those multiple analogies should be located), and what happens when opposing parties can raise competing analogies. In so doing, we focus much more on slippery slope arguments that appear in litigation than on slippery slope arguments that arise in public debates.

2 The Model

The model has three players: a judge, an advocate, and his opponent. Throughout, we refer to the advocate as the plaintiff and his opponent as the defendant. Cases lie on the unit interval. Each case represents a bundle of facts or activities. The judge must decide any case presented to him as "permissible" or "impermissible" (formally a 0 or a 1).

In real life, there are some cases where judges are confident that the activity should be allowed; other cases where judges are confident the activity should be restricted; and still other cases where the judge is uncertain as to the proper outcome. As we move from left to right on the unit interval, the case for restricting the activity becomes stronger. Specifically, the probability the judge prefers to restrict the activity equals the location of the case on the interval. As a result, closer cases on the interval are more analogous, meaning that they are more likely to have the same judicially preferred outcome.

As noted in the introduction, two cases frame the inquiry. The case located at 0 is the instant case. The judge knows for sure that the socially optimal action in case 0 is to permit the activity. The case located at case 1 is the danger case. The judge knows for sure the socially optimal action there is to restrict the activity.

As an example, consider the individual mandate from the Affordable Care Act. That is the instant case, the case located 0. Assume that the judge knows for sure that the Congress should be allowed to impose an individual mandate to buy health insurance under the Commerce Clause. The danger case in this example involves a federal law requiring individuals to buy broccoli. The judge knows for sure that Congress should not be able to pass such a law.

The plaintiff and the defendant care about the instant case (e.g., the constitutionality of the individual mandate). The plaintiff – who will be the focus on in the first part of the paper – prefers that the judge restrict rather than permit this activity. She would like the judge to strike down the Affordable Care Act. The question is whether she can persuade the judge to do so, to act in a way the judge knows for sure is contrary to the socially desirable decision.[10]

The timing of the game runs as follows:

1. The plaintiff and defendant simultaneously make arguments. An argument involves the identification of analogous cases between the instant case and the danger case that the judge must decide.

2. The judge decides all the cases – and only those cases – identified by the advocates. The judge decides the cases in sequence starting with the instant case and ending with the danger case. The order of

[10]We consider the advocates bringing the cases to the attention of the court, but it could also be interpreted as cases or hypotheticals being raised by a dissenting member from the majority opinion to attempt to influence the outcome. On this score, consider one of the most famous slippery slope arguments in constitutional law. It appeared in Justice Scalia's dissent in *Lawrence v. Texax*,539 U.S. 558 (2003) – the case that declared state restrictions on same sex sexual intimacy unconstitutional. In dissent, Justice Scalia suggested that the majority's decision meant that state laws governing "bigamy, same-sex marriage, adult incest, prostitution, masturbation, adultery, fornication, bestiality, and obscenity" must also be declared unconstitutional. And he went further than that. To the majority's declaration that the state law prohibiting same-sex sex imposes a constraint on liberty, he said that the same could be said about laws that prohibit "prostitution, recreational use of heroin, and, for that matter, working more than 60 hours per week in a bakery" – the latter example being drawn from the famous case from the *Lochner* era, a time of judicial activism on the right. To argue his position, Justice Scalia's presented a rhetorical question about whether the majority was ready to strike down all of these laws too.

In terms of the model, the case of same-sex intimacy might be viewed as the instant case. The judge prefers to find permit this activity as this is the socially preferred outcome. The danger case – the case located at 1 – might be a voluntary contract for excessive hours in the work-week at a bakery or a decision to engage in incest between consenting adults. The judge prefers to find these activities impermissible (or more precisely allow the state to declare these activities impermissible).

The dissenting judge prefers that the state be able to prohibit same-sex intimacy. In making his argument, the dissenting judge tries to bridge of analogous cases between same-sex intimacy and the case of, say, contracts for an excessive number of hours of work in a week. The opposition, by contrast, will try and break the bridge by identifying analogous cases of his own.

decisions follows the cases placement on the unit interval (e.g., case $\frac{3}{4}$, if raised, is decided after case $\frac{1}{2}$ and before case 1).

The plaintiff and defendant care solely about the resolution of the instant case. As noted, the plaintiff prefers that the judge find this activity impermissible. To do so, she will have to convince the judge to decide on a basis other than the merits. The defendant, by contrast, prefers the judge declare the activity permissible. Although the advocates care about the decision in the single case, the fully rational court cares about the decisions and consistency among all its decisions.

We offer two interpretations of the judge's conduct: a static one and a dynamic one. In the static interpretation, the judge must decide the instant case and in so doing either distinguish or opine on all of the analogical cases that link up to the danger case. That is what happened in, say, the litigation involving the Affordable Care Act. Justice Ginsburg felt a need to distinguish the individual mandate from both the vegetable hypothetical and a hypothetical involving the purchase of car.[11]

In the dynamic interpretation, the advocates, in effect, ensure that the court will be forced to confront the analogical cases and the danger case at some future date by raising them in their briefs in the case at bar. The briefs put the analogical cases into the air so to speak. As a result, even a court with a discretionary docket will be forced to deal with them (perhaps due to a circuit split) at some point in time.

Formally, suppose there are T decisions or cases for the judge to decide. The judge must decide whether to permit ($d_t = 0$) or restrict the activity ($d_t = 1$) for all $t = 1, ..., T$. In this expression, the T decisions upon which the judge must opine include the instant case and the danger case and any cases raised by the parties. Let $d^t = (d_1, ..., d_{t-1})$ be the history of decisions, or "precedent", before decision t. The set of all possible t-precedents is $D^t = \{0, 1\}^{t-1}$, with $D^1 = \emptyset$.

[11]See Sebelius, 567 U.S. at 608-614.

The "right", or ideal, choice t for the judge is $\theta_t \in \{0, 1\}$, but since the judge may be uncertain about it, we let π_t be the probability the judge attaches to $\theta_t = 1$.

The court's payoff from decision t depends on the importance of deviating from the decisions ideal choice (μ_t), the expected distance between the decision and the ideal choice θ_t, and the distance between the decision and each precedent decision d_τ, $1 \leq \tau \leq t-1$, weighted by the precedent weight $\rho_{t,\tau}$.

The precedent weight at t, $\rho_{t,\tau}$, is a function mapping each τ-precedent into a non negative weight; $\rho_{t,\tau} : D^t \to \mathbb{R}_+$.

Thus, the court's payoff from decision d_t is:

$$U_t(d_t) = -\sum_{\tau=1}^{t-1} \rho_{t,\tau}(d_\tau - d_t)^2 - \mu_t \left[\pi_t(1-d_t)^2 + (1-\pi_t)(0-d_t)^2\right].$$

The court's total payoff is the sum of the payoffs on all decisions. For ease of notation we assume no discounting, but discounting could be easily added to the payoff function.

