

# Mend it, don't end it: optimal mortality in affairs of honor\*

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## Abstract

Duels remained an important and surprisingly common means of conflict resolution in the American South until after the Civil War. In the North, however, these affairs of honor become rare after the 1804 interview where Aaron Burr killed Alexander Hamilton. We examine two historical puzzles. First, why did dueling persist in the South but not the North? Second, why did duelers use relatively inaccurate weapons when deadlier weapons were available? We find the following results. One, when the public views dueling as an appropriate means of mitigating the effects of libel, then it encourages socially desirable behavior such as reduced libel and more moderate behavior. We present evidence that dueling had such an effect in the South but not the North. Two, a sufficiently high mortality rate may deter libel without actually resulting in any dueling deaths. Outlawing dueling is thus never optimal. Third, if mortality rates are too high, then dueling is no longer an effective institution.

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## 1 Introduction

Years later, reflecting on the Southern “Code” of dueling, [US senator from Maryland] Charles Gibson maintained that as wicked as the code was, the vulgar public behavior following the demise of the practice was worse still. “The code preserved a dignity, justice and decorum that have since been lost,” he argued, “to the great detriment of the professions, the public and the government. The present generation will think me barbarous but I believe that some lives lost in protecting the tone of the bar and the press, on which the Republic itself so largely depends, are well spent.”

—*Team of Rivals*, Doris Kearns Goodwin, pg. 65

“...you do further solemnly swear that [you] have not fought a duel with deadly weapons within this State nor out of it, nor have you sent or accepted a challenge to fight a duel with deadly weapons, nor have you acted as a second in carrying a challenge, nor aided or assisted any person thus offending, so help you God.”

—Kentucky oath of office, as of February 15, 2015

Dueling was the preferred means of conflict resolution among aristocrats in the Antebellum American South. While it is impossible to precisely quantify the number of duels which took place, we have constructed a data set of one interesting subset of the aristocracy, US senators, and have to date found 56 senators who participated in an affair of honor. This is approximately 20% of all senators who represented states in which dueling was tolerated.<sup>1</sup> The true number is surely larger than this estimate. Only three of these fell on the field of honor, likely due to the widespread use of dueling pistols deliberately manufactured to be, to the modern eye, surprisingly ineffective (the pistols, though exquisitely made, were smooth-bore, short-barreled, muzzle-loaded, flintlock-fired guns, far from being state-of-the-art as deadly weapons). Indeed, a contemporary estimate puts the probability of dying in a duel at only  $\frac{1}{14}$  (Schwartz, et al., 1984). These data present two puzzles. One, why was dueling so common and seemingly effective at mitigating libel in the South but not the North? Two, why did such an august institution use inferior weapons when more modern guns were available?

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<sup>1</sup>Henry Clay, Humphrey Marshall, David C. Broderick, Armistead T. Mason, Andrew Jackson, George A. Waggoner, James Shields, John Randolph, William H. Crawford, John Rowan, George M. Bibb, Thomas H. Benson, James D. Westcott, David Barton, James Gunn, James Jackson, Josiah Johnson, Thomas Clingman, John Fremont, Sam Houston, John Crittenden, Pierce Butler, Thomas Metcalfe, John Adair, Benjamin Gratz Brown, Henry Geyer, Henry Foote, Louis Wigfall, Alexander Buckner, Lewis Linn, Garrett Davis, Jonathan Dayton, George McDuffie, William Gwin, John Breckinridge, James Farley, George Wallace Jones, Harrison Riddleberger, James Hammond, Dewitt Clinton, Edward Lloyd, Robert Wright, Thomas Rusk, George Campbell, Jefferson Davis, William R. King, Gabriel Moore, Clement C. Clay, William C. C. Claiborne, Jeremiah Clemens, Ambrose Sevier, Solon Borland, Aaron Burr, Judah Benjamin, and Franklin Pierce. Senators Pierce, Bibb, Johnson, Crittenden, Adair, and Davis acted as seconds in duels, but may not have ever participated as principals. Senator Linn participated in a friend’s duel as a surgeon. Senators Metcalfe, Davis, Dayton, Hammond, Rusk, King, and Benjamin issued calls to the field of honor, but were declined or otherwise unable to come to acceptable terms. Sen. Barton is not known to have been personally involved in a duel, but his brother Joshua was killed in one defending charges the senator had made in a newspaper against a rival. The other 41 acted as principals on the field of honor. We do not count William Yancey, who was a confederate senator from Alabama.

We present potential answers to both puzzles. First, it is our view that the occasional dueling fatality was tolerated in the South because the institution increased welfare. Specifically, we argue that dueling had the ability to deter personal attacks in public conflicts, encouraging rivals to instead focus on the merits of their respective causes. Indeed, the benefits of a more civil and reasoned public discourse were almost universally cited by Southern gentlemen as *raisons d'être* for dueling.

Second, we argue that the deterrent effect of dueling relied on the probability of death being neither too high nor too low. Given the unique nature of a duel (specifically, that the same probability of death applied equally to the challenger and the challenged), the institution would not have survived the widespread acceptance of, say, revolvers, which would have greatly increased the probability of death. In this case, gentlemen would be so hesitant to issue a challenge that uncouth behavior would be unchecked. Moreover, the widespread Southern acceptance of dueling seems to depend on a gentleman's willingness to face a non-zero death probability, so were dueling too safe, the institution's public acceptance may have diminished, which would have quickly led to its obsolescence.

To answer the two puzzles posed above, we explicitly model the cause of dueling as an underlying public conflict turned personal. Gentleman engaged in a public conflict (i.e. lawyers arguing a case, prominent citizens disputing a political point in the editorial pages of a newspaper) can try to achieve their preferred outcome by pointing out the merits of their case, or by undermining their opponent with personal attacks. In societies in which dueling is accepted as normal practice (such as the Antebellum South), a duel can usefully serve to redirect attention back to the merits of each contestant's cause, so that the threat of a duel can therefore discourage personal attacks in the first place. In societies in which dueling is not accepted (such as the Northern U.S. subsequent to the Hamilton-Burr duel), dueling can do nothing to help either contestant, as a duel will only lead the public to think both parties barbarous. Dueling's social utility therefore depends on its acceptance among polite society. In the Antebellum South, this acceptance existed for largely exogenous reasons (it was tied up with slavery as a symbol of Southern pride and played into the Southern gentleman's self-portrait of rugged individualism), but also for endogenous reasons (the self-evident benefit of quieting base personal attacks from people like Hamilton).<sup>2</sup>

A small economics literature exists examining the institution of dueling. O'Neill (2003) views duels as increasing the cost of conflict in a sequential bargaining game. Allen and Reed (2006) view a duel as a signal that the combatants have high social capital, and are thus worthy of participating in genteel society. Kingston and Wright (2010) view creditors as the instigators of duels, and delinquent debtors as their targets, with creditors having an eye toward deterring future delinquencies. None of these papers focus on explaining the two historical puzzles we consider.

Section 3 provides a simple theoretical model outlining this view of dueling. First, however, section 2 studies the historical record on dueling, with the aim of establishing the stylized facts discussed above, and motivating our model of dueling. Section 4 concludes.

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<sup>2</sup>Due to its reliance on the revenue generated from cotton, and the slave labor required to harvest it, the South "shut itself away from the rest of the civilized world," and "turned in on themselves and on the past. It was natural, therefore, that along with slavery this other obsolete institution, the code of honor, should be cherished unquestioningly long after public opinion in the English-speaking world had outlawed it as barbarous. There was little corrective of self-criticism, humor, or satire anywhere in the South; no Mark Twain as yet to play Cervantes to the theatrical chivalry of his section. The duel became as sacred as slavery. All thinking in Southern states was paralyzed by the worship of these two ill-favored sacred cows." (Stevens (1940) pg. 75)

## 2 Overview of dueling

In this section, we seek to establish several historical facts about the institution of dueling, as well as give an overview of the process leading up to a duel.

### 2.1 Dueling was common among Antebellum Southern gentlemen, but was rare in the North

While the July 11, 1804 duel between Alexander Hamilton and Aaron Burr — which ended Hamilton's life and Vice-President Burr's political career<sup>3</sup> — is widely known, it was not unusual. Dueling was common in the Southern United States throughout the 19th century. The practice seems to have been popularized in the US by French and British officers during the Revolutionary War.<sup>4</sup> While dueling was not a uniquely American affair,<sup>5</sup> by the nineteenth century it was a predominantly Southern US institution. Though it never caught on in New England, and was anathema in the rest of the North after the 1804 death of Alexander Hamilton, the South felt no such restraint until after the Civil War.<sup>6</sup> In addition to the 56 senators mentioned in the introduction, at least 29 governors, 57 US congressmen, and 7 cabinet secretaries participated in duels, with almost all coming from the South or the pre-1804 North. Surviving records indicate that at least 50 duels were fought at the Blandensburg dueling grounds outside of Washington DC alone, though this figure “would not compare” with The Dueling Oaks (New Orleans) or Dueling Island (Vicksburg, TN) (Stevens, 1940, pg 145). A nineteenth century newspaper account claims “between 1834 and 1844 scarcely a day passed without duels being fought at the Oaks.”<sup>7</sup>

Despite the relative ineffectiveness of dueling pistols, duels claimed the lives of three US senators (one sitting),<sup>8</sup> one signer of the Declaration of Independence,<sup>9</sup> one standing congressman,<sup>10</sup> and naval war hero Stephen Decatur.<sup>11</sup> Henry Clay<sup>12</sup> and Andrew Jackson<sup>13</sup> both participated in multiple duels.

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<sup>3</sup>According to one historian, Burr “became the most despised national leader since Benedict Arnold” (Ellis, 2000).

<sup>4</sup>Stevens, 1940, pg. 13.

<sup>5</sup>For example, four Prime Ministers of United Kingdom (William Petty (the Second Earl of Shelburne), William Pitt the Younger, George Canning, and Arthur Wellesley (the Duke of Wellington)) fought in duels, two of them while holding office at the time.

<sup>6</sup>A history of the old South, 1975, by Clement Eaton provides an interesting account of shifting attitudes towards dueling in the North and South.

<sup>7</sup>Times-Democrat, March 13, 1892.

<sup>8</sup>Armistead T. Mason of Virginia was killed by his brother-in-law on 2/6/1819. George A. Waggaman of Louisiana was killed on 3/31/1843. David C. Broderick of California was shot on 9/13/1859 by David S. Terry, a chief justice of the California supreme court, who resigned “to free himself from possible criticism” which might arise upon his shooting Sen. Broderick.

<sup>9</sup>Button Gwinnett, died 5/16/1777 at the hands of Lachlan Macintosh, a brigadier general in the Continental Army.

<sup>10</sup>Congressman Jonathan Cilley of Maine was killed by standing Congressman William Graves of Kentucky on 2/24/1838. Two other active congressmen served as the seconds (Stevens, pp. 219-227).

<sup>11</sup>Decatur was shot by a subordinate officer he had once court-martialed for ‘unpreparedness’ on 3/22/1820 (Seitz, 1966).

<sup>12</sup>Clay dueled former Sen. Humphrey Marshall, of Kentucky, on 1/19/1809. Both men were shot, but survived. Clay also dueled Sen. James Randolph on 4/8/1826, but managed only to shoot a hole in his coat.

