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AN EXAMINATION OF BASEL III AND THE NEW U.S. BANKING REGULATIONS

Andrew L. McElroy†

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ABSTRACT
The Basel III framework represents a sea change in the banking industry in terms of the capital charges and liquidity requirements that banks will face. In order to respond to these new regulatory challenges, banks must adapt their decision-making paradigm in a strategic way that responds to the new rules and allows them to remain competitive. This framework, however, is a complex mosaic of consultative documents, incremental enhancements, revisions to those documents, academic research studies, and other references. With the publication of the revised Basel III capital rules in June 2011, the United States capital rules in June 2012, and the Basel III liquidity rules in January 2013, the major regulatory pieces are now in place, and the new banking regime is coming into focus. This Article synthesizes the relevant documents and explains their importance within the broader regulatory framework.
I. INTRODUCTION

The United States banking agencies have recently begun implementing the most sweeping reforms of U.S. banking law since the introduction of risk-based capital adequacy requirements in 1989.\(^1\) Now, as then, U.S. banking agencies are implementing much of the Basel framework, and the changes to U.S. banking law will be far-reaching: the re-definition of regulatory capital, the introduction of risk-based capital adequacy tests, a modification of the leverage ratio, and the introduction of liquidity requirements. The true import of these reforms, however, is understood only as the U.S. regulations contrast against the global standards of the Basel III framework. This Article examines how United States implementation of Basel III will influence the strategic decisions of bank managers as they structure their lending and other capital-intensive operations in the new regulatory regime.

These reforms come as the long-awaited regulatory response to the Financial Crisis of 2008, during which banks required emergency government assistance in order to remain solvent.\(^2\) The U.S. will pattern much of its reforms on the Basel Committee on Banking Supervision’s (“BCBS’s”) Basel III guidelines, which seek to promote financial stability through the international convergence of banking standards.\(^3\) The Group of 20 endorsed Basel III at the Seoul Summit,\(^4\) and the Bank for International Settlements approximates that twenty-seven countries and the European Union had begun implementation as of the end of October 2012.\(^5\) Although the objective of the Basel Accords is consistency in reporting standards across countries, national regulators are not required to implement Basel III in its entirety, and many countries adopt the guidelines with some modification. Swiss regulators, for example, have embraced stricter capital requirements.\(^6\) The United States supports the Basel Accords

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\(^3\) See Basel III, supra note 2, ¶ 1.


\(^6\) Jack Ewing, 2 Swiss Banks Facing Higher Capital Standards, N.Y. TIMES, continued . . .
and even required the largest U.S. bank holding companies to submit plans for compliance with Basel III and Dodd Frank.\(^7\)

Basel III seeks to increase the stability of the global financial system by imposing heightened risk-weighted capital adequacy minimums that will make banks less vulnerable because they are required to hold more loss-absorbing capital on their balance sheets.\(^8\) The reforms begin with limiting the range of permissible regulatory capital by excluding assets that are pledged as collateral or otherwise encumbered and unable to absorb losses.\(^9\) Basel III applies the new regulatory capital definitions to four risk-weighted capital requirements: the minimum capital ratio, the conservation buffer, the countercyclical buffer, and the Global Systemically Important Bank (“G-SIB”) capital requirement.\(^10\) The minimum capital ratio provides an absolute floor for the capital base of a bank,\(^11\) the conservation buffer restricts shareholder distributions when capital falls to specified levels,\(^12\) and the countercyclical buffer allows national regulators to increase capital requirements when credit markets are unsustainably accelerating.\(^13\) The G-SIB capital requirement applies when banks become sufficiently large and interconnected.\(^14\) Therefore, the G-SIB capital requirement reduces the funding advantage for too-big-to-fail banks whose investors price in a perceived guarantee of governmental support.

While risk-weighted capital requirements form the bedrock of traditional bank regulation, Basel III also incorporates one non-risk-weighted capital requirement\(^15\) and two liquidity requirements\(^16\) in order to strengthen further bank balance sheets. The non-risk-weighted capital requirement is the leverage ratio, and it is intended to prevent banks from holding a portfolio of assets with low-risk weights.
but high leverage. The policy concern centers around the amplified effect that highly levered banks exert on markets when they must sell their holdings. The liquidity requirement includes two provisions: The Liquidity Coverage Ratio will require banks to fund their operations such that they can survive a month-long disruption in credit markets and therefore provide regulators enough time to respond, and the Net Stable Funding Ratio will require banks to transition to longer-term funding in order to close the maturity mismatch between their assets and liabilities.

The purpose of this Article is to give practitioners and regulators a panoramic view of the new U.S. banking landscape in a way that highlights how—and perhaps as importantly, where—U.S. banks can be expected to finance and build their operations. The analysis is not at all straightforward because Basel III consists of dozens of consultative documents with accompanying empirical studies and other academic works. Similarly, the U.S. banking agencies have released a number of rulemakings that generally follow the Basel III framework, yet still make important departures. This Article assembles the relevant parts of these documents into a comprehensive explanation and analysis of the new U.S. banking regime.

II. ANALYSIS

A. The Re-Definition of Regulatory Capital and the Minimum Capital Ratio

Basel III introduces common equity tier 1 ("CET1") capital as the most important category of regulatory capital. It can satisfy any of the risk-weighted capital ratios and has neither a cap on the amount that the bank may apply toward the ratio nor a haircut on its value. In particular, the minimum capital ratio requires CET1 capital of 4.5% of risk-weighted assets, the conservation buffer imposes distribution restrictions depending on the level of the bank’s CET1 capital, and the countercyclical buffer may require a further 2.5% of CET1 capital. The lynchpin criterion of the CET1 capital definition is that it be the “most subordinated claim in liquidation of the bank” because it is the most loss absorbing. Accordingly, CET1 capital principally

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17 See BASEL III, supra note 2, ¶ 38.
18 See BASEL III, supra note 2, ¶ 42.
19 See BASEL III, supra note 2, ¶ 50.
20 See BASEL III, supra note 2, ¶ 129.
21 See BASEL III, supra note 2, ¶ 142.
22 See BASEL III, supra note 2, ¶ 53.
includes common shares, retained earnings, and accumulated other comprehensive income.\textsuperscript{23}

Loss-absorbing capital is central to Basel III because it shields depositors from losses while maintaining the integrity of the fractional reserve banking system.\textsuperscript{24} In a deposit-taking institution, the loans that banks provide to borrowers include the assets of bank shareholders as well as those of depositors.\textsuperscript{25} Shareholder assets include cash and a number of financial instruments that can be categorized as CET1 capital, additional tier 1 capital, tier 2 capital, or none of those categories. If shareholders own an asset that is pledged as collateral or otherwise encumbered, then another party has an interest in the asset, so it is not fully loss-absorbing. Should too many debtors default on loans from the bank, then shareholders will lose their value and the losses will spill over to the depositors whose assets were lent out.\textsuperscript{26} Introducing CET1 capital as the center of the Basel III reforms prevents a scenario in which depositors are forced to absorb losses.\textsuperscript{27}

Specifically, the minimum capital ratio increases the required level of CET1 capital, additional tier 1 capital, and tier 2 capital in order to increase loss-absorbing capital and thereby reduce the chance of insolvency in adverse market conditions.\textsuperscript{28} As the name suggests, the minimum capital ratio is the absolute minimum amount of capital that a bank is permitted to hold on its balance sheet. Specifically, the minimum capital ratio requires that CET1 capital be at least 4.5\% of risk-weighted assets, tier 1 capital be at least 6.0\%, and total capital be at least 8.0\%.\textsuperscript{29} Basel III excludes from regulatory capital certain hybrid debt instruments and subordinated debt, and it entirely discards the tier 3 category that was a constituent of regulatory capital under Basel II.\textsuperscript{30}

B. The Capital Conservation Buffer

The Basel III framework imposes capital distribution restrictions on banks that have a capital conservation buffer ("conservation buffer") of less than 2.5\% of risk-weighted assets in order to

\textsuperscript{23} See BASEL III, supra note 2, ¶ 52.
\textsuperscript{25} See id at 2.
\textsuperscript{26} See id at 3.
\textsuperscript{27} See BASEL III, supra note 2, ¶ 126.
\textsuperscript{28} See BASEL III, supra note 2, ¶ Annex 1.
\textsuperscript{29} See BASEL III, supra note 2, at Annex 1.
\textsuperscript{30} See BASEL III, supra note 2, ¶ 9.
incentivize them to hold more CET1 capital on the balance sheet.\textsuperscript{31} The conservation buffer is additive with respect to the 4.5% CET1 minimum capital ratio, but unlike the minimum capital ratio, it is not, strictly speaking, mandatory.\textsuperscript{32} Taken together, however, the minimum capital ratio and the conservation buffer will subject banking organizations holding less than 7.0% CET1 capital to regulatory restrictions on dividend payments, share buybacks, and employee bonuses. In particular, the capital conservation structure features five CET1 levels with increasingly restrictive earnings retention limitations as the conservation buffer becomes lower and total CET1 capital approaches the 4.5% minimum capital ratio.

The BCBS advances twin policy rationales for the conservation buffer: to protect depositors as unwitting recipients of losses when capital reserves dry up and to protect banks from industry pressure to vie for investors by offering excessive capital distributions.\textsuperscript{33} With regard to the former rationale, the BCBS recognizes the inherent tradeoff between holding capital to strengthen the balance sheet and distributing capital to appease shareholders. If banks opt to hold more capital, they are better positioned to sustain exogenous shocks. If, in the alternative, banks make distributions and leave an insufficiently thin capital buffer, then the same losses may exceed the bank’s reserve of loss-absorbing capital. To the extent that losses exceed capital, the deficiency is foisted onto depositors, whose assets are irrecoverable in the failed investments. Bank managers are generally more responsive to shareholders than to depositors, and the conservation buffer serves to ameliorate the imbalance. Relatedly, the latter rationale holds that the conservation buffer shields otherwise prudent banks from an incentive to make competing capital distributions in order to maintain market share as other banks attract investors with greater dividend payments and share buybacks.

The BCBS states that the capital conservation buffer is not to be “viewed as establishing a new minimum capital requirement,”\textsuperscript{34} yet goes on to admonish that “banks should not choose in normal times to operate in the buffer range simply to compete with other banks and win market share.”\textsuperscript{35} Here, the BCBS tacitly acknowledges two distinct possibilities. In the first, supervisors adopt an expansive plain language interpretation of the dual “normal times” and “simply to compete” standards thereby inducing banks to observe the combined

\begin{footnotesize}
\begin{itemize}
\item[\textsuperscript{31}] See BASEL III, supra note 2, ¶ 129.
\item[\textsuperscript{32}] See BASEL III, supra note 2, ¶ 130.
\item[\textsuperscript{33}] See BASEL III, supra note 2, ¶¶ 126-27.
\item[\textsuperscript{34}] See BASEL III, supra note 2, ¶ 130.
\item[\textsuperscript{35}] See BASEL III, supra note 2, ¶ 132.
\end{itemize}
\end{footnotesize}
7.0% CET1 ratio in what amounts to a *de facto* minimum. In the second, banks hold less than the full conservation buffer by using an efficient breach analysis to choose the profit-maximizing bucket.

If the conservation buffer is not a new minimum, bank managers face a strategic optimization problem whereby they assess the expected value of earnings for each bucket subject to the distribution constraints in order to determine the one that maximizes shareholder value. The earnings for each bucket may vary considerably because a lower conservation buffer allows a bank to assume greater financial leverage, which is ultimately a driver of earnings.\(^{36}\) Furthermore, the optimal bucket choice may vary as bank managers’ expectations change. For example, a rational bank manager with private beliefs that markets will rise and volatility will fall may transfer the bank to a lower conservation buffer bucket from a higher one in order to use greater leverage.

In a further strategic complexity, the regulatory terms of the bucket will govern the way that investors realize gains by introducing a bias toward share price appreciation and away from dividends at lower conservation buffer buckets. Banks in more restrictive buckets will be unable to issue dividends, so investors will realize gains solely through increases in the share price. For example, a bank with only 4.5% CET1 capital must retain 100% of its earnings, so the share price bias is greatest in this bucket, where capital distributions are wholly prohibited. However, this bias may impose higher indirect costs on active investors who must sell shares in order to rebalance their portfolios instead of using cash from dividends.

Basel III establishes an exception for banks constrained by the conservation buffer restriction by permitting them to raise new capital for purposes of a distribution to existing shareholders. It is difficult to imagine a circumstance when a bank would avail itself of this narrow exception. In order to attract new investors, the share issue would require a favorable price, which would have a dilutive effect on the equity holdings of existing investors. By contrast, if the new share came out at an unfavorable price, the bank would encounter difficulty in fully subscribing the issue. Perhaps more importantly, a bank sends a negative market signal when it seeks to raise money from new investors, not to finance positive net present value projects, but to

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make capital distributions to existing shareholders.

**Table 4. Individual Bank Minimum Capital Conservation Standards**

<table>
<thead>
<tr>
<th>Common Equity Tier 1 Ratio</th>
<th>Minimum Capital Conservation Ratios (Expressed as a Percentage of Earnings)</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.500% – 5.125%</td>
<td>100%</td>
</tr>
<tr>
<td>&gt; 5.125% – 5.750%</td>
<td>80%</td>
</tr>
<tr>
<td>&gt; 5.750% – 6.375%</td>
<td>60%</td>
</tr>
<tr>
<td>&gt; 6.375% – 7.000%</td>
<td>40%</td>
</tr>
<tr>
<td>&gt; 7.000%</td>
<td>0%</td>
</tr>
</tbody>
</table>

*Basel III (December 2010, Revised June 2011)*

**C. The Countercyclical Capital Buffer**

The countercyclical capital buffer ("countercyclical buffer") is a CET1 capital requirement of up to 2.5% imposed on a bank-specific or country-wide basis at the discretion of national authorities during periods of excess aggregate credit growth. Although the BCBS formally introduced the countercyclical buffer in Basel III, it concurrently released a document titled *Guidance for National Authorities Operating the Countercyclical Capital Buffer* ("GNAOCCB") that explicates the underlying policies and mechanics. In the aftermath of the financial crisis, critics panned banking regulations as pro-cyclical because booming credit markets provided steady bank profits that lowered required capital reserves and further increased lending. When credit markets reversed, the resulting losses drastically increased required capital reserves and virtually halted bank lending altogether. The countercyclical buffer is intended to be a flexible regulatory tool to prevent a recurrence of similar procyclical effects. Accordingly, the stated purpose of the countercyclical buffer is to ensure active bank lending during market distress.

The GNAOCCB points to a statistic called the credit-to-GDP ratio as a standard criterion to help national authorities manage the countercyclical buffer, but this risk measure may prove unworkable.

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37 Although only CET1 capital presently satisfies this requirement, the provision contemplates the use of “other fully loss absorbing capital” in the future.

38 See Basel III, supra note 2, ¶ 139.

because of its reliance on long time horizons for the predictions.\textsuperscript{40} The basis for the credit-to-GDP ratio is a recent BIS working paper called \textit{Countercyclical Capital Buffers: Exploring Options}, which finds that the size of credit markets relative to national economic output is a leading indicator of financial distress.\textsuperscript{41} The purpose of the indicator is to help national regulators determine when the relevant risk “crystallizes or dissipates” so that national regulators could increase or decrease the countercyclical buffer accordingly.\textsuperscript{42} The study regarding the credit-to-GDP ratio indicator, however, does not use the specificity contemplated in the countercyclical buffer provision. Instead, the credit-to-GDP model is deemed to be correct if it predicts a crisis and one “occurs any time within a three year horizon.”\textsuperscript{43} Provided that a statistically significant relationship persists, it will be difficult for national regulators to apply this methodology to the countercyclical buffer because the three-year period in the study is incompatible with the specificity of the “crystallises or dissipates” standard.

Moreover, the GNAOCCB establishes a preannouncement period for compliance with countercyclical buffer changes, but drafting ambiguity and a protracted compliance period may induce pro-cyclical effects when credit markets are already overheated. The purpose of the preannouncement period is to prevent banks from simultaneously rushing to capital markets when national authorities change the countercyclical buffer. The duration of the preannouncement period is unclear because the GNAOCCB states that any increases in the countercyclical buffer need to be preannounced by up to 12 months.\textsuperscript{44} The requirement that “increases . . . need to be preannounced” by a certain period suggests a lower bound. Still, the wording “up to 12 months” seems to establish an upper bound, so the time period is unclear. If the GNAOCCB is read to require a 12-month preannouncement, then this time lapse may overwhelm any leading indicator benefit of the credit-to-GDP ratio because the validity of the statistic is based on a three-year prediction horizon. A period of 12 months would account for one third of that time. Moreover, credit markets often change quickly, and markets may have already begun correcting themselves by the time the compliance date for the countercyclical buffer arrives. Thus, the present formulation of the

\textsuperscript{40} See \textit{Countercyclical Capital Buffer}, supra note 39, at 2-3.


\textsuperscript{42} See BASEL III, supra note 2, ¶ 138.

\textsuperscript{43} See Drehmann et al., supra note 41, at 15.

\textsuperscript{44} See BASEL III, supra note 2, at n. 49.
preannouncement requirement may render the countercyclical buffer ineffective or potentially harmful.

At the macroeconomic level, the countercyclical buffer may interfere with traditional monetary policy tools that regulators typically rely on to temper business cycles because changes in the capital requirement could distort the domestic money supply. Unlike other capital requirements, which are fixed, the countercyclical buffer changes at the discretion of national authorities. Under the fractional reserve banking system, even a small change in the countercyclical buffer may cause negative acceleration or a contraction of the domestic money supply. Under the theory of money nonneutrality, a shift in the domestic money supply will affect the national output in the short run. A regulatory conflict may arise because central banks alter the money supply in order to boost the economy during recessionary periods using the open market purchase and sale of government bonds. It is unclear what cross-effects will occur when open market operations coincide with changes in the countercyclical buffer, but the money supply may become less predictable and business cycles less manageable.

The countercyclical buffer could stifle foreign investment in developing countries because those nations are generally more vulnerable to the credit market conditions that will trigger higher capital requirements and increase the cost of extending banking services there. Emerging markets tend to exhibit greater variability in trade balances and currency valuation, so their credit markets are often more susceptible to acute fits of expansion and contraction. Banks that were considering new lending operations in those countries will increase the hurdle rate for investment in those countries in order to reflect the possibility of higher capital requirements. In turn, a higher hurdle rate on emerging market investment may deter some banks from expanding their lending operations to those countries. As a result, emerging markets may disproportionately bear the indirect burden of the countercyclical buffer, and the policy designed to foster reliable economic growth may blunt advances in precisely the countries where investment is needed most.

D. Global Systemically Important Banks

In November 2011, the BCBS released a consultative document that supplements a June 2010 release by outlining additional loss absorbency requirements for the largest banks, collectively known as
Global Systemically Important Banks ("G-SIBs"). In general, the G-SIB designation will apply to international banking organizations whose business models include extensive international capital markets activity and therefore increase systemic risk by virtue of their interconnectedness. An "indicator-based" quantitative test will be the formal mechanism that identifies the banks that qualify as G-SIBs and allocates them to one of five buckets with progressively greater CET1 surcharges.

The objective of the G-SIB surcharge is to redress the unique negative externalities and spillover effects that these banks impose on the global financial system. The BCBS explains that a primary cause of these effects is the market belief that G-SIBs enjoy an implicit government guarantee of federal rescue funding because they are simply too-big-to-fail. This perception brings about preferential treatment from investors and moral hazard on the part of bank managers thereby leading to suboptimal risk levels. In effect, this surcharge seeks to offset the funding advantages by increasing net funding costs. In terms of public policy, the surcharge should serve the dual purposes of reducing the probability of a G-SIB failure and the impact of a failure on global financial stability.

The consultative document describes a bucketing approach whereby G-SIBs are placed in one of five categories according to their score on an indicator-based measurement approach. The “bucketing” descriptor is somewhat misleading because the proposed structure actually resembles a hierarchical system of levels similar to that of the conservation buffer. A high score places the bank into a

<table>
<thead>
<tr>
<th>Bucket</th>
<th>Minimum Additional Loss Absorbency (Percentage of RWA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>3.5%</td>
</tr>
<tr>
<td>4</td>
<td>2.5%</td>
</tr>
<tr>
<td>3</td>
<td>2.0%</td>
</tr>
<tr>
<td>2</td>
<td>1.5%</td>
</tr>
<tr>
<td>1</td>
<td>1.0%</td>
</tr>
</tbody>
</table>

Table 5. Global-Systemically Important Bank Surcharge

Basel III (December 2010, Revised June 2011)

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46 See ASSESSMENT METHODOLOGY, supra note 45, ¶¶ 4–17.

47 See ASSESSMENT METHODOLOGY, supra note 45, ¶¶ 1-2.

48 See ASSESSMENT METHODOLOGY, supra note 45, ¶¶ 52-55.
high bucket corresponding to a more burdensome regulatory surcharge, which ranges from 1.0% to 2.5% for the first four buckets and 3.5% for the top bucket. The progressive nature of the surcharge provides an incentive for banking organizations to decrease their score and drop to a lower bucket.

Complete details of the quantitative indicator-based measurement approach are forthcoming, but it is clear that the highest buckets will be reserved for the largest banks with the broadest international presence. Accordingly, the BCBS explains that the indicator-based score will be comprised of five equally weighted categories: cross-jurisdictional activity, size, interconnectedness, substitutability, and complexity. These categories, in turn, are composed of equally weighted sub-categories. Notably, “size” is the only category that lacks further sub-categories, and therefore this metric carries greater relative weight in the calculation. While the BCBS has provided the arithmetical formula for the indicator-based test, it has not provided the threshold scores dividing one bucket from the next. The thresholds associated with the buckets will be reviewed every three years in order to reflect developments in the financial industry and the measurement of systemic importance.