Notice that $\rho_{t,\tau}$ is a general function. Our preferred interpretation involves the cost of distinguishing two cases which formalizes the concept of equal treatment. Since more analogous cases lie closer together on the interval, we assert that they are harder to distinguish. Specifically, the court pays a greater penalty for inconsistent decision-making between cases that are more factually alike. We will assume that the cost of distinguishing the two polar anchor cases in the interval is zero.

Formally, assume that, for $j > i$, we have $\rho_{j,i} = k(1 - \pi_j + \pi_i)$ and refer to this going forward as the distinguishing cost specification of the model.

Under this specification, if the judge decides the case located at $\frac{3}{4}$ as permissible and next decides the danger case as impermissible, the danger case will be inconsistent with the precedent case located at $\frac{3}{4}$. The judicial cost of doing so is $\frac{3}{4}k$. On the other hand, if the judge decides the case located at $\frac{1}{2}$ as permissible and subsequently decides the danger case as impermissible, the danger case will again be inconsistent with precedent. The cost of this inconsistency, however, is less (only $\frac{1}{2}k$) because the precedent case is less factually analogous to the danger case and therefore cheaper for the judge to distinguish: in other words, the distinctions between the two cases seem less artificial or arbitrary.

2.1 The Benchmark

Let us first consider a benchmark. Suppose that neither the plaintiff nor the defendant make an analogical argument – neither brings up a case for the judge to decide. Will the judge nonetheless declare the instant case an impermissible activity, will she, for example, declare the individual mandate unconstitutional? Absent any analogical persuasion, the judge must only decide the instant case and the danger case. Formally, $T = 2$, $\pi_1 = 0, \pi_2 = 1$. The court's ideal choice is zero for the instant case (case 1) and one for the danger case (case 2).

Definition 1. *We say that the advocate is able to generate a winning slippery slope argument in this example if the court's payoff is highest when the decision sequence is* $(d_1, d_2) = (1, 1)$.

We now show under what parameter configurations there is a slippery slope, and further that such a parameter configuration cannot exist in the cost of distinguishing specification of the model. In short, in what follows, we show that the plaintiff cannot sit on his hands and hope the court will take an action she prefers.

Proposition 1. *The plaintiff is able to generate a winning slippery slope argument if and only if (i)* $\mu_2 \geq \mu_1$ *and (ii)* $\rho_{2,1} \geq \mu_1$. *In the case of the distinguishing specification of the model, a slippery slope argument cannot be generated.*

Proof. The judge's payoff from deciding $(d_1, d_2) = (1, 1)$ is $-\mu_1$; the payoff from deciding $(d_1, d_2) = (0, 0)$ is $-\mu_2$; the payoff from deciding $(d_1, d_2) = (0, 1)$ is $-\rho_{2,1}$; the payoff from deciding $(d_1, d_2) = (1, 0)$ is $-\mu_1 - \mu_2 - \rho_{2,1}$. Assuming the judge chooses $(d_1, d_2) = (1, 1)$ (i.e., follows the slippery slope argument) when indifferent, we obtain conditions (i) and (ii). Condition (ii) does not hold in the cost of distinguishing specification because $\rho_{2,1} = 0$. $\square$

Before explaining why the plaintiff must offer at least one analogical case to prevail in this model, it is fruitful to understand the conditions that make a slippery slope argument work. Similar conditions will arise in the more general framework examined below. Condition (i) says that the social harm from a wrong decision on the instant case is lower than the social harm from a wrong decision on the "danger" case. This ensures that the court prefers to decide both decisions as "impermissible" rather the "permissible" – assuming the court feels compelled to render the same decision across the cases.

Condition (ii) says that if the cost of distinguishing is sufficiently high, the judge would rather decide the instant case and the danger case the same way than issue mismatched decisions.

With only the instant case and the danger case in play, the court must decide only completely dis-analogous cases and condition (ii) cannot hold (since $\rho_{2,1} = 0$ in the cost of distinguishing specification). Intuitively, the court will never feel compelled to follow an permissible decision on the instant case with a permissible decision on the danger case. In terms of the motivating example, the court pays no distinguishing cost to permitting the individual mandate to stand while striking down a law requiring the purchase of vegetables or, as another example, to allow same sex intimacy while prohibiting (or more aptly allowing the states to prohibit) excessive hours of work in a bakery. The instant case and the danger case are far enough apart that the judge decides each case on their own merits (formally she matches the decision to the state in both cases). Further, she can do so without having to make seemingly arbitrary distinctions (i.e., the distinction is easy to make because the cases are so far apart).

2.2 A Three Decision Example and the Slippery Slope

Now suppose that the plaintiff makes an argument. The argument involves locating a case between the instant case and the danger case, between, say, same sex intimacy and state restrictions on hours in the work-week. Maybe the plaintiff offers the analogical case of "prostitution." Such a case shares some features with same sex intimacy (both involve the liberty interest and sexual relations). Prostitution also shares some features with state restrictions on the hours in the work week (both involve the liberty interest in a situation involving payment of money).

In terms of the model, suppose that the plaintiff selects a case at $\pi_2 \in [0,1]$. Should the plaintiff pick his analogy close to the instant case or close to the danger case or somewhere in the middle? Under what conditions can he prevail?

As noted in the introduction, we view a winning slippery slope argument as the following statement: "Dear Court, you better decide my case – the instant case – as impermissible. If you do not, if you find the activity permissible instead, you will find yourself compelled to follow precedent and declare case 2 and the danger case as permissible too. And while, you might not be certain about the proper outcome in case 2 (and indeed might not really care about the outcome in that case anyway) you certainly don't want to find the danger case permissible.

In other words, the gain of making the right decision in the instant case is not worth the cost to you of either making the wrong decision on the danger case, or distinguishing between the instant case and the analogy. Formally articulating this view, we start, as before, with a definition.

Definition 2. *We say that the advocate is able to generate a winning slippery slope argument in this example if the court's payoff is highest when the decision sequence is* $(d_1, d_2, d_3) = (1, 1, 1)$.

We now show the parameter configurations under which the plaintiff can successfully persuade using a slippery slope.

Proposition 2. *In the distinguishing cost specification of the model, the advocate is able to successfully generate a slippery slope if and only if: (i)* $\mu_3 \geq \mu_1 + (1 - 2\pi_2)\mu_2$*; (ii)* $\pi_2 k \geq \mu_1 + (1 - 2\pi_2)\mu_2$*; (iii)* $(1 - \pi_2)k \geq \mu_1$.

