

# The U.S. Copyright Termination Law, Asymmetric Information, and Legal Uncertainty

Michael Karas<sup>\*</sup>

---WORKING PAPER VERSION---<sup>†</sup>

## Abstract

The U.S. copyright termination law inalienably allows authors to terminate copyright licenses to their creations 35 years after initial transfer, and to take back the rights granted. However, there currently exists one restriction in the law that provokes conflicts between authors and publishers: creations that are work made for hire are excluded from the termination clause. A related problem is that the policy and wording of the law are ambiguous. Authors systematically insist on recovering the copyrights of their creations, whereas publishers claim continuation of license usage based on the work made for hire inclusion in contracts. This fact and the strong dependence of authors on publishers' investments and expertise may undermine termination incentives and make the termination law inapplicable.

Using a Bayesian updating model, we predict the equilibrium behavior in an interaction between authors and publishers. The paper demonstrates that the problem of information asymmetry may prevent copyright terminations if authors fear a non-cooperative behavior of their publishers. High motivational factors and convincing outside options may foster termination incentives of authors. The results additionally show that courts' decisions have a substantial impact on the interaction between the players and can guide their incentives to terminate and to act cooperatively. High court costs however deter authors from terminating copyright licenses and cause non-cooperative behavior of publishers.

Keywords: Termination Right, Copyright Law, Legal Disputes, Bayesian Updating, Author-Publisher Relationship, Behavioral Game Theory

JEL classification: C78, K41, L82, L88, O34, Z11

---

<sup>\*</sup> Chair of "Economics of Business and Law", Faculty of Economics and Management, Otto-von-Guericke-University, Bldg. 22/D-005, PO Box 4120, 39106 Magdeburg, Germany. Tel.: +49 391-67-58160. E-mail address: michael.karas@ovgu.de (M. Karas).

<sup>†</sup> This is a preliminary version [27.06.2017]. Please do not quote without the permission of the author.

## 1. Introduction

Victor Willis has done it, and others like Don Henley, Bruce Springsteen, and Billy Joel are willing to do it: influential authors in the music business are now opting to make use of the U.S. copyright termination law, with the purpose to reclaim copyright ownership to their recordings, among which are world-famous hits like "YMCA", performed by the Village People, or "Heartache Tonight", recorded by the band The Eagles. Top-selling albums like Michael Jackson's "Thriller", Madonna's "Like a Virgin", or Prince's "Purple Rain" may soon follow suit. Licenses over characters appearing in famous comic books, movies, or bestseller novels may become subject to terminations as well, as different industries, all of which depend upon the creation and exploitation of copyrightable works, are affected.

In a time when publishers<sup>1</sup> from many creative industries disproportionately rely on their back catalog sales, the intent to terminate copyrights poses a significant threat to income; thus they put considerable effort into circumventing termination rights. As many creations are still valuable, authors and publishers have much to gain or lose by holding the copyright, and thus there seems to be a high potential for conflict in many creative industries (Strohm 2003; Browne 2011; Rohter 2011; Darling 2015).

Let us first examine the details of the copyright termination law in order to understand the potential source of conflict. Since 1978<sup>2</sup>, authors or their statutory heirs are enabled to terminate the copyrights to their creations 35 years after they have assigned away copyright ownership to a publishing company.<sup>3</sup> This termination right is inalienable and any contract to the contrary is unenforceable. The law applies to any type of copyrightable creation, and includes such diverse media as sound recordings, software, photographs, movie rights, literary works, and comics (Strohm 2003; Rub 2013; Darling 2015). With the introduction of the termination law, Congress intended to overcome the problem wherein publishers regularly use their dominant positions in negotiations to obtain copyright licenses from weakly positioned authors in perpetuity: authors should be enabled to regain more control over their creations to improve their financial performances (Starshak 2001; Browne 2011; Abdullahi 2012; Rub 2013).

---

<sup>1</sup> Publishers are all intermediaries between authors and consumers of protected works with the purpose to market these, e.g. labels in the music industry or book publishers in the print media.

<sup>2</sup> Pre-1978 grants are regulated separately under 17 U.S.C. §304 but will be excluded due to the deviating specifications of the law. In addition, two major amendments should be mentioned which lead to the status quo: the Copyright Term Extension Act and the Copyright Corrections Act of 2000.

<sup>3</sup> The termination of copyright grants thereby usually relates to the transfer of the rights to control content, distribution, display, advertising, and derivative products.

However the termination right also has some restrictions<sup>4</sup>: for example authors need to file a termination notice within a certain period before the date of effective termination. Another limitation of the termination law, which is also of substantial importance to this paper, is that the right is not granted to authors whose works are created as "work made for hire".<sup>5</sup> Work made for hire is defined such that authors act as employees under contract to a firm and create works within the scope of their employment relationship: these works are exempted from terminations. On the contrary, there are also independent contractors who create and sell copyright grants on their own behalf, whose works are consequently not exempted from termination.

The dichotomy poses a problem: the law does indeed not allow a separate transfer of the termination right by contract, however a contract does not require the exclusion of the termination right if the contract is work made for hire. Additionally, the current legal position is apparently inconsistent, leading to ambiguities about which creations are work made for hire and which are not. Even the fact that contract designs routinely contain the work made for hire clause<sup>6</sup> does not seem to clarify the actual legal position.

Consequently, recent experience suggests a "hailstorm of litigation" because authors believe that their creations were not made for hire, whereas publishers claim that most contracts were concluded under this clause (Strohm 2003; Henslee & Henslee 2011; Abdullahi 2012; Darling 2015). Strohm (2003) claims that the policy and language of the law are not defined sharply enough, and that more legislation may be required to circumvent costly litigations over copyright ownership. If legislation is impossible, courts should be induced to provide clarification about copyright ownership in the case of terminations (Strohm 2003). Henslee & Henslee (2011) argue that Congress has fallen short in emphasizing the predictability of copyright ownership. Other contributions in the literature agree that the determination of copyright ownership will likely be the first issue to be litigated (Strohm 2003; Abdullahi 2012; Gilbert 2016).<sup>7</sup>

The problem with litigation risk as a consequence of termination is, on the one hand, that it may simply undermine actually entitled authors' incentives to terminate (Strohm 2003; Rub 2013; Darling 2015). Many authors are not financially equipped for litigation, and thus contesting a copyright claim may be an unaffordable proposition (Bebchuk 1998; Balganes

---

<sup>4</sup> For more details see 17 U.S.C. §203(a).

<sup>5</sup> Id.