<sup>13</sup>When Jackson announced his candidacy for the presidency, a political opponent published a pamphlet entitled “The Indiscretions of Andrew Jackson” which claimed Jackson was involved in 14 duels between the ages of 13 and 60 (Seitz, pg. 123). Only one is known to have resulted in a fatality; Jackson killed Charles Dickinson on 5/30/1806. Dickinson had himself killed 26 people in Duels (*ibid.*).

Abraham Lincoln narrowly avoided a duel by the maneuvering of his representatives, but the feud was serious enough that both parties did arrive at the agreed-upon location.<sup>14</sup> While it is much more likely that records of duels involving prominent politicians will persist across the years, we have no reason to believe that other gentlemen were less inclined to the field of honor; that the names of most nineteenth century lawyers, clergy, newspaper editors, professors, military officers, or doctors are lost to history should not be construed to mean that these latter groups had fewer affairs of honor than politicians. For example, one source suggests that  $\frac{2}{3}$  as many naval officers died on the field of honor as died in all naval conflicts between 1798 and the start of the Civil War (Stevens, 1940, pg. 73).<sup>15</sup> While a similar estimate for the army is elusive, affairs of honor were common among army officers as well. Despite its frequency, there has not been one single court martial for dueling in the history of either service.

In contrast, almost no duels took place north of New York City<sup>16</sup> (Stevens, 1940, pg. 31), and very few took place in the rest of the North after the Burr-Hamilton duel, which spurred “clergymen, college presidents, and other self-appointed spokesmen for communal standards of morality ... to launch a crusade against dueling throughout most of the Northern states” (Ellis, 2000, page 39.), leading to the practice’s virtual elimination North of Washington DC.

## 2.2 Duels arose out of public contests

From 1816-1818, two Transylvania University medical school professors, Dr. Drake and Dr. Dudley, battled for influence over how the department should be run and methods of instruction. As the dispute became more acrimonious, Dr. Dudley charged that Drake “had attempted to destroy the medical school at Transylvania University”. The vitriol increased “with occasional outbreaks in pamphlet”, until August 1818 when a duel erupted (Coleman, 1953).

Henry Clay and Humphrey Marshall, while both serving in the Kentucky General Assembly in 1807, differed as to the propriety of an embargo on British-made products during an undeclared naval war with Great Britain. Arguments for and against the policy soon shifted to personal insults (Clay was a “demagogue” and “liar”), and a dueled followed, ending with Clay being seriously wounded with a bullet in his thigh.

George Trotter, while serving as editor of the *Kentucky Gazette*, objected both to Charles Wickliffe’s pro-slavery stance and his having murdered the previous editor.<sup>17</sup> Wickliffe invited Trotter to an interview and was immediately accepted on the condition that the duel be fought at the unusual distance of only 8 feet. Wickliffe was soon dead.

According to Stevens (1940), “Men shot each other for gambling debts, for a dispute over billiards,

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<sup>14</sup>Illinois state auditor James Shields had challenged Lincoln to a duel. Lincoln, as was his right as the challenged, selected heavy broadswords wielded while standing on a narrow plank as his preferred weapon. The duel, scheduled for 9/22/1842, never took place. The two became friends and President Lincoln later appointed Shields a brigadier general in the Union army (Seitz, 1966).

<sup>15</sup>In addition to the War of 1812, this period includes the Barbary pirates conflict and an undeclared quasi-war with France.

<sup>16</sup>A Massachusetts anti-dueling law and a related push by John Adams to ban dueling in the Continental Army are representative of contemporary attitudes towards dueling in New England.

<sup>17</sup>This previous dispute of Wickliffe’s grew out of opposing letters to the editor between Wickliffe and anti-slavery gentlemen. When the previous editor refused to reveal the identity of an anonymous letter writer, Wickliffe shot him. He was represented at his trial by recent US Secretary of State Henry Clay and future senator John Crittenden, and exonerated after a 5-minute jury deliberation.

an uncomplimentary word in an editorial, a jest at a table, a refusal to take a glass of whiskey, or, most of all, for disagreements in politics.” In our reading of history, “disagreements in politics” include all public conflicts, where gentlemen compete for the esteem of a third party. Hamilton and Burr were old political enemies. Decatur was shot by a former subordinate officer who disagreed with Decatur’s assessment of him during a court martial. Andrew Jackson’s one fatal duel arose out of a dispute over the propriety of a horse wager, with his eventual victim being goaded into stepping up his dispute with Jackson by one of Jackson’s political opponents.<sup>18</sup> Sitting congressmen George Washington Campbell and Barent Gardenier dueled in 1808 following a public dispute over the British embargo. Numerous duels arose from the Yazoo land deal, in which Georgia politicians attempted to sell seized Creek Indian lands at absurdly low prices to a company in which many of them held stock, including at least three involving James Jackson, who at various times served as both Georgia’s senator and governor. In the non-random sample of duels listed in Schwartz et al. (1984), of the 23 duels whose underlying cause is easily inferable, 15 clearly arise from public conflicts such as those described above.

Little attention has been given in the dueling literature to the circumstances directly antecedent to duels taking place. In our view, the majority of duels for which records survive arose out of public contests, broadly defined. Two men compete for the approval of a third party, be it an academic department, a political body, or the genteel opinion of a city (as with Drake/Dudley, Clay/Marshall, and Trotter/Wickliffe, respectively). Such public contests can be fought along two dimensions. One, the contestants can argue that their preferred position is superior on its merits. Two, the contestants can argue the poltroonery of their opponents, tearing the other down in the eyes of the public. The potential of dueling as a socially useful institution lies in its ability to encourage the first kind of competition and discourage the second kind. This view of dueling also partially explains why gentlemen dueled and shopkeepers did not; the latter group, being concerned with quotidian matters, did not often engage in public conflicts.

Some duels were fought over quite trivial matters that had nothing to do with any public conflict, of course. The day following a drunken dispute “as to which understood some of the dead languages the best,” future U.S. Senator John Rowan shot and killed his friend Dr. James Chambers in a duel. One of the two recorded duels in which two women met was over the attentions of a young man. Our reading is that the majority of duels arose from public conflicts, however.

## **2.3 Dueling was afforded widespread legitimacy in the South. Successful duels publicly ended conflicts.**

In this section, we argue that affairs of honor were so routine as to be unremarkable in the South, and that a successful duel was seen as one in which both parties conducted themselves honorably and came to a mutually satisfactory arrangement. We offer evidence in favor of our interpretation of a duel as refocusing the public’s attention on the merits of each side’s position in the underlying public conflict, and diminishing the attention paid to libel leveled by the two parties.

Written contemporary records exist for hundreds, if not thousands, of Southern duels. Nineteenth century Southern newspapers routinely reported on specific duels that had taken place in their jurisdiction, often especially concerned with the particulars of the interview (i.e. at how many paces was

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<sup>18</sup>While this duel sprung from a public contest, we acknowledge that at least one of Jackson’s other 102 documented fights, duels, and altercation was probably entirely personal.

it fought, how many shots were fired), the nature of the underlying public conflict, and whether or not the affair was conducted honorably and a mutually satisfactory arrangement reached. The following excerpt from the *Greenville Mountaineer* (1/24/1845), found on the front page below a story about a local expedition to search for sunken treasure off the coast of Margarita, is typical:

*Affair of Honor.* — A hostile meeting was had between Mr. Thomas Butler Kind and Mr. Charles Spalding, on Monday, the 6th inst. at Amelia Island. Weapons, pistols — distance, ten paces. Two shots were passed without effect, when, on the intervention of friends, the affair was adjusted and the parties exchanged friendly salutations.

The difficulty originated from some circumstances connected with the recent canvass of the two gentlemen while candidates for Congress before the people of this District. We refrain from comments, and only mention this satisfactory settlement of the matter because there has been considerable excitement in regard to it in the public mind, and because we feel assured that the announcement will cause much real pleasure among the friends of both the gentlemen.

Some announcements were more terse, merely stating that a duel had take place and the conflict ended honorably, such as the following announcement from a duel's seconds appearing in the *Columbia Telescope* (9/20/1834):

The affair of Honor pending between Mr. William L. Allston and Mr. William M. Armstrong, having been referred to us, was Honorably adjusted.

Lancasterville Sep. 10th 1834

JAMES H. WITHERSPOON

JAMES J.B. WHITE

JOHN M. STARKE

Examples of similar reports abound.<sup>19</sup> While reporting standards vary across newspapers (for example, a 10/27/1830 article in the *Arkansas Gazette*, upon reporting “an honorable adjustment of

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<sup>19</sup>From the *Raleigh Register, and North Carolina Weekly Advertiser*, 3/29/1810: “On Saturday last a duel was fought on the Louisiana side of the Mississippi, opposite Natchez... The ground work of the meeting was laid at New Orleans as far back as last spring, when the parties disputed on the subject of Gen. Wilkinson.

From the *Charleston Mercury*, 3/23/1857: “A duel took place at the “Oaks” (near New Orleans) on the 12th inst., between Mr. J. W. McDonald, editor of the Natchez Free Trader, and Capt. J.K. Duncan — pistols being the weapon, and the distance twelve paces. Shots were exchanged without doing any damage. After the first fire, the challenge was withdrawn by Mr. McDonald.”

From the *Daily National Intelligencer*, 12/11/1819: “An affair of honor... took place at Red Bank, opposite Fort Mifflin, on the 14th ult. between Mr. John Harris, of Philadelphia, late Consul of the United States at St. Petersburg, and Mr. William Lewis, an American merchant, resident of the latter place. Five shots were exchanged, (resulting) in Mr. Harris receiving a ball through his right thigh. What produced the challenge... was a blow (given to Mr. Harris) by Mr. Lewis, on the Exchange of St. Petersburg, and certain injurious paragraphs which afterwards appeared in some of the newspapers of the country, relative to it.”

From the *New Orleans Bee*, 12/3/1860: “Messrs. Eugene Cuvellier and L.A. Raymond had a hostile meeting at four o’clock on Saturday. The weapons used were sharpened foils, and at the first pass Mr. Cuvellier received a slight wound in the left breast, while his own weapon passed through the shirt of Mr. Raymond. The affair was stopped by the seconds, who arranged an explanation and reconciliation between the two parties. Both of the gentlemen conducted themselves with perfect coolness and bravery.”

From the *Newbern Sentinel*, 12/18/1819: “On the 14th ult. Captain Albert G. Tomlinson and Mr. David Jeffreys, both of Person county, passed over into Va. to settle an affair of honor. They fought with pistols, and the distance, at which they shot each other, was quite respectful. We are happy to state that no injury was done either of the parties. After an exchange of shot the affair was adjusted to their mutual satisfaction.”