Proof. First observe that the payoff from choosing $(d_1, d_2, d_3) = (1, 1, 1)$, which is equal to $-\mu_1 - (1 - \pi_2)\mu_2$, is strictly higher than the payoff from choosing $(d_1, d_2, d_3) = (1, 1, 0)$. Second, note that the payoff from choosing $(d_1, d_2, d_3) = (0, 0, 0)$, which is equal to $-\pi_2\mu_2 - \mu_3$, is strictly higher than the payoff from choosing $(d_1, d_2, d_3) = (1, 0, 0)$. Third, note that the payoff from choosing $(d_1, d_2, d_3) = (0, 0, 1)$, which is equal to $-\pi_2\mu_2 - k\pi_2$, is strictly higher than the payoff from choosing $(d_1, d_2, d_3) = (1, 0, 1)$. Fourth, observe that the payoff from choosing $(d_1, d_2, d_3) = (0, 1, 1)$, which is equal to $-(1 - \pi_2)\mu_2 - k(1 - \pi_2)$, is strictly higher than the payoff from choosing $(d_1, d_2, d_3) = (0, 1, 0)$.

Conditions $(i) - (iii)$ follow from requiring that the payoff from $(d_1, d_2, d_3) = (1, 1, 1)$ is at least as high as the payoff from the three undominated decision paths $(0, 0, 0)$, $(0, 0, 1)$ and $(0, 1, 1)$. □

Before moving to whether the plaintiff can succeed, let us consider the necessary conditions articulated in the proposition.

Intuitively, no matter what the decision on instant case is if the analogical case has been decided as impermissible, then deciding the danger case also as impermissible is a dominant action, as that decision accords with the judge's preferences and involves no distinguishing cost. Similarly, no matter what the decision on the danger case is if the analogical case has been decided as permissible, then deciding that the instant case as permissible is a dominant action, as the decision matches the judge's preferences and involves no distinguishing cost. This leaves four decision sequences as potentially optimal: $(d_1, d_2, d_3) \in \{(1,1,1), (0,1,1), (0,0,0), (0,0,1)\}$.

Suppose that the court inherits two permissible decisions – one at the instant case and one at the analogous case raised by the plaintiff. What will the court do at the danger case? If $\pi_2 k \geq \mu_3$, the court will fall down the slope and decide this case as permissible. Yet under the first condition in the proposition, the court strictly prefers to avoid the slippery slope of $(0,0,0)$ and instead decide the cases as $(1,1,1)$.

On the other hand, if $\pi_2 k < \mu_3$, a court facing a precedent stock of two permissible cases will distinguish those cases from the danger case and find the conduct at issue in the danger case impermissible. The court will pay a cost of so doing. Rather than pay this cost (and obtain the payoff associated with the sequence $(0,0,1)$), condition (ii) in the proposition ensures that the judge strictly prefers to flip the first and second cases from permissible to impermissible. Thus, no matter what is optimal for the judge following a precedent stock of two permissible decisions if the conditions in the proposition hold, the judge prefers to decide the instant case as impermissible, as a 1, as the plaintiff prefers. The judge is persuaded.

Manipulating the conditions, the following can be observed: For the plaintiff to persuade he must locate his analogical case somewhere in the "interval of persuasion," $[\underline{\pi}, \overline{\pi}]$, where

$$\underline{\pi} \equiv max \left\{ \frac{\mu_1 + \mu_2}{k + 2\mu_2}, \frac{\mu_1 + \mu_2 - \mu_3}{2\mu_2} \right\} \tag{1}$$

and

$$\overline{\pi} \equiv \frac{k - \mu_1}{k} \tag{2}$$

A few remarks are in order about the interval of persuasion. First, consider what happens to the interval as k goes to 0. The upper bound of the interval falls below 0. The plaintiff cannot persuade the judge. No analogy will do. As is intuitive, if the court pays no cost for making inconsistent decisions, chain of analogies/slippery slope arguments lack persuasive power.

Second, examine what happens to the interval as k goes to infinity. The upper bound of the interval goes to 1. Assume further that the weights on each case (the μ's) are equal. Then, the lower bound must be larger than $\frac{1}{2}$. In this setting, the plaintiff can persuade by making an analogy anywhere in the upper half of the unit interval. Notably, as k increases the size of the persuasion interval increases. Figure 1 provides an example of the persuasion interval when $\mu_1 = \mu_2 = \mu_3 = 1$ and $k = 5$. Under those values of the parameters, we have $\underline{\pi} = \frac{1}{2}$ and $\overline{\pi} = \frac{4}{5}$.

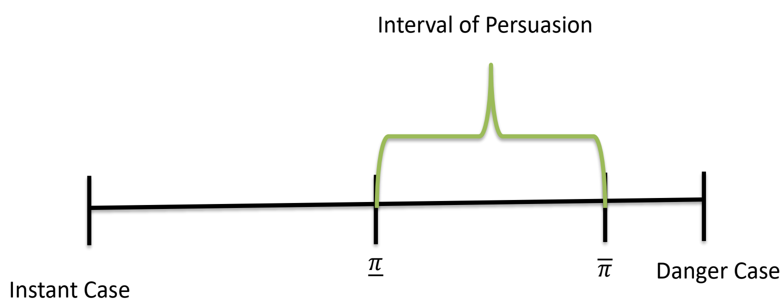

Figure 1: Interval of Persuasion

In picking his analogous case, the plaintiff faces a trade-off. If he makes an analogy that is too close to the danger case, the judge will find impermissible both that analogy and the danger case. The judge moreover will find it easy to distinguish away from these two cases a precedential finding that the activity located at the instant case is permissible. The judicial cost of doing so is trivial because the plaintiff has raised an analogy that is too far removed from the case in which the plaintiff seeks to persuade the judge to do something he doesn't want to do.

On the other hand, if the plaintiff locates his analogical case too close to the instant case, the judge will decide both the analog case and the instant case as permissible and then simply distinguish away the danger case, finding it impermissible. Balancing these two competing effects, the plaintiff must make his analogy in such a way that deciding all three cases in the same direction is the least costly course of action for the judge.

Further, by locating the analogy above $\frac{1}{2}$, the plaintiff ensures that a sequence of three impermissible decisions is less costly to the judge than making three permissible decisions.

Finally, two other comparative statics are worth mentioning. As the judicial weight placed on matching the decision to the state on the instant case becomes larger, the interval of persuasion shrinks. Similarly, as the weight on the danger case increases, the interval of persuasion expands. The latter effect, we suggest, explains why slippery slope arguments always end with a link to a doomsday case.