In January 2011, the BCBS performed an indicator-based test and bucket allocation on 73 of the largest banking organizations using year-end 2009 financial data and furnished some summary statistics. While the names and scores of the banking organizations have not been released, the study reveals that twenty-seven of the seventy-three banks breached the threshold for the first bucket based solely on their score, and two qualified on the basis of supervisory judgment. None of the banks placed into the top bucket, meaning that every bank has an incentive not to increase its score, but at least four banks placed into the fourth bucket subject to the 2.5% surcharge. While the study relied on 2009 financial data, the study gives a sense of the scope and distribution of G-SIBs, and the BCBS indicated that the initial G-SIB designation will apply to twenty-eight banks.

E. The Leverage Ratio

While risk-weighted capital requirements will constrain banks with volatile assets, the leverage ratio is a raw capital requirement that will
bind highly leveraged banks holding low-risk assets. In addition, the leverage ratio encompasses on- and off-balance sheet risk with certain netting prohibitions. Some jurisdictions, including the United States, Canada, and Switzerland, have already implemented leverage ratio regulations. As a non-risk-weighted capital requirement, the leverage ratio does not directly account for the riskiness of the portfolio assets, so it does not rely on internal risk models, such as value-at-risk. In addition, the leverage ratio will reflect some off-balance sheet exposures, such as the nominal value of derivatives. Initially, the BCBS will test the leverage ratio at 3% until January 2017 and re-evaluate the appropriate level for the leverage ratio going forward.

Financial leverage may destabilize otherwise functional markets because a levered bank must sell more assets to unwind its position, thereby artificially increasing supply and depressing the market-clearing price. As prices drop further, a levered bank recognizes greater losses and therefore must sell more assets in a vicious cycle that may ultimately lead to a fire sale causing the market price to deviate from fundamentals. This price instability, in turn, impacts other market participants holding similar assets and using mark-to-market accounting because the downward price pressure from the fire sale forces them to write down their assets, thereby weakening their balance sheet.

The numerator of the leverage ratio is called the capital measure, and it is the sum of non-risk-weighted Tier 1 capital under the new Basel III definition. Most notably, the Basel III definition excludes certain intangible assets with indefinite lives, such as goodwill, and limits the use of deferred tax assets. The capital measure component of the leverage ratio is fairly straightforward and simply aggregates bank capital on a non-risk-weighted basis.

The denominator of the leverage ratio is called the exposure measure, which varies from traditional leverage calculations because it incorporates off-balance sheet risk, limits the use of netting, and provides specific rules for derivatives. If the bank has entered into an off-balance sheet agreement granting another entity the contractual

54 See BASEL III, supra note 2, ¶ 152.
56 STANDARD & POOR’S, supra note 55, at 4.
57 See BASEL III, supra note 2, ¶ 153.
58 See BASEL III, supra note 2, ¶ 154.
59 See BASEL III, supra note 2, ¶¶ 67, 69.
right to borrow liquid assets, then the exposure measure should reflect that possible outflow as a potential increase in leverage. In order to capture such outflows, the leverage ratio uses the credit conversion factor ("CCF") framework in Basel II. The leverage ratio calculation multiplies the off-balance sheet obligations with its corresponding CCF and adds the product to the exposure measure. For certain agreements—such as liquidity facilities, direct credit substitutes, and trade letters of credit—the CCF is 100%. A CCF of only 10% applies where the bank can cancel the commitment without notice because banks can limit the outflow of assets.

Netting rules for securities financing transactions and for derivatives follow Basel II rules, which permit netting of on-balance sheet transactions if the bank satisfies a four-part test.\(^6^0\) Under Basel II, netting is permitted if the bank: (1) has a basis to believe that netting is legally enforceable in the relevant jurisdictions regardless of solvency, (2) is able to determine the assets and liabilities of the counterparty subject to netting, (3) monitors and controls its roll-off risk, and (4) monitors and controls its exposures on a net basis.\(^6^1\)

The Current Exposure Method of Basel II controls the accounting of derivatives in the leverage ratio computation because the balance sheet represents only the market value, but the off-balance sheet notional value represents potential losses. For example, the price of a forward contract is typically zero at the time when the parties enter into the contract, even if the notional value is particularly large. As forward prices change, the fair market value of the contract incorporates gains and losses proportional to the notional amount of the derivative. The exposure measure seeks to reflect the notional amount of the derivative contract as a source of potential outflows.

By incorporating notional derivative values in the exposure measure of the leverage requirement, regulators provide an incentive for banks to transition derivatives trading from OTC markets to clearinghouses in order to avail themselves of favorable netting rules. The outstanding notional value of derivatives contracts dwarfs the market value, so banks have an incentive to net their exposure to remain compliant with the leverage requirement. At the time of the financial crisis, the notional value of the derivatives market was estimated at $600 trillion, but the market value was only 2-3% of that figure. Netting will provide relief from the effect of including the notional derivative value, but the four-part test for netting will be

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\(^6^0\) See BASEL III, supra note 2, ¶ 161.

difficult to satisfy in OTC markets because banks would need to vet each counterparty individually. Moreover, the type of derivative may implicate foreign jurisdictions where derivatives law is not well settled.

F. Liquidity Requirements

Liquidity risk occurs when banks cannot service their payment obligations, even though they hold sufficient funds, because the assets are long-term investments that banks cannot readily convert to cash.\footnote{See \textit{BASEL III}, \textit{supra} note 2, ¶ 35.} In this way, liquidity risk and insolvency risk are related but separable because banks may be solvent yet lack the liquidity to make payments as they come due. Prior banking regulation focused on maintaining bank solvency, so the requirements dealt primarily with capital minimums and loss-absorbing capital.\footnote{See \textit{BASEL III}, \textit{supra} note 2, ¶ 34.} Basel III has broadened the scope of risk that it addresses and now incorporates liquidity requirements.

One primary source of liquidity risk is the maturity mismatch that occurs when banks finance long-term projects by repeatedly rolling over short-term debt. The process of rolling over debt involves borrowing funds on a short-term basis in the capital markets and, when the principal comes due, borrowing more funds with which to satisfy the original debt obligation. Repeated short-term borrowing allows banks to realize favorable rates because they avoid paying the liquidity premium that rational investors demand for long-term debt instruments. The maturity mismatch leads to liquidity risk when capital markets freeze up, and short-term financing is no longer available at similar rates.

The liquidity requirement, which was absent from Basel I and II, is a lesson learned from the financial crisis of 2008-2009, when solvent institutions depleted their cash reserves and nearly defaulted on their debt obligations because of an over-reliance on credit markets. The TED spread is the difference between the rate at which banks can lend from each other and the rate at which the United States federal government can borrow in the market. It serves as a proxy for the liquidity of short-term financing that is available in the private market. Typically, the TED spread remains between 10 and 50 basis points, but it spiked to 457 basis points in October 2008. Few economists believed that a disruption of this magnitude in the credit markets was possible, but the credit crunch has forced regulators to address liquidity disruptions as a distinct source of systemic risk.

Basel III addresses liquidity risk along two time horizons. First,
the liquidity coverage ratio requires that banks hold assets liquid enough that they can survive a month-long seizure of credit markets.64 Second, the net stable funding ratio requires that banks select ways to fund their lending operations such that they rely less on the availability of short-term financing and can survive a year-long period of market distress.65

G. The Liquidity Coverage Ratio

In January 2013, the BCBS released Basel III: The Liquidity Coverage Ratio and liquidity monitoring tools.66 The Liquidity Coverage Ratio (“LCR”) requires banking organizations to hold high-quality liquid assets sufficient to survive a thirty-day period of significant market distress. The underlying policy rationale maintains that a one-month period will provide regulators enough time to respond to the market disruption. Accordingly, Basel III provides that the LCR’s numerator is the value of the bank’s unencumbered high liquid quality assets, and the denominator is the estimated total net cash outflows over the thirty-day period.67 A compliant bank’s LCR must be greater than or equal to 100%, so unencumbered high-quality assets must meet or exceed estimated net cash outflows. The LCR will begin to be phased in on January 1, 2015.68

The Liquidity Coverage Ratio:

\[
\frac{\text{Stock of High Quality Liquid Assets}}{\text{Total Net Cash Outflows Over the Next 30 Calendar Days}} \geq 100\%
\]

For purposes of the LCR calculation, there are two classes of high-quality liquid assets: Level 1 and Level 2. Level 2 assets, in turn, compose two subcategories called Level 2A and Level 2B.69 As a general heuristic, acceptable high-quality liquid assets should resemble those acceptable as reserves at the central bank.70 Still, Level 1 assets are more liquid and a better store of value, so Basel III incentivizes banks to hold Level 1 assets in two ways. First, the LCR imposes a

64 See Basel III, supra note 2, ¶ 40.
65 See Basel III, supra note 2, ¶ 42.
66 See Basel III, supra note 2, ¶ 40.
67 See Basel III, supra note 2, ¶ 40.
69 See Liquidity Coverage Ratio, supra note 68, ¶ 51.
70 See Liquidity Coverage Ratio, supra note 68, ¶¶ 24-27.
15% haircut for Level 2 assets and none for Level 1 assets.\footnote{Liquidity Coverage Ratio, supra note 68, ¶¶ 49, 52.} This discount assumes that the value of Level 2 assets will decrease by 15% or less during periods of market distress. Second, there is a 40% cap on the value of Level 2 assets in the bank’s stock of high-quality liquid assets, though there is no such limit for Level 1 assets.\footnote{Liquidity Coverage Ratio, supra note 68, ¶¶ 49, 51.} This limitation prevents banks from holding too many Level 2 assets, even despite the haircut.

The LCR provision states that Level 1 assets are limited to coins and bank notes, central bank reserves that may be withdrawn in times of stress, and marketable securities guaranteed by sovereign entities, PSEs, the Bank of International Settlements, the International Monetary Fund, the European Central Bank and European Community or multilateral banks satisfying certain conditions, and sovereign debt with a 0% risk weighting under the Basel II Standardized Approach method.\footnote{Liquidity Coverage Ratio, supra note 68, ¶ 50.} These are the most liquid assets. Level 2A assets are limited to marketable securities representing claims on or guaranteed by sovereigns, central banks, PSEs or multilateral development banks that have a 20% risk weighting under the Basel II Standardized Approach, trade in deep markets, have a proven record of liquidity, and are not an obligation of a financial institution.\footnote{Liquidity Coverage Ratio, supra note 68, ¶ 52(a).} Other Level 2A assets include corporate debt not issued by a financial institution and covered bonds not issued by the bank, provided that they meet a certain credit assessment threshold, trade in a deep market, and have a proven record of liquidity.\footnote{Liquidity Coverage Ratio, supra note 68, ¶ 52(b).} Additionally, high-quality liquid assets must be unencumbered, meaning not pledged as collateral or a credit enhancement.\footnote{Liquidity Coverage Ratio, supra note 68, ¶ 31.}

Subject to the discretion of applicable national authorities, Level 2B assets may include full recourse residential mortgage-backed securities without structured products if the loan-to-value ratio does not exceed 80%, provided that the bank has not originated the mortgages and that the mortgages achieve a certain minimum credit rating.\footnote{Liquidity Coverage Ratio, supra note 68, ¶ 54(a).} There is a 25% haircut for such residential mortgage-backed securities. Level 2B assets also include corporate debt securities that obtain a minimum credit rating, are not issued by a financial institution, and exhibit a “proven record as a reliable source of liquidity in the markets,” although there is a 50% haircut for such commercial paper.\footnote{Liquidity Coverage Ratio, supra note 68, ¶ 54(b).}
Finally, Level 2B assets may include common equity shares that are not issued by a financial institution, are exchange traded and centrally cleared, are part of a major stock index, exhibit a “proven record as a reliable source of liquidity in the markets,” and are denominated in the domestic currency. There is a 50% haircut for such common equity shares.\footnote{Liquidity Coverage Ratio, supra note 68, ¶ 54(c).}

The denominator of the LCR is total net cash outflows that would result from specified stress scenarios such as a partial loss of unsecured wholesale funding, a significant ratings downgrade, partial loss of retail deposits, collateral calls, and increased off-balance sheet exposure. Total net cash outflows is the difference between net cash outflows and net cash inflows, but the netting effect of cash inflows is limited to 75% of outflows.\footnote{Liquidity Coverage Ratio, supra note 68, ¶ 69.} The effect of this rule is to require banking organizations to estimate cash outflows and hold at least 25% of that value in liquid assets.

The sum of outflows is calculated by estimating the loss of funding from retail deposits, unsecured wholesale funding, secured funding, and additional funding activities such as drawdown of credit facilities. The provision includes a fairly detailed explanation of run-off values applicable to these categories and sub-categories.\footnote{See Liquidity Coverage Ratio, supra note 68, ¶¶ 75, 79, 85, 89.} For example, retail deposits grouped as “stable” for insured deposits or “less stable” for other deposits, and run-off rates of at least 5% and 10% apply respectively. The cash inflows are limited to contractual inflows that are fully performing and for which the bank has no reason to expect a default in the next thirty days.\footnote{Liquidity Coverage Ratio, supra note 68, ¶ 142.}

H. The Net Stable Funding Ratio

The NSFR applies to the banking organization’s on- and off-balance sheet obligations. The numerator of the NSFR is the Available Stable Funds (“ASF”), which must exceed the denominator, which is the required stable funding (“RSF”). After an observation period, the NSFR minimum will become binding under Basel III on January 1, 2018.

The Net Stable Funding Ratio:

\[
\frac{\text{Available Amount of Stable Funding}}{\text{Required Amount of Stable Funding}} > 100\%
\]

The ASF calculation groups the banking organization’s funding sources by their reliability during a state of market stress. From most to least reliable funding, the ASF factors range from 100% to 0%, and these factors multiply the amount of funding. The resulting number is the numerator of the NSFR. For example, capital, preferred stock, and certain secured and unsecured borrowings qualify for the 100% ASF factor, meaning that this category of funding is the most reliable over a one-year period. The next categories, in order of decreasing reliability, are “stable” deposits, “less stable” deposits, unsecured wholesale funding, and other liabilities.

Similarly, the RSF, the denominator of the ratio, organizes assets in categories according to the estimated percentage that would not be monetized “on an extended basis during a liquidity event lasting one year.” These categories receive an RSF factor, which multiplies the amount of the banking organization’s assets in that category. The sum of all relevant FSR categories provides the denominator of the NSRF, which is the minimum amount of ASF. In addition, the NSRF includes a credit conversion factor, which multiplies certain off-balance sheet commitments to include them in the RSF calculation.

Ultimately, the NSFR will require banks to decrease the maturity mismatch between the long-term loans that they make and the short-term funding that they use, but some of the higher costs will be passed on to businesses that require the bank loans. Banks will continue to fund long-term projects because they represent profitable lending opportunities, but banks will need to pay a liquidity premium in order to secure long-term funds to lend to businesses. Still, banks will pass on the additional marginal cost to businesses whose projects will now

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84 See LIQUIDITY RISK MEASUREMENT, supra note 83, ¶ 120.
85 LIQUIDITY RISK MEASUREMENT, supra note 83, at Table 1.
86 LIQUIDITY RISK MEASUREMENT, supra note 83, ¶¶ 120, 123.
87 LIQUIDITY RISK MEASUREMENT, supra note 83, at Table 1.
88 LIQUIDITY RISK MEASUREMENT, supra note 83, ¶ 130 (emphasis in original).
offer a lower net present value because of the higher cost of capital. These additional costs may disproportionately fall to smaller businesses more than established ones that can access commercial paper markets directly if bank loans become too expensive. On balance, however, the maturity mismatch between bank assets and liabilities can lead to a funding breakdown as it did in October 2008, so the marginal costs of liquidity regulation, even if not borne equally by all companies, may improve the stability of credit markets.

III. Conclusion

The new Basel III capital regime will have broad implications in the strategic decision-making of bank managers and the policy choices of national regulators, so the overall impact of the new regulations remains an open question. The new definition of regulatory capital—and the importance of CET1 capital—will push banks to hold more retained earnings and other qualifying assets to meet the minimum capital ratio, capital conservation buffer, countercyclical capital buffer, and G-SIB requirements. While the liquidity requirements incentivize banks to transition to more liquid assets and longer-term funding, it remains unclear which markets banks will begin to rely on as the regulations push them to close the funding mismatch between their assets and liabilities.
HOW TO KILL COPYRIGHT: A BRUTE-FORCE APPROACH TO CONTENT CREATION

Kirk Sigmon†

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† Dual B.A., Wake Forest University, 2010; J.D., Cornell Law School, 2013. The original idea for this paper comes from my friend and classmate Ryan Delaney, who first conceptualized the idea of a computer generating copyrighted material. I also want to thank other members of Prof. Oskar Liivak’s Topics in Intellectual Property seminar (as well as Prof. Liivak himself), all of whom provided critical ideas and feedback as this paper was written. Credit for part of the title, as well as a very preliminary version of this idea, should also be given to Robert Rogoyski. See Robert Rogoyski, The Melody Machine: How to Kill Copyright, and Other Problems with Protecting Discrete Musical Elements, 88 J. PAT. & TRADEMARK OFF. SOC’Y 347 (2006).
I. INTRODUCTION: THE MEANING OF “NEVER”

What does “never” mean? This question was illustrated by a problem in Charles Kittel and Herbert Kroemer’s textbook *Thermal Physics*, in which the authors discussed a popular hypothetical: the so-called infinite monkey theorem.\(^1\) The authors posed a problem:

Suppose that \(10^{10}\) monkeys have been seated at typewriters throughout the age of the universe, \(10^{18}\). This number of monkeys is about three times greater than the present human population of the earth. We suppose that a monkey can hit 10 typewriter keys per second. A typewriter may have 44 keys; we accept lowercase letters in place of capital letters. Assuming that Shakespeare’s *Hamlet* has \(10^5\) characters, will the monkeys hit upon *Hamlet*?\(^2\)

As one may imagine from the context of the question, the point of Kittel and Kroemer’s question was to illustrate that monkeys would effectively never type out *Hamlet*:

The probability that a *monkey-Hamlet* will be typed in the age of the universe is approximately \(10^{-164316}\). The probability of *Hamlet* is therefore zero in any operational sense of an event, so that the original statement . . . is nonsense: one book, much less a library, will never occur in the total literary production of the monkeys.\(^3\)

Perhaps thankfully, this article does not argue that monkeys could potentially produce *Hamlet*. But it does seek to prove a related point: modern technology has made it theoretically possible for a computer system (rather than a monkey) to intentionally generate copyrightable work, and copyright law may have difficulty reacting to such an innovation. In fact, this method of content generation, which I call brute-force content creation, could be a very troublesome loophole in copyright law.

In Part II, I analyze the cryptanalytic method known as brute-forcing\(^4\) and how it could be used to generate copyrightable content such as images\(^5\) and audio.\(^6\) Brute-forcing, in layman’s terms, is a

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1. CHARLES KITTEL & HERBERT KROEMER, THERMAL PHYSICS 53 (1980).
2. Id.
3. Id.
4. See infra Part II.
5. See infra Part II.A.
way in which a computer generates every possible variation (or permutation) of a string. While brute-forcing has traditionally been used to guess encrypted passwords, I explain that it could be used to generate copyrightable content. Though I conclude that it is not yet technically feasible to brute-force copyrighted content, I devote a short subpart to discussing how one might optimize an algorithm to make the process technically feasible.

In Part III, I discuss whether or not such content could be copyrighted. First, I analyze the underlying doctrine that makes brute-force content creation possible and so appealing: the doctrine of independent creation. I then turn to whether or not such content would actually be copyrightable, focusing on how the relatively weak “modicum of creativity” standard may be a bar where an algorithm blindly creates content.

In Part IV, I turn to the legal ramifications of brute-forcing copyrighted content. First, I address the infringement ramifications of operating a brute-forcing algorithm intended to create every possible permutation of creative content. Second, I discuss problems of contributory liability in two contexts: allowing parties to search through brute-forced content, and allowing third parties to buy and/or acquire brute-forced content. Third, I discuss how brute-force content creation could potentially constitute trademark infringement. Finally, I discuss the ramifications of a blatant attack on copyright from the perspective of a legal realist.

I conclude in Part V, explaining why it is a good thing that it is currently impossible to brute-force content.

II. BRUTE FORCE ATTACKS 101

Before I begin an analysis of the legal ramifications of a brute-force attack on copyrightable material, I must explain how such brute-
force attacks would be feasible at all. As relatively laborious as this explanation is, it helps illustrate why such an algorithm is, in consideration of modern technology, purely theoretical.

How hard is it to guess a password? The answer is, “it depends.” When passwords are stored in plain text – that is, when they are stored exactly as the user enters them – all it takes for a nefarious party to acquire a user’s password is access to the computer storing the user’s password itself. But this is a rare event; most modern websites and services use cryptographic functions like MD5. These functions are one-way, non-reversible encryption algorithms. These encryption algorithms take an input (usually a password) and generate a long, unique, and un-decipherable fingerprint-like string (a “message digest”). The upshot of these one-way, non-reversible encryption algorithms is that, even if a nefarious hacker got access to many of these “fingerprints,” there would be no way for them to un-encrypt the “fingerprints” themselves.

But one-way encryption algorithms like MD5 are not fool-proof; there are many ways in which someone with an one-way-encrypted string could eventually ascertain what a user’s password is. “Rainbow tables,” or pre-calculated lists of what-password-equals-what-fingerprint, are common online and relatively easy to find. But these tables are often limited to what is computationally feasible: many tables only cover passwords up to ten characters in length.