From the *Raleigh Register and North Carolina Gazette*, 3/4/1848: “Affair of Honor.— The N.O. Picayune of the 20th inst., announces, as follows, the adjustment of a personal difficulty which had excited very painful interest in New Orleans. The parties are understood to have been the Hon. S. S. Prentiss, and Mr. Irving of Kentucky. We do not remember, to

the dispute, to the mutual satisfaction of both parties,” left it to “Madame Rumor, ‘with her hundred tongues,’ to communicate the names of the parties”), hundreds of Southern newspapers unironically presented the basic facts of a duel, what was known about the underlying dispute, and whether or not the affair was conducted honorably. The widespread uncritical reporting of particular duels suggests two things: one, dueling was accepted as common practice by Southerners. Two, duels were not private affairs, but were conducted partly for public consumption, and Southern gentlemen were likely to be well aware of how the parties acquitted themselves in any affair of honor.<sup>20</sup>

Given our view that affairs of honor arose principally from personal attacks being introduced into public conflicts, the above facts suggest that a meritorious purpose of an affair of honor was to refocus public attention from scurrilous personal attacks onto the merits of each party’s position. Such a mechanism benefits society in at least two ways. One, there are obvious benefits to a public conflict being decided on the merits, as opposed to which side is the more licentious libeler (e.g. perhaps it was in the best interests of the Transylvania University medical school discussed in section 2.2 to decide which curriculum should be followed on the merits, as opposed to whether Dr. Drake or Dr. Dudley came up with more creative insults about the other). Two, in a society in which dueling enjoyed widespread acceptance and in which the results of affairs of honor were announced as though they were sports scores, the incentive to level personal attacks against a rival in the first place would be diminished, both because of the likelihood of a (potentially harmful) duel in the event the libellee’s gentlemanly disposition was offended, and because such a duel would reduce the effectiveness of any libel, by forcing an amicable agreement and refocusing the public’s attention away from personal attacks. This view of dueling as an efficient social mechanism is modeled in section 3.

Interestingly, dueling was preferred even to the legal system for the settling of disputes among Southern aristocracy. Southern gentility simply did not permit the use of crude civil trials, in which a socially inferior jury would stand in judgment.<sup>21</sup> While a court may have been able to give pecuniary renumeration for an insult, a gentleman’s honor would have suffered from such an arrangement. As General Oglethorpe put it, a meeting on the field of honor was “essentially self-defense... a man has a right to defend his honor” (Stevens, 1940, pg 14). Schwartz et al. (1984) posit that contemporary courts’ reluctance to accept “truth of the matter asserted” as a viable defense may have rendered a jury award ineffective at restoring honor. According to Wells and Harwell (2001), “honor was not a quality that could be repaired through the legal system... a libel suit carried the message that the plaintiff was one who thought his honor could be repaired by monetary damages... [and was] an admission of both weakness and cowardice.”<sup>22</sup>

Indeed, dueling was so accepted that Southern gentlemen returning from the field of honor enjoyed near-complete legal immunity; even in the exceedingly rare instances in which a dueler was put in

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have witnessed the same degree of satisfaction of any difficulty of a personal character, as was exhibited yesterday when it was understood that the quarrel... had been satisfactorily arranged. The public seemed to be satisfied, from the character of the parties engaged in the affair, that the grounds of adjustment were sufficient, and all curiosity as to the precise terms of the settlement, were buried beneath a universal feelings of delight at the assurance that the parties themselves and their friends were entirely content with the result.

<sup>20</sup>In addition to the press’ reporting of affair of honor, Southern duels were often attended by scores of people. For example, the *Camden Confederate* (11/6/1863) reports “there were about seventy five spectators at the scene” of a “fair stand up fight (with) both parties evincing great coolness” resulting in the death of a Mr. Copeland of Maryland.

<sup>21</sup>As President Jackson’s mom advised, “Never tell a lie, nor take what is not your own, nor sue anybody for slander, assault and battery. Always settle them cases yourself.” (*Old Hickory*, by Marquis James, 1933).

<sup>22</sup>Posner (1996) proposes that dueling may have been an efficient institution “when societies are not sufficiently wealthy or organized to support powerful, centralized governments.” Lessig (1995) states that “the duel was like a lawsuit.”

front of a (socially inferior) jury, the near-universal outcome was acquittal. There is only one record of an execution resulting from a duel, in Illinois, and even this was more for dishonorable conduct than murder.<sup>23</sup> A contemporary account claims “sometimes two or three hundred people hurried from the city to witness these human baitings,”<sup>24</sup> suggesting that the probability of future legal trouble was quite low.

Further evidence of the widespread acceptance of dueling can be found in the experience of Southern hero and serial dueler Andrew Jackson. Jackson fought over a dozen duels without apparent cost to his political career.<sup>25</sup> Among the duels related to his wife Rachael’s alleged bigamy was a challenge from Jackson to Tennessee Governor John Sevier in 1803. A letter to Sevier in which he insists that their duel be fought in Knoxville indicates Jackson’s motivation behind his challenge. He wrote to Sevier: “In the town of Knoxville did you take the name of a lady into your polluted lips. In the town of Knoxville, when you were armed with a cutlass and I with a cane. And now, sir, in the town of Knoxville you shall atone for it or I will publish you as a coward and a poltroon.”<sup>26</sup> Jackson’s reference to atonement suggests that he made his challenge to counteract a specific slander and not out of a general sense of honor. Furthermore, were he motivated by a general sense of vengeance, he likely would have been glad to shoot Sevier in North Carolina or Virginia.

It is clear that the Southern elite were especially concerned with being perceived as honorable. This unobservable trait encompassed more specific virtues that included honesty and bravery. Southerners initiated duels and accepted challenges because, by displaying bravery, they signaled that they were honorable. Our reading of the history of duels suggests that by displaying honor, duelers thereby signaled that they were also honest and unlikely to be guilty of the libelous claims made against them. We thus model dueling as a way of reducing the effectiveness of libel in the South.

## 2.4 In the North, dueling was seen as barbaric, and lowered the public estimation of all parties involved in a duel.

It is of interest to compare the Northern and Southern responses to the prominent Hamilton-Burr interview. Hamilton’s allegations do appear sufficiently libelous to merit a challenge under the *Code Duello*. James Robertson of Tennessee, generally an opponent of dueling, wrote that “I suppose that if dueling could be justifiable, it must have been in his case.”<sup>27</sup> The duel, however, destroyed Burr’s reputation in the North. Brands (2005) writes that Burr was “politically ruined” and that his fellow Republicans considered him “an embarrassment and a liability.” Burr sought refuge in the Southwest. Stopping in Tennessee, the effect of the duel on his reputation was very different than in New York. Aware of the circumstances of the duel, Brands (2005) writes that Burr “was feted as a celebrity and a minor hero. No one in Nashville held his killing of Hamilton against him. Honor was honor, and, besides, to most Tennesseans, the fewer Federalists the better.”

The Northern reaction to Burr’s duel with Hamilton is representative of nineteenth century North-

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<sup>23</sup>The duel’s seconds intended to stage a mock duel to test the challenged man’s courage, so they gave the principals unloaded weapons. The man in question learned of this dastardly plot and loaded his weapon with his own bullet, allowing him to slay his adversary. For this he was executed (Stevens, 1940, pg. 93).

<sup>24</sup>New Orleans *Times-Democrat*, March 13, 1892.

<sup>25</sup>The exception being when he killed General Charles Dickinson in a duel, though this criticism was related to Jackson’s alleged re-cocking of his pistol after a misfire and not his general participation in the affair of honor.

<sup>26</sup>See: The Papers of Andrew Jackson, Vol. I, 1770-1803. eds. Smith, S. and H. Owsley.

<sup>27</sup>See: Brands, H.W., *Andrew Jackson: His Life and Times*, Doubleday: New York, 2005.

ern thought. Duels were looked upon with scorn and derision of increasing intensity the farther north one traveled. The dripping sarcasm in a 2/15/1872 *New York Times* article is typical:

Capt. Scott had testified ... that he had bribed various high officials whom he was so indelicate as to mention by name. The gentlemen thus lifted to this bad eminence, naturally made light of Capt. Scott's credit. In this pleasing task, State Senator Campbell so distinguished himself as to make it absolutely necessary for the good Captain's peace of mind that the Senator should name his weapons (double-barreled shot guns). At the same time, Mr. Lucien Adams discovered that Capt. Scott had aggrieved him in a manner which could only be atoned for with blood (this time, swords). Finally, Superintendent Badger ... was reluctantly forced to demand the satisfaction usual among gentlemen. The precise instruments of this last atonement we do not know, but they will doubtless prove quite as effective as the others.

Now it is not often that New Orleans has so great a treat as three duels at once. And so the (visiting) Grand Duke has very opportunity arrived there, we trust it may occur to some of the gentlemen concerned in these various little difficulties, that they have an admirable chance to make the demands of honor serve the duties of hospitality. Let the three combats be fought in public, and the Grand Duke be invited to attend. So novel an exposition of New Orleans habits would undoubtedly gratify the illustrious visitor, and the duelists might find access of satisfaction in dying at his princely feet. A little ingenuity would make of the affair a most attractive and imposing spectacle. Capt. Scott, for example, might engage one of his adversaries with his shot-gun, while he kept the other in play with his sword. In the meantime, Messrs. Carter and Badger could be keeping up a lively fusillade on the outskirts. Better still, the combatants could throw their various honors into "pot", and join a general battle. Or each might take turns in standing the assault of the other four. If all the gentlemen should be unhappily killed, sorrow would be assuaged in the reflection that honor was quite appeased, and that each had obtained all the satisfaction he could possibly desire. If New Orleans gentlemen will insist on this prerogative (of dueling), they ought not to be selfish in their enjoyment, especially with a Grand Duke to be exceptionally honored.

Other Northern newspapers were more subtle, such as the following 7/31/1826 article from Pennsylvania's Aurora and Franklin Gazette:

*Amusing affair of honor*— The Savannah Republican, received this morning, contains a ludicrous account of an abortive duel. The Editor of some Georgia paper, considering himself insulted by an article in some other paper, challenged the author a "General Newman." The general accepts the challenge... After some palaver, the Editor agrees, and then the affair is amicably and *honorably* arranged. The General making "suitable explanation." Fight with muskets, ball and buckshot! The absurdity of the thing is exactly on par with its ferocity. Heaven be thanked we live some dozen degrees north of Georgia.

So, in contrast with the Southern response to a duel, Northern newspapers reported duels only with haughty derision. The facts of the dispute leading to a duel were brought up only in an attempt to illustrate their perceived absurdity, and the particulars of how a given duel was fought were not important, as all duels were dishonorable to Northern eyes. This treatment of affairs of honor in the press reflects Northern attitudes towards dueling, but it also greatly reduced the effectiveness of an affair of honor at achieving any end whatsoever — as duels were fought for public consumption, the fact that they would not be generally accepted by the press by itself condemned Northerners to more brutish methods of conflict resolution.

In contrast to Southerners, Northerners did not associate participation in a duel with bravery. Instead, they viewed it as lawless and barbaric, and thus a signal of being dishonorable. Dueling thus failed to signal honestly and we thus model dueling as being largely ineffective at offsetting libel in the North.

## 2.5 Dueling was surprisingly safe

The *Code Duello* prescribed the use of flintlock, short-barreled, smooth bore pistols (as opposed to percussion cap, long-barreled, and rifled), at great cost to accuracy. Dueling pistols did not have sights. The flintlock weapons misfired often, wasting many shots in duels.<sup>28</sup> Precise estimates for the

<sup>28</sup>Often enough that the term 'flash in the pan', referring to the gunpowder in the priming pan igniting, yet failing to ignite the powder in the barrel itself, permanently entered the lexicon. A misfire would exhaust the combatant's turn.

probability of injury or death in an affair of honor are hard to come by. One 1836 writer estimated that 1 in 6 duelers were injured, and 1 in 14 killed.<sup>29</sup> Another estimate puts the conditional probability of a naval officer dying on the field of honor at 20% (Stevens, 1940, pg. 71). Our data on dueling senators supports the former figure. We know of 41 senators who received fire on the field of honor, 3 of whom died. As it is far more likely that we failed to find politicians who dueled and lived than those who died defending their honor, the mortality rate among senators was probably well below  $\frac{3}{41}$ . The unpredictable behavior of dueling pistols rendered skill relatively unimportant; in cases where a challenged party feared the superior prowess of his opponent, he could minimize his risk by choosing weapons unfamiliar to his opponent.