2.3 Persuasion By Appeal to Consistency Alone ($\mu_2 = 0$)

To get further insights into the trade-offs of analogical argument, suppose that the judge doesn't care at all about the outcome of the analogical case. The judge only cares about the outcomes on the anchor cases. These cases, for example, might be the high profile ones – the ones that end up drawing the attention of Congress or the executive or the press. The much simpler conditions leading to a convincing slippery slope argument run as follows:

Corollary 1. *In the distinguishing cost specification of the model with $\mu_2 = 0$, the advocate is able to successfully generate a slippery slope if and only if: (i) $\mu_3 \geq \mu_1$; (ii) $\frac{\mu_1}{k} \leq \pi_2 \leq 1 - \frac{\mu_1}{k}$.*

If $\mu_3 \geq \mu_1$, then the plaintiff is able to generate a slippery slope argument if and only if $k \geq 2\mu_1$. In such a case the slippery slope argument can always be generated by choosing the case $\pi_2 = \frac{1}{2}$ – the case in the middle of the interval.

The first condition ensures that the judge prefers a sequence of three impermissible decisions to a sequence of three permissible decisions. Because the judge doesn't care about the middle case, this condition reduces to a stronger desire to match the decision to the state on the danger case than the instant case.

The second condition is the Goldilocks condition identified in the introduction. Bluntly, the advocate can't simply maximize the judicial cost of distinguishing the analog from the instant case or the danger case. In short, close to the danger case is far from the instant case and vice versa. And both distances matter for effective persuasion.

As such, the advocate has to seek a balance. Where the court doesn't care about the outcome of the analogical case, such a balance can be reached by locating the analog exactly between the instant case and the danger case. Moreover, this location persuades for the lowest value of distinguishing costs.

3 Multiple Analogies by the Advocate

This section investigates the power of analogical persuasion when the advocate can present the judge two analogy cases instead of one. Is it, as is intuitive, easier for the advocate to persuade in this case? If so, why and, more important, where will the advocate locate his two analogical cases?

As with the three-example setting, we start with the definition:

Definition 3. *We say that the plaintiff is able to generate a winning slippery slope argument in this example if the court's payoff is highest when the decision sequence is* $(d_1, d_2, d_3, d_4) = (1, 1, 1, 1)$.

The proposition articulates the needed conditions. To simplify the conditions we assume that the cases between the two anchors have the same importance to the judge; that is, $\mu_2 = \mu_3 = \mu$.

Proposition 3. *Suppose that $\mu_2 = \mu_3 = \mu$. In the distinguishing cost version of the model, the plaintiff is able to generate a slippery slope by bringing two analogical cases slippery slope if and only if: (i) $2\mu(\pi_2 + \pi_3 - 1) + \mu_4 \geq \mu_1$; (ii) $\mu(2\pi_2 - 1) + 2k - 2k(\pi_3 - \pi_2) \geq \mu_1$; (iii) $2\mu(\pi_2 + \pi_3 - 1) + k(\pi_2 + \pi_3) \geq \mu_1$; (iv) $2k - k(\pi_2 + \pi_3) \geq \mu_1$.*

Proof. See appendix □

To persuade in this setting, the advocate must first and foremost ensure that the judge is better off making a sequence of four impermissible decisions than a sequence of four permissible decisions. Condition (i) guarantees that outcome. This condition mirrors condition (i) in Proposition 2.

Additionally the advocate worries about:

- The ease with which the two analogical cases (if decided the same way) can be distinguished from the instant case or the danger case and
- The ease with which the analogies – if decided differently – can be distinguished from each other.

Take the advocate's first worry. If the two analogical cases can't easily be distinguished from the instant case, the judge will have an an incentive to decide all three of those cases the same way. Yet, the advocate can't locate both analogies too far from the danger case otherwise the court will find it cheap to distinguish his first three permissible decisions from the danger case – there won't be a slippery slope. The same analysis applies for locating the analogical arguments near the danger case and far from the instant case. Basically, the advocate must locate his two cases near, but not too near, both the instant case and the danger case. This is same trade-off that arose in the three case example of Section 2.2.

Notably, four cases adds an additional wrinkle that doesn't appear with three cases. It is reflected in the advocate's second worry identified above. Suppose the advocate brings analogies that are too far apart from each other. Imagine, for instance, that the advocate sets one analogy snugly against the instant case and the second analogy snugly against the danger case. The judge, then, would simply issue two permissible decisions followed by two impermissible decisions, resulting in no persuasion. The advocate avoids this outcome by locating his analogies sufficiently close together.

Reflecting the two worries just discussed, we define persuasion here in terms of the "sum" and "difference" between the two analogical cases. Let the sum of the plaintiff analogical cases be denoted as Π and the difference be denoted as Δ.

The conditions on the sum and differences relate to the bounds on the interval of persuasion in the three case example from Section 2. To see that, define $\underline{\Pi} \equiv \underline{\pi} + \frac{\mu}{k+2\mu}$; $\overline{\Pi} \equiv \overline{\pi} + 1$; and $\tilde{\Delta} \equiv 2 - \frac{\mu_1+\mu}{2k}$.

Manipulating the conditions in Proposition 3, we see the plaintiff is able to persuade by a chain of analogies if

1. $\Pi \in [\underline{\Pi}, \overline{\Pi}]$ and
2. $\Delta \in [0, \overline{\Delta}]$.

The plaintiff finds it is easier to persuade when it can force the court to decide more cases. To see this, assume equal weights on each decision (all the μ's equal 1). If the advocate can bring one case only, she can persuade only if $k \geq 2$. By contrast, if the advocate can bring two cases, she can persuade if $k < 2$ (to see this, notice that the interval in which the sum must lie is strictly positive when $k = 2$; the interval of persuasion in the three case example collapses at that same value of distinguishing costs). Intuitively, the power of the advocate to bring more cases creates an opportunity to foist additional distinguishing costs on that court. And distinguishing costs are the key to a successful chain of analogies argument – fear of these costs induce the court to match all the decisions to one another.

For that reason, we submit, analogical arguments often have a flavor of a chain of analogies – with the advocate adding more and more links in the chain. In the same sex intimacy case, for example, Justice Scalia didn't only raise a single link – say, prostitution – between same-sex sodomy and the restrictions on the hours of the work-week. Instead, he raised multiple links (bestiality, incest between consenting adults, fornication, etc.).

Two other points are worth mentioning. First, the model shows why the advocate will select links in the chain which not only relate to the case at issue, but are closely related to each other as well. If they were not, the judge would find a gap between two dis-similar cases in the chain and draw a distinction to break the chain there. That would be an easy place to articulate a limiting principle for the legal doctrine. The condition on Δ reflects that concern. In words, the advocate must "bunch" his analogical cases together.