<sup>6</sup> It is often observed that authors agree on contracts while being unaware about the details, or comply with the details without resistance due to their weak bargaining position (Rohter 2013).

<sup>7</sup> Strohm (2003) mentions that the determination of joint authorship may also significantly increase the number of litigation cases. For simplicity, this issue is left out and unanimous agreement in joint works is assumed, as the focus of this paper lies on the author-publisher relationship.

2013). Furthermore, authors are likely not aware of the legal technicalities, and may fear that any recourse to the court would harm their relationship with their publishers (Strohm 2003; Browne 2011; Abdullahi 2012; Darling 2015). Furthermore, authors' dependence on publishers' investments and expertise may undermine incentives to terminate (Darling 2015).

The question about the effectiveness of the law has an important economic consequence: the introduction of the law took more than two decades of painstaking legal negotiations - disregarding the necessary introduced and potential future amendments- and it would be a waste of resources to introduce a law that would not meet the desired effects (Strohm 2003; Darling 2015).

The purpose of this paper is to analyze the effectiveness of the law, i.e. whether or not terminations are likely to be realized in the shadow of legal uncertainty and an unsure reaction of publishers on terminations. We consider the problem of information asymmetry where publishers can observe whether authors terminate their grants, but where authors cannot observe publishers' attitudes towards terminations. For this purpose, we use a Bayesian signaling game which is related to the approach of Kirstein (2014). Kirstein's paper shows how the decisions of a doping enforcer (incompletely informed mover) to sanction may influence an athlete's (completely informed mover) probability to dope. In the underlying paper we analyze the interplay between the incompletely informed second mover (author) and the first mover (publisher) as well. A modification however is that we add a third player (judge) who may favor the author or the publisher to investigate effects of legal uncertainty of the equilibrium behavior of the involved parties. Another modification is the distinct structure of payoffs.

The paper proceeds as follows: The next section introduces the model and its assumptions. We then compute the perfect Bayesian equilibria for the game under legal certainty and under legal uncertainty. Section 3 proceeds with a discussion, after which section 4 concludes the paper.

## **2. The model**

### **2.1 Structure**

Suppose that an author<sup>8</sup> (A) and a publisher (P) have a contractual relationship over a specific copyright transfer<sup>9</sup> for a protected work at one point in time where A may send a termination

---

<sup>8</sup> The protected work may also be a result of joint authorship, but recall the assumption that several authors would unanimously make the same decision as to how to act in the entire game.

<sup>9</sup> A copyright grant is usually a bundle of rights, associated with intellectual property ownership transfers to the publisher. This bundle usually constitutes the permission to display the protected work and to distribute it.

notice.<sup>10</sup> P chooses whether or not to behave cooperatively, i.e. she has an attitude towards terminations. A chooses whether she terminates or abstains from terminating the copyright license. Assume that A and P are rational and profit maximizing individuals and let both contestants be risk neutral. Assume that authors prefer to terminate copyright grants if a publisher acts cooperatively because non-cooperative behavior may negatively affect their relationship and may trigger a legal dispute. Furthermore assume that publishers prefer to be cooperative if authors abstain from terminations because acting non-cooperatively may be costly with respect to the ongoing relationship and may be a negative signal to outside parties. The law provides a peculiarity about the information structure of the game: whereas P can observe A's move (recall that A must send a termination notice), it may be difficult for A to anticipate P's move perfectly. This may lead to an information asymmetry problem under which P is the better informed party. It is however sensible to assume that A is not completely blind because she may estimate P's move from observing her behavior in previous cases, from the media, or in a direct interactions. Thus assume a sequential interaction under which A follows P while learning from her signals.

After P has made her choice whether to be cooperative or not, a chance move determines whether P is cooperative or non-cooperative, followed by A's decision whether or not to terminate. Of course it may be more sensible to assume that P makes her choice after having received a termination notice. Given incomplete and asymmetric information it is however required that all parties can generate beliefs about the other players based on the information revealed (Carmichael 2005). We should therefore assume that being cooperative is rather an attitude and not a reaction.

The probability for the cooperative type of P is denoted  $x$ . We assume for the informative signal the two realizations *signal: cooperative* and *signal: non-cooperative*. Let  $y$  and  $z$  denote probabilities for a certain realization which are contingent on the type of player P. Consequently  $y = Pr(\text{signal: cooperative} | x)$ ,  $1 - y = Pr(\text{signal: non-cooperative} | x)$ ,  $z = Pr(\text{signal: cooperative} | 1 - x)$ , and  $1 - z = Pr(\text{signal: non-cooperative} | 1 - x)$ .

We adopt a measure introduced by Kirstein (2014) which helps in solving the game for a Perfect Bayesian Equilibrium: authors are indeed imperfectly informed; however they may distinguish between a correct and an incorrect signal wherefore we adopt the assumption  $0 \leq z \leq y \leq 1$ . Now we can distinguish three cases where the author has perfect monitoring skills

---

<sup>10</sup> 17 U.S.C. §203(a)(4)(A) provides that notice to the copyright office and to publishers "shall be served not less than two or more than ten years before that date". The law provides more specific requirements which may lead to different time spans or points in time where termination notices need to be sent; for the topic under scrutiny it however only matters that the author lies within this times span as to maintain the possibility of termination.

if  $y=1$  and  $z=0$ , no monitoring skills if  $y=z$ , and positive monitoring skills if  $0<z<y<1$  (Kirstein 2014).

The information asymmetry problem leads to the circumstance that A's expectations depend on her beliefs about P's behavior. These beliefs can be updated to a posterior belief using Bayes Rule using A's observations of the imperfect signal. We denote these a posteriori beliefs  $\lambda=Pr(x|signal: cooperative)$ ,  $1-\lambda=Pr(1-x|signal: cooperative)$ ,  $\mu=Pr(x|signal: non-cooperative)$ , and  $1-\mu=Pr(1-x|signal: non-cooperative)$ . Then player A moves choosing *terminate* and *abstain* whereby we introduce  $p=Pr(terminate|signal: cooperative)$ ,  $1-p=Pr(abstain|signal: cooperative)$ ,  $q=Pr(terminate|signal: non-cooperative)$ , and  $1-q=Pr(abstain|signal: non-cooperative)$ . Whenever P chooses to be non-cooperative and A terminates the copyright license this game assumes that another round starts where a judge has to resolve the legal dispute. We assume consistent expectations about the outcome at court and the judge favors A with probability  $\gamma$ .