If the point of dueling were to legitimize murder, then this could have been done more efficiently with better weapons. Percussion cap pistols were developed around 1830, while rifling was invented hundreds of years earlier. Why, then, did Southerners persist with such inefficient weapons? Our theoretical model demonstrates that too high of a mortality rate could have detracted from the efficiency of the institutions. On the other hand, if the mortality rate is too low, then dueling would lose its effectiveness as a deterrent of bad behavior because gentlemen would not fear the field of honor. If the function of dueling was to deter bad behavior against which the legal system was ineffective, more deadly weapons would, all else equal, provide a greater punishment. However, this greater punishment was also borne by any party requesting an interview, making it less likely that a duel would actually be employed to settle a dispute.

### 3 A model of dueling

We now present a simple model of dueling, which illustrates the points of section 2. Unlike previous studies, we model dueling as means of winning a public conflict between two agents.<sup>30</sup> Our approach is different in several ways. First, and most importantly, our reading of the history of a broad range of duels indicates that dueling almost always resulted from a conflict between agents where public opinion mattered. For example, we failed to find records of duels arising from instances of credit default, which Kingston and Wright (2010) posit as an important cause of affairs of honor. Furthermore, the evidence suggests that Southern dueling was very important among Southern elites, suggesting the model of Allen and Reed (2006) does not apply to the Antebellum South. Second, neglecting the underlying conflict introduces the potential for agents to stage a duel in the absence of conflict in order to demonstrate their honor or acquire public capital. Finally, our approach allows us to provide new explanations for the North-South dueling disparity that are consistent with the historic record.

There is a population of agents with type uniformly distributed between 0 and 1, who randomly

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<sup>29</sup>Schwartz, et al., 1984

<sup>30</sup>The three models of dueling we can find in the economics literature essentially treat dueling as a cooperative game. Allen and Reed (2006) do not model the conflict that results in a duel. Instead, they assume that general participation in the institution of dueling provides social capital. The adversaries want to fight to reveal their “nobility.” In Kingston and Wright (2010), dueling is unrelated to any conflict, and instead acts to signal to additional borrowers the consequences of credit default. In this model, the gentlemen have to square off only to confirm between the debtor and creditor that they are both honorable men. A third model, O’Neill (2003), is more general and discusses dueling only in the context of seconds’ fostering compromise; duelers would prefer to arrive at a compromise only if honor allowed it (and the mediation process in duels facilitates this compromise). In all three cases, if the opponents could just cooperate, there need not be bloodshed for everyone to arrive at a mutually beneficial outcome.

match with each other. In any one match, the two agents 1 and 2, with exogenously specified types  $\theta_1$  and  $\theta_2$  (both in  $[0, 1]$ ) respectively, engage in a public conflict. Without loss of generality, assume that  $\theta_1 < \theta_2$ . An agent's type represents the merits of his position with respect to the conflict; higher types represent a position that is more in line with public opinion and social norms, while a lower type represents a more extreme position. If an agent's type equals one, then his position is perfectly in line with society's. While each agent can perfectly observe his opponent's type, public perception of type is subject to distortion by, for example, public attacks.

Specifically, suppose that each agent can libel his opponent to make him seem more extreme, and less in line with public opinion. Assume that producing amount  $l$  of libel costs an agent  $cl^2$ . Suppose further that a duel, instigated by either party, decreases some of the effect of this libel. Let  $\theta_i^p$  be the perceived type of agent  $i$  after being subjected to amount  $l_j$  libel:

$$\theta_i^p = \begin{cases} \theta_i - \theta_i \gamma \frac{l_j}{1+l_j} & \text{if no duel takes place} \\ \theta_i - \theta_i (1 - \alpha) \gamma \frac{l_j}{1+l_j} & \text{if a duel takes place} \end{cases} \quad (1)$$

where  $\gamma \in (0, 1)$  measures the effectiveness of libel, and  $\alpha \in (0, 1)$  measures the effectiveness of a duel in reducing libel, effectiveness of libel in that the larger  $\alpha$  is, the larger the effect of a duel on perceived type. The value of  $\alpha$  in the Antebellum South would be much larger than in the post-Burr/Hamilton North, for example.<sup>31</sup>

The efficacy of dueling in reducing libel,  $\alpha$ , is taken as exogenous. As described in our review of the history of dueling in the antebellum South, we assume that  $\alpha_{North} < \alpha_{South}$ . We do not model how the North and South arrived at different values of  $\alpha$ , and in particular, do not explicitly model how  $\alpha$  may evolve given which equilibrium region society may be in.<sup>32</sup> While the prevalence (or lack) of dueling undoubtedly influences the efficacy of dueling, in this paper we are interested in how gentlemen use (or do not use) the institution of dueling, given their perception of how (in)effective dueling is.

We assume that each agent's probability of winning the public conflict  $\pi_i(\theta_i, \theta_j)$  is increasing in his perceived type and decreasing in his opponent's:

$$\pi_i(\theta_i^p, \theta_j^p) = \frac{1}{2} + \frac{\theta_i^p - \theta_j^p}{2} \quad (2)$$

Consistent with the historical evidence, we assume that if either party issues a challenge, acceptance by the other is mandatory.<sup>33</sup> We further assume that the probability of death is constant across all duels; this is consistent with the widespread use of inaccurate dueling pistols (see section 2.5),

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<sup>31</sup>One could argue that after the Hamilton-Burr duel,  $\alpha < 0$ , in the North. Duels, however, never occur in the model for non-positive values of  $\alpha$  so generalizing the model to allow for this case does not offer any additional insights.

<sup>32</sup>We briefly discuss endogenizing  $\alpha$  at the end of Section 3.3.

<sup>33</sup>The cost of refusing a duel was very high. Declining a challenge gave the aggrieved party license to ‘post’ his antagonist, publicly declaring him a poltroon. For example, when John Randolph declined James Wilkinson’s request for a meeting, Wilkinson posted fliers all over Washington saying ‘Hector unmasked. In justice to my character I denounce John Randolph, a member of Congress, as a prevaricating, base, calumniating scoundrel, poltroon, and coward’ (Stevens, 1940, pg. 43). Interestingly, the one loophole in the *Code Duello* we are aware of allowed a challenged party to extricate himself honorably by suggesting absurd weapons. For example, Senator Crittenden of Kentucky, upon receiving a challenge from Senator Rusk of Texas, replied (from Stevens, 1940):

Sir: your note of this day is received and the challenge accepted. Exercising my undoubted [right] to select the mode of battle, I [wish] to fight across the Rio Grande with field howitzers. As I do this entirely for

and with a surprisingly rigid dueling code that specified how gentlemen should behave during interviews.<sup>34</sup>

We finally assume that agents have the following utility function.

$$U_i(\cdot) = \begin{cases} \pi_i - cl_i^2 & \text{if no duel takes place} \\ \pi_i - dA - cl_i^2 & \text{if a duel takes place} \end{cases} \quad (3)$$

where  $A \geq 0$  is the disutility of death relative to the utility of winning the contest and  $d$  is the probability of dying in a duel.<sup>35</sup> The game proceeds in two stages. In stage 1, agents simultaneously choose their levels of libel. In stage 2, agents simultaneously choose whether or not to issue a challenge to duel. In stage 2, agents are fully aware of libel levels from stage 1. Finally, assume that an agent who is indifferent between issuing a challenge and not does not do so.

For any pair of types, three results are possible. First, in an *unconstrained equilibrium*, the potential for dueling may have no effect on the model. This necessarily occurs for sufficiently high values of  $dA$ . Effectively outlawing dueling is equivalent to setting  $dA$  this high. Second, in a *deterrance equilibrium*, a duel does not occur, but the threat of a duel can deter an agent from choosing the level of libel that he would prefer without dueling. In this case, dueling reduces libel costlessly. Third, in a *dueling equilibrium*, a duel occurs. Because dueling reduces the benefit of libel, a dueling equilibrium also results in reduced effective libel,  $(1 - \alpha)l_i$  relative to a model without dueling.

your satisfaction, I shall require you to furnish the howitzers with a suitable supply of powder and ball, and of provisions.

I have the honor to be, etc.

J.J. Critenden

The editor of the *Tennessee Whig*, when challenged, suggested the most vile hogpen in all of Knoxville as a location, and dung forks as the weapon. Neither duel ever took place. We do not, however, see widespread exploitation of this loophole, even by agents who were in no condition to fight. Another example of the prohibitively high cost of refusing a duel comes from England. On August 1764, Lieutenant Eubule Ormsby was court-martialed for cowardice when he failed to appear for a duel with Lieutenant Cornelius Lynsaught. In addition, his fellow officers refused to rank with him because of his behavior. Ormsby was eventually cleared of the charges against him, but it was remarkable that military courts seriously considered punishing an officer's failure to take part in unsanctioned murder (Gilbert, 1976).

<sup>34</sup>A meeting of Irish nobles at Clommel in 1777 produced a set of 26 rules followed in the English-speaking world until the practice's demise; two American dueling codes were published, the more important in 1838 by former South Carolina governor John Lyde Wilson (Stevens, 1940). The rules prescribed the distance the duelers should stand at (usually 30 feet), how the seconds should conduct themselves, and the type of weapons to be used. Were a challenged party to suggest a meeting at a closer distance, or that relatively more deadly weapons be used than prescribed by the code, the challenger had the right to suggest an arrangement even more likely to end in the death of at least one party. Though deviations from the code's specific prescriptions were not infrequent (in 1837, a Mr. Stevens and a Mr. Anderson, both of Tennessee met at a distance of 4 feet. Jones died, while the bullet headed towards Anderson was stopped by the muzzle of his own pistol), those who failed to live up to the codes standards of conduct suffered large reputational hits. As dueling fell out of favor in England, these codes were the subject of derision, with one satirical publication advising the duelist 'If he dies, he is to go off with as good grace as possible' and not to under any circumstances choose an Irishman as a second, owing to their bellicose nature (Stevens 1940).

<sup>35</sup>Our utility function assumes that agents still receive utility from potentially winning the contest even if they are felled on the field of honor. An alternate approach is to assume that they obtain no such utility by multiplying  $\pi_t$  by  $(1 - d)$  in their utility functions. The paper's conclusions are unaffected by this change.

### 3.1 Results

We solve for the subgame perfect equilibria of the 2-stage game described above. Consider the stage 2 decision of each agent, that of whether or not to challenge the other to a duel. Agent  $i$  takes libel decisions as given and weighs his utility from dueling against that from no duel:

$$\begin{aligned} U_i^{\text{duel}} &\geq U_i^{\text{no duel}} \\ \iff \theta_i \frac{l_j}{1+l_j} - \theta_j \frac{l_i}{1+l_i} &\geq \frac{2dA}{\alpha\gamma} \end{aligned} \quad (4)$$

Given that the left-hand side of (4) is less than 1 for all values of  $\theta_i$  and  $\theta_j$ , it is immediate that i—the condition  $dA > \frac{1}{2}$  is sufficient for a duel being suboptimal, and ii—the condition  $\alpha < 2dA$  is sufficient for a duel being suboptimal. The former says that if the likelihood of dying in a duel is sufficiently high, no one will choose to duel. The latter says that if the effectiveness of a duel in mitigating libel is sufficiently low, dueling is never preferred. Further, if  $\theta_i \frac{l_j}{1+l_j} > \theta_j \frac{l_i}{1+l_i}$ , then so long as the quantity  $dA$  is sufficiently small, agent  $i$  will prefer a duel, whereas agent  $j$  will not.