Second, the advocate must make sure that a stream of impermissible decisions are more attractive to the court than a stream of permissible decisions. In the three case example, this concern induced the advocate to locate his analogy above $\frac{1}{2}$ (when the cases had equal social value). In the four-case setting, the advocate to persuade must make sure that the average value of the two analogical cases lie above $\frac{1}{2}$ (one can see this by inspection of condition (i) in Proposition 3.

3.1 Persuasion by Appeal to Consistency Alone With Two Analogies ($\mu = 0$)

As in the setting where the advocate can bring up a single case, we might ask here what happens when the judge only cares about the instant case and the danger case. Under this assumption, the conditions become more intuitive and simpler.

Corollary 2. *In the distinguishing cost specification of the model with $\mu = 0$, the advocate is able to successfully generate a slippery slope if and only if: (i) $\mu_4 \geq \mu_1$; (ii) $\pi_3 - \pi_2 \leq 1 - \frac{\mu_1}{2k}$; (iii)-(iv) $\frac{\mu_1}{k} \leq \pi_2 + \pi_3 \leq 2 - \frac{\mu_1}{k}$.*

The condition $\mu_4 \geq \mu_1$ is the same condition as in the case of three cases; it requires that getting the right answer in the danger case is more important than getting the right answer in the danger case.

Further illuminating the discussion above, note that the other two conditions are weaker than in the case of three cases. Indeed if $\mu_4 \geq \mu_1$, a necessary and sufficient condition for the plaintiff that chooses both cases to generate a slippery slope is $k \geq \mu_1$. If such condition holds than a slippery slope can be generated by selecting two cases $\pi_2 = \pi_3 = \frac{1}{2}$ in the middle of the left and right anchor. But notice that selecting $\pi_2 = \frac{1}{3}$ and $\pi_3 = \frac{2}{3}$ would also work. The advocate might bring two identical analogies or build up steam from a series of cases.

3.2 What Happens When The Advocate Can Bring As Many Cases as She Wants?

This section investigates the power to persuade as the number of cases the plaintiff can bring becomes unlimited. To start the analysis, we maintain the assumption that the only cases that matter to the judge are the instant case and the danger case. In addition we assume that the judge only pays a distinguishing cost in cases where there is a "break" between two consequence cases in the string of decisions. The judge, in other words, only must justify a distinction (and pay a cost) if the case he decides differs from the decision in its closest neighboring case. Formally, if we assume that

$$\rho_{j,i} = \begin{cases} (1 - \pi_j + \pi_i)k & \text{if } j = i + 1 \\ 0 & \text{otherwise.} \end{cases}$$

We have the following proposition.

Proposition 4. *Suppose $\mu_T > \mu_1$.*

1. *For any $k > \mu_1$, there exists a number $N(k)$ such that if the plaintiff brings $n > N(k)$ analogies, the plaintiff can persuade the judge.*

2. *The best strategy for the placement of the analogies (i.e., the spacing the persuades for the lowest value of k) is to locate the analogies equidistant from each other on the unit interval.*

Proof. See appendix □

Here we have eliminated, by assumption, all of the distinguishing costs except the cost as between neighboring cases deciding differently. That assumption makes it harder for the advocate to persuade than in setting with two analogies discussed in the previous section. There, the court had distinguish each case from each and every the precedent case that went the other direction, not just the closest precedent case.

Yet, this proposition shows that the advocate can overcome this difficulty by bringing more and more cases, resulting in persuasion under roughly similar conditions. The logic behind the proposition is straightforward. If the outcomes in the intermediate cases are unimportant, the advocate wants to use her ability to bring cases to maximize the distinguishing costs faced by the judge. She does so by bringing as many analogies as she can (an infinite number, in fact). That means the court, at some point, must make a completely arbitrary distinction between identical cases, violating the value of equal treatment. That costs her k. The conditions, then, for the slippery slope to persuade become transparent.

First, the error cost associated with the wrong decision in the instant case must be less than the distinguishing costs of making an arbitrary distinction between factually identical cases somewhere on the unit interval. This condition ensures the judge wants to decide all the cases the same way: all as permissible or all as impermissible. Second, the error cost associated with making the wrong decision in the instant case must be less the error cost associated with making the wrong decision in the danger case. This ensures that the judge prefers to decide all the cases as impermissible rather than permissible. The advocate leverages the judge's desire for equal treatment of identical cases to get what she wants.

Further, the advocate locates his cases equidistant from each other. The optimal strategy is a chain of analogies rather than a bunching of analogies. The advocate charts a path for the judge using equal distant steps between the instant case and the danger case.

What happens when the judge cares about the intermediate cases ($\mu_2 = \mu_3 = ... = \mu_{T-1} = \mu$)? Now the advocate has to take into account an additional effect. Bringing more analogies still enables the advocate to create more distinguishing costs. It pushes each case closer together. That helps the advocate persuade. On the other hand, now as the advocate brings more and more cases the cost the judge of deciding all the cases as impermissible increases. Recall that, given her prior beliefs about the right answer, the judge has an incentive to decide all the cases below $\frac{1}{2}$ as permissible and the cases above $\frac{1}{2}$ as impermissible. It is now no longer the case that spacing a fixed number of analogies in an equidistant way is optimal. Indeed, the spacing between the cases to the left of the midpoint $\frac{1}{2}$ now must be increasing, to balance the cost to the judge of deciding against her prior beliefs. To the contrary, the spacing of cases can be increasing to the right of the midpoint, as the advocate may exploit the benefit to the judge of a decision that accords with what her prior beliefs suggest. As a consequence, the analog of Proposition 4 goes through, but the conditions under which the advocate is able to persuade the judge are more stringent. Maintaining the assumption that $\mu_T > \mu_1$, the distinguishing cost k must be above a larger lower bound on μ_1 to guarantee that the advocate may persuade the judge.

4 Advocacy Competition

We next consider what happens when the plaintiff's advocate faces an opponent. Under what conditions can the defendant break the slippery slope? What does the equilibrium of the "argument" game look like? Will the advocates locate their analogies far away from each other or close together?

Formally, consider the case with a plaintiff and a defendant. Suppose the plaintiff decides the location π_P of a case and the defendant's advocate decides the location π_D of another case. We make no a priori assumption about the location of the two cases and denote by $d_2 = \pi_2$ the location of the case closer to the instant case; that is, $d_2 = \pi_2 = \min\{\pi_D, \pi_P\}$ and $d_3 = \pi_3 = \max\{\pi_D, \pi_P\}$.