Figure 1 shows the sequence of events with the players' moves and the generated signals. The first decision node illustrates P's choice about her type to be *cooperative* or *non-cooperative*. Then there is a chance move illustrated by the two squares labeled "N" where the nature chooses a signal which is contingent on the type of P. P knows her own type but A does not and can only observe the signal. This uncertainty is illustrated in Figure 1 by the dotted lines between the nodes labeled "A". The author's a posteriori beliefs  $\lambda$  and  $\mu$  can be found next to each respective node. Given that P is a cooperative type and A terminates the license, P has a zero payoff as the copyright license expires. A's payoff includes a termination revenue stream from a different source denoted  $T^{11}$  and a moral value  $M^{12}$ . If A does not terminate, P earns the remaining expected revenue streams and A remains at zero.<sup>13</sup>

If P is a non-cooperative type and A abstains from termination she will still get nothing. Due to our assumption that being non-cooperative is costly, a reputational loss denoted  $V$  is deducted from P's expected revenue streams and her payoff is  $R-V$  (see Figure 1). A termination however may lead to a legal dispute and adds a next round where a judge (illustrated by the circle labeled "J") favors A with probability  $\gamma$ . This implies that P prevails

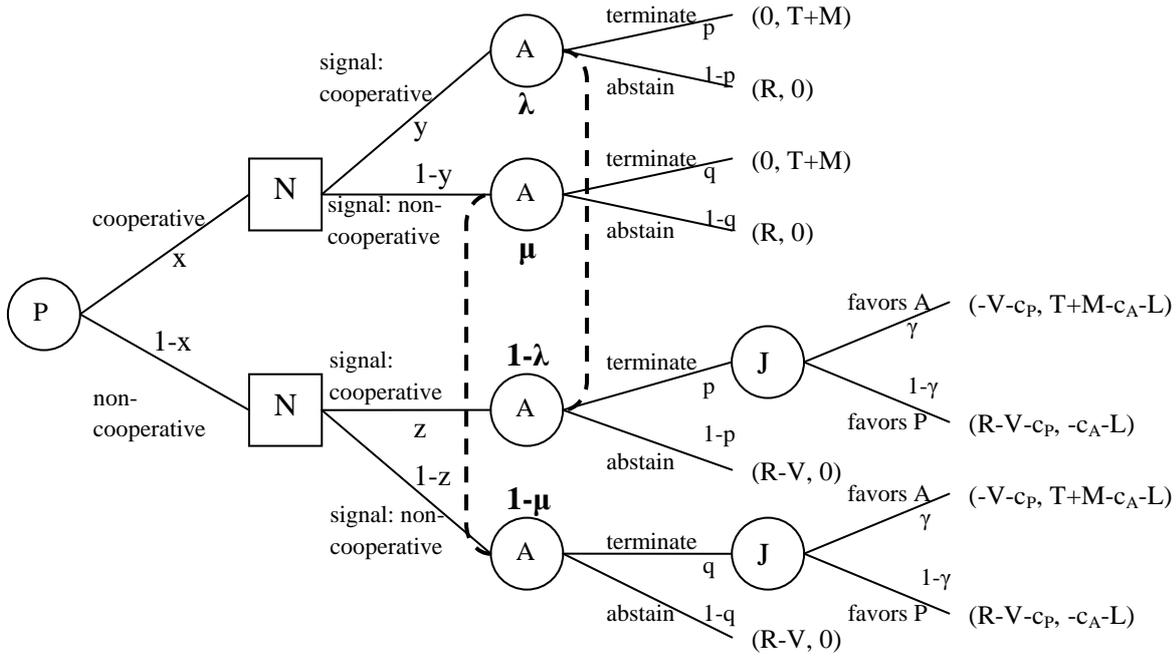
---

<sup>11</sup> Termination revenue streams may for instance be earnings from a contract with another publisher or from self promotion.

<sup>12</sup> The value to "regain control" over copyright ownership is often mentioned in the literature and seems to be an important driver with respect to authors' termination incentives (see e.g. Henslee & Henslee 2011, Rohter 2011, Rohter 2013)

<sup>13</sup> It may also be that A still earns royalties dependent on the sales of P. This fact could be considered but would not contribute to the analysis as all that matters is a difference in value between the choices to terminate or to abstain from termination. This difference is already included in the model by  $T$  and  $M$  and the status quo between author and publisher is normalized to zero without loss of generality.

at court with probability  $1-\gamma$  and that we assume the parties to have consistent expectations about courts decisions. Here we use the American cost allocation rule under which each party bears its own court costs and these costs are denoted  $c_i$  where  $\forall i \in \{A, P\}$ . The parameter  $L$  is a measure which assumes the loss of a partnership with the publisher, for example by being disregarded/"blacklisted" in the future.<sup>14</sup> Contingent on the decision of the judge, P's expected payoff then is  $(1-\gamma)R-V-c_P$  and A earns  $\gamma(T+M)-c_A-L$ .



**Figure 1: Sequence of events**

Note that the payoff parameters  $c_i, L, M, R, T, V \geq 0$  and that the probability parameters by intuition  $0 \leq p, q, x, y, z, \lambda, \mu \leq 1$ . Furthermore all payoff parameters and the signal quality parameters  $y$  and  $z$  are exogenous and common knowledge whereas the parameters  $p, q, x, \lambda$ , and  $\mu$  are all endogenous.

## 2.2 Optimal choice of the publisher

Now that the game is defined we can derive the Perfect Bayesian Equilibrium (hereafter PBE) which will be denoted  $\{(p^*, q^*), (\lambda^*, \mu^*), x^*\}$ . Asterisks denote a player's optimal choice and the a posteriori beliefs in the equilibrium. In this section, we will first derive the optimal choice of the publisher as a best response function to the choice of the author, i.e.  $x^*(p, q)$ .

<sup>14</sup> This parameter is unilateral because authors are usually more dependent on one of a few publishers than a publisher on one of the many authors she has in her portfolio.