Indeed, equation (4) divides the  $(\theta_1, \theta_2)$  parameter space into three regions. If  $\theta_2 < \frac{2dA}{\alpha\gamma}$ , there do not exist libel levels that would provoke a challenge. If  $\frac{2dA}{\alpha\gamma} \in (\theta_1, \theta_2)$ , Agent 1 would never issue a challenge, but Agent 2 would for sufficiently high values of  $l_1$ . Finally, if  $\frac{2dA}{\alpha\gamma} < \theta_1$ , there are values of libel  $(l_1, l_2)$  for which Agent 1 issues a challenge ( $l_2$  high relative to  $l_1$ ), there are libel values for which Agent 2 issues a challenge, and there are libel values for which neither player issues a challenge.

It is apparent that (4) holds i- for at most one agent and ii- only if his opponent's libel is sufficiently large. Let  $l_i^{\max}(l_j)$  denote the amount of Agent  $i$ 's libel which would leave Agent  $j$  indifferent between issuing a challenge and not. From (4),  $l_i^{\max}(l_j)$  is defined by:

$$l_i^{\max}(l_j) = \begin{cases} \infty & \text{if } \theta_j \leq \frac{2dA}{\alpha\gamma} + \theta_i \frac{l_j}{1+l_j} \\ \frac{\frac{2dA}{\alpha\gamma} + \theta_i \frac{l_j}{1+l_j}}{\theta_j - \frac{2dA}{\alpha\gamma} - \theta_i \frac{l_j}{1+l_j}} & \text{if } \theta_j > \frac{2dA}{\alpha\gamma} + \theta_i \frac{l_j}{1+l_j} \end{cases} \quad (5)$$

Assume throughout that if an agent is indifferent between issuing a challenge and not, he chooses not to do so. For any libel levels  $l_1$  and  $l_2$  chosen in the first stage, the outcome of the second stage will be a duel if  $l_1 > l_1^{\max}(l_2)$  or  $l_2 > l_2^{\max}(l_1)$ . Note that at most one agent will issue a challenge.

Working backwards to stage 1, we describe Agent  $i$ 's best response to a given  $l_j$ . First, if there is no chance of a duel in the second round, Agent  $i$  will equate the marginal benefit of libel (distorting  $j$ 's position) with the marginal cost. In this case, Agent  $i$  is unconstrained, and we refer to the resulting libel level as  $l_i^*$ . From equation (3),  $l_i^*$  is given by:

$$l_i^* : l_i^* + 2(l_i^*)^2 + (l_i^*)^3 = \frac{\theta_j \gamma}{4c} \quad (6)$$

An unconstrained best response to a given  $l_j$  thus occurs if and only if  $l_i^* \leq l_i^{\max}(l_j)$  and  $l_j \leq l_j^{\max}(l_i^*(l_j))$ .

Now suppose that either  $l_i^* > l_i^{\max}(l_j)$  or  $l_j > l_j^{\max}(l_i^*(l_j))$ . If at least one of these inequalities hold, it is suboptimal for Agent  $i$  to play unconstrained libel level  $l_i^*$ , as such a libel level would surely induce a duel, lowering the marginal value of libel. Indeed, conditional on a duel taking place,  $i$ 's

preferred libel level is given by  $l_i^{**}$ , where:

$$l_i^{**} : l_i^{**} + 2(l_i^{**})^2 + (l_i^{**})^3 = \frac{\theta_j(1-\alpha)\gamma}{2c} \quad (7)$$

Suppose first that  $l_j > l_j^{max}(l_i^*)$ . This means that if Agent  $i$  plays his unconstrained libel level  $l_i^*$ , Agent  $j$ 's libel is so great that Agent  $i$  will prefer to challenge him. Because  $l_j^{max}(l_i)$  is increasing in  $l_i$ , it follows that  $l_j > l_j^{max}(l_i)$  for any  $l_i < l_i^*$  as well. In this case, Agent  $i$  recognizes that he will certainly challenge Agent  $j$  to a duel in the second stage and plays  $l_i^{**}$  and plays  $l_i^{**}$  as a best response to  $l_j$ .

Now suppose that  $l_j < l_i^{max}(l_i^*(l_j))$ , but  $l_i^* > l_i^{max}(l_j)$ . Here, Agent  $i$ 's unconstrained libel level is sufficient for  $j$  to issue a challenge; that is,  $l_i^*(l_j) > l_i^{max}(l_j)$ . In this case, Agent  $i$  must decide whether to play  $l_i^*(l_j) > l_i^{max}(l_j)$ , and avoid a duel, or whether to play  $l_i^{**}$  and anticipate a duel. If  $l_i^{**} < l_i^*(l_j) > l_i^{max}(l_j)$ , his choice is simple; there is no advantage in this case to switching to  $l_i^{**}$ , his preferred libel level conditional on a duel, as it will not induce a duel and so is suboptimal. If, however,  $l_i^{**} > l_i^*(l_j) > l_i^{max}(l_j)$ , then Agent  $i$  weighs the utility from dueling, given in equation (8), against his utility from not dueling, given in equation (9):

$$\text{duel: } \pi_i(l_i^{**}, l_j) - dA - c(l_i^{**})^2 \quad (8)$$

$$\text{no duel: } \pi_i(l_i^{max}(l_j), l_j) - c(l_i^{max}(l_j))^2 \quad (9)$$

Equation (10) gives Agent  $i$ 's best response to a given  $l_j$ .

$$BR_i(l_j) = \begin{cases} l_i^* & \text{if } l_i^* \leq l_i^{max}(l_j) \text{ and } l_j \leq l_j^{max}(l_i^*) \\ l_i^{max}(l_j) & \text{if } l_i^* > l_i^{max}(l_j) \text{ and } \pi_i(l_i^{max}(l_j), l_j) - c(l_i^{max}(l_j))^2 \geq \pi_i(l_i^{**}, l_j) - dA - c(l_i^{**})^2 \\ l_i^{**} & \text{else} \end{cases} \quad (10)$$

We solve for the models subgame perfect equilibria. These equilibria consist of agents deciding whether or not to duel in stage 2 according to (5), and playing mutual best responses in stage 1 according to (10). Our first result is to show that the more moderate Agent 2 is never constrained in equilibrium, rather playing either his unconstrained libel level, or, anticipating a duel in stage 2,  $l_2^{**}$ . Lemma 1 establishes this fact.

**Lemma 1.** *In any SPE, Agent 2 plays either  $l_2^*$  or  $l_2^{**}$ . There is no equilibrium in which Agent 2 is constrained in his libel choice.*

*Proof:* From equation (6) and the fact that  $\theta_1 < \theta_2$ ,  $l_2^* < l_1^*$ . Given this,  $l_1^{max}(l_2^*) < l_2^{max}(l_1^*)$ . Hence, it is not possible for Agent 2 to be constrained without Agent 1 also being constrained. Therefore, Agent 2 is constrained if and only if  $l_2^{max}(l_1^{max}(l_2^*)) \leq l_2^*$ . However,

$$\begin{aligned} l_2^{max}(l_1^{max}(l_2^*)) &> l_2^* \\ \iff \frac{\frac{2dA}{\alpha\gamma} + \theta_2 \left( \frac{\frac{2dA}{\alpha\gamma} + \theta_1 \frac{l_2^*}{1+l_2^*}}{\theta_2} \right)}{\theta_1 - \frac{2dA}{\alpha\gamma} - \theta_2 \left( \frac{\frac{2dA}{\alpha\gamma} + \theta_1 \frac{l_2^*}{1+l_2^*}}{\theta_2} \right)} &> l_2^* \\ \iff \frac{4dA}{\alpha\gamma} (1 + l_2^*) &> 0 \end{aligned}$$

Because all parameters are assumed to be positive (which also implies  $l_2^* > 0$ ), it must be that  $l_2^{max}(l_1^{max}(l_2^*)) > l_2^*$ , meaning that if Agent 1 is constrained, it is impossible for Agent 2 to also be constrained. ■

Applying lemma 1 to the best response curve in (10) yields only three possibilities for equilibrium behavior. All of the model's equilibria fall into one of three categories:

1. (unconstrained equilibrium): Agents play  $(l_1^*, l_2^*)$  in stage 1, and do not duel in the second stage.
2. (dueling equilibrium): Agents play  $(l_1^{**}, l_2^{**})$  in stage 1, and Agent 2 issues a challenge in the second stage.
3. (deterrence equilibrium): Agents play  $(l_1^{max}(l_2^*), l_2^*)$  in stage 1, and do not duel in stage 2. For Agent 1, the marginal benefit of libel exceeds the marginal cost, but he is constrained by the threat of a duel.

Proposition 2 establishes that all three equilibrium types occur for some subset of the parameter space, and characterizes in which portion of the model's parameter space a duel takes place. The results follow from comparing (8) and (9), and from comparing unconstrained libel  $l_i^*$  to constrained libel  $l_i^{max}(l_j)$ .

**Proposition 2.** *The model's parameter space, over parameters  $d, \alpha, c, \gamma, A, \theta_1$ , and  $\theta_2$ , can be divided into three regions:*

- *Unconstrained region: agents play  $(l_1^*, l_2^*)$ , and no duel takes place.*
- *Deterrence region: agents play  $(l_1^{max}(l_2^*), l_2^*)$ , and no duel takes place.*
- *Dueling region: agents play  $(l_1^{**}, l_2^{**})$  and a duel takes place.*

All three regions are non-empty, and the dueling region is characterized by the following:

1.  *$d$ , the probability of dying in a duel, is sufficiently low.*
2.  *$\alpha$ , the effectiveness of a duel in reducing libel, is neither too low nor too high*
3.  *$\gamma$ , the effectiveness of libel, is sufficiently high*
4.  *$A$ , the cost of dying, is sufficiently low*
5.  *$c$ , the cost parameter for libel, is sufficiently low*
6.  *$\theta_2 - \theta_1$ , the difference in moderation between the two agents, is sufficiently large.*

*Proof:* For an equilibrium duel to occur, it must be that:

$$l_1^* > l_1^{max}(l_2^*) \quad (11)$$

$$\pi_1(l_1^{**}, l_2^{**}) - dA - c(l^{**})^2 > \pi_1(l_1^{max}(l_2^*), l_2^*) - c(l^{max})^2 \quad (12)$$

To show the unconstrained region is non-empty, note that for sufficiently large values of  $dA$ , the expected disutility of a duel,  $l_1^{max}(l_2^*) = \infty$ , meaning that regardless of how large  $l_1^*$  is, Agent 2 will never issue a challenge.

To show that the dueling region is nonempty, consider the limiting case of  $\theta_2 = 1$  and  $\theta_1 = d = A = c = 0$ . In this case,  $l_1^* = l_1^{**} = \infty$ , while  $l_1^{max} = 0$  so long as  $\alpha > 0$ , and  $l_2^* = l_2^{**} = 0$ . In this case, (11) and (12) above both hold strictly, so long as  $\alpha < 1$  and  $\gamma > 0$ . As both sides of both inequalities above are continuous in all parameters, conditions 1-6 in the statement of the proposition follow.