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21 See generally id.
22 This is no longer the case with MD5, which is susceptible to collision attacks. See generally Tao Xie & Dengguo Feng, How to Find Weak Input Differences for MD5 Collision Attacks, (May 30, 2009) (unpublished manuscript), available at http://eprint.iacr.org/2009/223.pdf (finding weak input differences in the MD5 protocol).
23 MD5, supra note 20 (“It is conjectured that it is computationally infeasible to produce two messages having the same message digest, or to produce any message having a given prespecified target message digest.”).
24 At least insofar as the mechanisms behind algorithms like MD5 remain a secret.
25 For example, the RainbowCrack project lists a large number of LM, NTLM, MD5, and SHA1 rainbow tables. See List of Rainbow Tables, RAINBOWCRACK PROJECT, http://project-rainbowcrack.com/table.htm (last visited Mar. 23, 2013).
26 See id. (showing that the longest table, “md5_loweralpha-numeric#1-10,” which contains passwords up to ten characters long, only covers lower alphanumerical characters).
27 Social engineering is the art of tricking people into divulging secret continued . . .
and verifying a user-provided password against a “fingerprint,” may also work in certain circumstances.28

But there is another option that is relevant not only to password cracking, but also to the world of copyright: brute-force attacks. A brute-force attack is a cryptanalytic attack that exhaustively guesses every possible permutation of a string until it finds the correct solution.30 As the title implies, brute-forcing is more or less the cryptanalytic equivalent of jamming random thin objects into a lock until it opens – it entails guessing every single possible option until one option eventually works.31 In the context of the cryptographic “fingerprints” mentioned above, it involves encrypting every single possible string until the right “fingerprint” comes out, which means you have input the user’s password.

The number of potential variations of a string (like a password) is calculated using two variables: the number of characters usable in the target string (the “character set”), and the maximum length of the target string:32

\[
\text{Number of Permutations} = (\text{Character Set})^{(\text{Length of String})}
\]

As the length of a string exponentially increases the number of its permutations, brute-force attacks are ridiculously inefficient against relatively lengthy passwords. By way of example, assuming a password potentially comprised of the full 95 printable ASCII characters33 with a maximum length of 8 characters (such as the string “C()rnell”):

\[
\text{Number of Permutations ("C()rnell") } = 95^8 \\
= 6,634,204,312,890,625
\]

28 See id.
29 Cryptanalysis “is the science and sometimes art of breaking cryptosystems.” CHRISTOF PAAR & JAN PELZL, UNDERSTANDING CRYPTOGRAPHY: A TEXTBOOK FOR STUDENTS AND PRACTITIONERS 3 (2010).
30 Id. at 7.
31 See NICK MOLDOVYAN & ALEX MOLDOVYAN, INNOVATIVE CRYPTOGRAPHY 63 (2d ed. 2007).
32 Id.
In other words, this password would have well over six quadrillion possible variations. While a computer attempting to brute force this password may not have to calculate every single one of these permutations to discover the password is “C()rnell” (it might begin with “C” before it goes to “D” and thus try “C()rnell” before it tries “D()rnell”), this large number of permutations all but guarantees that any effort to guess the password would require an incredible amount of time and computing power.\textsuperscript{34}

In comparison, a much shorter password comprised of nothing but the 26 lower case letters of the alphabet and only 5 characters – say, the word “cases” – would only have nearly 12 million possible permutations:

\[\text{Number of Permutations ("cases") } = 26^5 = 11,881,376\]

It is thus easy to understand why websites like Facebook that require a password prefer lengthy passwords using more than the lower-case alphabet;\textsuperscript{35} doing so raises the potential number of permutations (and thus the difficulty of brute-forcing a password) exponentially.

A. Images and Video

Because digital images can be reduced to a string in a manner not dissimilar to a password, it is theoretically feasible to brute-force an image.

Digital images are displayed using pixels—that is, miniature dots on a computer monitor that, when placed together in a matrix, display an image. For example, Google’s default main page logo is 550 pixels wide and 190 pixels tall\textsuperscript{36}—in other words, a series of 104,500 pixels. Each pixel in the Google logo is, for compression reasons, 8 bits, which allows each pixel to display one of 256 colors.\textsuperscript{37} This is as if the Google logo were a 104,500 character string comprised of a 256 character color alphabet:

\textsuperscript{34} For a full discussion of the computing power required to brute-force strings, see infra Part II.C.
\textsuperscript{37} See id.
Suffice it to say, the number of permutations of the Google logo is rather large: too large to print here, and certainly too large to brute force. More specifically, the length of the number of permutations itself has 251,662 decimal digits—over two hundred times more decimal digits than characters in this paragraph. This result does not even involve an image with an aesthetically pleasing number of colors; most images today use 24-bit color, which allows for 16,777,216 different possible colors in a single pixel.\footnote{I am omitting a discussion of 32-bit color because it only adds 256 levels of transparency, which are unlikely to be used in most copyrighted images. \textit{See Bit Depth, UNIV. OF CAMBRIDGE DEP’T OF CHEM. ENG’G AND BIOTECHNOLOGY, http://www.eeb.cam.ac.uk/pages/bit-depth.html} (last visited Sept. 30, 2013). For similar reasons, I omit a discussion of all forms of so-called “deep color” consisting of more than 24 bits per pixel, as such a color gamut is unnecessary for brute-forcing purposes. \textit{See JOE CELKO, JOE CELKO’S THINKING IN SETS AUXILIARY, TEMPORAL, AND VIRTUAL TABLES IN SQL} 168 (2008).}

Even smaller, less detailed images still result in an incredible number of permutations. For example, a 1-bit image (that is, an image with only black pixels and white pixels) with 100 pixels (that is, an image 10 pixels wide and 10 pixels tall) would still have 1,267,650,600,228,229,401,496,703,205,376 (that is, over one nonillion) permutations. That is more permutations than there are grains of sand on the Earth.\footnote{Researchers estimate that there are approximately $7.5 \times 10^{18}$ (or roughly seven quintillion) grains of sand on the earth. \textit{See Robert Krulwich, Which Is Greater, The Number Of Sand Grains On Earth Or Stars In The Sky?, KRULWICH WONDERS} (Sept. 17, 2012, 10:19 AM), \url{http://www.npr.org/blogs/krulwich/2012/09/17/161096233/which-is-greater-the-number-of-sand-grains-on-earth-or-stars-in-the-sky}.}

There is an alternative approach to brute-forcing very large images with an astronomical number of pixels: bitwise brute-forcing. All computer data is currently\footnote{Quantum computing “qubits” may replace traditional bits in the future. \textit{See TZVETAN S. METODI, ARVIN I. FARUQUE & FREDERIC T. CHONG, QUANTUM COMPUTING FOR COMPUTER ARCHITECTS} 7 (2d ed. 2011) (discussing classical bits and quantum signal states).} stored as strings of zeroes and ones, known as bits.\footnote{\textit{See id.}} Instead of brute-forcing an image pixel-by-pixel, it may be more feasible to brute-force larger images bit-by-bit. For example, wallpaper images often have a resolution of 1920 pixels by 1080 pixels, which is the width and height of a 1080p/1080i screen.\footnote{\textit{See generally European Broadcasting Union, High Definition (HD) Image Formats for Television Production} (Dec. 2004), available at \url{http://web.archive.org/web/20091229093957/http://tech.ebu.ch/docs/tech/tech3299.p} continued . . .}
When somewhat compressed into a JPEG file, such an image with a bit depth of 24 bits (or 16,777,216 colors) can be as small as 490 kilobytes, or 4,014,080 bits. The difference in permutations can be staggering:

Number of Permutations (1920x1080 image) [by pixel]

\[
= 16,777,216^{2,304,000} \\
\approx a \text{ number with over 16.6 million decimal digits}
\]

Number of Permutations (1920x1080 image) [JPEG, bitwise]

\[
= 2^{4,014,080} \approx a \text{ number with over 1.2 million decimal digits}
\]

Thus, in certain circumstances, it may be efficient to abandon the pixel-by-pixel approach described above and instead simply brute-force an image bit-by-bit.

Using similar principles, it would be entirely feasible to turn any of these images into a video. Such a video could be comprised of already brute-forced images, which themselves become the character set for a string comprised of frames. For example, at 24 frames per second, a one-hour silent movie the size of the Google logo would simply add another exponent:

Number of Permutations (one hour of silent video)

\[
= 256^{104,500^{86,400}}
\]

\[\text{df.}\]

43 Using a JPEG quality rating of 70 in Adobe Photoshop CS6. This is a very rough approximation – JPEG images of the same resolution often vary in terms of their quality and size. A true JPEG-based brute-forcing algorithm would unquestionably need to account for such variation.

44 Assuming “kilobyte” means 8,192 bits.

45 This is an oversimplified example of brute-forcing JPEG. To actually conduct JPEG brute-forcing, the algorithm would have to somewhat intelligently brute-force based upon the JPEG File Interchange Format, which would include adding, among other things, file headers. See generally Eric Hamilton, JPEG File Interchange Format Version 1.02 (1992), available at http://www.w3.org/Graphics/JPEG/jfif3.pdf.
B. Audio

Like images, digital audio can be expressed as a series of bits.\textsuperscript{46} Thus, just like how images can be brute-forced bit-by-bit,\textsuperscript{47} audio could theoretically be brute-forced bit-by-bit.

Audio files (such as MP3 files) of songs are usually available in a wide range of bit rates; however, enthusiast testing has generally come to the conclusion that few listeners can discern any difference between files with bit rates above 160kbit/sec.\textsuperscript{48} Thankfully, when creating music, it is not necessary to generate audio of a perfect quality. Thus, the slightly distorted (but nonetheless arguably listenable) 128kbit/sec constant bit rate is sufficient for brute-forcing purposes.\textsuperscript{49}

128kbit/sec means 131,072 bits per second, where a bit is a Boolean value of zero or one. Thus:

\[
\text{Number of Permutations (one second) [128 kbit/sec]} = 2^{131,072}
\]

That is, a number with 39,457 decimal digits. As the average song is four minutes long,\textsuperscript{50} this means that the average song has 240 times


\textsuperscript{47}See supra Part II.A.

\textsuperscript{48}The “Great MP3 Bitrate Experiment” came to the conclusion that there was virtually no perceivable difference in the audio quality of 160kbit/sec VBR (variable bit rate), 320kbit/sec CBR (constant bit rate), 192kbit/sec VBR, and raw CD audio. Jeff Atwood, Conclusion the Great MP3 Bitrate Experiment, CODING HORROR (June 27, 2012), http://www.codinghorror.com/blog/2012/06/concluding-the-great-mp3-bitrate-experiment.html.

\textsuperscript{49}The 128kbit/sec bit rate is admittedly insufficient for high quality audio. Id. I nonetheless use 128kbit/sec for calculations for two reasons: first, perfect audio quality is not strictly necessary to produce copyrightable material, and second, the bit rate of the audio file directly influences the size of the exponent in determining permutations (meaning a lower bitrate begets fewer permutations). Suffice to say, the lower the bitrate, the better.

\textsuperscript{50}Michael Twardos, Probability Distribution of Song Length in a Collection of iTunes Libraries, THE INFORMATION DIET (Nov. 16, 2011), http://thefooddiet.blogspot.com/2011/11/probability-distribution-of-song-length.html (“The distribution shows the relative likelihood of the length of a song. This plot was calculated from over 70,000 songs from 12 (American) libraries. The median of this plot is 231 seconds and [sic] the mean is at 242 seconds. This observation may indicate something fundamental about people (culturally or biologically): we like songs that are almost exactly 4 minutes. As you move away from the 4 minute mark, the probability drops in similar amounts (the plot is continued . . . .”)
the potential bits:

\[
\text{Number of Permutations (four minutes) [128 kbit/sec]}
\]

\[= 2^{31,457,280}\]

Or, a number with over 9.4 million decimal digits.

Some audio brute-forcing could also be achieved by brute-forcing the MIDI format. The MIDI\(^{51}\) data format is a simplistic way in which instruments can be sequenced and re-played digitally.\(^{52}\) Because the format does not store actual recordings, but rather stores a sequence of notes to re-play a song (like a sort of digital sheet music), MIDI does not act as an audio recording.\(^{53}\) Therefore, MIDI would be a poor replacement for most songs except for certain forms of audio (such as very basic melodies and compositions).

C. Feasibility

As repeatedly emphasized, brute-forcing is a computationally expensive, inefficient, and normatively over-the-top approach to generating anything. Bluntly, though it may be theoretically feasible to brute-force copyrighted material, it is anything but technically feasible to do so with current technology.

Scholarly work discussing the feasibility of brute-forcing rarely goes beyond simple examples because it usually need not do so. For the most rudimentary of brute-forcing algorithms, the math is simple. The total number of permutations is divided by the number of permutations that can be processed by a computer in some time unit:\(^{54}\)

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\(^{53}\) See Hass, supra note 51 (stating that MIDI is a way of coding music); Rogoyski, supra note 52, at 354 (comparing the music made using MIDI to writing music - on its own, it is simply a series of written notes, not music).

For example, Raza et al. have calculated that a single computer calculating 1,000 password permutations per second could brute-force an 8-character password comprised of lower case letters (that is, \(26^8\) or 208,827,064,576 permutations) in roughly 58,007.52 hours, or a little over six years.\(^{55}\) As the sun is estimated to burn out in seven billion years,\(^{56}\) it would burn out well before that same computer could even begin to generate all of the permutations of a four-minute song.\(^{57}\)

But 1,000 password permutations per second is an absolute joke for any real-time expenditure analysis, as some security websites estimate that even the ancient Pentium 100 processor could guess 10,000 passwords per second.\(^{58}\) More modern technology must be used to realistically estimate the time to calculate permutations.

In December of 2012, password-cracking expert Jeremi Gosney unveiled a Linux and OpenCL-based GPU server cluster comprising 5 servers utilizing 25 AMD Radeon graphics cards.\(^{59}\) This cluster has enough computing power to guess 350 billion passwords per second.\(^{60}\) The servers require 7kW of electricity when operational\(^{61}\) and likely

\[
\text{(Character Set)}^{\text{(Length of String)}} / \text{(Permutations per time unit)}
\]

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cost well over $10,000. But even Gosney’s veritable supercomputer(s) couldn’t take on creative content.

Would Gosney’s servers be able to brute-force the Google logo? Not in the sun’s lifetime. As explained above, the Google logo has $256^{104,500}$ possible permutations. The number of years it would take to brute-force this password with a single one of Gosney’s server clusters is so large that, like the number of permutations of the logo, it cannot even be printed here. Specifically, the number of years it would take to brute-force the Google logo has 251,643 decimal digits.

Gosney’s servers could not even brute-force a simple poem. For example, W.B. Yeats’ He Wishes for the Cloths of Heaven is a relatively short poem with 327 characters, including spaces. Using the ASCII 95-character set, this would entail ninety-five

permutations. Even with the power of Gosney’s servers, it would still take more years than ever documented in human history to brute force Yeats’ poem—more specifically, a number of years so large it has 628 decimal digits.

These astronomical figures are not made any more tolerable by throwing more servers at the problem. Adding another server would certainly double the workload, but would cost yet another $10,000 and


The cluster contains ten AMD Radeon HD 7970s, four AMD Radeon HD 5970s, three AMD Radeon HD 6990s, and one AMD Radeon HD 5870. Id. The cost of an HD 7970 is approximately $479. Hassan Mujtaba, AMD Officially Announces Price-Cuts for Radeon HD 7000 Series, HD 7970 Now Available for $479 MSRP, WCCFTech, http://wccftech.com/amd-officially-announces-pricecuts-radeon-hd-7000-series-hd-7970-479-msrp/ (last visited Mar. 23, 2013). The price of a dual-GPU HD 5970 is approximately $599. Matthew Murray, AMD Releases Dual-GPU Radeon HD 5970 Card, PCMag.COM (Nov. 17, 2009, 11:55 PM), http://www.pcmag.com/article2/0,2817,2356053,00.asp. The price of an HD 6990 is approximately $700. Sal Cangeloso, AMD announces the ridiculously powerful $700 Radeon HD 6990 graphics card, GEEK.COM (Mar. 8, 2011, 12:28 PM), http://www.geek.com/chips/amd-announces-the-ridiculously-powerful-700-radeon-hd-6990-graphics-card-1320191/. The price of an HD 5870 is approximately $379. Ryan Smith, AMD’s Radeon HD 5870: Bringing About the Next Generation of GPUs, ANANDTECH (Sept. 23, 2009, 9:00 AM), http://www.anandtech.com/show/2841. This means that the graphics cards in Gosney’s servers could have cost as much as $9,665.00, not including the enclosure, processors, motherboards, and the like. But many of these prices (except for the 7970’s price) are launch prices, meaning an equivalent server could be slightly cheaper today. Thus, for simplicity’s sake and without better information, I estimate the price of one of Gosney’s servers to be roughly $10,000.

The sun is estimated to burn out in one trillion years. See Cain, supra note 56.

See supra Part II.A.


See HYDE, supra note 33, at § 2.14.1.
yet another 7kW of electricity. Assuming one had the 2011 GDP of the United States – $14.99 trillion dollars – this means that one could only buy at best 1,499,000,000 of Gosney’s servers, not including electrical/storage/facility/other expenses. The result? It would still require a number of years with 619 (that is, 9 fewer) decimal digits to brute-force Yeats’ poem and a number of years with 251,633 (that is, 10 fewer) decimal digits to brute-force the Google logo!

These rough calculations only scratch the surface of the feasibility problem: storing permutations is also an issue. Take again the Google logo, an image with $256^{104,500}$ possible permutations. The Google logo is approximately 18 kilobytes in size, which is approximately 20 kilobytes as stored on a hard disk. To brute-force and store every possible permutation of the Google logo, a programmer would have to make available so many terabytes that the number of terabytes alone has over 250,000 decimal digits. This is exponentially more storage than the telecommunications capacity of the entire world. Yeats’ poem does not fare much better – though in plain-text it is only 335 bytes (or 0.327148 kilobytes), it would require a number of terabytes of storage with 851 decimal digits – that is, still well over the entire telecommunications capacity of the entire world.

Thus, Kroemer and Kittel were as right with computers as they were with monkeys: if the entire GDP of the United States can barely influence the amount of time it would take to brute-force a copyrighted work, then it would be truly impossible to do so with current technology absent some sort of ground-breaking invention.

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67 See Gosney, supra note 61.
69 See supra Part II.A.
70 See id.
71 Where 1024 bytes = 1 kilobyte, 1024 kilobytes = 1 megabyte, 1024 megabytes = 1 gigabyte, and 1024 gigabytes = 1 terabyte. ITL EDUC. SOLUTIONS LTD., INTRODUCTION TO COMPUTER SCIENCE 109 (2d ed. 2011).
72 The entire effective capacity of the world in 2007 was calculated to be 65,000 petabytes. See Martin Hilbert & Priscila López, The World’s Technological Capacity to Store, Communicate, and Compute Information, 332 SCIENCE 60, 62-63 (Apr. 1, 2011).
73 See Yeats, supra note 65.
74 Where 1024 bytes = 1 kilobyte, 1024 kilobytes = 1 megabyte, 1024 megabytes = 1 gigabyte, and 1024 gigabytes = 1 terabyte. ITL EDUC. SOLUTIONS LTD., supra note 71, at 109.
75 See Hilbert & López, supra note 72, at 63.
76 See supra Part I.
77 Such as the fascinating technology of quantum computing. See generally continued . . .
an exponential increase in worldwide computing power, or dumb luck.

D. “Smarter” Brute-force Attacks

The above calculations illustrate quite well the inefficiency of brute-force attacks – as complexity raises the possible number of permutations exponentially, brute-force attacks are all but useless except for guessing the shortest of strings. Beyond leveraging the entire GDP of the United States, there is hope for those looking to brute-force the content industry: “smart” methods of brute-forcing. As will be explained later, “smart” brute-forcing solves two problems: not only can “smart” brute-forcing exponentially reduce the number of permutations for any given string, but it can also solve various issues related to making those permutations copyrightable.

Any attempt to make brute-forcing “smarter” must fulfill a very important requirement: the processing time added from the addition of “smart” code in the algorithm must be less than the processing time expended by generating the unnecessary permutations. There is no point to adding “smart” code to an algorithm to reduce the possible number of permutations when there is no processing time saved (or, worse yet, where there is processing time added) by doing so. Because such balancing would necessarily occur on a case-by-case basis, this subpart can unfortunately only discuss the topic obliquely.

One way to exponentially reduce the number of permutations for any given format is to brute-force with large chunks of data, as opposed to individual bits or characters. For example, to brute-force a novel, it would not be necessary or efficient to guess every single letter of that novel. Rather, one could save time by brute-forcing using a character set composed of dictionary words. While this increases the

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METODI, FARUQUE & CHONG, supra note 40.

78 The numbers discussed in this subpart indicate that it would have to be a very large exponential increase, far beyond the scope of Moore’s Law (which may be an increasingly poor benchmark). See S. Borkar, Obeying Moore’s Law Beyond 0.18 Micron [Microprocessor Design], PROCEEDINGS OF THE 13TH ANNUAL IEEE INT’L ASIC/SOC CONF. (2001).

79 Matt Kane, a Chicago artist, purported to make this possible through a website called “PixelMonkeys,” which outputs a single random permutation of an image based upon input parameters. Kane thus purported to leave the possibility that a copyrighted work would be duplicated up to chance. See Matt Kane, The Pixel Monkeys Theory, PIXELMONKEYS.ORG, http://www.pixelmonkeys.org/#theory (last visited Mar. 23, 2013).

80 See supra Part II.C.

81 See infra Part III.B.

82 See id.
character set, it also lessens the length of the string, and thus the resulting number of permutations is shortened exponentially.

The efficiency of this “chunk-based” brute-forcing is best illustrated with poetry. Robert Frost’s poem *The Road Not Taken* is 729 characters (including spaces), but only 144 words.\footnote{See Robert Frost, *The Road Not Taken, Birches, and Other Poems* 9 (2010).} Ignoring punctuation and formatting, the difference in possible permutations is quite evident, even taking into account the approximately 250,000 different words in the English dictionary.\footnote{How Many Words Are There in the English Language?, OXFORD DICTIONARIES, http://oxforddictionaries.com/us/words/how-many-words-are-there-in-the-english-language (last visited Mar. 23, 2013) (“[T]here are, at the very least, a quarter of a million distinct English words, excluding inflections, and words from technical and regional vocabulary not covered by the OED, or words not yet added to the published dictionary, of which perhaps 20 per cent are no longer in current use.”).}

\[
\text{Permutations (Per character)} = 95^{729} \\
\approx \text{A number with 1,442 decimal digits}
\]

\[
\text{Permutations (Per word)} = 250,000^{144} \\
\approx \text{A number with 778 decimal digits}
\]

Thus, when the length of the possible string being brute-forced is lessened by grouping the character set into “chunks,” the number of permutations is lessened greatly. These “chunks” could, at least theoretically, be anything – short sounds, small images, digital simulations of paintbrushes, etc.