Regarding this the rational publisher chooses  $x$  as to maximize her own expected payoff. Her expected payoff can be denoted as

$$EPO_P = x[(1-p)(yR - z(R-V)) + (1-q)((1-y)R - (1-z)(R-V)) - ((1-\gamma)R - c_P - V)(zp + (1-z)q)] + z(p((1-\gamma)R - c_P - V) + (1-p)(R-V)) + (1-z)(q((1-\gamma)R - c_P - V) + (1-q)(R-V)).$$

The first order condition for an internal maximum of P's expected payoff with respect to  $x$  is

$\partial EPO_P / \partial x = p(z(R-V) - yR - z((1-\gamma)R - c_P - V)) + q((1-z)(R-V - ((1-\gamma)R - c_P - V)) - (1-y)R) + V = 0$ . This expression can be rearranged to  $[V + q((1-z)(\gamma R + c_P) - (1-y)R)] / [yR - z(\gamma R + c_P)] = p$ . Let  $\sigma = (1-z)(\gamma R + c_P) - (1-y)R$  and  $\tau = yR - z(\gamma R + c_P)$  then we can define the publisher's best choice  $x^*(p, q)$  as a response to the author's choice:

$$\begin{aligned} p &= (V + q^*\sigma) / \tau \leftrightarrow 0 \leq x \leq 1 \\ p &< (V + q^*\sigma) / \tau \leftrightarrow x = 1 \\ p &> (V + q^*\sigma) / \tau \leftrightarrow x = 0. \end{aligned} \tag{1}$$

An outcome where  $0 \leq x \leq 1$  implies that P randomizes between being cooperative and non-cooperative, i.e. she plays a mixed strategy. If  $x=0$  then P chooses the pure strategy *non-cooperative* and if  $x=1$  she chooses the pure strategy *cooperative*.

### 2.3 Optimal choice of the author

In this section we derive the optimal response functions of the author. These functions are the optimal choices of  $p^*(x)$  and  $q^*(x)$  as a reaction to the believed type of the publisher. In fact the author cannot observe the type of P; however the imperfect signal reveals some information to the author which at least helps in finding her optimal strategy. The fact that two possible signals are underlying implies that A has two information sets. Thus, if A for instance observes *signal: cooperative*, she does not know whether she is at the node  $\lambda$  or at  $1-\lambda$  as both situations are in one information set. This implies that there is uncertainty about which payoff can be realized. As a consequence, A makes a decision contingent on the realization of the signal.

The author's expected payoff, given that she observes *signal: cooperative*, is  $EPO_{A, \text{signal: cooperative}} = \lambda p(T+M) + (1-\lambda)p(\gamma(T+M) - c_A - L)$ . She chooses her optimal strategy  $p$  as to maximize  $EPO_{A, \text{signal: cooperative}}$  what reveals the first order condition  $\partial EPO_{A, \text{signal: cooperative}} / \partial p = \lambda(T+M -$

$\gamma(T+M)+c_A+L)+\gamma(T+M)-c_A+L \stackrel{!}{=} 0$ . Let  $\varphi=\gamma(T+M)-c_A+L$  then we can be rearrange the first order condition to

$$\lambda(T+M-\varphi)=-\varphi. \quad (2)$$

Equality (2) includes A's a posteriori belief about the cooperative signal for which Bayesian updating yields

$$\lambda=xy/(xy+(1-x)z). \quad (3)$$

Using (3) to substitute  $\lambda$  in (2) we get  $(xy/(xy+(1-x)z))*(T+M-\varphi)=-\varphi$  which can be rewritten to  $x(y(T+M-\varphi)+y\varphi-z\varphi)=-z\varphi$ . Rearrangement with respect to the optimal choice of A's opponent yields  $x=[z\varphi]/[z\varphi-y(T+M)]$ . For easier comparability we denote the right hand side of the equality as  $x_p$ . From this analysis we can follow A's optimal choice after having received *signal: cooperative* as a best response to her opponent, i.e.  $p^*(x)$ ,

$$\begin{aligned} x=x_p &\leftrightarrow 0 \leq p \leq 1 \\ x < x_p &\leftrightarrow p=0 \\ x > x_p &\leftrightarrow p=1. \end{aligned} \quad (4)$$

An equal approach yields the authors optimal answer to her opponents move if she observes *signal: non-cooperative*. Here she chooses  $q$  as to maximize  $EPO_{A, \text{ signal: non-cooperative}}=\mu q(T+M)+(1-\mu)q(\gamma(T+M)-c_A-L)$ . The first derivative with respect to  $q$  yields the first order condition  $\partial EPO_{A, \text{ signal: non-cooperative}}/\partial q=\mu(T+M)+(1-\mu)(\gamma(T+M)-c_A-L) \stackrel{!}{=} 0$  which can be rewritten to

$$\mu(T+M-\varphi)=-\varphi. \quad (5)$$

Recall that  $\varphi$  was defined above. Bayesian updating reveals the a posteriori belief seeing a non-cooperative signal

$$\mu=(x(1-y))/(x(1-y)+(1-x)(1-z)). \quad (6)$$

Substituting  $\mu$  in equation (5) through (6), the first order condition in (5) is equivalent to  $(x(1-y))/(x(1-y)+(1-x)(1-z))*(T+M-\varphi)=-\varphi$ . Rearrangement yields  $x((1-y)(T+M)-(1-z)\varphi)=-\varphi$  and the best response condition of A to her opponent's choice is  $x=[(1-z)\varphi]/[(1-z)\varphi-(1-y)(T+M)]$ . Here we abbreviate the right hand side with  $x_q$  and we can define the optimal choice of A, who observes *signal: non-cooperative*,  $q^*(x)$  as

$$\begin{aligned} x=x_q &\leftrightarrow 0 \leq q \leq 1 \\ x < x_q &\leftrightarrow q=0 \\ x > x_q &\leftrightarrow q=1. \end{aligned} \tag{7}$$

The results in (4) and (7) have the same intuition. Define  $x_j$  for the moment where  $j \in \{p, q\}$ . Then  $x=x_j$  is the condition under which the author randomizes between terminating or abstaining from terminating the copyright license. But if  $x < x_j$  the author chooses a pure strategy and abstains from termination. This is different if  $x > x_j$  where A chooses the pure strategy *terminate*. Due to our assumption that  $0 \leq z < y \leq 1$  we can present the first result which will be helpful in the ongoing analysis:

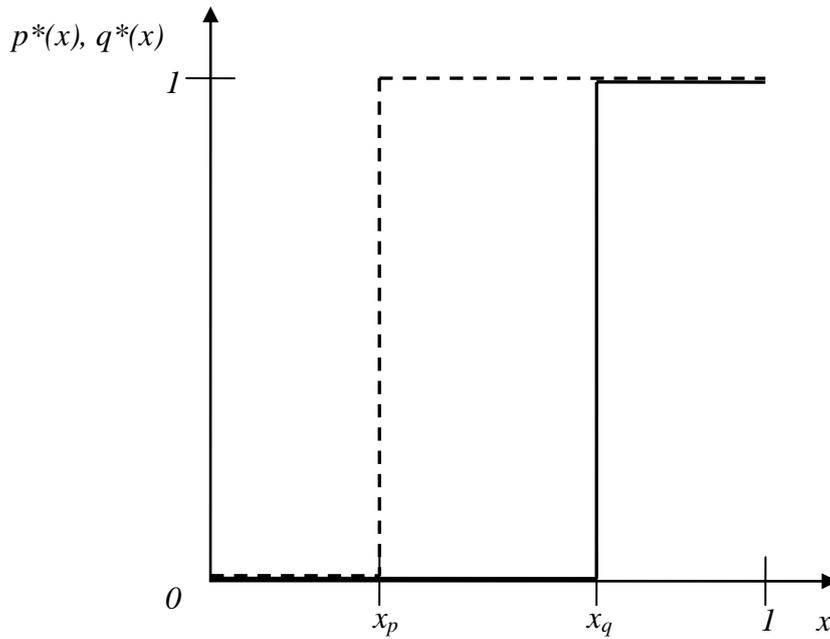
**Corollary 1.** *i)  $x_p < x_q$  if all exogenous parameters are greater or equal to zero.<sup>15</sup> ii)  $z=0$  implies that  $x_p=0$ . iii)  $y=1$  implies that  $x_q=1$  and consequently  $\lambda=1$ .*

*Proof.* *i)  $x_p < x_q$  is equivalent to  $[z\varphi]/[z\varphi-y(T+M)] < [(1-z)\varphi]/[(1-z)\varphi-(1-y)(T+M)]$  for which rearrangement yields  $z < y$ , what satisfies our assumption above. ■*

The author's best response to her opponent's choice, based on the received signals, is shown in Figure 2. The result in Corollary 1 proves the correctness of the illustration as  $x_p < x_q$ .  $p^*(x)$  is represented by the dotted line and the bold line depicts  $q^*(x)$ . The horizontal lines to the left/right of  $x_j$  imply the choice of the pure strategy *terminate/abstain* respectively. The vertical lines where  $x=x_j$  represent a mixed strategy choice. Due to Corollary 1, we can limit our analysis to cases where  $x_p < x_q$ .

---

<sup>15</sup> This result is related and based on the same assumption as in Kirstein (2014).



**Figure 2: Optimal responses of the author**

## 2.4 Equilibrium analysis

We can now use our results from the previous section to derive equilibrium combinations of behavioral strategies. A PBE will be denoted  $\{(p^*, q^*), (\lambda^*, \mu^*), x^*\}$ . In the following section, we limit our analysis to an environment where there is no legal uncertainty. We can induce this environment making two assumptions: the author will only terminate if she is legally permitted to do so<sup>16</sup> what implies  $\gamma=1 \wedge c_i=0$ . The second assumption assures that there is no uncertainty about court's decision from what follows that court costs are zero as no party would be induced to bring the case to court. In the second section we allow for legal uncertainty, i.e. the parties are unsure whether the contract includes the work made for hire clause or not. To induce this we relax the currently made assumptions and allow for  $0 < \gamma < 1$  and  $c_i > 0$ .

### 2.4.1 Legal certainty

Recall that in this section  $\gamma=1 \wedge c_i=0$ . Note that the analysis of perfect Bayesian equilibria predominantly depends on the calibration of the exogenous parameters and that multiple

<sup>16</sup> This is the case if the work made for hire clause is unaffected and the author was an independent contractor. Whether or not the author was an independent contractor could be checked using the Reid factors (as identified in Reid, 490 U.S. at 751-2). This implies that an author who signed a work made for hire contract would never terminate the copyright transfer. This assumption more or less stipulates a perfect world where both parties are aware and agree upon the rules.

calibrations exist. For this reason we limit the ongoing analysis to the -as the author believes- most relevant/practical cases. Furthermore the following intermediate results help in determining the equilibrium behavior of the players:

**Lemma 1.** *i) If  $R > V > 0$  and  $q = 0$  then  $(V + q^* \sigma) / \tau > 0$ . ii) If condition  $V > R(1 - q)(y - z)$  is fulfilled then  $(V + q^* \sigma) / \tau > 1$ . iii)  $R \leq V$  implies  $(V + q^* \sigma) / \tau > 1$  for any  $0 \leq q \leq 1$ . iv) The parameter calibration  $T + M > L$  reveals  $x_p < 0 < 1 < x_q$ . v) The parameter calibration  $T + M < L$  reveals  $0 < x_p < x_q < 1$ .*

*Proof.* The correctness of result in i) is obvious if we consider  $q = 0$  and cancel out  $\tau$  what reveals  $V > 0$ . We need to consider  $\sigma = (1 - z)(\gamma R + c_p) - (1 - y)R$  and  $\tau = yR - z(\gamma R + c_p)$  again to prove ii). Keeping this and our assumptions that  $\gamma = 1$  and  $c_i = 0$  in mind, we can rearrange condition  $(V + q^* \sigma) / \tau > 1$  to  $V + q^*(y - z)R > (y - z)R$  what is equivalent to  $V > R(1 - q)(y - z)$ . Since  $y > z$ , the right hand side of this inequality is always smaller for  $R \leq V$  what fulfills the condition and consequently proves the result in iii). We can prove iv) by setting  $x_p < 0$  what is equivalent to  $T + M > L$  and by setting  $x_q > 1$  for what rearrangement reveals  $0 > -y(T + M)$ , which is correct because  $y, T, M > 0$ . The proof for v) follows from Corollary 1 i) and from  $x_p, x_q < 0$  what yields  $L > T + M$ . ■

Note that under legal certainty the publisher's best response function limits to the exogenous parameters  $R, V, y$ , and  $z$  (recall equation (1)). Whereas the authors best response functions only consist of  $L, M, T, y$ , and  $z$  what makes it easier to limit the number of possible cases to the most practical cases. We therefore distinguish three practical stories: Case 1) the publisher has no more use for the copyright license and earns revenues close to zero<sup>17</sup> wherefore  $R \rightarrow 0$ . The author sees an opportunity in regaining the copyright license and does not highly depend on a cooperation with P, i.e.  $M + T > L > 0$ ; Case 2) the publisher still exploits the copyright license which outweighs potential reputation losses, i.e.  $R > V > 0$ . The author has the same status compared to case 1). Case 3) being non-cooperative may cause reputation losses which exceed the earnings from the copyright license and the author has the same status as in case 1). The analysis of the cases reveals the next result:

---

<sup>17</sup> For technical reasons R must not be zero as this would make  $x^*$  indeterminable because the denominator would be zero.