The examples of section 3.1.1 prove the existence of a deterrence equilibrium. ■.

Informally, if  $\alpha$  is very low, there is no reason for Agent 2 to issue a challenge ( $\lim_{\alpha \rightarrow 0} l_1^{max} = \infty$ ). If  $\alpha$  is very close to 1, there is no reason for Agent 1 to libel 2 sufficiently to induce a duel ( $\lim_{\alpha \rightarrow 1} l_i^{**} = 0$ ). If  $c$  is too large, the benefit to Agent 1 of exposing himself to a challenge (more libel) is too small to cover the cost (chance of annihilation), and condition 2 cannot hold. In the North, where dueling was derided as indulgent nonsense,  $\alpha$  was so low that few duels occurred. In the South, where dueling was an acceptable means of conflict resolution, many duels did occur. Duels were also more likely to occur between rivals with very different viewpoints ( $\theta_2 - \theta_1$  large).

Section 3.3 numerically divides the  $(\theta_1, \theta_2)$  parameter space into unconstrained, deterrence, and dueling regions for a pair of numerical calibrations. First, section 3.1.1 below gives three numerical examples that demonstrate how the model is solved.

### 3.1.1 Numerical examples

First, we show that the following parameterization leads to an unconstrained equilibrium:

$$\theta_1 = \frac{1}{4}, \theta_2 = \frac{3}{4}, \gamma = \frac{1}{2}, \alpha = .9, A = 1, d = .07875, \text{ and } c = \frac{1}{128}$$

First, from (6), we calculate that  $l_1^* = 1.6759$  and  $l_2^* = 1$ . From (5),  $l_1^{max}(l_2^*) = 1.72727$ . Given  $l_1^* < l_1^{max}(l_2^*)$ , Agent 1 plays his unconstrained libel level, and no duel takes place in stage 2. The agents' positions are distorted to  $\theta_1^p = \frac{3}{16}$  and  $\theta_2^p = .51514$ , meaning that Agent 1 has a 33.6% chance of winning the contest, versus a 66.4% chance for Agent 2. Agents have utilities of  $U_1 = .3142$  and  $U_2 = .6560$ . Were Agent 2 to issue a challenge, while his probability of winning the contest would increase to 74.14%, his utility would decrease to  $U_2 = .6548$ , owing to the risk of perishing on the field of honor.

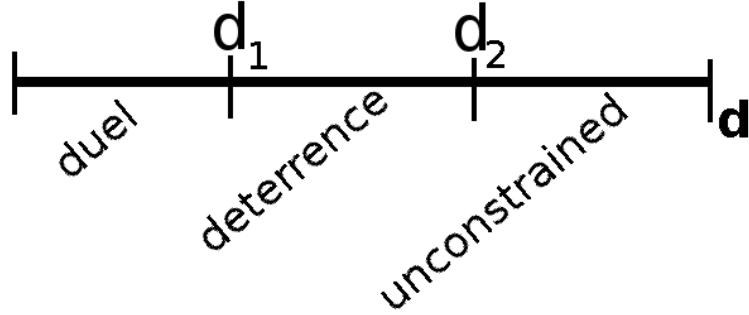
Second, we give parameters that lead to a duel. Consider the following:

$$\theta_1 = \frac{1}{4}, \theta_2 = \frac{3}{4}, \gamma = \frac{3}{4}, \alpha = .9, A = 1, d = .04, \text{ and } c = \frac{1}{128}$$

Here, from (6), we have  $l_1^* = 2$  and  $l_2^* = 1.2188$ . However,  $l_1^{max}(l_2^*) = .5177$ , meaning that Agent 2 prefers a challenge if Agent 1 plays his unconstrained libel level. If Agent 1 plays  $l_1^{max}(l_2^*)$ , the agents' perceived types will be  $\theta_1^P = .147005$  and  $\theta_2^P = .730812$ ; note in this case that Agent 2 plays a higher libel level than Agent 1, and that Agent 1's type is distorted more than Agent 2's. If constrained, Agent 1's utility is .206, while Agent 2's is .7803.

In the event agents believe a duel will occur in the second stage, Agent 1 optimally plays  $l_1^{**} = .6562$ , while Agent 2 plays  $l_2^{**} = .3361$ . In this case, perceived types become  $\theta_1^P = .2452$  and  $\theta_2^P = .7277$ , and Agent 1's utility increases to .2154. Agent 2's utility becomes .7003. Consequently, there is no constrained equilibrium in this case, while there is a dueling equilibrium in which Agent 1 trades off greater relative libel for a small chance of death.

Figure 1: Effect of  $d$  on equilibrium outcome



Finally, suppose in the previous example we increase the probability of death in a duel, but leave all other parameters the same:

$$\theta_1 = \frac{1}{4}, \theta_2 = \frac{3}{4}, \gamma = \frac{3}{4}, \alpha = .9, A = 1, d = .1, \text{ and } c = \frac{1}{128}$$

In this case,  $l_1^*$  and  $l_2^*$  are unchanged from the previous example, but  $l_1^{max}(l_2^*)$  increases to 1.3706, as Agent 2 becomes more hesitant to issue a challenge when there is a greater probability of death. In this case, if Agent 1 is constrained, perceived types are  $\theta_1^p = .147$  and  $\theta_2^p = .7175$ , and utilities are  $U_1 = .200$  and  $U_2 = .774$ . Again, Agent 1 has his position distorted relatively more than Agent 2.

If agents anticipate a duel in the second stage, libel levels continue to be  $l_1^{**} = .6562$  and  $l_2^{**} = .336$ . In this case, perceived types become  $\theta_1^p = .245$  and  $\theta_2^p = .728$ , while utility is  $U_1 = .155$  and  $U_2 = .640$ . Thus, despite Agent 1's stronger relative position in the event of a duel, the threat of death is too high, and Agent 1 prefers to play his constrained libel level in stage 1, avoiding a duel. Notably, total utility is greater in the equilibrium of the previous example, with a lower probability of death from dueling.

### 3.2 Optimal mortality

We now focus on one parameter in particular. The probability of dying in a duel,  $d \in [0, 1]$ , is an important determinant both of whether or not duels take place, and of the welfare consequences of the institution of dueling. Moreover,  $d$  is plausibly manipulable by policy and social norms; the use of outdated dueling pistols presumably lowered  $d$  relative to more modern weapons, and we could view effectively outlawing dueling as raising  $d$ . We argue that, under the assumption that social welfare is decreasing in both the amount of libel and in dueling deaths, the socially optimal mortality  $d^*$  is both strictly greater than zero and strictly less than 1. Duels must be dangerous enough so that they do not occur too frequently, but not so dangerous that the threat of a duel is not a credible curb to ungentlemanly behavior.

We first partition the set  $[0, 1]$  into three possibly empty regions,  $[0, d_1]$ ,  $[d_1, d_2]$ , and  $[d_2, 1]$ , with  $0 < d_1 < d_2 < 1$ . For  $d \in [0, d_1]$ , a duel takes place. For  $d \in [d_1, d_2]$ , Agent 1 is deterred from libelling Agent 2 enough to provoke a duel. For  $d \in [d_2, 1]$ , both agents are unconstrained. Figure 1 illustrates.

The logic of the partition is simple. The cutoff  $d_2$  is set where  $l_1^* = l_1^{max}$ , or the amount of libel that leaves Agent 2 indifferent between a duel and no duel. Clearly,  $l_1^{max}$  is increasing in  $d$ , as an increase in  $d$  makes a duel riskier and thus causes Agent 2 to tolerate more libel before issuing a call to the field of honor, while  $l_1^*$ , representing Agent 1's preferred libel level absent a duel, is invariant in  $d$ . Therefore, for  $d > d_2$ , Agent 1 is unconstrained, and no duel takes place. For  $d < d_2$ , Agent 1 must choose between playing  $l_1^{max}$  and  $l_1^{**}$ , but for  $d$  in the neighborhood of  $d_2$ , Agent 1 will strictly prefer to not induce a duel, and so  $d_1 < d_2$ . For values of  $d$  approaching 1, Agent 2 would never issue a challenge and accept near-certain death, so  $d_2 < 1$ . Finally, it is clear that as  $d \rightarrow 0$ , dueling becomes a dominant strategy for Agent 2 for any positive level of libel; he can reduce the effectiveness of Agent 1's libel at no real cost to himself, and so  $d_1 > 0$ . Proposition 3 formalizes these claims.

**Proposition 3.** *Equilibrium behavior is described by cutoffs  $0 < d_1 < d_2 < 1$  as follows:*

1. *For  $d \in [0, d_1]$ , a duel occurs.*
2. *For  $d \in [d_1, d_2]$ , a deterrence equilibrium occurs*
3. *For  $d \in [d_2, 1]$ , an unconstrained equilibrium occurs.*

*Proof:* The cutoff  $d_2$  is set such that  $l_1^* = l_1^{max}$ . As  $d$  approaches 1, the condition  $A > \frac{1}{2}$  ensures that  $l_1^{max} > l_1^*$ , meaning that both agents are unconstrained, and so  $d_2 < 1$ .

For  $d = d_2$ ,  $l_1^* = l_1^{max}$ . From (6) and (7),  $l_1^{**} < l_1^*$ , and so the fact that  $l_1^{max}$  is a continuous function of  $d$  implies that there exists  $\epsilon > 0$  s.t. Agent 1 strictly prefers to play  $l_1^{max}$  and avoid a duel for  $d \in (d_2 - \epsilon, d_2)$ , and hence  $d_1 < d_2$ .

For  $d < d_2$ , the utility from a duel (8) is decreasing in  $d$ , while the utility from no (9) is increasing in  $d$ , implying that the partition  $[0, d_1], [d_1, d_2], [d_2, 1]$  is valid. Finally, from (8) and (9), as  $d \rightarrow 0$ , Agent 1 prefers to duel to not, by virtue of  $l_1^*$  solving his first order condition (7). ■

What are the implications of proposition (3) for social welfare? While views vary on the social (dis)utility of dueling and libel, we make the mild assumption of a social welfare function which is decreasing in both libel and dueling deaths. First, libel distorts the political process, the media, and commerce, and we feel it is reasonable that, all else equal, society is worse off the more libel there is. Second, even those most in favor of dueling acknowledged that, all else equal, dueling deaths were unfortunate, and every effort was made to forestall duels with a settlement acceptable to both sides.<sup>36</sup> Hence, it is worth asking the following: under a social welfare function which is decreasing in both the amount of libel and the number of duels, what is the optimal mortality rate of a duel? This has obvious policy relevance, both in that the deadliness of dueling weapons was influenced by agreed-upon customs, and in that the vigor with which law enforcement agencies prosecuted anti-dueling laws greatly affected the cost of dueling. Indeed, we might think of a policy that effectively outlawed dueling as setting the mortality from a duel to  $d = 1$ , and a regime in which dueling pistols were used instead of rifled percussion cap weapons as artificially lowering the parameter  $d$ .