The question is: Can the plaintiff still persuade despite the defendant's best efforts to break the slippery slope? As in the rest of the paper, we say that the plaintiff is able to generate a winning slippery slope argument in this example if the court's payoff is highest when the decision sequence is $(d_1, d_2, d_3, d_4) = (1, 1, 1, 1)$. We have the following proposition:

Proposition 5. *Suppose that $\mu_2 = \mu_3 = \mu$. Facing a defendant in the distinguishing cost version of the model, the plaintiff is able to generate a slippery slope if and only if: (i) $2\mu(\pi_2 + \pi_3 - 1) + \mu_4 \geq \mu_1$; (ii) $\mu(2\pi_2 - 1) +$*

$2k - 2k(\pi_3 - \pi_2) \geq \mu_1$; *(iii)* $2\mu(\pi_2 + \pi_3 - 1) + k(\pi_2 + \pi_3) \geq \mu_1$; *(iv)* $2k - k(\pi_2 + \pi_3) \geq \mu_1$.

Proof. The proof is the same as found in Proposition 3. $\square$

We begin by isolating the effect dues to an increase in cases and hence the associated distinguishing costs, by assuming that the two cases brought up by the advocates are unimportant.

4.1 Persuasion by Appeal to Consistency only $\mu = 0$

With only consistency mattering for intermediate cases, corollary 2 gives the conditions under which a slippery slope argument can prevail.

Suppose that the defendant must select one case; that is, it does not have the option to stay silent.

As we shall see, under some parameter configurations equilibrium is in mixed strategies and hence we need to specify the advocates' payoffs. Assume that the two advocates obtain the same payoff when the decision is their preferred one (say 1) and also when it is their least preferred (say zero).

Proposition 6. *Suppose that $\mu_2 = \mu_3 = \mu = 0$ and $\mu_4 \geq \mu_1$. Facing a competing advocate in the distinguishing cost version of the model, (i) the plaintiff is able to generate a slippery slope if $k \geq 2\mu_1$; (ii) the defendant is able to stop a slippery slope if $k < \frac{3}{2}\mu_1$; (iii) equilibrium is in mixed strategies if $\frac{3}{2}\mu_1 \leq k < 2\mu_1$ and the slippery slope occurs with probability $1/2$; the defendant chooses $\pi_D = 0$ and $\pi_D = 1$ with equal probability, while the plaintiff chooses $\pi_P = 1 - \frac{\mu_1}{k}$ and $\pi_P = \frac{\mu_1}{k}$ with equal probability.*

Proof. See appendix $\square$

Recall that by Corollary 1, without a defendant there can be a slippery slope if and only if $k \leq 2\mu_1$. Hence the presence of the defendant can only hurt its cause if the advocate must bring a case up (if (iii) holds) and certainly never benefits him. In other words, the defendant is better off not bringing a case up, if that is an option.

Proposition 7. *Suppose that $\mu_2 = \mu_3 = \mu = 0$ and $\mu_4 \geq \mu_1$ in the distinguishing cost version of the model. It is a dominant strategy for the defendant advocate not to select any case, if this is an option, so that the plaintiff is able to generate a slippery slope if and only if $\frac{\mu_1}{k} \leq \frac{1}{2}$.*

Thus, when the cases brought up are unimportant, an advocate for the defendant is powerless. Silence is the dominant strategy, as bringing up a case may hurt and never benefits the defendant.

In the next subsection we show that things are quite different when the cases brought up are important. To focus on the difference, we will assume that all cases are equally important.

4.2 Equally Important Cases: $\mu_i = \mu$, $i = 1, 2, 3, 4.$

We now show that when all cases are equally important the defendant can stop a slippery slope by placing his analogous case at the instant case.

Proposition 8. *With four cases presented and $\mu_1 = \mu_2 = \mu_3 = \mu_4 = \mu$, the defendant is able to stop a slippery slope argument by the plaintiff and induce a permissible decision in the left anchor case (the one he cares about) by making an analogy at that same location.*

Proof. If $\pi_2 = 0$, the plaintiff can only satisfy condition (iii) in Proposition 5 by setting $\pi_3 = 1$. But if $\pi_2 = 0$ and $\pi_3 = 1$, then condition (ii) is violated. $\square$

The intuition here is fairly straightforward. By placing an analogy at the same location as the instant case the defendant increases the court's cost of finding the activity at that location impermissible. The court faces an uncomfortable set of choices. For one, the court could decide the defendant's analogous case and the instant case differently, one as permissible and one as impermissible. That is not a good idea. The reason: it creates high distinguishing costs. After all, the defendant's analogical case and the instant case have identical facts.

Alternatively, the court could decide both the defendant's analogical case and the instant case as impermissible. But then the court would be making two mistakes not one in matching decisions to that state, which is painful for the court. Both of these effects push the court toward deciding the instant case as permissible.

The logic of the Proposition 8 appears in public and court debates about the merits of a slippery slope arguments. Consider first the case of the monuments to confederate war heroes. Following the shooting and murders at an African American church by a white supremacist, a social movement arose to tear down public monuments of confederate war heroes. President Trump attacked these movements with a slippery slope argument. He maintained that consistency demanded that any argument in favor of the removal of these movements would apply with similar force to monuments of the founding fathers. After all, he reasoned, the Founding Fathers also owned slaves.

To counter this narrative, advocates for the confederate war statue removal made their own analogy. They pointed out that many of these statues were erected during Jim Crow as symbols of oppression. Implicit here is that a supporter of permitting the continued public display of confederate statues must also be comfortable with permitting Jim Crow laws. In the model, this appears as the defendant's advocate raising a case close to 0 to counter the plaintiff's advocacy rooted in the slippery slope.

Take another example: the gay marriage case outlined in the introduction. Justice Roberts made a slippery argument, stating that any member of the court voting that the state could not ban gay marriage must also vote that the state could not ban polygamous marriage. In response, advocates for gay marriage equality made their own analogy. They stated that any justice that allowed the state to ban gay marriage must also be willing to allow the state to ban interracial marriage. They located an analogy at point 0 in the model to break the slippery slope.

5 Conclusion

The typical economic model of persuasion focuses on the revelation of evidence. In disclosure and cheap talk models, the agent has evidence about the state of world, which she might reveal to the principal. The tension comes because the agent wishes to reveal, but not all the information available. In the Bayesian persuasion models, the agent selects a signaling technology with the hope of persuading (in expectation) the principal. The signaling technology, again, produces some evidence about the true state of the world. Yet in many real world contexts, evidence isn't driving the persuasion. Instead persuasion comes from an appeal to analogy and chained analogical reasoning: this situation relates to this situation which relates to still this other situation. The decision-maker has a desire for consistency among decisions, but the cost of inconsistency differs depending on the fit of the analogy between any two cases. Our model shows, given this preference, a fully rational decision-maker can be persuaded by the chain of analogies. And that is true even in the presence of multiple advocates.