**Proposition 1.** *Considering Corollary 1 and given the exogenous parameters  $L, M, R, T, V, y,$  and  $z,$  the game has the following perfect Bayesian equilibria:*

- *Case 1):  $\{(1, 1), (1, 1), 1\}$*
- *Case 2):  $\{(1, 0), (0, 0), 0\}$*
- *Case 3):  $\{(1, 0), (1, 1), 1\}.$*

*Proof. Case 1) If P would choose cooperative behavior, i.e.  $x=1,$  then following Lemma 1 v)  $x > x_q > x_p > 0$  what implies  $p=q=1$  if we consider (4) and (7). Due to  $q=1$  Lemma 1 ii) definitely holds true and  $(V+\sigma)/\tau > 1.$  This implies  $x=1$  and proves that there exists a PBE for this case. Case 2) Consider that P has something to lose what could justify a non-cooperative behavior wherefore  $x=0.$   $T+M > L > 0$  implies  $x_q > 1 > x > x_p > 0$  (compare Lemma 1 v)) what yields  $p=1$  and  $q=0.$  If Lemma 1 i) and ii) hold then  $p > V/\tau$  and consequently  $x=0$  makes the PBE consistent. Case 3) Lemma 1 iii) shows that for the underlying circumstances  $(V+q\sigma)/\tau > 1$  and it follows from Lemma 1 v) that  $x_q > 1 > x > x_p > 0.$  Due to equations (4) and (7) we know that  $p=1$  and  $q=0$  what entails that  $p < V/\tau$  and following (1)  $x=1.$  Hence  $p=1, q=0,$  and  $x=1$  are equilibrium strategies. ■*

The first case is rather intuitive: P has no use for the copyright and can avoid costs by behaving cooperatively. The signal in both information sets strongly reflects P's type and encourages the author to terminate the license in either way. This strategy is supported by the fact that A's expected termination revenue streams and the motivation value are high enough to outweigh losses from reduced partnership i.e.  $T+M > L.$

In case 2) the publisher has an incentive to fight for the copyright license because it still generates revenues which would outweigh potential reputation losses from non-cooperative behavior. This induces her to choose the pure strategy of non-cooperative behavior what generates the equivalent signals  $\lambda = \mu = 0.$  In the information set of the non-cooperative signal A abstains from termination because she fears the loss of a liaison. On the contrary, the information set *signal: cooperative* induces A to terminate the copyright grant. The same strategy is played by A in case 3). However, P again shows cooperative behavior because the cost of being non-cooperative would exceed the remaining revenues generated by the copyright license.

The above analysis shows that it can be rational for an author to terminate a copyright grant even if the publisher signals non-cooperative behavior (compare case 2)). One can also see that the problem of information asymmetry may yield to terminations not being carried out as

to avoid conflicts, even though a publisher may be a cooperative type (case 3)). This case also reveals that a systematic threat for non-cooperative behavior as a reaction to copyright terminations can deter publishers from reacting aggressively.

### 2.4.2 Legal uncertainty

We can now introduce legal uncertainty by replacing the assumptions  $\gamma=1 \wedge c_i=0$  through  $0<\gamma<1 \wedge c_i>0$ . Consider that under legal uncertainty the number of multiple cases increases compared to the environment with legal certainty as the exogenous variables  $c_i$  and  $\gamma$  are taken into account additionally. Again we limit the analysis to cases of which we believe to be the most relevant ones. Note that the additional consideration of exogenous variables requires a refinement of Lemma 1:

**Lemma 2.** *i)  $(V+q*\sigma)/\tau>0$  if  $V(1-q)>c_p-(1-\gamma)R$ . ii) If condition  $V>R((1-y)q+y)R-((1-z)q+z)(\gamma R+c_p)$  is true then  $(V+q*\sigma)/\tau>1$ .*

*Proof.* We can limit the proof for i) to  $V>-q\sigma$  because  $\tau$  cancels out and therefore just need to substitute  $\sigma=(1-z)(\gamma R+c_p)-(1-y)R$ . Rearrangement yields the condition shown in i). However the proof of ii) requires  $\tau=yR-z(\gamma R+c_p)$  as well because  $(V+q*\sigma)/\tau>\sigma$ . Rearrangement yields the condition shown in i). ■

We consider six cases in the legal uncertainty environment: Case 4) Both parties face high court costs which exceed their possible incomes, i.e.  $c_p>R>V>0$  and  $c_A>T+M>L>0$ . Case 5) The court costs are below the participants possible incomes. However the judge favors the author and the author does not rely on a liaison with P. This implies for the parameters that  $\gamma\rightarrow 1$ ,  $R>c_p>V>0$  and  $T+M>c_A>L>0$ . Case 6) The parameter calibrations are almost equal to those in case 5) with the difference that the court now favors the publisher, i.e.  $\gamma\rightarrow 0$ . In the cases 7) and 8) it is hard for the parties to assess the decision of the judge because  $\gamma\approx .5$  whereby  $R>c_p>V>0$ . The cases differ such that in case 7)  $0<c_A<T+M<L$  the parameter liaison is predominant for the author and in case 8)  $0<c_A<L<T+M$  the parameters for alternative termination revenue streams and/or the moral value of regaining control over the copyright are predominant for the author. Note that the difference between cases 5) & 6) and case 8) lies in the avoidance of corner solutions in courts decisions in case 8) and in the matter of fact that in this case  $c_A<L$ . In case 9) the court rather favors P what implies  $\gamma\rightarrow 0$ , but her revenue streams are close to the costs of litigation and this case is calibrated such that

$R > c_p > V > 0$ . Furthermore  $T + M > L > c_A > 0$  is calibrated such that the four exogenous parameters are closely related to each other, still satisfying the illustrated rank order. The following proposition presents the behavioral strategy combinations that characterize the PBE for each of the mentioned cases:

**Proposition 2.** *For given calibrations of the exogenous parameters and complying to Corollary 1, each mentioned case has the following PBE:*

- Case 4):  $\{(0, 0), (0, 0), 0\}$
- Case 5):  $\{(1, 1), (1, 1), 1\}$
- Case 6):  $\{(0, 0), (1, 1), 1\}$
- Case 7):  $\{(V/\tau, 0), (\lambda, \mu), x_p\}$  where  $\lambda = x_p y / (x_p y + (1 - x_p) z)$  and  $\mu = x_p (1 - y) / (x_p (1 - y) + (1 - x_p) (1 - y))$
- Case 8):  $\{(1, (\tau - V)/\sigma), (\lambda, \mu), x_q\}$  where  $\lambda = x_q y / (x_q y + (1 - x_q) z)$  and  $\mu = x_q (1 - y) / (x_q (1 - y) + (1 - x_q) (1 - y))$
- Case 9):  $\{(1, 1), (1, 1), 1\}$

*Proof.* To be followed; Lemma 1 & 2 can be used for argumentation. ■

Under legal uncertainty the cases 4) - 6) show results where pure strategy equilibria exist. Case 4) clearly shows that extremely high court costs deter authors from terminating their grants even though the chances of prevailing at court are high. This is not be astonishing and it may be rather surprising in case 4) that the publisher prefers to be non-cooperative. A reasonable interpretation can be that P's anticipation of her opponent's behavior leads to a safety effect of sending a non-cooperative signal as to induce the author not to terminate at all if litigation is a consequence.