Agent 1's equilibrium libel moves non-monotonically in  $d$ , first decreasing, then increasing, while Agent 2's libel increases monotonically. Specifically, Agent 1 plays  $l_1^{**}$ ,  $l_1^{max}$ , and  $l_1^*$  in the  $[0, d_1]$ ,

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<sup>36</sup>US Congressman William Graves, upon killing his colleague Congressman Jonathan Ciley in a duel, described visions of Ciley's ghost, with a bullet wound to his forehead, visiting him at night, and demanded of his wife that they sleep with the lights on to prevent the apparition's visits (New York Times, March 5, 1877).

$[d_1, d_2)$ , and  $[d_2, 1]$  regions, respectively. As  $l_1^* > l^{**} > l_1^{\max}|_{d=d_1}$ , Agent 1's libel level is non-monotonic in  $d$ , first decreasing (at  $d_1$ ), then increasing (between  $d_1$  and  $d_2$ ), then constant (in  $[d_2, 1]$ ). Agent 2 plays  $l_2^{**}$  for  $d < d_1$  and  $l_2^*$  for  $d > d_1$ , and so Agent 2's libel is increasing in  $d$  (jumping up at  $d_1$  and constant otherwise). Total libel,  $l_1 + l_2$ , may increase or decrease at  $d_1$ , depending on the amount of libel levied by Agent 2, though it will decrease for any type pair with sufficiently large  $\theta_2 - \theta_1$ .

Further, it follows from proposition 3 that dueling deaths are minimized (at 0) for any  $d \geq d^1(0, 1)$ . Given that total libel is increasing for  $d \geq d_1$ , it is direct that  $d = d_1$  dominates all  $d > d_1$  (dueling fatality rates in this range induce the same number of dueling deaths, 0, but produce more libel). In the event that  $l_1 + l_2$  for  $d < d_1$  is less than at  $d = d_1$ , it is also unambiguous that  $d = d_1$  dominates all  $d < d_1$ . Finally, in the event that total libel is lower for  $d < d_1$ , whether  $d_1$  or a lower fatality rate is optimal depends on how society weights the occasional duel or fatality against a lower libel level. If dueling deaths lower social welfare greatly more than libel does, it is unambiguous that  $d^* = d_1$ . The optimal mortality in an affair of honor is just high enough to deter agents from both higher levels of libel and from actually challenging each other. A higher fatality rate would have less of a deterrent effect, as libeling agents would be less likely to be called to the field of honor, while a lower fatality rate would only encourage needless bloodshed.

Of course,  $d_1$  is different for different pairs of agents; the greater  $\theta_2 - \theta_1$ , the lower  $d_1$  is. However, since proposition 3 holds for all  $(\theta_1, \theta_2)$  pair, there necessarily exists some  $d_1^*$  for which every possible pair of agents is at least marginally deterred from dueling. Corollary 4 summarizes.

**Corollary 4.** *For any social welfare function, the optimal mortality from an affair of honor is  $d^* \in (0, 1)$ . Outlawing dueling is never socially optimal.*

Corollary 4 sheds light on why, even at the height of dueling's popularity in the Antebellum South, ineffective and inaccurate dueling pistols were used to settle disputes, as opposed to more modern and deadly weapons. The efficiency of the institution depended on just such a choice.

Finally, we note that the more dueling was accepted by a society, the greater the benefit to be realized from it. Here, we model the acceptance of dueling via the parameter  $\alpha$ , with higher  $\alpha$  implying a greater acceptance of dueling and it therefore being a better way to clear one's name. Proposition 5 tells us that the more accepted dueling was, the more benefits to be reaped from the institution. The North, where dueling was widely derided, failed to achieve the same benefits from dueling as did the South, where it was widely accepted.

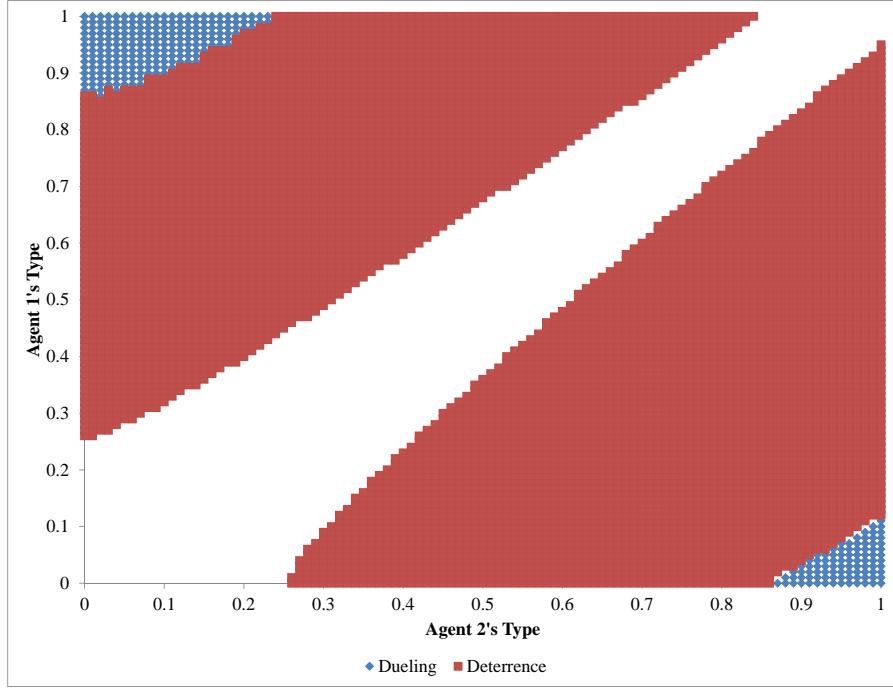
**Proposition 5.** *If  $\gamma > 2dA$ , then an increase in  $\alpha$  lowers the total amount of libel.*

*Proof:* An increase in  $\alpha$  decreases  $l_1^{\max}$  and  $l_i^{**}$ , while not affecting  $l_i^*$ . Therefore, for any  $\theta_1, \theta_2$  pair in either a deterrence or dueling equilibrium, the total libel  $l_1 + l_2$  decreases. So long as  $\gamma > 2dA$ , a positive measure of  $\theta_2, \theta_1$  pairs are in a deterrence equilibrium. ■

### 3.3 Numerical simulation

We now simulate the model over a lattice where both  $\theta_1$  and  $\theta_2$  range between zero and one. We use the following calibration:  $\alpha = \frac{1}{2}$ ,  $\gamma = 1$ ,  $A = \frac{1}{2}$ ,  $c = 0.01$ , and  $d = 0.072$ , approximately equal to the estimated mortality rate of  $\frac{1}{14}$  discussed in the introduction. Figure 2 reports the results.

Figure 2: Equilibrium by type for high  $\alpha$  (South)



Duels occur when the type difference between agents is large. For these parameterizations, the more extreme agent has a large incentive to libel his opponent. The moderate agent reduces the effects of this libel by meeting his opponent on the field of honor. A deterrence equilibrium exists when the difference in types is intermediate. In this case, the more extreme agent reduces his libel in order to avoid prompting a challenge. When agents have similar types, they choose similar amounts of libel. Neither agent thus has an incentive to issue a challenge and the field of honor lies vacant.

Now suppose societal changes reduce the effectiveness of a duel in wiping out libel (i.e. we move from the South to the North). Figure 3 simulates the model where  $\alpha = \frac{1}{5}$ , and all other parameters are unchanged.

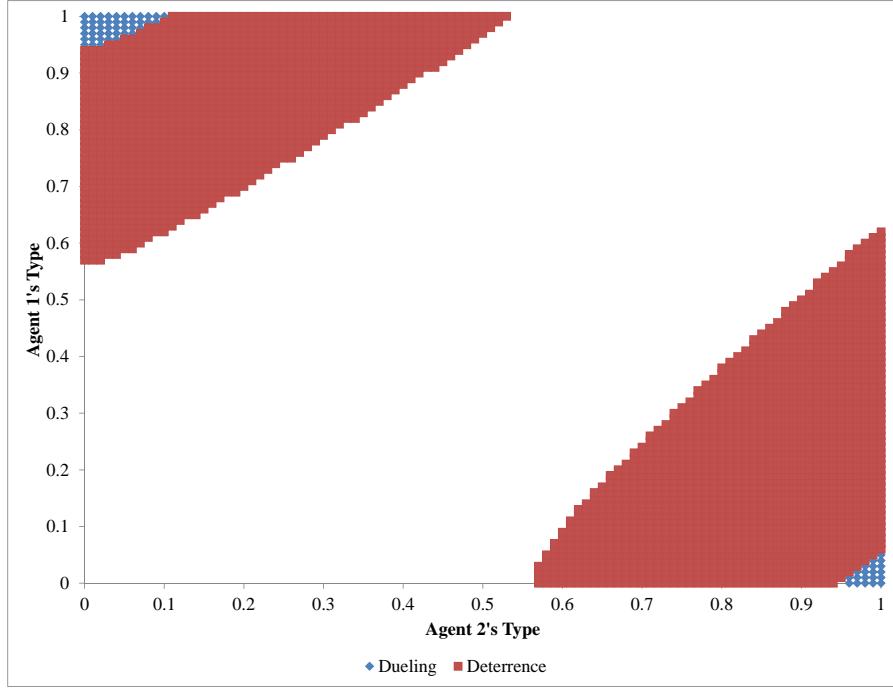
In this case, dueling is less effective at combating libel. As a result, duels rarely occur and deterrence equilibria are less common. By assuming that  $\theta_1$  and  $\theta_2$  are joint uniform on the unit interval, Table 1 reports the equilibrium properties for both calibrations. In addition, it reports the average level of libel in a version of the model with no dueling but the same calibration:

Table 1: Equilibrium Properties for Alternate  $\alpha$

	$\alpha = \frac{1}{2}$	$\alpha = \frac{1}{5}$
Dueling	3.0%	0.63%
Deterrence	68.5%	27.8%
Average Libel	1.73	2.71
Average Libel (Dueling Outlawed)	3.17	3.17

Decreasing  $\alpha$  from  $\frac{1}{2}$  has interesting effects. First, dueling equilibria never occur. In this case,

Figure 3: Equilibrium by type for low  $\alpha$  (North)



dueling deters libel even though no duels ever actually take place. Eventually, however, the deterrence region also disappears and dueling no longer affects the conflict.<sup>37</sup>

If dueling reduces the effects of libel, then its existence may encourage the uses of substitutes to libel. For example, suppose that agents may alter, with a cost, their position from their true type.<sup>38</sup> Clearly, the presence of dueling would then both deter libel and incentivize moderation, yielding yet another social benefit.

These results offer a novel explanation for the differences in dueling between the Antebellum South and North. In the South, dueling acted to effectively rebut libel, and it thus provided social benefits such as reduced libel and increased moderation. It was therefore sensible for Southern policymakers to preserve the institution. In the North, however, duels did not effectively rebut libel. The practice thus offered few social benefits and it is understandable that Northern policymakers more aggressively sought its abolition.

It is of interest to compare the quote from Southern Senator Gibson, presented in the introduction, with a competing quote from anti-dueling preacher Lyman Beecher:<sup>39</sup>

But by voting for duelers we demonstrate the insincerity of such prayers for when, by the providence of God, it is left to our choice whom we will have, we vote for murderers.