Brute-forcing can also be made “smarter” by the use of creative rules and an algorithm that “learns.” Take, again, a poem. Suffice to say, few poets would write a poem that repeats the same word incessantly, meaning that an algorithm could skip over a possible permutation that involves the same word repeated more than three times in a row. Similarly, the same algorithm could learn basic linguistic rules, such as the operation of adjectives and adverbs and the use of articles such as “a” and “an.” A truly gifted programmer could also construct an algorithm that mimics common linguistic tropes such as rhyming, alliteration, and the like to further limit the number of potential permutations. And it goes without saying that the programmer able to create a creatively gifted artificial neural
network would not only make their brute-forcing program smarter, but would also revolutionize the entire computing world.

III. Can Brute-Forced Works be Copyrighted?

Despite the fact that the preceding Part II all but stated that brute-forcing media is technically impossible, there is still a remote possibility that a clever programmer (or, more realistically, a collection of clever programmers) could brute-force copyright. Though it would be nearly impossible to brute-force a four-minute song using the most inefficient brute-forcing methods, using tactics similar to the “smart” brute-forcing tactics described above, it is at least conceivable that one could construct a music-making algorithm that generated Top 40 songs at some point in the future (and hopefully before the sun burns out).

But technical feasibility is only the beginning. Assuming, for the sake of the argument, that the brute-forcing of any form of media was technically possible, could algorithm-generated material actually be copyrighted? That rather important question is precisely the subject this Part addresses.

A. Independent Creation by an Algorithm

The doctrine of independent creation is the crux upon which the entire concept of brute-forcing copyright rests. Copyright law, as its name entails, prohibits unauthorized copying. To establish a case of copyright infringement vis-à-vis violation of the right to reproduce a work, a plaintiff must prove, either directly or circumstantially, that

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85. RUSSELL D. REED & ROBERT J. MARKS, II, NEURAL SMITHING: SUPERVISED LEARNING IN FEEDFORWARD ARTIFICIAL NEURAL NETWORKS 1 (1999) (“Artificial neural networks are nonlinear mapping systems whose structure is loosely based on principles observed in the nervous system of humans and animals.”).

86. See supra Part II.

87. See supra Part II.B.

88. See supra Part II.D.

89. See supra Part II.C. (briefly discussing the lifespan of the sun as a reference against the feasibility of brute-force attacks).

90. ROBERT P. MERGES, PETER SETH MENELL & MARK A. LEMLEY, INTELLECTUAL PROPERTY IN THE NEW TECHNOLOGICAL AGE 417 (6th ed. 2012) (“Copyrights do not give their owner the exclusive right to prevent others from making, using, or selling their creations. Rather, they give the author only the right to prevent unauthorized copying of their works, as well as the right to prevent some limited types of uses of those works.”).

the defendant copied her copyrighted work. 92 Because direct copying is often difficult to prove, plaintiffs can circumstantially prove copying by showing that a defendant had (1) access to the plaintiff’s work, and that there was (2) a substantial similarity between the defendant’s work and the plaintiff’s work. 93

The doctrine of independent creation, a “cornerstone” of copyright law, 94 is a rebuttal of a plaintiff’s case of direct or circumstantial copyright infringement which argues that the alleged infringer created the allegedly infringing work wholly independently of the copyright holder’s work and, usually, without knowledge of that work. 95 In this way, the doctrine tracks the requirement that all creative works must be independently created to be original and therefore amenable to copyrighting. 96

In Mazer v. Stein, 97 the Supreme Court provided an example of when the doctrine of independent creation applies. The Court posited “two men, each a perfectionist, independently making maps of the same territory. Though the maps are identical each may obtain the exclusive right to make copies of his particular map, and yet neither will infringe the other's copyright.” 98 But of course, independent creation does not only protect creative works that are based off of some constant referent, like how maps are (hopefully) based upon the geography of a region. 99 As eloquently stated by Learned Hand in

92 Ty, Inc. v. GMA Accessories, Inc., 132 F.3d 1167, 1169 (7th Cir. 1997); see also Arinstein v. Porter, 154 F.2d 464, 468 (2d Cir. 1946); Merges, Menell & Lemley, supra note 90, at 520, 527. This test is also phrased in a way that requires proof of “improper appropriation,” however, this is not discussed here because brute-force content creation does not by definition involve the sort of character/trope/detail specific variations typically involved in such an analysis. See Nichols v. Universal Pictures Corp., 45 F.2d 119, 121 (2d Cir. 1930) (comparing two different plays by analyzing such details).

93 Ty, Inc., 132 F.3d at 1169; Arinstein, 154 F.2d at 468; see also Merges, Menell & Lemley, supra note 90, at 520, 527.


95 See id.; see also Calhoun v. Lillenas Publ’g, 298 F.3d 1228, 1232–33 (11th Cir. 2002).

96 Merges, Menell & Lemley, supra note 90, at 421.


98 Id. at 217–18 (citing Fred Fisher, Inc., v. Dillingham, 298 F. 145, 151 (S.D.N.Y. 1924)).

99 Naturally, in the context of maps and other materials based upon constant referents, courts have found the doctrine of independent creation quite useful. See, e.g., Fred Fisher, Inc., 298 F. at 150–51 (“No one doubts that two directories, independently made, are each entitled to copyright, regardless of their similarity, even though it amount to identity. Each being the result of original work, the second will be protected, quite regardless of its lack of novelty. But the best instance is in the case of maps. Here, if each be faithful, identity is inevitable, because each seeks continued . . .
Sheldon v. Metro-Goldwyn Pictures Corp.\textsuperscript{100} “[i]f by some magic a man who had never known it were to compose anew Keats's Ode on a Grecian Urn, he would be an ‘author,’ and, if he copyrighted it, others might not copy that poem, though they might of course copy Keats’s.”\textsuperscript{101}

In other words, when two parties create the same work, both independently own a copyright in their respective works even if the two works are exactly the same.\textsuperscript{102} This is not the case in patent law, which gives a patent holder the right to prevent the independent creation of a patented invention for the duration of the patent.\textsuperscript{103}

Because an argument of independent creation often implicitly concedes the second prong of a circumstantial copying case\textsuperscript{104} – that is, the similarity of the plaintiff’s work and the defendant’s work – independent creation cases often hinge on the degree of access that the defendant had to the plaintiff’s work.\textsuperscript{105} Along these lines, the best invocations of the independent creation doctrine are made by defendants who could not have possibly had any access to the plaintiff’s work – for example, a musician on a remote island with no radio access.\textsuperscript{106} Of course, a defendant does not need to abscond to a remote island to claim independent creation; even where plausible arguments are made that a defendant may have had access to a work, courts are reluctant to find access without a strong showing of

\textsuperscript{100} Sheldon v. Metro-Goldwyn Pictures Corp., 81 F.2d 49 (2d Cir. 1936).
\textsuperscript{101} Id. at 54.
\textsuperscript{102} See Fred Fisher, Inc., 298 F. at 150–51.
\textsuperscript{103} See 2 JOHN MILLS, DONALD CRESS REILEY, ROBERT CLARE HIGHLY & PETER D. ROSENBERG, PATENT LAW FUNDAMENTALS § 6:3 (2d ed.) (“A copyright, unlike a patent, does not give its owner ‘the right to exclude’ anyone who created the work independently of the author through whom the copyright is derived.”); Clarisa Long, Information Costs in Patent and Copyright, 90 VA. L. REV. 465, 525 (2004) (“Independent creation is no defense to a claim of patent infringement.”).
\textsuperscript{104} With alternate pleading and the like, this is not always the case.
\textsuperscript{105} See Fred Fisher, Inc., 298 F. 145 at 150–51 (discussing how similarity is inherent in the independent creation of “faithful” maps). Note that some courts view the relationship between similarity and access as a sliding scale. See, e.g., Ty, Inc. v. GMA Accessories, Inc., 132 F.3d 1167, 1170 (7th Cir. 1997) (“If, therefore, two works are so similar as to make it highly probable that the later one is a copy of the earlier one, the issue of access need not be addressed separately, since if the later work was a copy its creator must have had access to the original.”) (citing Selle v. Gibb, 741 F.2d 896, 901 (7th Cir. 1984)); see also Carew v. R.K.O. Radio Pictures, 43 F. Supp. 199 (S.D. Cal. 1942) (“If there is no identity, access is, in itself, of no importance whatsoever.”). Ostensibly, this sliding scale is merely a presumption that can be rebutted by showing the legitimate possibility of independent creation.
\textsuperscript{106} PATRY, supra note 94, at § 9:36.
substantial similarity, and even then such a finding is not automatic.\textsuperscript{107}

It almost goes without saying that a brute-force content creation algorithm is the ideal artificial musician on a remote island without radio access.\textsuperscript{108} A brute-force content creation algorithm cannot deliberately or accidentally duplicate copyrighted works unless programmed to do so. When such an algorithm creates works substantially similar to the works of others, it does so without even the remotest hint of access, providing the perfect defense to any allegation of copying.

But this application of independent creation to brute-force content creation may rely upon an unnecessarily formal understanding of independent creation. Professor Clarisa Long of the University of Virginia has argued that the independent creation privilege exists, at least in part, as a mechanism to impose an actual notice requirement on alleged infringers.\textsuperscript{109} This makes a lot of sense: the common examples of independent creation are not where an infringer intentionally avoids copyrighted material to “accidentally” duplicate it, but rather where that infringer is unintentionally unaware of the existence of similar copyrighted material.\textsuperscript{110} If Long is correct and the doctrine of independent creation is a question of actual notice, then a brute-force content creation algorithm may not independently create content. This is because the creation of a brute-force content creation algorithm designed and intended to independently create arguably involves constructive notice of the existence of potential infringement, as the operator of such an algorithm would have reason to know the algorithm could easily infringe existing copyrights.

B. “Creation” by Force

Though a brute-force content creation algorithm is almost perfectly amenable to the doctrine of independent creation, that does not

\textsuperscript{107} See, e.g., Sarkadi v. Wiman, 135 F.2d 1002, 1003 (2d Cir. 1943) (finding plaintiff’s showings of access, and indirect showings of access by similarity insufficient); see also William F. Patry, 2 Patry on Copyright § 3:28 (2012) (“Independent creation may, nevertheless, still be found where plaintiff referred to (but did not copy) another’s work, and, where plaintiff received only ideas or suggestions from others.”).

\textsuperscript{108} See Patry, supra note 94 (giving the remote island hypothetical).


\textsuperscript{110} See supra Part III.A (providing two examples from case law, both involving infringers that did not intentionally avoid other works).
necessarily mean what it creates is copyrightable. In fact, there are reasons why what it generates is likely not copyrightable. This has interesting ramifications for a hypothetical brute-forcing business entity; while a valid copyright is not a prerequisite to invoking the doctrine of independent creation, a valid copyright is necessary to market generated permutations without inviting competitors to copy the permutations as they wish.\textsuperscript{111}

Copyright protection exists in “original works of authorship” that are “fixed in any tangible medium of expression.”\textsuperscript{112} “Original[ity], as developed by the courts, entails (1) independent creation” (discussed above)\textsuperscript{113} and a (2) “modicum of creativity.”\textsuperscript{114} The bar for this modicum of creativity requirement is incredibly low; an “author” must merely contribute something more than a “merely trivial” variation,\textsuperscript{115} and courts explicitly refuse to judge the artistic merit of a work.\textsuperscript{116}

Though it is almost certain given the discussion above that a brute-force content creation algorithm independently creates,\textsuperscript{117} it is questionable whether or not an algorithm can possess a “modicum of creativity.” Admittedly, as stated above, courts set the bar of creativity for a copyrightable work at the floor in analyzing copyrightable material.\textsuperscript{118} In fact, given the weakness of the modicum of creativity requirement, older courts characterized the originality requirement as merely a restatement of the prohibition on copying.\textsuperscript{119} But recent Supreme Court precedent indicates that the creativity requirement will be enforced where, for example, an alleged “creation” is merely an alphabetic arrangement of names in a directory with no creativity involved in the arrangement of those names.\textsuperscript{120}

\textsuperscript{111} Though, as I discuss below, an entity could craft a ProCD-esque contract to bind users of the permutations to limit their dissemination or use of the permutations.


\textsuperscript{113} See supra Part III.A. (the defensive use of independent creation involves the same inquiry as the use of independent creation involved in establishing that some creative work can be copyrighted; PATRY, supra note 107, at § 3:30 (discussing both the requirement for copyright and the defense as substantially the same).

\textsuperscript{114} MERGES, MENELL & LEMLEY, supra note 90, at 421.

\textsuperscript{115} Alfred Bell & Co. v. Catala Fine Arts, Inc., 191 F.2d 99, 102-03 (2d Cir. 1951).

\textsuperscript{116} Bleistein v. Donaldson Lithographing Co., 188 U.S. 239, 251–52 (1903).

\textsuperscript{117} See supra Part III.A.

\textsuperscript{118} See Feist Publ’ns, Inc. v. Rural Tel. Serv. Co., Inc., 499 U.S. 340, 345 (1991) (“To be sure, the requisite level of creativity is extremely low; even a slight amount will suffice. The vast majority of works make the grade quite easily, as they possess some creative spark, ‘no matter how crude, humble or obvious’ it might be.”).

\textsuperscript{119} See, e.g., Alfred Bell & Co., 191 F.2d at 102-03.

\textsuperscript{120} See Feist Publ’ns, Inc., 499 U.S. at 363 (this ruling allegedly reinstated prior law which prohibited so-called “sweat of the brow” copyrights – that is, copyrights for works that resulted from mere labor, not creativity); See PATRY, supra note 107,
It is not entirely clear that this strengthened modicum of creativity requirement is met where a computer is programmed to blindly generate every possible permutation of a type of creative work. The generation of permutations does not necessarily entail plausibly creative activity, such as making “choices as to [the] selection and arrangement” of data.\textsuperscript{121} If a mechanically and functionally arranged “list” of names in alphabetical order is not copyrightable,\textsuperscript{122} a court may refuse to find that a “list” of every possible permutation of a format of creative work, similarly mechanically and functionally arranged, entails a modicum of creativity.

This modicum of creativity requirement may not be a problem if a brute-force content generation algorithm were designed to be creative. If an algorithm used “smart” brute-forcing\textsuperscript{123} to intelligently generate a poem from a dictionary list of words using various evaluative sub-algorithms to determine the quality of a sentence or phrase, a modicum of creativity may be present.

Notwithstanding its creativity or lack thereof, is a brute-force content creation algorithm even an “author?”\textsuperscript{124} It doesn’t take much to be an “author” of a copyrighted work. In \textit{Burrow-Giles Lithographic Co. v. Sarony},\textsuperscript{125} the Supreme Court stated that “author” meant someone “to whom anything owes its [origin], originator, maker . . .”\textsuperscript{126} Following this loose definition, courts do not even require that an author physically fix the required creative expression herself; even a paralyzed author can be an “author” in American copyright law.\textsuperscript{127}

\textsuperscript{121} \textit{Feist Publ’ns, Inc.}, 499 U.S. at 348.
\textsuperscript{122} See id.
\textsuperscript{123} See supra Part II.D.
\textsuperscript{124} 17 U.S.C. § 201 (2006) (“Copyright in a work protected under this title vests initially in the author or authors of the work.”).
\textsuperscript{125} \textit{Burrow-Giles Lithographic Co. v. Sarony}, 111 U.S. 53 (1884).
\textsuperscript{126} \textit{Id.} at 58 (citation omitted).
\textsuperscript{127} This was discussed in \textit{Fisher v. Klein}, 1990 WL 10072477, at *2 (S.D.N.Y. June 26, 1990) (“[U]nder the copyright law that authorship, even with respect to sculptors, need not be in the form of the manipulation of the material . . . [W]e had some discussion of the concept of a sculptor who might sit in a chair, never moving and never touching the materials, perhaps in part because he might be paralyzed or simply because the materials might be large and heavy. There are sculptors nowadays who work in huge materials, I-beams, storage tanks, things like that, that are welded together where the sculptor's contribution is rendered entirely by the giving of instructions to workmen to put a member in a certain position and bolt it to another member and so forth. I think it is clear without question that such participation in authorship. Such carrying out of ideas of authorship is recognized as authorship under the copyright law even if the author never places his hand on the material.”).
It is thus generally assumed that, because a human is (usually) necessarily involved in the creation of computer code, computer-generated works including brute-force content creation algorithms are copyrightable, with some human being (such as the programmer or operator of the program) as an author. Accordingly, the creator of an image who creates that image entirely using a computer image processing program (like Photoshop) is the author of that image for the purposes of copyright law. Even though some scholarship argues that the Patent and Copyright Clause may permit a non-human author (such as an artificial intelligence) to be the “author” of a copyrightable work, it is unlikely that such a doctrine would be necessary when an algorithm is programmed and run under the supervision of a human being. This is especially the case with “smart” brute-forcing, where a programmer’s creativity and decision-making is more obviously present in the algorithm’s programming. Assuming that a brute-force content creation algorithm was entirely independent and somehow did not involve the work of a programmer, this might be a different story. However, it seems unlikely such a problem would ever arise, as even programming self-modifying code is quite a chore.

Thus, brute-force content creation is almost by definition perfectly amenable to the doctrine of independent creation, and what it creates may be copyrightable if a modicum of creativity on the part of the algorithm is found.

But the law does not work in a vacuum. Just because something can generate copyrightable material does not mean that it would be found non-infringing.

IV. LEGAL RAMIFICATIONS AND REALITIES OF A BRUTE-FORCED WORLD

Even if an entity actually attempted to brute-force copyright, and

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128 This is a grandiose oversimplification of the fascinating topic of computer-generated works. For an excellent, albeit slightly old, analysis of the issue of computer-generated works, including the issue of authorship vesting in an artificial intelligence, see Arthur R. Miller, Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is Anything New Since CONTU?, 106 Harv. L. Rev. 977, 1042–72 (1993).
129 See id.
130 See supra Part II.D.
131 See generally Miller, supra note 128.
even if it managed to copyright what it made, it would not be legally immunized. In fact, the attempted creation or use of brute-forced creative material may be the first shot in an all-out copyright war.

Potential brute-force content generation business structures run the gamut from the nefarious to the benign. On one hand, a true profiteer could operate a number of brute-force content creation servers to find and sell all permutations that resemble existing works. On the other hand, a public interest organization that is dissatisfied with current copyright law could brute-force creative works to attack the entire concept of the ownership of creative works by giving the public a free license to anything generated by the algorithm. Either business model could elect to search for valuable permutations itself or elect to allow third parties to search for valuable permutations they wished to purchase. Suffice to say, there are many permutations to the brute-forcing business model.

That being said, with the act of brute-forcing content itself as the common denominator of any such business model, many things can be said about the legal ramifications of content brute-forcing, namely, that any attempt at brute-forcing copyright would almost certainly be found to infringe existing copyrights.

A. An Algorithm Designed to Infringe(?)

One infringes copyright by violating a copyright holder’s exclusive rights. Among many other rights, including those tailored to the nuances of specific creative works, a copyright holder has the exclusive right to “reproduce [their] copyrighted work in copies.” These “copies” include “substantially similar” reproductions made by any means “now known or later developed, and from which the work can be perceived, reproduced, or otherwise communicated, either directly or with the aid of a machine or device.” Strictly speaking, this infringement inquiry does not rely upon whether or not the

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133 This organization could, for example, intentionally target works that would have gone into the public domain had the Copyright Term Extension Act (CTEA) and the Uruguay Round Agreements Act not gone into effect. See Golan v. Holder, 132 S. Ct. 873 (2012); Eldred v. Ashcroft, 537 U.S. 186 (2003); see also Lawrence Lessig, How I Lost the Big One, LEGAL AFF. (Mar./Apr. 2004), http://www.legalaffairs.org/issues/March-April-2004/story_lessig_marapr04.msp.

134 I apologize for the terrible pun.


136 For example, the owner of a dramatic work has the exclusive right to perform that work publicly. 17 U.S.C. § 106(5) (2006).


allegedly infringing materials can be copyrighted, as such a question comes after the question of whether or not such allegedly infringing materials infringe existing copyrights.\textsuperscript{139} If a court finds that allegedly infringing materials are independently created such that they can be copyrighted,\textsuperscript{140} it has already decided that such materials are not copies, and thus cannot infringe.\textsuperscript{141} Conversely, no independent creation means no copyright and could potentially mean infringement.\textsuperscript{142}

If the content generated by a brute-force content creation algorithm was not amenable to the doctrine of independent creation, then the operator of that algorithm would be in trouble: virtually every permutation generated by the algorithm could potentially infringe others’ copyrights, as it would make both actual and substantially similar copies of copyrighted works in violation of numerous copyright holders’ exclusive rights to reproduce their work in copies.\textsuperscript{143} That is, rather than independently creating many copyrighted works, the operator would effectively be potentially infringing every single copyright in existence!