Case 5) is rather straightforward: the judge strongly favors A who is more or less independent of the publisher as  $L$  is low. It seems as if P makes the best of her situation and avoids highly likely losses by paying court and reputation costs. Case 6) however is already less intuitive: even though the publisher has a cooperative attitude towards the author, she is not induced to terminate the copyright license. This equilibrium shows that favoring P may undermine termination incentives even though the environment is promising for A apart from the low  $\gamma$ .

The cases 7) and 8) illustrate mixed strategy equilibria. Recall that in case 7) the value of the liaison exceeds the moral value and/or the termination revenue streams what is reversed in

case 8). The publisher can induce the author to choose non-terminating behavior with certainty if she mixes her strategy and A observes *signal: non-cooperative*. If A however observes a cooperative signal she will terminate the copyright grant with positive probability  $v/\tau$ . This differs in the equilibrium of case 8) where the author's best response to P's mixing strategy is to terminate with certainty having observed a cooperative signal and to terminate with positive probability  $(\tau-V)\sigma > 0$  otherwise. This result shows that P's mixing strategy may indeed impede the decision of A as she randomizes in either case as well; however we can see that there exists a positive tendency towards license termination the better the outside option (namely  $T+M$ ) is.

The result in case 9) has an interesting property: both players face court costs which are close to their incomes and the court favors P. This however does not deter A from choosing the termination strategy as she seems to anticipate the necessity for cooperative behavior of P. Even though the environment is rather favorable for P it seems as if non-cooperative is not profitable. The fact that A still terminates, being in the unfavorable position, shows how sensitive the outcomes of the game are with respect to the decision of P.

Proposition 2 offers some important insights with respect to the effectiveness of the law: not surprisingly, highly motivated authors are more likely to terminate. However the results show as well that authors also require alternatives, i.e. funding sources from new contracts which we called termination revenue streams, especially in the shadow of legal uncertainty (compare cases 7) and 9)). The results also reveal that a judge's systematic preferential treatment of authors can help to induce copyright terminations (recall case 6)). However even this may not be sufficient to induce copyright terminations if authors are still strongly relying on the cooperation with a particular publisher (see case 8)).

The results in Proposition 2 additionally demonstrate how sensitive the outcomes of the game are with respect to the choices of P. This implies that the environment of P plays an indirect but substantial role for the strategy choice of A as we have seen in case 10). The case has shown that even a poorly positioned author may terminate the copyright grant if she is able to anticipate that a publisher needs to react cooperatively. In addition, the result in case 4) proposes that extensively high court will, by intuition, deter authors from terminating but, contrary to initial intentions, foster the non-cooperative and aggressive behavior of publishers.

### **3. Discussion**

The equilibrium analysis in the previous section reveals that the problems of incomplete information and legal uncertainty influence the behavior and decisions of the involved parties.

Comparative statics analysis helps us to show to which direction the parameters affect the best response functions of the players. Let  $p'=(V+q*\sigma)/\tau$  denote the right hand side of (1) which compares the relation between  $p$  and  $p'$ . Recall that (4) and (7) compare  $x_p$  and  $x_q$  to  $x$ .

If we consider  $p'$  first, comparative statics analysis reveals that  $\partial p'/\partial R < 0 < \partial p'/\partial \gamma$ ,  $\partial p'/\partial c_p$ ,  $\partial p'/\partial V$ . This result shows that any increase of  $R$  decreases  $p'$  what is consistent with (1) as  $p > p'$  implies  $x=0$  what consequently induces the publisher to behave more and more non-cooperatively. It is straightforward that  $p'$  increases with  $\gamma$ ,  $c_p$ , and  $V$  because, regarding to (1), these negative factors induce her to behave rather cooperatively the higher the parameters are calibrated.

Recall that we defined  $x_j$  where  $j \in \{p, q\}$  above. Using comparative statics we can state  $\partial x_j/\partial \gamma$ ,  $\partial x_j/\partial M$ ,  $\partial x_j/\partial T < 0 < \partial x_j/\partial L$ ,  $\partial x_j/\partial c_A$ . From (4) and (7) we know that an increase of  $x_j$  makes it incrementally unattractive for the author to terminate the copyright license. This observation is supported by the comparative statics analysis as  $x_j$  increases in the dependence of  $A$  on  $P$  (namely  $L$ ) and whenever court costs increase (namely  $c_A$ ). On the contrary, the behavioral choice to terminate becomes more and more and more attractive the higher termination revenue streams and moral values (i.e.  $T$  &  $M$ ) are and the more likely it is for  $A$  to prevail at court, i.e. if  $\gamma \rightarrow I$ .

#### To be followed:

- comparative statics analysis of the signals
- comparative statics analysis of the mixed equilibrium results in cases 7) and 8)
- discussion on monitoring different skill cases relaxing Corollary 1 ( $y=1$  &  $z=0$ ;  $y=z$ ;  $y < z$ )
- there are two modifications on the agenda:
  - authors face information asymmetry/uncertainty problems about termination revenue streams
  - relax the "consistent beliefs about courts' decisions" assumption and replace by the "divergent expectations hypothesis" [where consistent beliefs can be modeled by setting  $\text{belief}_A = \text{belief}_P$ ] (Posner 1973)

#### **4. Conclusion**

This paper contributes to the ongoing debate on the effectiveness of the U.S. copyright termination law. A Bayesian updating model is used to set up a game-theoretical model which includes the problems of asymmetric information and legal uncertainty. From this model various perfect Bayesian equilibria, depending on parameter calibrations, are derived to consider the anticipatory interaction between authors and publishers as a reaction to possible terminations and non-cooperative behavior. Factors like the author-publisher relationship, termination revenue streams and intrinsic motivations are considered in this model as well as parameters like revenues and reputation costs which may be from importance to publishers.