6 Appendix

PROOF OF PROPOSITION 3:

Proof. It is simple to calculate the court's payoffs $U(d_1, d_2, d_3, d_4)$ for all possible decision sequences. They are:

$$
\begin{aligned}
U(1,1,1,1) &= -\mu_1 - (1-\pi_2)\mu - (1-\pi_3)\mu \\
U(0,1,1,1) &= -(1-\pi_2)\mu - (1-\pi_3)\mu - (1-\pi_2)k - (1-\pi_3)k \\
U(1,1,1,0) &= -\mu_1 - (1-\pi_2)\mu - (1-\pi_3)\mu - \mu_4 - (\pi_2+\pi_3)k \\
U(1,0,1,1) &= -\mu_1 - \pi_2\mu - (1-\pi_3)\mu - k - (1-\pi_3+\pi_2)k \\
U(1,1,0,1) &= -\mu_1 - (1-\pi_2)\mu - \pi_3\mu - k - (1-\pi_3+\pi_2)k \\
U(0,0,1,1) &= -\pi_2\mu - (1-\pi_3)\mu - 2(1-\pi_3+\pi_2)k \\
U(0,1,0,1) &= -(1-\pi_2)\mu - \pi_3\mu - 2k \\
U(0,1,1,0) &= -(1-\pi_2)\mu - (1-\pi_3)\mu - \mu_4 - 2k \\
U(1,0,0,1) &= -\mu_1 - \pi_2\mu - \pi_3\mu - 2k \\
U(1,0,1,0) &= -\mu_1 - \pi_2\mu - (1-\pi_3)\mu - \mu_4 - 2k \\
U(1,1,0,0) &= -\mu_1 - (1-\pi_2)\mu - \pi_3\mu - \mu_4 - 2(1-\pi_3+\pi_2)k \\
U(0,0,0,1) &= -\pi_2\mu - \pi_3\mu - (\pi_2+\pi_3)k \\
U(0,0,1,0) &= -\pi_2\mu - (1-\pi_3)\mu - \mu_4 - k - (1-\pi_3+\pi_2)k \\
U(0,1,0,0) &= -(1-\pi_2)\mu - \pi_3\mu - \mu_4 - k - (1-\pi_3+\pi_2)k \\
U(1,0,0,0) &= -\mu_1 - \pi_2\mu - \pi_3\mu - \mu_4 - (1-\pi_2)k - (1-\pi_3)k \\
U(0,0,0,0) &= -\pi_2\mu - \pi_3\mu - \mu_4
\end{aligned}
$$

Nine such decision sequences are payoff dominated for all possible parameters. (1) $(0,1,1,1)$ dominates $(0,1,1,0)$ (note here a backward induction argument: after $(0,1,1)$, choosing $d_4 = 1$ dominates $d_4 = 0$) ; (2) $(1,1,1,1)$ dominates $(1,1,1,0)$; (3) $(0,0,1,1)$ dominates $(1,0,1,1)$ (note here a forward induction argument, if you are going to choose 1 for cases 3 and 4 then it is better to go 0,0 on cases 1 and 2 rather than to go 1,0) ; (4) $(1,1,0,1)$, $(0,1,0,1)$ and $(0,0,1,0)$; (5) $(0,0,0,0)$ dominates $(1,0,0,0)$; (6) $(0,0,0,1)$ dominates $(1,0,0,1)$; (7) $(0,0,1,0)$ dominates $(0,1,0,0)$.

There are seven sequences that are not dominated.

1. Condition (i) guarantees that $U(1,1,1,1) \geq U(0,1,1,1)$.
2. Condition (ii) guarantees that $U(1,1,1,1) \geq U(0,0,1,1)$.
3. Condition (ii) implies that $U(1,1,1,1) > U(1,1,0,0)$.
4. Condition (ii) implies that $U(1,1,1,1) > U(1,0,1,0)$.
5. Condition (iii) guarantees that $U(1,1,1,1) \geq U(0,0,0,0)$.
6. Condition (iv) guarantees that $U(1,1,1,1) \geq U(0,0,0,1)$.

This concludes the proof that conditions $(i) - (iv)$ are necessary and sufficient

□

PROOF OF PROPOSITION 4:

Proof. SKETCH

Start by narrowing down the number of sequences which must be compared with the payoff to a sequence of all impermissible decisions. Basically, we want to show that we only need to look at cases with a single break between permissible and impermissible decisions no matter where the advocate locates his analogical cases. Now, of course, that break could occur anywhere: at the first case, the second case and so on. we start by establishing the following claim:

Claim: Consider any sequence where the judge decides the instant case as permissible and the danger case as impermissible. For any ordering of analogical cases $\pi_2 ... \pi_{T-1}$, the payoff to the judge from a sequence with one break (i.e., one place where the decision rule changes from permissible to impermissible) is greater than the payoff from a sequence where an additional break is added to that sequence.

To see why this is so, consider any arbitrary location of a sequence of analogical cases. The payoff to a sequence with one break (say at case t) is

$$-(1 - \pi_t + \pi_{t-1})k.$$

The payoff to a sequence with an additional break at, say, s, and

$$-(1-\pi_t+\pi_{t-1})k-(1-\pi_s+\pi_{s-1})k-\mu_T.$$

which is strictly less.

Assuming we only need to check sequences with a single break, the payoffs we need to check versus the payoff to a string of impermissible decisions (i.e., μ_1) follow:

$$\begin{aligned}
U(0,1,1,1,...1,1) &= -(1-\pi_2)k \\
U(0,0,1,1,...1,1) &= -(1-(\pi_3-\pi_2))k \\
U(0,0,0,1,...1,1) &= -(1-(\pi_4-\pi_3))k \\
&\vdots \\
U(0,0,0,,..0,1) &= -(1-(1-\pi_{T-1}))k
\end{aligned}$$

Each of these must be less than $-\mu_1$ for persuasion to occur. We can thus write these conditions compactly as

$$\mu_1 < min\{(1-\pi_2)k,(1-(\pi_3-\pi_2)),...,(1-(1-\pi_{T-1}))k\} \tag{3}$$

Next suppose that the advocate can select the location of the analogies. To persuade he wants this minimum to be as large as possible. In other words, he wants to maximize the RHS of this inequality. In words, the advocate wants to ensure that distinguishing costs are as large as possible as between any two pairs of cases, knowing that making the distinguishing costs higher between, say, case 2 and case 3 (by bringing them closer together) will lower the distinguishing costs between cases 3 and 4.