But even if such permutations were found to be independently created, a court could still find that such permutations were infringing despite the limitations of modern copyright law. A court presented with a brute-force content creation algorithm could simply ignore the specific machinations of the algorithm, reducing its creation and operation to mere window-dressing around an attempt to infringe copyright in an intentionally obfuscated manner. After all, what judge would hold “independently created” copyrighted works generated from an algorithm valid when such a holding would facilitate a massive loophole around current copyright law and allow the mass creation of copies of copyrighted works?\textsuperscript{144}

\textsuperscript{139} Arnstein v. Porter, 154 F.2d 464, 468 (2d Cir. 1946) (“If copying is established, then only does there arise the second issue, that of illicit copying (unlawful appropriation).”).
\textsuperscript{140} PATRY, supra note 94, at § 9.32.
\textsuperscript{141} Independent creation acts as both a defense to copyright infringement as well as a requirement for a copyright under the Copyright Act. PATRY, supra note 94, at § 9:36 (discussing independent creation); PATRY, supra note 107, at § 3:30 (“Where the defendant in an infringement suit is able to prove that his or her work, although substantially similar (or even identical) to plaintiff’s work was created without copying from that work, independent creation constitutes a complete defense to the infringement claim.”); see also Calhoun v. Lillenas Publ’g, 298 F.3d 1228, 1232–33 (11th Cir. 2002).
\textsuperscript{142} As, again, independent creation is a statutory requirement under the Copyright Act. See PATRY, supra note 94, at § 9:36.
\textsuperscript{144} It could also essentially decimate the world of copyright. See infra Part IV.D
This less technical concept of infringement may seem like an extreme way to bend copyright law to punish seemingly “bad” behavior, but courts are no strangers to extending copyright law where they feel, for policy or other reasons, such an extension is warranted. The best example of courts extending copyright law in this way is the development of the law of contributory infringement. Unlike in patent law, the Copyright Act “does not expressly render anyone liable for infringement committed by another.” But copyright law nonetheless imposes liability for copyright infringement against “certain parties who have not themselves engaged in the infringing activity.” A court might similarly find extra-statutory infringement where a party intentionally sets up a brute-force content creation algorithm to create identical or substantially similar copies of copyrighted works, even if the operation of that algorithm may not infringe under any current legal doctrine.

But this is not the end of the analysis. A brute-force content creation algorithm can both infringe and not infringe copyright: after all, a brute-force content creation algorithm can generate already copyrighted material as well as wholly novel (and thus not copyrighted) material in the same second. Thus, brute-force content creation algorithms are amenable via analogy to case law that involves products and devices that, like brute-force content generation algorithms, only sometimes infringe copyright.

The case law about devices that sometimes infringe emerges from a case involving a now-dead technology: videotape recorders. In *Sony Corp. of America v. Universal City Studios, Inc.*, the Supreme Court held that the sale of equipment that could potentially duplicate copyrighted works (in this case, videotape recorders that could record live television) was not itself contributory copyright infringement:

[T]he sale of copying equipment, like the sale of other articles of commerce, does not constitute contributory infringement if the product is widely used for legitimate, unobjectionable purposes. Indeed, it need merely be capable of substantial noninfringing uses.

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147 *Id.*
148 “By analogy” because *Sony* and *Grokster* both are contributory infringement cases. As I discuss later in this subpart, this may be largely irrelevant. *See infra* pp. 28–32.
150 *Id.* at 442.
In other words, the Court held that the seller of a device that can be used to infringe is not liable for its purchasers’ infringements as long as the device can be used for some other non-infringing purpose.\textsuperscript{151} Subsequent courts have held that these other purposes, known as “substantial noninfringing uses,” need not even be actual, but merely capable, now or in the future.\textsuperscript{152} This substantial noninfringing use doctrine does not, however, provide absolute immunity where actual infringement under the control of the device’s creator takes place. Courts often emphasize that computer system operators still have a duty to purge infringing material from their systems when they learn about it, regardless of the substantial noninfringing uses their systems may have.\textsuperscript{153}

An important asterisk must be placed on the \textit{Sony} decision. When courts smell bad intent on the part of a device’s creator, they find liability even where the device in question has substantial noninfringing uses.\textsuperscript{154} In \textit{Metro-Goldwyn-Mayer Studios Inc. v. Grokster, Ltd.}, the Court acknowledged that the file-sharing services Grokster and Streamcast had potential noninfringing uses,\textsuperscript{155} but nonetheless found that, because Grokster and Streamcast advertised and encouraged infringement on their services,\textsuperscript{156} a court could find that those file-sharing services induced copyright infringement.\textsuperscript{157} Specifically, the Court held that a party could be liable for copyright infringement by “distribut[ing] a device with the object of promoting its use to infringe copyright, as shown by clear expression or other affirmative steps taken to foster infringement.”\textsuperscript{158}

But there is an asterisk to the \textit{Grokster} asterisk: this intent inquiry does not impose an affirmative duty upon a defendant to prevent copyright infringement.\textsuperscript{159} In footnote 12 of the \textit{Grokster} opinion, the Court made a critical exception to its ruling:

\begin{quote}
[I]n the absence of other evidence of intent, a court
\end{quote}

\textsuperscript{151} \textit{Id.}
\textsuperscript{152} A&M Records, Inc. v. Napster, Inc., 239 F.3d 1004, 1020–21 (9th Cir. 2001).
\textsuperscript{153} \textit{See, e.g.}, \textit{Id.} at 1021.
\textsuperscript{155} Though the Court nonetheless was of the view that the service(s) were primarily used for infringing copyright. \textit{Id.} at 913, 922-23.
\textsuperscript{156} \textit{Id.} at 925. Grokster and Streamcast advertised to former Napster users, encouraging their services as an alternative to Napster for (ostensibly illegal) file-sharing. \textit{Id.}
\textsuperscript{157} \textit{Id.} at 941.
\textsuperscript{158} \textit{Id.} at 919.
\textsuperscript{159} \textit{Id.} at 939 n.12.
would be unable to find contributory infringement liability merely based on a failure to take affirmative steps to prevent infringement, if the device otherwise was capable of substantial noninfringing uses. Such a holding would tread too close to the Sony safe harbor.\footnote{160}

Does a brute-force content creation algorithm have a substantial noninfringing use, now or in the future? The answer is unequivocally yes, at least in the abstract. But Grokster intent is a problem.

As stated above, an algorithm designed to generate every possible permutation of text, images, or music is not specifically designed to infringe copyright – it generates both copyrighted and un-copyrighted material alike.\footnote{161} In the same second an image brute-forcing algorithm reproduces a copyrighted photograph, it may generate an aesthetically pleasing pattern that has never been created or even seen before. Thus, at least in the broadest sense, a brute-force content creation algorithm certainly has substantial noninfringing uses under Sony.\footnote{162}

But more realistically, a brute-force algorithm is valuable at least in part because it has the ability to independently create already copyrighted works. In other words, brute-force content creation algorithms exploit a loophole in copyright law. And that’s where Grokster intent becomes a problem.

Assume that there is a group of entrepreneurs with the time, money, and know-how to create an efficient and operative brute-force content creation business. As discussed above, creating and operating such a business would require an astounding amount of time, money, and resources\footnote{163} – after all, a single one of Gosney’s server clusters costs approximately $10,000.\footnote{164} It makes sense that this business would seek return on its expensive server investments, and one of the easiest ways to do this would be to sell independently created duplicates of existing copyrighted works.\footnote{165} This business model

\footnote{160} Id.; see also Mark F. Schultz, Will BitTorrent Go the Way of Grokster? File Sharing After MGM v. Grokster, ABA SCITECH LAW., Winter 2006, at 4-5.

\footnote{161} See generally supra Part II.

\footnote{162} See A&M Records, Inc. v. Napster, Inc., 239 F.3d 1004, 1020–21 (9th Cir. 2001).

\footnote{163} See supra Part II.C.

\footnote{164} See the discussion of this figure and cases cited, supra note 62.

\footnote{165} I am far from the first person to hypothesize this. Matt Kane, the man behind the random image generator “PixelMonkeys,” wrote that his greatest fear about random image technology was “that some evil corporation someday will write an algorithm to increase the potential to create recognizable images and create a giant library of images.” Matt Kane, Frequently Asked Questions, PIXELMONKEYS.ORG, \url{http://www.pixelmonkeys.org/#faq} (last visited Mar. 13, 2013).}
would require a remarkably low amount of effort on the part of the brute-forcing entity as, rather than spending the time and money sifting through permutation after permutation to ascertain market value by itself, the brute-forcing entity could create a search engine where potential purchasers could search through a collection of algorithm-generated works to find what they wanted to buy.\textsuperscript{166} Needless to say, if the brute-forcing entity sold licenses to its permutations for less than copies of the original works cost,\textsuperscript{167} it could easily profit.

Accordingly, even though an otherwise infringing brute-force content creation algorithm may have substantial noninfringing uses, considering its use would almost certainly involve the nefarious intent to undermine copyright, the \textit{Grokster} exception would almost certainly apply and the algorithm’s substantial noninfringing uses would not provide a defense to infringement. Such an algorithm may not be itself commercially distributed as was the case in \textit{Grokster},\textsuperscript{168} but this is almost certainly immaterial. \textit{Sony} itself involved sale and distribution,\textsuperscript{169} so it is unlikely that a defendant could invoke \textit{Sony} as a defense without implicitly conceding that both \textit{Sony} and \textit{Grokster} apply when no sale or distribution occurs.

But assuming that the owners of the brute-force content generation algorithm were not nefarious profiteers, \textit{Grokster}'s footnote 12 could provide a valuable safe harbor.\textsuperscript{170} If those utilizing a brute-force content creation algorithm did so not because of a desire to undermine copyright, but instead because of a legitimate desire to produce new and unique works, then the mere fact that copyrighted work incidentally appeared on their storage devices would be inconsequential.\textsuperscript{171} Such do-gooders would not have an affirmative duty to sift through every permutation and delete infringing content to act within the ambit of copyright law.\textsuperscript{172} Unfortunately, these do-gooders would likely be forced to sift through every permutation anyway to find something useful in a massive database of algorithm-generated works.

\textsuperscript{166} \textit{See infra} Part IV.B (discussing the potential ramifications of these searches).
\textsuperscript{167} An entity could arguably sell contractual “licenses” even if the permutations were not amenable to copyright. Contracts may legally bind parties to copyright-like terms even when the contractual res is not amenable to copyright protection. \textit{ProCD, Inc. v. Zeidenberg}, 86 F.3d 1447, 1453–54 (7th Cir. 1996). That being said, such contracts would not prevent other businesses from copying the permutations – they would only bind the parties involved.
\textsuperscript{169} \textit{See} \textit{Sony Corp. of Am. v. Universal City Studios, Inc.}, 464 U.S. 417, 422 (1984).
\textsuperscript{170} \textit{Grokster}, 545 U.S. at 939 n.12.
\textsuperscript{171} \textit{Id.}
\textsuperscript{172} \textit{Id.}; \textit{see also} Schultz, \textit{supra} note 160, at 4-5.
Thus, the operator of a brute-force content creation algorithm would in most circumstances be infringing many copyrights, if not potentially every copyright in existence. Even though the Sony line of cases might appear to immunize brute-forcing behavior by analogy, those cases would not provide a defense to those most likely to operate a brute-force content creation algorithm: profiteers looking to generate plausibly legal copies of existing copyrighted works. Simply put, a brute-force content creation algorithm is one massive infringement case waiting to happen, even if a court has to proverbially bend over backwards to make it such.

B. The Inducement Problem

A brute-force content creation algorithm could also infringe copyright, depending on the way third parties use brute-forced permutations. This could occur in two ways: first, by merely allowing parties to search through the permutations themselves, and second, by selling or giving parties permutations to enable those third parties to infringe.

As illustrated in Part II, a brute-forcing algorithm can easily generate a huge number of permutations. This is a problem; manually sifting through permutations to find something valuable (such as an exact duplicate of another’s copyrighted work) would be prohibitively expensive and time-consuming, especially considering how reasonable minds could differ as to the artistic merit of any given permutation.

An easier way to search through permutations would be to use a computer system to find a duplicate of an already existing copyrighted work within the permutations, but this raises an infringement issue. Assuming that merely storing and generating brute-forced permutations does not constitute infringement in and of itself, could

\[173 \text{ See supra Part II.} \]

\[174 \text{ Google already does something similar with their Google Images search engine: a user can upload any digital image and be given results based on the image, including places in which it (or images very similar to it) is located online. See Search by Image, GOOGLE, http://images.google.com/imghp?hl=en (last visited Oct. 10, 2013). In a brute-force content creation database, this could be achieved using MD5 checksum algorithms, which can be used to compare everything from images to bioinformatics sequence identifiers. See, e.g., Mike Smith et al., MagicMatch – Cross-Referencing Sequence Identifiers Across Databases, 21:16 BIOINFORMATICS 3429–30 (June 16, 2005), available at http://bioinformatics.oxfordjournals.org/content/21/16/3429.full.} \]

\[175 \text{ An unlikely circumstance, given how likely it is that such actions alone would be infringing. See supra Part IV.A.} \]
searching through these permutations to find a copyrighted work constitute a form of infringement by either the brute-forcing entity or a third party? If a third party used an existing copyrighted work (like an image) to find a duplicate of it in a brute-force content collection, would that act constitute infringement?

The mere indexing and searching of content is not, in and of itself, an infringement of copyright. In *Perfect 10, Inc. v. Amazon.com, Inc.*,¹⁷⁶ Perfect 10 sued Google and Amazon.com for copyright infringement because both defendants allowed users to search for Perfect 10 material stored on third-party sites.¹⁷⁷ Because neither defendant stored the full versions of Perfect 10’s photographs,¹⁷⁸ the court found that the defendants did not infringe Perfect 10’s display right as to the full versions of the works.¹⁷⁹ In other words, only where storage of infringing works occurs will liability attach.¹⁸⁰ *Perfect 10* indicates that, absent some other form of infringement involving the subject material, making indexing and searching of non-infringing material feasible is not independently a violation of copyright.

Thus, where infringement arguments based upon the storage of brute-force generated content fail, the aforementioned search argument would fail as well. While there might be an argument that the use of an existing copyrighted work as a referent in the process of searching for a duplicate of it is a form of infringement, this does not seem to be a particularly fruitful argument. Given the strength of the underlying infringement argument discussed above,¹⁸¹ this is not a major loss for a would-be plaintiff.

Perhaps more important is the question of third-party infringement by using brute-forced permutations as a substitute for copyrighted material. While the concept of secondary liability in copyright is “muddied,”¹⁸² it is generally accepted that one who, “with knowledge of the infringing activity, induces, causes or materially contributes to the infringing conduct of another, may be held liable as a ‘contributory’ infringer.”¹⁸³ If brute-forced permutations are not

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¹⁷⁶ *Perfect 10, Inc. v. Amazon.com, Inc.*, 508 F.3d 1146, 1154 (9th Cir. 2007).
¹⁷⁷ *Id.* at 1162.
¹⁷⁸ Google did, however, store thumbnails, which were found to be protected by fair use. *Id.* at 1160, 1163–68.
¹⁷⁹ *Id.* at 1159–63.
¹⁸⁰ See *id*.
¹⁸¹ See *supra* Part IV.A.
¹⁸² WILLIAM F. PATRY, 6 PATRY ON COPYRIGHT § 21:41 (2012) (discussing how, in *Sony*, the Supreme Court used the doctrines of contributory infringement and vicarious liability interchangeably).
¹⁸³ Gershwin Pub’g Corp. v. Columbia Artists Mgmt., Inc., 443 F.2d 1159, continued . . .
amenable to copyright,\footnote{184} the provision of those permutations to third parties to enable those parties to indirectly acquire existing copyrighted works without acquiring a license to those copyrighted works would almost certainly be a form of contributory infringement. After all, part of the value of brute-forced permutations would be their similarity to an existing copyrighted work, and the purchaser of such a low-cost permutation would almost certainly not possess a license to the original work. Selling those permutations would be little better than selling pirated copies of a copyrighted movie on the Internet.

A brute-force content creation entity could potentially limit its contributory infringement liability under this scenario by carefully contracting with the third-party buyers of its permutations. In \emph{ProCD, Inc. v. Zeidenberg}, the Court of Appeals for the Seventh Circuit allowed a software manufacturer to enforce so-called “shrink-wrap licenses” – that is, licenses included with software that placed additional limitations on the use of that software – that extended protection of its works beyond the scope afforded to them under the Copyright Act.\footnote{185} The court in \emph{Zeidenberg} allowed these shrink-wrap licenses because “[c]ontracts . . . generally affect only their parties; strangers may do as they please, so contracts do not create ‘exclusive rights.’”\footnote{186} \emph{ProCD} thus seems to embrace the idea that a brute-force content generating entity could create and enforce shrink-wrap licenses (or their equivalent) to prevent third parties from using a permutation without a license from the original copyright holder, thereby potentially avoiding contributory infringement liability. Given the controversy of \emph{ProCD},\footnote{187} it may not be the case that such a contract would be upheld in every court, but shrink-wrap licenses are nonetheless an option for an already risk-taking brute-forcing entity.

\footnote{184}{As is almost certainly the case. \textit{See supra} Part III. Note that if they were copyrightable, then license to the generated permutations could arguably be given, like Learned Hand’s \textit{Ode on a Grecian Urn} example. \textit{See supra} Part III.A.}

\footnote{185}{\textit{See ProCD, Inc. v. Zeidenberg}, 86 F.3d 1447, 1452–54 (7th Cir. 1996). These contracts extended beyond the scope of copyright because the underlying material protected in the \emph{ProCD} contract was unprotectable by copyright post-\emph{Feist}. \textit{See ProCD, Inc.}, 86 F.3d. at 1449.}

\footnote{186}{\textit{Id.} at 1454.}

C. The Trademark Dimension

Brute-force content creation would almost certainly entail the mass replication of both registered and unregistered trademarks. This could make the content produced by a brute-force content creation algorithm a trademark infringement landmine. But, perhaps thankfully, because permutations are unlikely to create consumer confusion, it is unlikely that a brute-force content creation algorithm would ever be found to infringe trademark.

“Trademark” includes any word, name, symbol, device, or combination used by a person to identify and distinguish his or her goods, including a unique product, from those manufactured or sold by others.188 A trademark must be inherently distinctive – that is, unique and immediately identifiable as identifying a unique product source – or must have “secondary meaning” – which means the mark must have an established connection with a unique product source.189 Once these requirements are established, the mere act of using a federally registered mark in connection with the sale or advertising of goods or services such that the use would “likely . . . cause confusion” is infringement of that mark.190 When a mark is unregistered, the use must cause confusion, mistake, or deception as to the “affiliation, connection, or association” of the entity with the mark’s owner to constitute infringement.191 In either case, there is no independent creation defense in trademark law.192

Arguably, the sale or even provision of brute-forced content could be considered a form of trademark infringement. For example, an image brute-forcing algorithm might generate an image permutation that depicted the Nike logo or an audio permutation that used the trademarked slogan “King of Beers.”193 As the argument might go, because trademark law has no independent creation doctrine,194 the sale or use of such a permutation could constitute an infringing use of that trademark.

Unfortunately for a would-be plaintiff, it is not clear whether consumers would be actually confused by a brute-force content generation algorithm’s use of a mark such that the existence of that mark in a permutation would be infringing. With the right

189 MERGES, MENELL & LEMLEY, supra note 90, at 751.
193 “King of Beers” is a trademarked slogan used by Budweiser.
194 Y’Barbo, supra note 192, at 683.
disclaimers, a brute-forcing entity could avoid creating consumer confusion in the way that would expose itself to liability for infringement.\textsuperscript{195} But such a disclaimer may not be necessary. In \textit{Medic Alert Foundation U.S., Inc. v. Corel Corp.},\textsuperscript{196} the court held that the presence of a logo in a software “clipart” library collection was not trademark infringement because users would not have been confused into believing that the owner of each respective mark was endorsing the defendant’s collection.\textsuperscript{197} A brute-force content collection is arguably analogous to a collection of clipart: neither use trademarks in a way that implicate association, sponsorship, or any affiliation such that consumers would be confused. This is especially the case where consumers know about the nature of the permutations. No rational consumer would believe that an algorithmically generated permutation was intentionally designed to affiliate with a unique product source. Thus, it is unlikely that a court would find consumer confusion if a trademark was generated by a brute-force content creation algorithm.

A more viable approach might be the argument of dilution by blurring, but \textit{Medic Alert}-like issues still apply. Where a famous mark is used by a party in a way that could potentially dilute the potency of that mark (by reducing its ability to identify a single source and maintain selling power or the like), the owner of that mark may sue.\textsuperscript{198} The test for dilution by blurring involves a number of factors, including whether the user of the mark intended to create an association with the famous mark, and whether there was any actual association between the allegedly infringing mark and the famous mark.\textsuperscript{199} Assuming some famous mark (such as the Nike swoosh) made its way into a permutation, trademark infringement would plausibly exist. However, the \textit{Medic Alert} problem still exists for a would-be plaintiff. Given that the nature of the use of a famous mark is evaluated in a case of dilution by blurring,\textsuperscript{200} a court could plausibly find that, like in \textit{Medic Alert}, the incidental use of a mark in a database that was unlikely to cause consumer confusion would not qualify as dilution by blurring.

One factor that almost certainly does not influence either trademark infringement calculus is whether or not the brute-forcing entity purported to provide its brute-forced content for free. Non-


\textsuperscript{197} \textit{Id.} at 938.


\textsuperscript{200} \textit{Id.}
commercial use is a defense to trademark infringement, though it has never been entirely clear what non-commercial use entails.\textsuperscript{201} Thus, at least theoretically, if a brute-forcing entity provided its work for free, it could avoid being liable for trademark infringement. But this result is only theoretical, as it ignores the fact that even if it provided its content for free, a non-commercial entity would usually seek to provide its content for free to directly undermine or manipulate the market for copyrighted materials (unless, of course, it was simply hunting for unique patterns or novel permutations or the like).\textsuperscript{202} This sort of behavior is quite unlike the archetypal non-commercial trademark user who, for example, uses a trademark to complain about a company.\textsuperscript{203} Thus, even though infringement is unlikely to be proven, non-commercial use of brute-forced permutations would not provide a defense should brute-force content creation infringe upon a trademark.

\textbf{D. Copyright War}

The idea that any entity could brute-force copyright is positively frightening. If a single entity could construct an algorithm that made every possible four-minute song ever, then that entity would have the power to sell exact copies of other artists’ four-minute songs for cheaper than the artists sold them. The incentive to create could become a disincentive, as musicians would suddenly find even the most original songs they could ever compose anticipated by a computer algorithm that could undercut their profits.

In loftier constitutional terms, a brute-force content creation algorithm would prevent copyright from “promot[ing] the Progress of Science.”\textsuperscript{204} Or, more bluntly, it would kill copyright.