The results of this paper show that it can be rational for authors to terminate a copyright grants even if a publisher signals non-cooperative behavior. However, the problem of information asymmetry may prevent copyright terminations if authors fear a likely non-cooperative behavior of their publishers. The propositions of the model show that high courts will not only deter authors from copyright terminations, but also increase the likelihood that publishers behave non-cooperatively. High intrinsic motivation and paying alternatives like attractive new contracts to authors may foster their incentives to terminate. Threats to publishers for non-cooperative behavior, which cause reputational losses, can induce them to react cooperatively to copyright license terminations.

The paper argues that if additional legislation is unintended, transparency of the courts can help to draw a clear line between the parties. If copyright terminations are desired, the courts may systematically reject the work made for hire clause claims of publishers to induce copyright terminations and vice versa. Courts can guide the parties such that cooperative behavior is induced and/or that authors systematically terminate their copyright grants.

## List Of References

- Abdullahi, A. (2012). Termination Rights in Music: A Practical Framework for Resolving Ownership Conflicts in Sound Recordings. *U. Ill. JL Tech. & Pol'y*, 2012(2), 457-493.
- Balganesh, S. (2013). Copyright infringement markets. *Colum. L. Rev.*, 113(8), 2277-2332.
- Bebchuck, L. A. (1998). Suits with Negative Expected Value, 551–554, in: P. Newman (ed.), *The New Palgrave Dictionary of Economics and the Law*. London, Basingstoke, New York: Macmillan.
- Binmore, K., Rubinstein, A., & Wolinsky, A. (1986). The Nash bargaining solution in economic modelling. *The RAND Journal of Economics*, 17(2), 176-188.
- Brown, S. (2014). It Takes a Village to Make a Difference: Continuing the Spirit of Copyright. *Nw. J. Tech. & Intell. Prop.*, 12(2), 129-148.
- Browne, D. (2011). A Record Biz Braces for Legal Battles Over Copyright Law. *Rolling Stone*; document dated Sep. 2nd, 2011; <http://www.rollingstone.com/music/news/record-biz-braces-for-legal-battles-over-copyright-law-20110902>; accessed Aug. 11th, 2014.
- Carmichael, F. (2005). *A guide to game theory*. Pearson Education.
- Caves, R. E. (2000). *Creative Industries: Contracts Between Art and Commerce*. Harvard, MA: University Press.
- Cooter, R., & Ulen, T. (2013). *Law and Economics: Sixth Edition*. Essex: Pearson Education Limited.
- Darling, K. (2015). Occupy Copyright: A Law & Economic Analysis of US Author Termination Rights. *Buff. L. Rev.*, 63(1), 147-206.
- Eisenberg, T., & Farber, H. (2003). The government as litigant: Further tests of the case selection model. *American Law and Economics Review*, 5(1), 94-133.
- Gilbert, A. (2016). Time Has Come: A Proposed Revision to 17 USC Section 203, The. *Case W. Res. L. Rev.*, 66(3), 807-847.
- Henslee, W., & Henslee, E. (2011). You Don't Own Me: Why Work for Hire Should Not Be Applied to Sound Recordings. *J. Marshall Rev. Intell. Prop. L.*, 10(4), 695-714.
- Karas, M., & Kirstein, R. (2017). Efficient Copyright Contracting Under The U.S. Termination Right. Unpublished manuscript, Otto-von-Guericke University, Magdeburg, Germany.
- Kirstein, R. (2014). Doping, the Inspection Game, and Bayesian Enforcement. *Journal of Sports Economics*, 15(4), 385-409.
- Kirstein, R., & Rickman, N. (2004). "Third Party Contingency" Contracts in Settlement and Litigation. *Journal of Institutional and Theoretical Economics JITE*, 160(4), 555-575.

- Nimmer, D., & Menell, P. S. (2001). Sound Recordings, Works for Hire, and the Termination-of-Transfers Time Bomb. *Copyright Soc'y U.S.A.*, p. 387-416.
- Nash, J. (1953). Two-Person Cooperative Games. *Econometrica: Journal of the Econometric Society*, 21(1), 128-140.
- Polinsky, A. M. (2011). *An Introduction to Law and Economics: Fourth Edition*. New York, NY: Wolters Kluwer Law & Business.
- Posner, R. A. (1973). An economic approach to legal procedure and judicial administration. *The Journal of Legal Studies*, 2(2), 399-458.
- Priest, G. L., & Klein, B. (1984). The selection of disputes for litigation. *The Journal of Legal Studies*, 13(1), 1-55.
- Rohter, L. (2011). Record Industry Braces for Artists' Battles Over Song Rights. *New York Times*; document dated Aug. 15th, 2011; [http://homepages.law.asu.edu/~dkarjala/Copyright/RohterRecordIndusBattlesOverRights\(NYT8-15-11\).pdf](http://homepages.law.asu.edu/~dkarjala/Copyright/RohterRecordIndusBattlesOverRights(NYT8-15-11).pdf); accessed Jan. 25th, 2015.
- Rohter, L. (2013). A Copyright Victory, 35 Years Later. *New York Times*; document dated Sep. 10th, 2013; [http://www.nytimes.com/2013/09/11/arts/music/a-copyright-victory-35-years-later.html?\\_r=0](http://www.nytimes.com/2013/09/11/arts/music/a-copyright-victory-35-years-later.html?_r=0); accessed Feb. 11th, 2015.
- Rub, G. A. (2013). Stronger than Kryptonite-Inalienable Profit-Sharing Schemes in Copyright. *Harv. JL & Tech.*, 27(1), 49-133.
- Shavell, S. (1982). Suit, settlement, and trial: A theoretical analysis under alternative methods for the allocation of legal costs. *The Journal of Legal Studies*, 11(1), 55-81.
- Siegelman, P., & Waldfogel, J. (1999). Toward a taxonomy of disputes: New evidence through the prism of the Priest/Klein model. *The Journal of Legal Studies*, 28(1), 101-130.
- Starshak, K. (2001). It's the End of the World as Musicians Know It, or Is It-Artists Battle the Record Industry and Congress to Restore Their Termination Rights in Sound Recordings. *DePaul L. Rev.*, 51(1), 71-124.
- Strohm, J. P. (2003). Writings in the Margin (of Error): The Authorship Status of Sound Recordings Under United States Copyright Law. *Cumb. L. Rev.*, 34, 127-158.
- Waldfogel, J. (1998). Reconciling asymmetric information and divergent expectations theories of litigation. *The Journal of Law and Economics*, 41(2), 451-476.