Both Gibson's and Beecher's quotations are consistent with our model. If dueling counteracted libel in the South, then Gibson's mourning the decline of the "tone of the bar and the press", and a

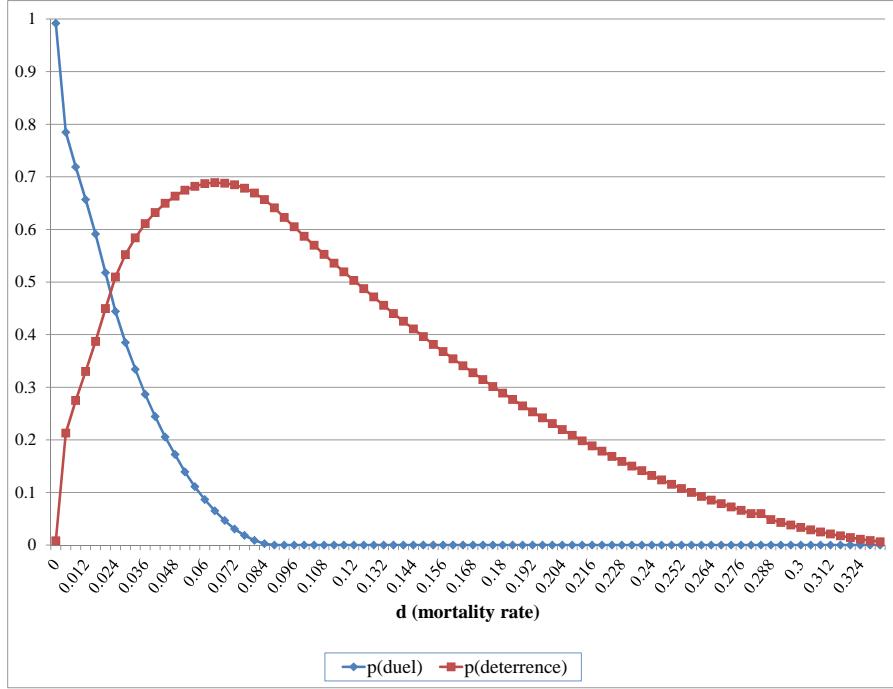
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<sup>37</sup>As  $\alpha \rightarrow 1$ , dueling equilibria also disappear. Because dueling is very effective, the more extreme agent reduces his libel so that deterrence equilibria dominate.

<sup>38</sup>This feature can easily be added to the model by adding a term  $R(s_i - \theta_i)^2$  to (3) where  $s_i$  is the agent's actual behavior and  $\theta_i$  is their type. Equations (1) and (2) would then depend on behavior and not type.

<sup>39</sup>Beecher, L. 4/16/1806. The remedy for duelling: a sermon, delivered before the Presbytery of Long-Island, at the opening of their session, at Aquebogue, NY.

Figure 4: Probability of Dueling and Deterrence Equilibria



loss of “dignity, justice and decorum” appears in the model as increased extremism and libel. But deprived of its ability to offset libel, dueling offered little social benefit. It is thus understandable that the Northerners came to see the practice as barbaric and, in the case of Beecher, the shooter in a fatal duel as a “murderer.”

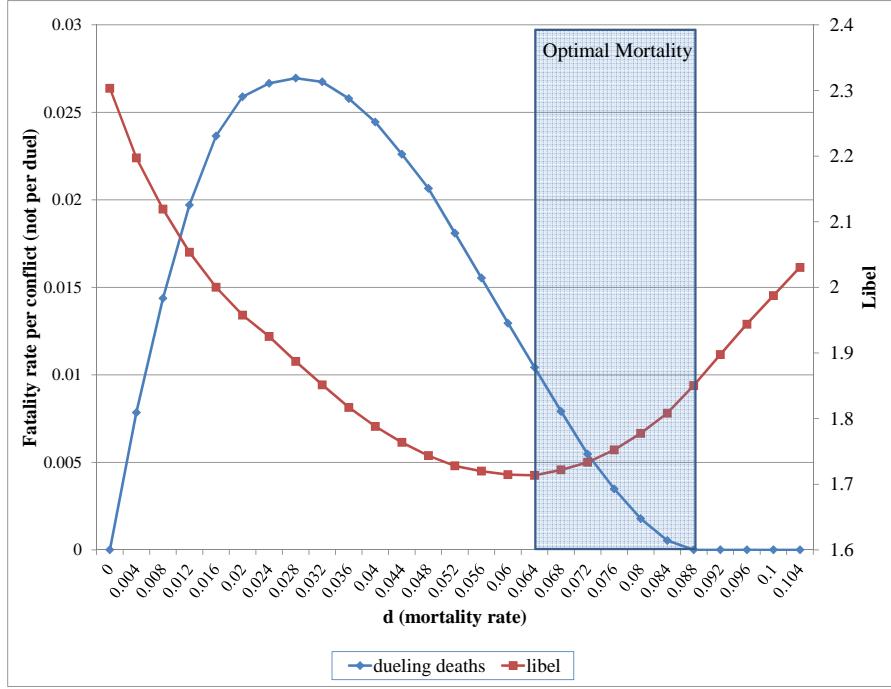
We now consider the effect of different mortality rates. We vary  $d$  between 0.001, and 0.35, the latter value being sufficiently high so that the model behaves the same as if dueling were outlawed, for  $\alpha = \frac{1}{2}$ . Figure 4 plots the probability of dueling and deterrence equilibria for different mortality rates while Figure 5 shows the average level of libel and the fatality rate per contest (not per duel).

Suppose that social welfare is decreasing in libel and non-increasing in deaths from duels. Figure 5 provides several insights on the optimal mortality rate. First, if society is only interested in minimizing libel, then she should choose a 6.4% mortality rate. Second, for any mortality rate less than 6.4%, it is always possible to choose a mortality above 6.4% which results in less libel and fewer dueling deaths. For this calibration, any mortality rate below 6.4% is therefore indefensible. Third, if a society is unwilling to accept any deaths in dueling, then a mortality rate about 8.8% will deter libel without resulting in any actual duels. Fourth, the only effect of increasing the mortality rate above the minimum rate that results in no duels is more libel. Outlawing dueling (equivalent to setting  $d \geq 35\%$ ) maximizes libel and is never optimal.

Collectively, these results imply an optimal mortality rate between approximately 6.4% and 8.8% (the shaded region in Figure 5). Within this range, a society faces a tradeoff between more dueling deaths and more libel. It is not the case that making dueling safer will always reduce dueling deaths. Lowering the mortality rate from 5% to 2%, for example, results in more libel while increasing the amount of blood spilt on the field of honor.

Based on this simulation, we now briefly discuss the endogenous determination of  $\alpha$ . Assume that

Figure 5: Average Libel and Deaths per Contest



society can choose either high acceptance of dueling ( $\alpha = \frac{1}{2}$ ) or low acceptance ( $\alpha = \frac{1}{5}$ ). Suppose further that there is feedback between acceptance of dueling and dueling statistics such as deaths from duels, frequency of duels, and average libel. For example, a society may be more accepting of dueling the more frequently it occurs, or the more often a death occurs. This is plausible if public opinion becomes desensitized to dueling deaths and thus more willing to accept dueling as a legitimate means of refuting libel. This is consistent with our reading of the public's reaction to dueling deaths in the North vs. the South. In this case, multiple equilibria emerge: one in which society is tolerant of dueling, and duels are relatively frequent, and one in which society condemns dueling, and duels are infrequent.

## 4 Conclusion

It is easy to argue that dueling was an undesirable and barbarous aspect of Antebellum Southern society. The costs were evident. Not only did duels frequently end in death, but those dying were usually prominent politicians, soldiers, and other respected figures in society. In addition, many of the disputes seem of minor importance to the modern eye. That this system was able to last for such a long period of time, was endorsed and found enthusiastic participants among the political and social elite, and served as a means of restoring or defending personal reputation is a historical puzzle that has attracted the attention of legal scholars and economists.

Previous attempts to analyze dueling have approached the institution without examining the underlying conflict. The institution itself, details of how the conflict arises, and how it is ultimately

resolved are secondary to the idea that the duel itself generates utility for both participants.<sup>40</sup> We view duels in a fundamentally different light. A duel in the Antebellum South was one part of a high-stakes game in which the adversaries were in a tournament setting against each other for a particular prize (professional reputation, society's acclaim, political contest, etc.). We therefore model dueling as part of an explicit conflict, instead of just modeling participation in the institution.

From our historical survey, we find that duels occurred, they occurred quite frequently, and they occurred quite frequently among the social and political elite of the South (who did not need to fight to reveal their social standing, would have had the most motivation to seek a compromise solution, and were for the most part not credit constrained).<sup>41</sup> This indicates to us that duels were not about compromise or cooperation, but about conflict. Duelers, in most cases, were not interested in arriving at a compromise solution, nor moving toward a mutually beneficial outcome. Duels were connected to a specific conflict.

However, this is only part of the story, as dueling had significant benefits for the South. We showed that dueling may have been an efficient method of maintaining civility in society. In our historical survey, the arguments that led to the duels were mostly political or personal in nature, and the prize was usually a political contest or the reclamation of one's reputation. In such high stakes games, it is not surprising that the gloves would come off once in a while and mud would fly. Dueling served to moderate personal and political attacks by introducing a potentially costly punishment. In modern society, conduct detrimental to society is prohibited by law, and the enforcement of the punishment if the law is broken is the purview of the government.

The prevalence of dueling in the South, and the almost complete absence of it in the North is a historical puzzle that our model clarifies as different effectiveness of duels to repair reputation due to different societal norms.<sup>42</sup> If it were possible to collect an exhaustive dataset on conflicts and their resolutions all across the United States in the Antebellum period and run a quasi-experimental regression discontinuity analysis, the Mason-Dixon line would serve as an unequivocal structural break, where to the south, conflicts would be resolved with duels, and to the north, via other means.<sup>43</sup> In our model, a shift in attitudes against dueling is easily represented by reducing the effectiveness of dueling at mitigating libel. We show that, holding the preferences of potential duelers constant, the shift in attitudes reduces both the incentive to duel and its effectiveness at reducing libel and encouraging political moderation.

By the turn of the century, dueling had largely disappeared. Legal scholars provide two related explanations for this: that a shift in attitudes resulted in dueling being seen as barbaric instead of noble, and that the development of legal institutions rendered the practice unnecessary.<sup>44</sup> What killed off the proud tradition of dueling was not the invention of better weapons or a general increase in civility in the public arena, but the evolution of the perception of dueling, from a gentlemanly method

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<sup>40</sup>For O'Neill (2003), mediation by seconds in the duel provides a compromise split in the bargaining game that provides higher payoff to both parties in expectation. In Allen and Reed (2006), the duel allows both combatants to reveal their social capital, which allows them entry into a patronage market. Kingston and Wright (2010)'s duelers (creditor and debtor) establish that both are honorable in order to continue to interact in a credit market.

<sup>41</sup>In other studies, the duel actually never occurs (O'Neill (2003)), only occurs among the "marginal" elites (Allen and Reed (2006)), or only occurs between creditors and debtors (Kingston and Wright (2010)).

<sup>42</sup>To the best of our knowledge, no other study has addressed this issue in detail.

<sup>43</sup>Indeed, outside of the Burr-Hamilton duel, our survey of duels is almost exclusively confined to the South.

<sup>44</sup>While some legal scholars suggest that the purpose of the largely unenforced anti-dueling laws was to change social norms in order to eventually end dueling, Wells and Harwell (2001) conclude that anti-dueling laws were largely ineffective at changing social norms and only the trauma of the Civil War initiated the demise of dueling in the South.

of repairing and restoring societal reputation to barbarous blood sport.

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