Suffice to say, it is unlikely that a court would ever allow this to happen in the first place. Before such a scheme could ever begin, it is almost certain that a court would stop a brute-force content creator through one or more methods, be it a strict “modicum of creativity” standard,\textsuperscript{205} an attenuated standard of infringement,\textsuperscript{206} or the like. This


\textsuperscript{202} See supra Part IV.I. (discussing the footnote 12 exception in \textit{Grokster}).


\textsuperscript{204} U.S. CONST. art. I, § 8, cl. 8 (“science” in this context refers to creative works).

\textsuperscript{205} See supra Part III.B.
is especially true in cases in which Grokster intent would weigh against the operator of a brute-force content creation algorithm.207

But assuming through some judicial catastrophe that the above arguments failed, would a party operating a brute-force content generation algorithm win? Once that party gets beyond the hurdles of skirting the copyright and trademark infringement issues discussed above, are they legally home free?

The answer is almost certainly no because such an algorithm would kill copyright. A brute-force content creation algorithm would, in effect, give a single party a copyright in every possible work; it would provide every judge, legislator, and citizen a reason to specifically prohibit that from occurring. If someone were to find a loophole in the law that granted a single person a legal right to every creative work that could ever be created, the societal response would never be “you win” – it would be “we need to amend the laws.” In other words, operating a brute-force content creation algorithm would be the first shot in an all-out copyright war between a single entity and the legal and political communities of the United States, if not the world. It is not difficult to imagine who would win.

V. CONCLUSION: WHY “NEVER” IS A GOOD THING

As has been repeatedly emphasized in this article, it is almost certain that it is technically208 and legally209 impossible for anyone to brute-force copyright in the near future. This is, unquestionably, a very good thing.

Imagine, for example, a brute-forced collection of four-minute sound recordings. What would the recordings include? Not just songs, but human experiences and interactions—four minutes worth of conversations, laughs, cries, speeches—quite literally, anything. The whole of the human experience that could be heard would, insofar as it fits into a four-minute digital recording, be located on computer disks squirreled away within a huge series of processing servers. This would include everything you have ever heard, as well as everything you will ever hear in the future. This is no less the case for an attempted brute-force attack on images the size of a Google logo – everything that could ever be seen and represented in a small bundle of pixels on a monitor would be generated and stored.

As disappointing as it may be that current technology cannot yet

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206 See supra Part IV.A.
207 See id.
208 See supra Part II.C.
209 See supra Parts III, IV.
brute-force creative content,\textsuperscript{210} this is actually a good thing: it proves how amazingly diverse and unique the world can be. If it were easy to simply brute-force through every song ever made, then the actual number of songs that could be created would be rather small.\textsuperscript{211} There is no romance or magic to a world of creative content that can be divided, processed, and conquered by an emotionless machine designed to feign creative activity.

Of course, creative activity does not rely upon copyright, and if copyright were to disappear, many authors would still create amazing works. But a brute-force content creation attack is not merely a war upon copyright; it is a war on creation. It is an attempt to preclude anyone from creating anything truly new ever again, even if the algorithm itself never uses the work it generates.

This is why, somewhat counter-intuitively, we should hope that technology is never able to process the incredible number of permutations discussed in Part II.\textsuperscript{212} Once all songs, paintings, and poems have been generated, the desire for artists to pick up their respective guitars, paintbrushes, and pens will be inhibited, if not entirely destroyed, and part of the enjoyment that arises from creative material – the knowledge that an individual or group of individuals poured their lives and souls into a project for others’ enjoyment – would be decimated.

Thus, my discussion ends not with a legal conclusion, but a normative one: the world does not need brute-force content creation algorithms. In an attempt to make money, someone running such an algorithm would not merely kill copyright – he would kill the human drive to create, which was the impetus for the original creation of copyright laws.

\textsuperscript{210} See supra Part II.C.

\textsuperscript{211} Of course, “rather small” in the sense that one of Gosney’s servers could have eventually brute-forced it at 350 billion guesses per second. See supra Part II.C.

\textsuperscript{212} See supra Part II.
THE MIXED USE OF A PERSONAL RESIDENCE: INTEGRATION OF CONFLICTING HOLDING PURPOSES UNDER I.R.C. SECTIONS 121, 280A, AND 1031

Christine Manolakas

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Abstract

In light of the fact that the majority of Americans consider their personal residence one of their most important investments, as well as the rapid changes in technology allowing an increasing number of Americans to work from their personal residence, this article reconsiders the non-applicability of Internal Revenue Code (“I.R.C.”) section 1031 to a residence occupied by the taxpayer. I.R.C. section 1031 provides that gain or loss will not be recognized if property held for a business or an investment purpose is exchanged for property of like kind to be held as business or investment property. For this nonrecognition provision to apply, the property relinquished and the property received cannot be held for personal use at the time of the exchange. This article provides an overview of the current state of federal income tax law as it relates to personal residences. It then considers the application of I.R.C. section 1031 to property that is held as a personal residence at the time of the exchange, or was held in the past or would be held in the future as a personal residence. The interrelationship of I.R.C. section 1031 with other sections of the I.R.C. that exclude gain on the sale of a principal residence and control the tax treatment of home offices and vacation homes will also be explored. Finally, the article illustrates that while the rules limiting deductions for personal-use properties should remain in force, nonrecognition treatment under I.R.C. section 1031 should be extended to personal residences.
I. Introduction

For most Americans, their home is their primary and most cherished investment asset. The recent economic struggles have caused many Americans to rethink home ownership, and have caused lawmakers to consider new ways to stimulate investment in the real estate market. At the same time, an exponential growth in technology has allowed American workers to conduct business from any location. As a result of this technology, more and more Americans are establishing and carrying on businesses in their homes or otherwise generating income from the use of their homes. Underlying these rapid and important changes is the ever-looming question of whether the law is keeping up. This article explores that question in a practical setting - the federal income tax law with respect to personal residences.

Traditional tax policy has been premised on the government’s goal of facilitating business and investment. As such, the availability of many tax benefits, such as nonrecognition and deductions, depends on whether or not certain property is used for trade, business, or investment. Conversely, a taxpayer’s personal use of a property has historically precluded application of these tax benefits. As workers increasingly use their homes for both business and personal use, the inapplicability of the like-kind exchange provision to personal residences seems unwarranted. This provision allows for the nonrecognition of gain only if the property involved in the exchange is trade, business, or investment property.

This article explores the tax treatment of personal residences, with a focus on the nonrecognition and exclusion of gain on the exchange of such residences, as well as the deductibility of expenses during the mixed use of such residences. The purpose of the article is two-fold; first, it is intended to be a tool for students and practitioners desiring to learn more about the current state of the federal tax law as it relates to the exchange and mixed use of personal residences; second, it illustrates the growing liberalization of the tax treatment of exchanges of real property, ultimately arguing for full applicability of Internal Revenue Code (“I.R.C.”) section 1031 nonrecognition treatment for the exchange of personal residences.

To begin, Part II explains the federal income tax treatment of the disposition of personal residences. Part III then introduces the rationale and mechanics of I.R.C. section 1031, which provides nonrecognition of gain or loss on the exchange of property if certain requirements are met. Next, Part IV discusses the exclusion of gain on the sale of personal residences pursuant to I.R.C. section 121, including the interplay of the exclusion with nonrecognition of gain.
under I.R.C. section 1031. Part V examines specific rules regarding the deductibility of expenses related to personal residences used in part as home offices and vacation homes. Finally, Part VI concludes that the exchange of personal use real property should be allowed nonrecognition under I.R.C. section 1031 since such treatment is consistent with that section’s rationale and interpretation, as well as the statutory backdrop related to personal residences.

II. Gain and Loss on the Disposition of Personal Residences

With regard to the disposition of personal residences, several sections of the I.R.C. provide for the treatment of any resulting gain or loss. Generally, “gains derived from dealings in property” are included in the gross income of the taxpayer. On the sale of a personal residence, the gain realized by the taxpayer is not the total sales price, but the amount by which the sales price exceeds the cost of the residence. Gain is computed as the difference between the amount realized on the disposition and the adjusted basis of the personal residence. This tax-free recovery of investment is one of the basic premises of federal income tax law. Typically, a personal residence is a capital asset, and therefore, any gain from the sale or exchange of a personal residence held for more than one year is taxed at a preferential rate. If the taxpayer sells the residence for less than

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1 All references to the Internal Revenue Code are to the 1986 Internal Revenue Code [hereinafter I.R.C.], 26 United States Code, as amended.
4 The term “amount realized” is defined as the sum of the money plus the fair market value of property other than money received. I.R.C. § 1001(b) (2006). Whether recourse or nonrecourse debt, debt relief is included in amount realized. Crane v. Comm’r, 331 U.S. 1 (1947); Tufts v. Comm’r, 461 U.S. 300, 308 (1983); Treas. Reg. § 1.1001-2 (2013).
5 The “adjusted basis” is defined as the original basis of the property, e.g., cost, with adjustments over the period the taxpayer holds the property (e.g., basis is increased for capital improvements and decreased for depreciation deductions taken). I.R.C. § 1001(a); I.R.C. § 1011(a) (2006); I.R.C. § 1012(a) (2006 & Supp. V 2011); I.R.C. § 1016(a) (2006 & Supp. V 2011). Whether recourse or nonrecourse debt, debt incurred in the acquisition of property is included in the cost basis of the property acquired. Crane, 331 U.S. at 6.
6 I.R.C. § 1001(a).
9 See I.R.C. § 1(h) (2006) (providing for a preferential rate of tax on net capital gains); I.R.C. § 1222(11) (2006) (defining the term “net capital gains” as net long-term capital gains over net short-term capital losses); I.R.C. § 1222(3) (defining the continued...
its cost, a loss is realized to the extent of unrecovered investment.\textsuperscript{10} Loss is the difference between the adjusted basis of the property and the amount realized.\textsuperscript{11}

If gain or loss is \textit{realized} on the disposition of property,\textsuperscript{12} except as otherwise provided in the I.R.C., gain or loss is \textit{recognized}.\textsuperscript{13} There are several exceptions to this rule. As discussed below, on the exchange of property held as business or investment assets, I.R.C. section 1031 provides for the nonrecognition of realized gain or loss.\textsuperscript{14} However, through the mechanism of an exchange basis, I.R.C. section 1031 merely defers the recognition of the gain or loss until the ultimate sale of the property received in the exchange.\textsuperscript{15} If the requirements of I.R.C. section 121 are met, the taxpayer is allowed to permanently exclude a limited amount of gain on the sale of a principal residence.\textsuperscript{16}

If a loss is realized and recognized on the disposition of property, I.R.C. section 165 determines whether a loss deduction is allowable.\textsuperscript{17} A deduction is allowed to the extent the loss is sustained during the taxable year and not compensated for by insurance.\textsuperscript{18} For individuals, loss deductions are allowed for losses incurred in a trade or business and transactions entered into for profit.\textsuperscript{19} However, with regard to personal use property, loss deductions are limited to losses incurred “from fire, storm, shipwreck, or other casualty, or from theft.”\textsuperscript{20} As a result, an individual may not deduct a loss incurred on the sale of a

\begin{itemize}
\item term “long-term capital gain” as gain from the sale or exchange of a capital asset held for more than one year).
\item I.R.C. § 1001(a).
\item Id. Loss is computed as the difference between adjusted basis and amount realized on the disposition of property. \textit{Id}.
\item The requirement of realization, which is implicit in I.R.C. § 1001(a), is founded on administrative convenience. Cottage Sav. Ass’n v. Comm’r, 499 U.S. 554, 559 (1991). \textit{See generally BITTNER, ET. AL., supra note 7, ¶ 28.01 (examining the realization requirement).}
\item I.R.C. § 1001(c).
\item I.R.C. § 1031(d). \textit{See infra Part III. A. – B. (providing a detailed examination of I.R.C. § 1031).}
\item I.R.C. §§ 121(a), (b) (2006 & Supp. V 2012). \textit{See infra Part IV. (providing a detailed examination of I.R.C. § 121).}
\item I.R.C. §165(a).
\item I.R.C. §165(c)(1)-(2).
\item I.R.C. § 165(c)(3); Treas. Reg. § 1.165-7(a)(1) (1960) (explaining that any loss arising from theft is treated as sustained during the taxable year in which the taxpayer discovers the loss); I.R.C. § 165(e); Treas. Reg. § 1.165-8(a)(2) (1960).
\end{itemize}
personal residence. Generally, no deduction is allowed for personal, family, or living expenses because personal expenses represent personal consumption.\(^{21}\)

However, it is possible for a taxpayer to convert a personal residence into non-personal use property if the residence is rented or otherwise adapted for income-producing purposes.\(^{22}\) In general, the taxpayer must actually rent the residence, not merely list the residence for sale or rent, to successfully convert a residence from personal use to income-producing purposes.\(^{23}\) If the property is successfully converted, the adjusted basis used to determine the amount of the loss is the lesser of the adjusted basis of the residence, or the value of the residence at the time of conversion, as adjusted for subsequent depreciation deductions taken.\(^{24}\) Thus, the loss deduction is limited to the portion of the loss incurred while the property was used for income-producing purposes.

**Example:** Taxpayer purchased a residence for $500,000 and used the residence as her personal residence for ten years. Due to a change in employment, Taxpayer abandoned the residence and immediately offered the residence for sale or rent. Taxpayer successfully rented the residence for three years prior to the sale of the residence for $300,000. At the time of conversion, the residence had a value of $400,000. During the three years Taxpayer rented the residence, Taxpayer took depreciation deductions of $40,000. For the purposes of computing the loss on the sale of the residence, the basis of the residence is the lesser of the cost of the residence ($500,000), or the

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\(^{23}\) Treas. Reg. § 1.165-9(b)(1); See Horrmann, 17 T.C. at 907-08 (finding that the taxpayer, who held an abandoned personal residence for sale or rent, but never rented prior to sale, satisfied I.R.C. § 167(a)(2) (depreciation deduction) and I.R.C. § 212(2) (deduction of expenses) but did not satisfy I.R.C. § 165(c)(2) (deduction of losses), as the residence was not “rented or otherwise appropriated to income-producing purposes” as required by Treasury Regulation 1.165-9(b)(1)); Cowles v. Comm’r, 29 T.C.M. (CCH) 884 (1970) (finding that the mere holding of the personal residence for sale or rent was not a “transaction entered into for profit” as required by I.R.C. § 165(c)(2)). Cf. Newcombe v. Comm’r, 54 T.C. 1298 (1970) (finding that the taxpayer did not hold property “for production of income” under I.R.C. § 167(a)(2) or I.R.C. § 212(2) as the taxpayer moved out and immediately offered the personal residence for sale but not for rent).

\(^{24}\) Treas. Reg. § 1.165-9(b)(2).
value of the residence at the time of conversion ($400,000). Thus, the amount of the loss is the adjusted basis of $360,000 ($400,000 value minus $40,000 depreciation deductions) minus the amount realized of $300,000, resulting in a $60,000 deductible loss.

Although losses from the sale or exchange of personal use property are not deductible, losses resulting from the casualty or theft of personal use property are deductible. The term “casualty” has been described as follows:

The courts have consistently upheld the Internal Revenue Service position that an ‘other casualty’ is limited to casualties analogous to fire, storm, or shipwreck. The Service position has been that a casualty is the complete or partial destruction of property resulting from an identifiable event of a sudden, unexpected, and unusual nature.

In the case of a casualty loss sustained with regard to personal use property, the amount of the loss deduction is limited to the lesser of (1) the reduction in the value of the property immediately before and after the casualty and (2) the adjusted basis of the property. Furthermore, personal casualty and theft losses are subject to a nondeductible floor of $100 and are allowable as a deduction for the taxable year only to the extent of personal casualty gains, plus so much of the excess personal casualty losses as exceeds ten percent of the taxpayer’s adjusted gross income.

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25 I.R.C. § 165(c)(3).
27 Treas. Reg. § 1.165-7(b) (1960) (explaining that if the property used in a trade or business or a transaction entered into for profit is totally destroyed by the casualty, and if the value of the property immediately before the casualty is less than the basis, the amount of the adjusted basis will be treated as the amount of the loss deduction); id.; see also Treas. Reg. § 1.165-8(c) (1960) (providing a similar rule for determining the amount of the loss deduction arising from theft).
28 I.R.C. § 165(h)(1). Personal casualty gains are defined as gains arising from the casualty or theft of personal use property. I.R.C. § 165(h)(3)(A).
29 I.R.C. § 165(h)(2)(A). Personal casualty losses are defined as losses arising from the casualty or theft of personal use property minus the $100 floor for each casualty or theft. I.R.C. § 165(h)(3)(B).
**Example:** Taxpayer’s car was totally destroyed in an accident. The car was purchased for $50,000 and had a value of $20,000 immediately before the accident. Taxpayer received $10,000 in insurance proceeds. The car was used exclusively for personal purposes. Assume Taxpayer had no personal casualty gains and adjusted gross income of $100,000. The amount of Taxpayer’s casualty loss is $20,000 (lesser of reduction in value ($30,000), and basis ($50,000) minus insurance proceeds ($10,000)). The amount of Taxpayer’s casualty loss deduction is $9,900 (casualty loss ($20,000) minus $100 floor minus 10% of adjusted gross income ($10,000)).

### III. Applicability of I.R.C. Section 1031 to Exchange of Personal Residences

#### A. Rationale and General Explanation of I.R.C. section 1031

To be included in the determination of taxable income, gain or loss on the disposition of property must be both realized and recognized.\(^{31}\) Like a sale, an exchange of property for property differing materially in either kind or extent is a realization event.\(^{32}\) Realized gain or loss is recognized unless the transaction falls within one of the many nonrecognition provisions contained in the I.R.C.\(^ {33}\) Nonrecognition provisions do not forgive the taxation of realized gains or permanently disallow realized losses, but merely defer recognition of gains and losses until the disposition of the acquired property in a taxable exchange.\(^{34}\) I.R.C. section 1031 is a mandatory provision that results in the nonrecognition of gain or loss on the exchange of property held for productive use in a trade or business or for investment if such property is exchanged for property of like kind to be held for trade or business or investment purposes.\(^{35}\)

I.R.C. section 1031 is an exception to the general rule that the

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\(^{31}\)I.R.C. § 1001(c) (2006).


\(^{33}\)I.R.C. § 1001(c).

\(^{34}\)BITTKER, ET AL., supra note 7, ¶ 30.01[1]. The underlying assumption of the sections in the Internal Revenue Code that provide for nonrecognition of realized gain or loss is that the property received is substantially a continuation of the investment in the property relinquished still unliquidated. Treas. Reg. § 1.1002-1(c) (1957).

entire amount of realized gain or loss is recognized by the taxpayer.\textsuperscript{36} In 1921, Congress made exchanges of like-kind property nontaxable with the enactment of the predecessor to I.R.C. section 1031.\textsuperscript{37} In 1934, Congress considered and rejected the repeal of the predecessor to I.R.C. section 1031, expressing the congressional justification for non-recognition as follows:

The law has provided for 12 years that gain or loss is recognized on exchanges of property having a fair market value, such as stock, bonds, and negotiable instruments; on exchanges of property held primarily for sale; or on exchanges of one kind of property for another kind of property; but not on other exchanges of property solely for property of like kind. In other words, profit or loss is recognized in the case of exchanges of notes or securities, which are essentially like money; or in the case of stock in trade; or in case the taxpayer exchanges property comprising his original investment for a different kind of property; but if the taxpayer’s money is still tied up in the same kind of property as that in which it was originally invested, he is not allowed to compute and deduct his theoretical loss on the exchange, nor is he charged with a tax upon his theoretical profit. The calculation of the profit or loss is deferred until it is realized in cash, marketable securities, or other property not of the same kind having a fair market value.

The Treasury Department states that its experience indicates that this provision does not in fact result in tax avoidance. If all exchanges were made taxable, it would be necessary to evaluate the property received in exchange in thousands of horse trades and similar barter transactions each year, and for the time being, at least, claims for theoretical losses would probably exceed any profits which could be established. The committee does not believe that the net revenue which could thereby be collected, particularly in these years,

\textsuperscript{36} I.R.C. § 1031; I.R.C. § 1001(c). The general rule is recognition of realized gain or loss; therefore, the sections of the Internal Revenue Code providing exceptions to the general rule of the recognition must be strictly construed and not “extended either beyond the words or underlying assumptions and purposes of the exception.” Treas. Reg. § 1.1002-1(a), (c) (1957).

\textsuperscript{37} Revenue Act of 1921, ch. 136, § 202(c), 42 Stat. 227, 230 (1921).
would justify the additional administrative expense. Consequently, the exchange provisions have not been changed.\textsuperscript{38}

If the requirements of I.R.C. section 1031(a)(1) are satisfied and the exchange is of solely like-kind property, gain or loss realized in the exchange is not recognized.\textsuperscript{39} If, in addition to like-kind property, money or non-like-kind property ("boot") is also received in the exchange, realized gain, if any, is recognized to the extent of boot received.\textsuperscript{40} Nevertheless, if loss is realized, the realized loss is not recognized even though boot is received.\textsuperscript{41} Although the basis of property acquired in an exchange is typically the value of the property received,\textsuperscript{42} under I.R.C. section 1031, the mechanism for deferral of realized, but unrecognized, gain or loss is the assignment of an "exchange basis"\textsuperscript{43} to the replacement property.\textsuperscript{44} To preserve the unrecognized gain or loss, the basis in the property received is equal to the basis in the property transferred, with adjustments for money received and recognized gain or loss.\textsuperscript{45}

\textsuperscript{38} H.R. REP. NO. 73-704, at 13 (1934). The rationale for retaining I.R.C. § 1031 has subsequently been viewed by courts as providing a statement of the congressional purpose underlying the section. J. Martin Burke & Michael K. Friel, \textit{To Hold or Not to Hold: Magneson, Bolker, and the Continuity of Investment Under I.R.C. Section 1031}, 20 U.S.F. L. Rev. 177, 178 (1986). See Jordan Marsh Co. v. Comm'rs, 269 F.2d 453, 456 (2d Cir. 1959) (summarizing the congressional intent underlying I.R.C. § 1031 as primarily a concern "with the inequity, in the case of an exchange, of forcing a taxpayer to recognize a paper gain which was still tied up in a continuing investment" and only secondarily a concern "for the difficulty of the administrative task of making the valuations necessary to compute gains and losses"). \textit{But see} Century Elec. Co. v. Comm'rs, 192 F.2d 155, 159 (8th Cir. 1951) ("In this section Congress was not defining the words 'sales' and 'exchanges.' It was concerned with the administrative problem involved in the computation of gain or loss in transactions of the character with which the section deals.").