The RHS is maximized by setting $\pi_2 = \pi_3 - \pi_2 = ...1 - \pi_{T-1}$. And, as a result, the distinguishing costs are the same between any two cases. To see why suppose otherwise. Suppose that the advocate sets, say, $\pi_2 > \pi_3 - \pi_2 = ...1 - \pi_{T-1}$. In that case, the distinguishing costs are lowest between the first case and the second case. And, as a result, the minimum distinguishing costs occur when the judge has to distinguish case 1 from case 2. Those costs are $(1-\pi_2)k$. The advocate can increase these costs by lowering π_2 until $\pi_2 = \pi_3 - \pi_2$, and so spacing the analog cases unevenly cannot be optimal for the advocate.

Finally, consider what happens as the number of analogies goes to infinity. The space between any two cases goes to 0. Condition 3, then, becomes $\mu_1 < k$, which completes the proof. $\square$

PROOF OF PROPOSITION 6:

Proof. We begin by proving (i). Suppose the plaintiff's advocate chooses $\pi_P = \frac{\mu_1}{k}$. Then condition (iii) in Corollary 2 holds for all possible choices of π_D and condition (iv) in Corollary 2 also holds as it requires that $\pi_D \leq 2 - 2\frac{\mu_1}{k}$, which holds for all π_D since $2\mu_1 \leq k$. To see that (ii) in Corollary 2 also holds, consider first $\pi_D \leq \pi_P$; then (ii) requires that $\pi_D \geq \frac{3\mu_1}{2k} - 1$, which holds since $\frac{3\mu_1}{2k} - 1 < 0$ when $\frac{\mu_1}{k} \leq \frac{1}{2}$. Second, consider $\pi_D \geq \pi_P$; then (ii) requires that $\pi_D \leq 1 + \frac{\mu_1}{2k}$, which holds. Thus, by choosing $\pi_P = \frac{\mu_1}{k}$ the plaintiff can generate a slippery slope.

To prove (ii), assume the defendant's advocate chooses $\pi_D = 1$. Note that conditions (ii) in Corollary 2 requires that $\pi_P \geq \frac{\mu_1}{2k}$, while condition (iv) requires that $\pi_P \leq 1 - \frac{\mu_1}{k}$. Thus it must be $\frac{\mu_1}{2k} \leq 1 - \frac{\mu_1}{k}$, or $\frac{3\mu_1}{2k} \leq 1$, contradicting the assumption that $\frac{3}{2}\mu_1 > k$. Since the four necessary and sufficient condition to generate a slippery slope cannot be satisfied, the defendant can stop a slippery slope argument by choosing $\pi_D = 1$.

It remains to prove (iii). Since the game between the two advocates is a zero-sum game, it must have a value; that is, in all equilibria the winning probabilities of the two advocates must be the same. It is thus sufficient to present a profile of mixed equilibrium strategies. One such profile is the following: the defendant's advocate choose $\pi_D = 0$ and $\pi_D = 1$ with equal probability and the plaintiff's advocate choose $\pi_P = \frac{\mu_1}{k}$ and

$\pi_P = 1 - \frac{\mu_1}{k}$ with equal probability. To see that this is an equilibrium, suppose the defendant choose $\pi_D = 0$ and $\pi_D = 1$ with equal probability. By conditions $(ii) - (iv)$ in Corollary 2, to win against $\pi_D = 0$ the plaintiff must choose π_P in the interval $\left[\frac{\mu_1}{k}, \min\{1 - \frac{\mu_1}{2k}, 2 - \frac{\mu_1}{k}\}\right] = \left[\frac{\mu_1}{k}, 1 - \frac{\mu_1}{2k}\right]$; to win against $\pi_D = 1$ the plaintiff must choose π_P in the interval $\left[\max\{\frac{\mu_1}{k} - 1, \frac{\mu_1}{2k}\}, 1 - \frac{\mu_1}{k}\right] = \left[\frac{\mu_1}{2k}, 1 - \frac{\mu_1}{k}\right]$. Since $1 - \frac{\mu_1}{k} < \frac{\mu_1}{k}$, the two intervals do not overlap and the choice of any randomization with equal probability of landing in one of the two intervals is a best reply.

Thus, in particular, choosing $\pi_P = \frac{\mu_1}{k}$ and $\pi_P = 1 - \frac{\mu_1}{k}$ with equal probability is a best reply. Now suppose that is the choice made by the plaintiff's advocate.

Consider the choice by the plaintiff of $\pi_P = \frac{\mu_1}{k}$. First note that Condition (iii) in Corollary 2 holds, while condition (iv) holds if and only $\pi_D \leq 2 - 2\frac{\mu_1}{k}$. Thus the defendant can kill the slippery slope be selecting $\pi_D \in \left(2 - 2\frac{\mu_1}{k}, 1\right]$. Second, note that if $\pi_D \geq \pi_P = \frac{\mu_1}{k}$ then condition (ii) holds. Third, note that if $\pi_D < \pi_P = \frac{\mu_1}{k}$ then condition (ii) holds, as it holds if and only if $\pi_D \geq \frac{3\mu_1}{2k} - 1$ and in this case $\frac{3}{2}\mu_1 \leq k$. Thus we may conclude that if $\pi_P = \frac{\mu_1}{k}$, then the defendant wins by selecting $\pi_D \in \left(2 - 2\frac{\mu_1}{k}, 1\right]$.

Now consider the choice by the plaintiff of $\pi_P = 1 - \frac{\mu_1}{k}$. First note that Condition (iv) in Corollary 2 holds; condition (iii) holds if and only $\pi_D \geq 2\frac{\mu_1}{k} - 1$ and hence the plaintiff wins if $\pi_D \in \left[0, 2\frac{\mu_1}{k} - 1\right)$. Second, note that if $\pi_D \geq \pi_P = 1 - \frac{\mu_1}{k}$ then condition (ii) holds since it requires that $\pi_D \leq 2 - \frac{3\mu_1}{2k}$; similarly, if $\pi_D < \pi_P = 1 - \frac{\mu_1}{k}$ then condition (ii) holds. Thus we may conclude that if $\pi_P = 1 - \frac{\mu_1}{k}$, then the defendant wins by selecting $\pi_D \in \left[0, 2\frac{\mu_1}{k} - 1\right)$.

To conclude, to win against $\pi_P = \frac{\mu_1}{k}$ the defendant must choose π_D in the interval $\left(2 - 2\frac{\mu_1}{k}, 1\right]$ and to win against $\pi_P = 1 - \frac{\mu_1}{k}$ the defendant must select $\pi_D \in \left[0, 2\frac{\mu_1}{k} - 1\right)$. Since $2\frac{\mu_1}{k} - 1 < 2 - 2\frac{\mu_1}{k}$, the two intervals do not overlap and the choice of any randomization with equal probability of landing in one of the two intervals is a best reply. In particular, it is a best reply to choose $\pi_D = 0$ and $\pi_D = 1$ with equal probability. This concludes the proof. $\square$

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