\textsuperscript{39} I.R.C. § 1031(a)(1).

\textsuperscript{40} I.R.C. § 1031(d).

\textsuperscript{41} I.R.C. § 1031(c).

\textsuperscript{42} Phila. Park Amusement Co. v. United States, 126 F. Supp. 184, 188 (Ct. Cl. 1954).

\textsuperscript{43} I.R.C. § 7701(a)(44) (2006). The term "substituted basis property" is defined as property that is "transferred basis property" or "exchanged basis property." I.R.C. § 7701(a)(42). The term "transferred basis property" is defined as property having a basis determined in whole or in part by reference to the basis of the property in the hands of the transferor. I.R.C. § 7701(a)(43). The term "exchanged basis property" is defined as property having a basis determined in whole or in part by reference to the basis of other property previously held by the holder of the property. I.R.C. § 7701(a)(43).

\textsuperscript{44} I.R.C. § 1031(d).

\textsuperscript{45} \textit{Id}. Generally, the basis of the property received is the same as the basis of the property relinquished decreased by the amount of money received, increased by the

\textit{continued} \ldots
Example: Taxpayer exchanges land that she farmed for many years for an apartment building that she intends to hold as investment property. The farmland has a basis of $200,000 and a value of $1,000,000, and the apartment building has a value of $1,000,000. As Taxpayer received solely like-kind property, Taxpayer will not recognize the $800,000 gain ($1,000,000 value of the apartment building minus the $200,000 basis of the farm) realized on the exchange. Taxpayer’s basis in the apartment building is $200,000. However, if the value of the apartment building is $900,000, Taxpayer therefore receives an additional $100,000 cash (boot). Taxpayer will recognize $100,000 of the $800,000 of gain realized on the exchange. The Taxpayer’s basis in the apartment building is $200,000 ($200,000 basis of the farmland minus $100,000 cash plus $100,000 gain recognized).

B. Requirements of I.R.C. section 1031

The mechanics of I.R.C. section 1031 have been the subject of a great deal of scrutiny by the courts, the Treasury Department, and taxpayers. I.R.C. section 1031 applies to any transaction in which property held for productive use in a trade or business or for investment is exchanged for property of like kind to be held for productive use in a trade or business, or for investment.46 I.R.C. section 1031(a)(1) requires: (1) an “exchange” of property (2) the properties exchanged to be of “like kind,” and (3) the holding purpose of the property relinquished and the property received to be for use in a trade or business or for investment.47

1. Exchange

The Treasury regulations define an exchange as “a reciprocal transfer of property, as distinguished from a transfer of property for
money consideration only. Courts describe a sale and an exchange as follows: “[a] ‘sale’ is a transfer of property for a price in money or its equivalent. ‘Exchange’ means the giving of one thing for another.” The requirement of an exchange is not satisfied unless the transfers are reciprocal and mutually dependent. The presence of cash to adjust for the difference in the value of the properties exchanged will not prevent the transaction from being considered a like-kind exchange. However, I.R.C. section 1031 has no application to a sale of property for cash even if the proceeds are reinvested in property of like kind, and even if both the sale and reinvestment occur on the same day. Nevertheless, if the transaction is, in substance, an exchange rather than a sale and purchase, the transaction will be treated as an exchange under I.R.C. section 1031.

Although the language of I.R.C. section 1031(a)(1) contemplates the exchange of like-kind property between two parties, most transactions are more complex, involving multiple parties. With numerous variations, a multiple-party exchange involves the acquisition of the replacement property for cash by a party facilitating the exchange, who then transfers the replacement property in exchange

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49 Bloomington Coca-Cola Bottling Co. v. Comm’r., 189 F.2d 14, 16 (7th Cir. 1951).
50 Redwing Carriers, Inc. v. Tomlinson, 399 F.2d 652, 657 (5th Cir. 1968); Treas. Reg. § 1.1002-1(d).
51 Bloomington Coca-Cola Bottling Co., 189 F.2d at 16.
52 Swaim v. United States, 651 F.2d 1066, 1070-71 (5th Cir. 1981) (holding that the transaction was not an exchange but a sale and purchase as the receipt, and unrestricted use, of cash negated any contractual interdependence).
53 Carlton v. United States, 385 F.2d 238 (5th Cir. 1967). In Carlton, the court stated, “[i]n the instant case, while elaborate plans were laid to exchange property, the substance of the transaction was that the appellants received cash for the deed to their ranch property and not another parcel of land. The very essence of an exchange is the transfer of property between owners, while the mark of a sale is the receipt of cash for property. . . . The fact that they [appellants] did use it to pay for the Fernandez properties does not alter the fact that their use of the money was unfettered and unrestrained. Carlton, 385 F.2d at 242-43.
54 Treas. Reg. § 1.1031(k)-1(f)(1) (1960); see Redwing Carriers, Inc., 399 F.2d at 652 (holding that the sale of old trucks by the parent corporation and the purchase of new trucks by the subsidiary corporation “at or about” the same time was substantively an exchange); Rev. Rul. 61-119, 1961-1 C.B. 395 (finding that, with the application of the substance over form and step transaction doctrines, the sale of old equipment and the purchase of new equipment from the same dealer were reciprocal and mutually dependent, and therefore, were an exchange of property).
for the relinquished property to the exchange party seeking nonrecognition.\textsuperscript{56} Generally, multiple-party exchanges qualify for nonrecognition as long as the exchange party intends to and does receive like-kind property.\textsuperscript{57} The actual, or constructive, receipt of cash as consideration for the relinquished property by the exchange party will prevent I.R.C. section 1031 from applying to the transaction.\textsuperscript{58} With regard to a multiple-party exchange, the actual or constructive receipt of cash by the agent of the exchange party will also prevent I.R.C. section 1031 from applying to the transaction.\textsuperscript{59}

Originally, cases and rulings sanctioned two-party or multiple-party exchanges involving the \textit{simultaneous} exchange of real property.\textsuperscript{60} However, \textit{deferred} exchanges of like-kind property received judicial approval in \textit{Starker v. United States}.\textsuperscript{61} In \textit{Starker}, the taxpayer transferred real property to Crown Zellerbach, a publicly held corporation, for an “exchange balance” of $1.5 million.\textsuperscript{62} Within a five-year period, Crown Zellerbach was to use the exchange balance to acquire replacement real property as identified by the taxpayer, or pay any outstanding balance in cash.\textsuperscript{63} The court held that the transaction qualified under I.R.C. section 1031 on a showing that the taxpayer preferred replacement property to cash and only like-kind property was ultimately received.\textsuperscript{64}

Against this background, the government offers the explanation that a contract right to land is a ‘chose in

\textsuperscript{56} \textit{Id.} at 652. Title to the replacement property may be deeded directly to the exchange party. Treas. Reg. \textsection 1.1031(k)-1(g)(4)(iv)-(v). \textit{See} Biggs v. Comm’r, 632 F.2d 1171, 1177 (5th Cir. 1980) (holding that the intermediary is not required to take legal title to the replacement property); Rev. Rul. 90-34, 1990-1 C.B. 154 (finding that the failure of the facilitating party to acquire legal title to the replacement property does not disqualify the exchange from I.R.C. \textsection 1031).

\textsuperscript{57} \textit{See} Voelker, \textit{supra} note 55, at 561; Alderson v. Comm’r, 317 F.2d 790, 795 (9th Cir. 1963) (explaining that nonrecognition will result even though the original agreement provided for a sale of the relinquished property and a cash option if the replacement property could not be located). \textit{See} Rev. Rul. 57-244, 1957-1 C.B. 247 (holding that a “round-robin” transaction in which A transfers to B, B transfers to C, and C transfers to A property of like kind constitutes an exchange under I.R.C. \textsection 1031 for all three parties).

\textsuperscript{58} \textit{See} Carlton, 385 F.2d at 242; Rev. Rul. 77-297, 1977-2 C.B. 304; Treas. Reg. \textsection 1.1031(k)-1(f)(1).

\textsuperscript{59} \textit{See} Treas. Reg. \textsection 1.1031(b)-2 (1994) (providing safe harbors for the use of qualified intermediaries in simultaneous exchanges).

\textsuperscript{60} \textit{Bittker, ET. AL., supra} note 7, 30.02[4][b].

\textsuperscript{61} \textit{See} Starker v. United States, 602 F.2d 1341, 1352-53 (9th Cir. 1979).

\textsuperscript{62} \textit{Id.} at 1342-43.

\textsuperscript{63} \textit{Id.}

\textsuperscript{64} \textit{Id.} at 1355.
action,’ and thus personal property instead of real property. This is true, but the short answer to this statement is that title to real property, like a contract right to purchase real property, is nothing more than a bundle of potential causes of action: for trespass, to quite title, for interference with quiet enjoyment, and so on. The bundle of rights associated with ownership is obviously not excluded from section 1031; a contractual right to assume the rights of ownership should not, we believe, be treated any different than the ownership rights themselves. Even if the contract right includes the possibility of the taxpayer receiving something other than ownership of like-kind property, we hold that it is still of a like kind with ownership for tax purposes when the taxpayer prefers property to cash before and throughout the executory period, and only like-kind property is ultimately received.\textsuperscript{65}

In 1984, Congress responded to Starker by enacting I.R.C. section 1031(a)(3),\textsuperscript{66} which limits the time period for the identification and receipt of the replacement property in a deferred exchange.\textsuperscript{67} For the exchange to qualify, the replacement property must be identified within forty-five days of the date on which the relinquished property was transferred (identification period),\textsuperscript{68} and the replacement property

\textsuperscript{65} Id.
\textsuperscript{67} I.R.C. § 1031(a)(3) (2006); Treas. Reg. § 1.1031(k)-1 (2012). See Treas. Reg. § 1.1031(k)-1 (defining the term “deferred exchange” as follows: “[f]or the purposes of section 1031 and this section, a deferred exchange is defined as an exchange in which, pursuant to an agreement, the taxpayer transfers property held for productive use in a trade or business or for investment (the ‘relinquished property’) and subsequently receives property to be held for either productive use in a trade or business or for investment (the ‘replacement property’).”) I.R.C. § 1031(a)(3) has no application to “reverse-Starker exchanges,” i.e., exchanges where the replacement property is transferred, or “parked,” prior to the transfer of the relinquished property. Rev. Proc. 2000-37, 2000-2 C.B. 308, 309. See Rev. Proc. 2000-37, 2000-2 C.B. at 308 (providing a safe harbor under which the Internal Revenue Service will not challenge certain aspects of a reverse-Starker exchange).
\textsuperscript{68} I.R.C. § 1031(a)(3)(A); Treas. Reg. § 1.1031(k)-1(b), (c). The exchange party may identify three replacement properties of any value (3-property rule); any number of replacement properties that, in the aggregate, do not exceed twice the value of the property relinquished (200-percent rule); and any replacement property identified before the end of the identification period and received before the end of the exchange period if 95 percent of the value of the identified property is received before the end of the exchange period (95-percent rule). Any replacement property received by the exchange party before the end of the identification period qualifies. Treas. Reg. § 1.1031(k)-1(c)(4).
must be received not later than 180 days after the date of the transfer of relinquished property or, if earlier, the due date, including extensions, for the tax return for the taxable year in which relinquished property was transferred (exchange period). Again, the taxpayer may not be in actual or constructive receipt of cash. The Treasury Regulations provide several safe harbors that allow the exchange party to secure or guarantee the receipt of the replacement property without the actual or constructive receipt of cash: (1) security or guarantee arrangements; (2) qualified escrow accounts and qualified trusts; and (3) qualified intermediaries.

Although not restricted to exchanges of real property, the case law that sanctioned multiple-party exchanges, both simultaneous and deferred, involved exchanges of real property. As a consequence, Congress amended the I.R.C., and the Treasury Department amended the Treasury Regulations, to facilitate the use of I.R.C. section 1031 in the multiple-party exchanges of real property. Practically, the current difference between a sale and purchase of real property and the simultaneous or deferred exchange of real property is limited to the technicality of whether cash is actually or constructively received by the exchange party or deposited with an independent entity that carries out the instructions of the exchange party. As stated by one commentator:

> Although Congress originally was motivated by the liquidity burdens and valuation uncertainties that would result from treating the exchange of like-kind properties as a taxable event, those justifications did not survive the advent of deferred, multiparty exchanges. Because section 1031 now permits taxpayers to defer the recognition of gain from dispositions of property for cash provided they subsequently invest the cash proceeds in property of like kind (pursuant to a regulatory regime that simply suspends constructive receipt principles), concerns regarding access to liquid resources to finance the tax liability or the accurate measurement of realized gain ring hollow.

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69 I.R.C. § 1031(a)(3)(B); Treas. Reg. § 1.1031(k)-1(b), (d).
70 Treas. Reg. § 1.1031(k)-1(a), (f); Starker v. United States, 602 F.2d 1341, 1352 (9th Cir. 1979).
71 Treas. Reg. § 1.1031(k)-1(g). An interest or growth factor will not result in a determination that the exchange party is in actual or constructive receipt of cash. Id.
2.  **Like-Kind Property**

As used in I.R.C. section 1031(a), the term “like kind” refers to the “nature or character of the property and not to its grade or quality.”\(^{73}\) One kind or class of property may not . . . be exchanged for property of a different kind or class.\(^{74}\) The Treasury Regulations establish a very broad definition of like kind with regard to real property by stating that the fact that real property is improved or unimproved relates only to the grade or quality of the property and not to its kind or class.\(^{75}\) The examples in the Treasury Regulations include the exchange of city real property for a ranch or farm, and the exchange of a thirty-year leasehold in real property for a fee interest in real property.\(^{76}\) By contrast, the examples involving the exchange of personal property are much narrower in scope; a truck for a new truck and a passenger automobile for a new passenger automobile.\(^{77}\) In classifying property as real or personal property, the Internal Revenue Service will consider all facts and circumstances, including state law and federal tax law classifications.\(^{78}\)

The broad interpretation of the term “like kind” in the Treasury Regulations with regard to real property is reflected in cases and revenue rulings. For example, an exchange of a mineral interest in unimproved country land was held to be like kind to an interest in an improved city lot.\(^{79}\)

For the regulation and the interpretation under it, leave in no doubt that no gain or loss is realized by one, other

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\(^{73}\) Treas. Reg. § 1.1031(a)-1(b) (1960).

\(^{74}\) Id.

\(^{75}\) Id.

\(^{76}\) Treas. Reg. § 1.1031(a)-1(c). Real property located in the United States is not like kind with real property located outside the United States. I.R.C. § 1031(b)(1) (2006).

\(^{77}\) Treas. Reg. § 1.1031(a)-1(c). Personal property used predominantly within the United States is not like kind with property used predominantly outside the United States. I.R.C. § 1031(h)(2). The exchange of personal property for real property does not qualify as a like kind exchange. Rev. Rul. 72-151, 1972-1 C.B. 225. Depreciable tangible personal property in the same General Asset Class or the same Product Class are considered properties of like kind. Treas. Reg. § 1.1031(a)-2(b)(1)-(3). An exchange of intangible personal property or nondepreciable personal property must satisfy the like kind requirement based upon all of the facts and circumstances. Treas. Reg. § 1.1031(a)-2(c).


\(^{79}\) Comm’r v. Crichton, 122 F.2d 181 (5th Cir. 1941).
than a dealer, from an exchange of real estate for other real estate, and that the distinction intended and made by the statute is the broad one between classes and characters of properties, for instance, between real and personal property. It was not intended to draw any distinction between parcels of real property however dissimilar they may be in location, in attributes and in capacities for profitable use.\(^{80}\)

Regardless of how dissimilar,\(^{81}\) if the properties constitute an interest in real property, generally, cases and revenue rulings found the property to be of like kind.\(^{82}\) Examples include: a long-term leasehold interest in a building used in part by the corporate taxpayer for its retail operations, and in part subleased as office space for an identical leasehold in the retail portion of the building;\(^{83}\) undivided interests in three parcels held as tenants in common for undivided interests in one parcel;\(^{84}\) fee interest in golf course property for property subject to ninety-nine-year condominium leases;\(^{85}\) operating gold mines, including realty, for operating coal mines subject to supply contracts;\(^{86}\) and perpetual water rights for a fee interest in real property.\(^{87}\) All facts and circumstances must be considered, including state law and federal law classifications; nevertheless, state law classification of property as real property is not determinative as to whether the property is like kind under I.R.C. section 1031.\(^{88}\)

In *Peabody Natural Resources Co. v. Commissioner*,\(^ {89}\) the Tax

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\(^{80}\) *Id.* at 182.

\(^{81}\) *Id.*

\(^{82}\) J. MARTIN BURKE & MICHAEL K. FRIEL, TAXATION OF INDIVIDUAL INCOME 926 (10th ed. 2012).


\(^{85}\) Koch v. Comm’r, 71 T.C. 54, 54-56 (1978).

\(^{86}\) Peabody Natural Res. Co. v. Comm’r, 126 T.C. 261, 261-62 (2006). Although under New Mexico law the supply contracts were contracts to sell personal property, the supply contracts were servitudes on the real property, and therefore, were real property under the laws of New Mexico. *Peabody Natural Res. Co.*, 126 T.C. at 268-71.


\(^{89}\) *Peabody Natural Resources Co.*, 126 T.C. at 261.
Court stated the factors necessary in finding real property to be of like kind.

To decide whether an exchange is like kind within the meaning of section 1031(a), we must compare the exchanged properties to ascertain whether the nature and character of the transferred rights in and to the respective properties are substantially alike. We conclude that the real property interest status under New Mexico law of the TEPCO and WEF supply contracts is not determinative of whether those supply contracts constitute like-kind property as opposed to boot under section 1031. In making this comparison, consideration is to be given to the respective interests in physical properties, the nature of the title conveyed, the rights of the parties, the duration of the interests, and any other factor bearing on the nature or character of the properties as distinguished from their grade or quality.90

With the exception of interests restricted to the life of an individual, or a specified quantity or dollar value of production, cases and revenue rulings seemingly treat all property found to be real property under state law as a single class of property even though the exchange results in a dramatic change in the investment status of the taxpayer.91 One commentator remarked: “[s]ection 1031(a)(1) imposes a host of conditions for the exchange of properties to benefit from nonrecognition treatment. The most prominent condition is that the exchanged properties be of like kind, a standard that is remarkably liberal as applied to reality.”92

3. Holding Purpose

The rationale underlying I.R.C. section 1031 is that gain or loss should not be recognized if the property received in a like-kind exchange is essentially a continuation of the investment in the trade or business or investment asset relinquished.93 As a result, for an exchange to qualify for nonrecognition, the property transferred must have been “held” by the taxpayer for productive use in a trade or

90 Id. at 273.
91 BITTKER, ET. AL., supra note 7, ¶ 30.02[2][b].
92 Hellwig, supra note 72, at 639.
93 See supra Part III. A. (stating the rationale underlying the like-kind exchange provisions).
business or for investment, and the like-kind property received must be “held” either for productive use in a trade or business or for investment.94 Excluded from the like-kind provisions are stock-in-trade or property held primarily for sale by the taxpayer.95 The statute does not further define the holding purpose requirement, and the Treasury Regulations merely state, “[u]nproductive real estate held by one other than a dealer for future use or future realization of the increment in value is held for investment and not primarily for sale.”96

Two factors are relevant to the determination of whether the requisite holding purpose is met: (1) the taxpayer’s subjective intent, and (2) the length of time that the taxpayer used, or will use, the property for trade or business or investment purposes.97 First, whether property received satisfies the statutory holding intent requirement is determined based on the subjective intent of the taxpayer at the time of the exchange.98 The subjective intent of the taxpayer is a facts and circumstances determination,99 and the taxpayer has the burden of proof as to the primary intent for holding the properties.100 The purchase of property with the intent of relinquishing the property in an exchange or the immediate sale of property received in an

94 I.R.C. § 1031(a)(1) (2006). See also Treas. Reg. § 1.1031(a)-1(a) (1960) (explaining property held for productive use in a trade or business may be exchanged for like-kind property to be held for investment, and vice versa).
95 I.R.C. § 1031(a)(2)(A). See Neal T. Baker Enters., Inc. v. Comm’r, 76 T.C.M. 301, *7 (1998) (stating that the exception under I.R.C. § 1031(a)(1)(A) for property “held primarily for sale” is broader than the exception to the definition of “capital asset” under I.R.C. § 1221(a)(1), as the latter requires that the property be “held by the taxpayer primarily for sale to customers in the ordinary courses of his trade or business”); Neal T. Baker Enters., Inc., 76 T.C.M at *21 (finding that a corporate taxpayer that purchased undeveloped property, which it then subdivided and improved, acquired the property for development and, therefore, held the property primarily for sale).
96 Treas. Reg. § 1.1031(a)-1(b) (1960).
97 Burke & Friel, supra note 38, at 181.
98 Id. at 181-82.
99 Click v. Comm’r, 78 T.C. 225, 231 (1982). But see Rev. Rul. 57-244, 1957-1 C.B. 247 (finding that I.R.C. § 1031 applied to an exchange even though the relinquished undeveloped land was initially acquired by the taxpayers for the purpose of constructing personal residences and held for that purpose only for a short period of time before being retained for investment purposes).
100 See Bradley T. Borden & Alex Hamrick, Like-Kind Exchanges of Personal-Use Residences, 119 TAX NOTES 1256 (June 23, 2008).
101 Click, 78 T.C. at 231 (citing Regals Realty Co. v. Comm’r, 43 B.T.A. 194, 208 (1940)).
102 Id.
exchange does not satisfy the requirement that the property relinquished or received in a like-kind exchange be held for the productive use in a trade or business or for investment.

Second, although the requirement that properties be held for productive use in a trade or business or for investment suggests that the taxpayer must hold the properties for some appreciable period of time with the requisite purpose, the statute does not impose a formal holding period. Nevertheless, the length of time the property is held for productive use in business or for investment is significant as a factor probative to the intent of the taxpayer. The Internal Revenue Service has stated that renting the replacement property for at least two years after the exchange satisfies the statutory intent requirement, provided no other significant factors contradict the investment intent.

Whether property received in an exchange is held for productive use in a trade or business or for investment is based upon the intention of the taxpayer at the time of the exchange. Nevertheless, the holding purpose requirement of I.R.C. section 1031(a)(1) may be satisfied even though, at the time of the exchange, the taxpayer intended to gratuitously transfer the replacement property at a future date. In *Wagensen v. Commissioner*, the Tax Court held that the exchange of a ranch for a ranch and cash qualified for nonrecognition

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105 *Hellwig*, supra note 72, at 674. *But see* Bolker v. Comm’r, 760 F.2d 1039, 1041 (9th Cir. 1985) (focusing not on the intent to “keep” for the requisite purposes, but on the intent not to liquidate or to use for personal purposes). In 1989, Congress considered amending I.R.C. § 1031(a)(1) to require property to be held one year prior to an exchange in order to qualify for nonrecognition treatment; however, the final form of the legislation did not contain the one-year holding period requirement. *Hellwig*, supra note 72, at 635, n.42. The only holding period requirement imposed by I.R.C. § 1031 is the requirement that taxpayers in a related-party exchange each hold the replacement property for two years after the exchange in order to avoid gain recognition in the original exchange. I.R.C. § 1031(f) (2006).

106 *Burke & Friel*, supra note 38, at 190.

107 I.R.S. Priv. Ltr. Rul. 8429039 (Apr. 17, 1984). *See* Burke & Friel, supra note 38, at 181 (“[A] short holding period may provide strong proof of a lack of intent to hold the property for the required purposes of section 1031.”); *Hellwig*, supra note 72, at 643 (stating that the requisite holding purpose for at least one year prior to the exchange will satisfy the holding purpose requirement); Stefan F. Tucker, *The Like Kind Exchange: A Current Review*, William & Mary Law School Scholarship Repository, Aug. 21, 2003, at 4, available at http://scholarship.law.wm.edu/cgi/viewcontent.cgi?article=1133&context=tax (recommending that the relinquished property be held two years before the exchange with the requisite holding purpose).

108 *Click*, 78 T.C. at 231.

treatment despite the fact that the taxpayer intended to eventually transfer the ranch received in the exchange to his children, and did transfer the replacement ranch to his children ten months after the exchange.\footnote{Id. at 655-60.}

Holding that the exchange qualified under I.R.C. section 1031, the Tax Court in \textit{Wagensen} noted, “[o]ne of the primary purposes for allowing the deferral of gain in a like-kind exchange is to avoid imposing a tax upon a taxpayer who, while changing his form of ownership, is continuing the nature of his investment.”\footnote{Id. at 658 (citing Jordan Marsh Co. v. Comm’r, 269 F.2d 453, 455 (2d Cir. 1959)).} The Tax Court found that the taxpayer increased his ownership in ranch property as a result of the exchange and continued to search for additional ranch properties after the exchange.\footnote{Id. at 659.} The taxpayer did not initiate discussions with his accountants about the gift until after the exchange, and the ranch property acquired in the exchange was used in the taxpayer’s ranching business during the period between the exchange and the gift.\footnote{Id. at 659.} Although the taxpayer had discussed with his wife the possibility of transferring their ranch property to their children prior to the exchange, at no time prior to the announcement of the gift did the children have any indication that the gift would be made.\footnote{Id. at 656.} Finding that the taxpayer had no concrete plans to transfer the property to his children at the time of the exchange, the Tax Court held the exchange qualified under I.R.C. section 1031.\footnote{Id. at 656.} Further, the Tax Court noted that, if the taxpayer had gifted the relinquished property to his children prior to the exchange and the children then entered into the exchange, the exchange by the children would have qualified under I.R.C. section 1031 and, therefore, to hold otherwise would elevate form over substance.\footnote{Id.}

However, in \textit{Click v. Commissioner},\footnote{Click, 78 T.C. at 225.} the Tax Court held that the exchange by the taxpayer of investment farmland for two residences, a note, and cash, did not qualify for nonrecognition treatment under I.R.C. section 1031.\footnote{Id. at 228-34.} In \textit{Click}, seven months after the exchange, the

\footnote{Id. at 655-60.}
\footnote{Id. at 658 (citing Jordan Marsh Co. v. Comm’r, 269 F.2d 453, 455 (2d Cir. 1959)).}
\footnote{Id. at 659.}
\footnote{Id. at 659.}
\footnote{Id. at 656.}
\footnote{Id. at 656.}
\footnote{Id. at 656.}
\footnote{Id.}
\footnote{Click, 78 T.C. at 225.}
\footnote{Id. at 228-34.} Similarly, if the intent at the time of the exchange is to make a charitable contribution of the property received, the exchange will not qualify for nonrecognition treatment under I.R.C. \S\ 1031. Lindsley v. Comm’r, 47 T.C.M. (CCH) 540, 543 (1983).
taxpayer gifted the residences to her children who moved into them immediately after the exchange. 119 The Tax Court noted that a taxpayer’s intent to hold the property for investment must be determined at the time of the exchange and that the substance, rather than the form, of the transaction must be examined. 120 Distinguishing the facts of Wagensen, the Tax Court stated that a general desire to make a gift prior to the time of exchange is not inconsistent with the intent to hold the replacement property for productive use in a trade or business, or for investment. 121 However, in Click, the court found that the children themselves located the residences, the taxpayer was working on her estate plan when the idea for an exchange was formed, and the children insured and made improvements upon the residences. 122 As a result, the Tax Court found that the taxpayer did not have the requisite intent at the time of the exchange to hold the residences received in the exchange as investment property. 123 Nevertheless, in two cases the Ninth Circuit Court of Appeals held that an exchange qualified under I.R.C. section 1031, despite the fact that ownership was only transitory. 124 In Magneson v. Commissioner, 125 pursuant to a prearranged plan, the taxpayers exchanged real property and, on the same day, contributed the real property received to a partnership in exchange for a ten percent general partnership interest. 126 The contribution of replacement property to the partnership qualified for nonrecognition treatment under I.R.C. section 721. 127 The partnership intended to hold the contributed property for investment, and the assets of the partnership consisted predominantly of property of like kind to the property contributed by the taxpayers. 128 The Ninth Circuit Court of Appeals held that the initial like-kind exchange qualified for nonrecognition under I.R.C. section 1031, as the contribution to the partnership was a mere change in the form of the taxpayers’ investment, and not a liquidation of the taxpayers’ investment. 129

119 Click, 78 T.C. at 226-30.
120 Id. at 231.
121 Id. at 232.
122 Id. at 233.
123 Id. at 234.
124 Magneson v. Comm’r, 753 F.2d 1490 (9th Cir. 1985).
125 Id. See generally Burke & Friel, supra note 38, at 181 (providing an analysis of the statutory holding intent requirement and criticizing the Magneson and Bolkers decisions).
126 Magneson, 753 F.2d at 1492.
127 Id.
128 Id.
129 Id. Contra Rev. Rul. 75-292, 1975-2 C.B. 333 (holding that the statutory holding purpose was not satisfied because, immediately after the like-kind exchange

continued . . .
In Bolker v. Commissioner, the taxpayer, the sole shareholder of a corporation, received real property in the liquidation of the corporation pursuant to former I.R.C. section 333, which provided for nonrecognition of gain in a one-month liquidation. On the day of the corporate liquidation, the taxpayer contracted to exchange the real property received, and the exchange took place three months after the liquidation. Again, the Ninth Circuit Court of Appeals concluded that the taxpayer acquired the relinquished property without the intent to liquidate or use for personal purposes; therefore, the taxpayer held the property relinquished for productive use in a trade or business or for investment. Thus, the intent to exchange for like-kind property satisfied the holding requirement of I.R.C. section 1031(a)(1).

The court clarified its reasoning as follows:

The Commissioner’s position, in contrast, would require us to read an unexpressed additional requirement into the statute: that the taxpayer have, previous to forming the first intent to exchange one piece of property for a second parcel, an intent to keep the first piece of property indefinitely. We decline to do so. Rather, we hold that if a taxpayer owns property which he does not intend to liquidate or to use for personal pursuits, he is “holding” that property “for productive use in trade or business or for investment” within the meaning of section 1031(a)(1). Under this formulation, the intent to exchange property for like-kind property satisfies the holding requirement, it is not an intent to liquidate the investment or to use for

and pursuant to a prearranged plan, the taxpayer transferred the property received in the exchange to a corporation in a transaction that qualified for nonrecognition under I.R.C. § 351).

130 Bolker v. Comm’r, 760 F.2d 1039 (9th Cir. 1985). See generally Burke & Friel, supra note 38, at 181 (providing an analysis of the statutory holding intent requirement and criticizing the Magneson and Bolker decisions).


132 Bolker, 760 F.2d at 1041.

133 Id. at 1045.

134 Id. See also Maloney v. Comm’r, 93 T.C. 89 (1989) (holding that the statutory holding purpose was satisfied even though the taxpayer intended to distribute the replacement property in nontaxable liquidation of the corporation pursuant to former I.R.C. § 333). Contra Rev. Rul. 77-337, 1977-2 C.B. 305 (holding that the statutory holding purpose was not satisfied because, immediately after the nontaxable liquidation under former I.R.C. § 333, the taxpayer relinquished the property received upon the liquidation in a like-kind exchange).
personal pursuits.  

C. Exchange of Personal Residences—Recent Tax Court Cases

It is well established that the statutory holding requirement of I.R.C. section 1031(a)(1) is not satisfied if the property relinquished or acquired in an exchange is held solely for personal use.  

“It has long been the rule that use of property solely as a personal residence is antithetical to its being held for investment.”

In several recent cases, the Tax Court considered whether the requirement that the properties be held for productive use in a trade or business or for investment is met if the property was used as a personal residence either at the time of the exchange or immediately after the exchange. These cases illustrate the fact-intensive and burdensome process that courts and taxpayers must engage in when determining whether the holding purpose requirement is met for the application of I.R.C. section 1031. In Moore v. Commissioner, the Tax Court held that the property relinquished and the property received in the exchange did not constitute properties held for investment as required by I.R.C. section 1031(a)(1) because the primary intent of the taxpayers in holding the properties was personal use. In Moore, the issue of whether the anticipated appreciation in value of a second, or vacation, home is sufficient to establish investment intent was directly addressed by the courts for the first time. Taxpayers disposed of a residence and acquired a residence pursuant to a series of transactions structured to qualify as a deferred exchange under I.R.C. section 1031. Finding that the taxpayers used both properties frequently and exclusively for recreational purposes and never rented or attempted to rent either property, the Tax Court held that the mere expectation that a vacation home would increase in value is not enough to show the property was held primarily with investment intent. The court also

135 Bolker, 760 F.2d at 1045 (citations omitted).
137 Starker, 602 F.2d at 1351.
139 Id. at *12-13.
140 Ari Meltzer, Solving the Personal Use/Investment Dilemma for Like-Kind Exchanges: Moore v. Commissioner, 63 TAX LAW. 267, 267 (2009). See Borden & Hamrick, supra note 100, at 1260 (stating that the taxpayer’s nonrecognition position was aggressive given the law on exchanges of personal-use residences existing at the time of the exchange).
142 Id. at 3.
143 Id. at 10-11.
noted that the exclusive use of property as a residence by the owner contradicts any claim that the property is held for investment.\textsuperscript{144}

Consistent with prior case law, the Tax Court stated that, for the properties to be held for investment, the purpose or intent of the taxpayers at the time of exchange is determinative.\textsuperscript{145} The court accepted that one of the motives of the taxpayers in acquiring and holding the vacation homes was the prospect of appreciation resulting in profit on eventual sale; nevertheless, the court held that an investment motive must be the primary purpose of the taxpayer in holding the properties.\textsuperscript{146}

Petitioners argument, if carried to its logical extreme, is that the existence of any investment motive in holding a personal residence, no matter how minor a factor in the overall decision to acquire and hold (or simply to hold) property before its inclusion in an exchange of properties, will render it “property held for investment” with any gain on the exchange eligible for nonrecognition treatment under section 1031. Petitioners are mistaken.\textsuperscript{147}

Other than the expectation that the properties would appreciate in value,\textsuperscript{148} in Moore, the Tax Court found no evidence that the taxpayers held the properties for production of income, but found convincing evidence that the taxpayers and their family used the properties as vacation retreats.\textsuperscript{149} The properties were identified as second residences to the lender and were never held out for rent or primarily for sale at a profit.\textsuperscript{150} After the taxpayers changed their principal

\textsuperscript{144} Id. at 9 (citing Starker v. United States, 602 F.2d 1341, 1350-51 (9th Cir. 1999)). \textit{Contra} Meltzer, supra note 140, at 276-78 (stating that the court in Moore improperly relied on the \textit{Starker} decision to support its holding that property used primarily for personal use is per se inconsistent with property held for investment).

\textsuperscript{145} Moore, 2007 T.C.M. (CCH) at 9.

\textsuperscript{146} Id.

\textsuperscript{147} Id.

\textsuperscript{148} Id. at 3 (after suffering a loss as a result of a theft by their financial advisor, the taxpayers purchased the first vacation home at the suggestion of a family member as the properties on that lake had increased in value and were expected to continue to increase in value).

\textsuperscript{149} Id. at 26.

\textsuperscript{150} Id. The Tax Court, in Moore, also relied on cases deciding whether expenses incurred with respect to a personal residence are deductible under I.R.C. § 212(2), expenses incurred for the production of income, stating that listing property for immediate sale, or shortly after, its abandonment as a residence will ordinarily be strong evidence that a taxpayer did not hold the property for appreciation in value after the conversion from personal use. \textit{Id.} at 24-25 (citing Newcombe v. continued . . .
residence, thereby making the vacation home inconvenient for personal use, the condition of the vacation home was allowed to deteriorate until it was ultimately exchanged for a more accessible replacement vacation home. The replacement vacation home, which was closer to the taxpayers’ new principal residence, was not disposed of until required due to the need for liquidity, incidental to their divorce. Although substantial improvements were made to both properties, the improvements were consistent with enjoying the properties as vacation homes. Finally, with regard to the vacation homes, the taxpayers did not claim any tax deductions for maintenance expenses or depreciation, and claimed deductions for home mortgage interest rather than investment interest.

In Goolsby v. Commissioner, the Tax Court held that the taxpayers could not defer recognition of the entire gain realized upon the exchange of real property since the taxpayers could not prove their intent at the time of the exchange was to hold one of the replacement properties for productive use in a trade or business or for investment. In order for an exchange to qualify under I.R.C. section 1031, the burden of proof is on the taxpayer to prove that the requisite holding intent existed at the time of the exchange and that such intent was the primary motive for holding the exchanged properties. The court noted that the use of property solely as a personal residence is contrary to holding the property for use in a trade or business or for investment.

Goolsby constituted a deferred exchange, involving the exchange of a single-family residence held as investment property for two properties: a four-unit residential building and a single-family residence. Two months after the exchange, the taxpayers moved into the single-family residence. The Tax Court was not persuaded

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Commissioner, 54 T.C. 1298, 1302 (1970)).

151 Id. at 11.
152 Id. at 26.
153 Id. at 27.
154 Id. at 28.
156 A taxpayer’s intent to hold a property for productive use in a trade or business or for investment is a question of fact that must be determined at the time of the exchange. Id. at 8.
157 Goolsby, 99 T.C.M. (CCH) at 10.
158 Id. at 9.
159 Id.
160 Id.
161 Id. at 4.
162 Id. at 10. The Tax Court found that the taxpayers did not temporarily move into the single-family residence two months after the exchange until the tenants continued . . .
that the taxpayers intended to hold the replacement residence as investment property based on the following facts:  

1. The acquisition of the residence was made contingent on the sale of their personal residence;  
2. Advice was sought as to the tax consequences of occupying the residence if renters could not be found;  
3. Preparations were immediately begun to finish the basement of the residence;  
4. And, around the time of the exchange, the taxpayers’ personal residence was sold and the taxpayers began living with relatives.  

Significantly, prior to the exchange, the taxpayers failed to research rental opportunities or whether the covenant of the homeowners association would allow rental of the replacement residence, and, after the exchange, the taxpayers’ attempts to rent the replacement residence were minimal, consisting only of the placement of a single advertisement in a neighborhood newspaper.  

Thus, the court concluded that the taxpayers failed to meet their burden of proving that at the time of the exchange their primary purpose in holding the replacement residence was for investment or for productive use in a trade or business.

Conversely, in Reesink v. Commissioner, the Tax Court held that the single-family residence acquired by the taxpayers in a like-kind exchange was held for productive use in a trade or business or for investment even though the single-family residence was used as a personal residence eight months after the exchange. The taxpayers transferred a fifty percent interest in an apartment building for a single-family residence in a deferred exchange. Concluding that the single-family residence was held for investment at the time of the exchange, the Tax Court distinguished the facts and circumstances from those in Goolsby.

The taxpayers in Reesink posted flyers throughout the town, showed the replacement residence to potential tenants, and waited almost eight months before moving into the replacement residence.

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163 Id.
164 Id.
165 Id.
166 Id.
167 Id. at 12.
168 Id. at 11.
169 Id.
170 Reesink v. Comm’r, 103 T.C.M. (CCH) 1647 (2012).
171 Id. at 19.
172 Id. at 5-7. The husband held a fifty percent ownership interest in the apartment building with his brother. Id. at 3-4.
173 Id. at 16-19.
174 Id. at 16.
Unlike the taxpayers in *Goolsby*, the taxpayers did not decide to sell their personal residence until six months after acquiring the replacement residence.\(^{175}\) Although the taxpayers showed the replacement residence to potential tenants, the taxpayers would not reduce their monthly rental price as requested in order to secure a lease.\(^{176}\) The court found that the taxpayers were reasonable in their belief that the single-family residence should be rented for a rental amount sufficient to cover the cost associated with the property and, therefore, were reasonable in not reducing the rental price despite the loss of potential tenants.\(^{177}\) The Tax Court also noted that the taxpayers introduced credible testimony from several witnesses that the taxpayers did not intend to live in the replacement residence at the time of the exchange.\(^{178}\)

In *Adams v. Commissioner*,\(^{179}\) the Tax Court also held that the acquisition by the taxpayers of a single-family residence was for the requisite holding purpose within the meaning of I.R.C. section 1031(a)(1).\(^{180}\) *Adams* involved a deferred exchange in which the taxpayers disposed of a San Francisco residence that was used as rental property for approximately twenty-five years, and received a five-bedroom residence located in Eureka, California.\(^{181}\) In determining whether the taxpayer intended to hold the property acquired in the exchange for investment, the court considered the intent of the taxpayers at the time of the exchange\(^{182}\) and the conduct of the taxpayers before and after the exchange to inform the determination of the intent of the taxpayers.\(^{183}\) A real estate broker suggested to the taxpayers an exchange of the residences in order to reduce the potential income tax liability resulting from the intended sale of the San Francisco residence.\(^{184}\)

\(^{175}\) *Id.*

\(^{176}\) *Id.* at 8.

\(^{177}\) *Id.* at 18.

\(^{178}\) *Id.*. See *Yates v. Comm’r*, 105 T.C.M. (CCH) 1205 (2013) (holding that the taxpayers’ testimony and a provision in the sales contract were not sufficient to establish that the replacement property was to be used as a “bed and breakfast” and the failure of the taxpayers to submit any evidence regarding efforts to transform the property into a business enterprise establishes that no business motive existed, and the use of the property “as their personal residence, beginning a mere four days following the close of the sale, creates a clear presumption of nonbusiness intent, exceeding that of the taxpayers in either *Goolsby* or *Reesink*”).

\(^{179}\) *Adams v. Comm’r*, 105 T.C.M. (CCH) 1029 (2013).

\(^{180}\) *Id.* at 19.

\(^{181}\) *Id.* at 7.

\(^{182}\) *Id.* at 19 (citing *Click v. Comm’r*, 78 T.C. 225, 231 (1982)).

\(^{183}\) *Id.*

\(^{184}\) *Id.* at 4.
The taxpayers’ son, who had extensive homebuilding and home renovation experience, lived in Eureka with his large family, and he and his family immediately moved into and began renovating the replacement residence, which was old, dilapidated, moldy, and required extensive work to be livable. In lieu of monetary rent, the son and his family worked an aggregate sixty hours of work a week on the replacement residence for the first three months after the exchange, with such services being worth $3,600. The taxpayers’ son and his family then began paying monetary rent of $1,200 a month, which was a few hundred dollars less than similar houses rented in the neighborhood. Even though the taxpayers chose the replacement residence because their son and his family lived in Eureka and the house suited the son’s large family, the court found that the taxpayers did not intend to charge their son below-market rent. The Tax Court determined that the monthly rent of $1,200 was a fair rental because the son and his family assumed substantial responsibilities for renovating, maintaining, and repairing the replacement residence.

IV. Exclusion of Gain on the Disposition of a Principal Residence Under I.R.C. section 121

A. Mechanics of I.R.C. section 121

The I.R.C. does contain tax preferences that specifically apply to personal residences. Generally, I.R.C. section 121 allows a taxpayer to exclude up to $250,000 of the gain on the sale or exchange of a principal residence. This provision relieves a perceived hardship, facilitates the replacement of a principal residence, and also allows taxpayers a tax-free source of consumption. To qualify for the exclusion, the taxpayer must have owned and used the residence as a principal residence for a period aggregating two years of the five-year period preceding the sale or exchange. Gain from the sale or exchange of a principal residence may be excluded only if the

185 Id. at 5.
186 Id.
187 Id.
188 Id.
189 Id. at 6.
190 Id.
191 Id. at 19-20.
192 Id. at 20.
194 MCDANIEL, MCMAHON, JR., SIMMONS & POLSKY, supra note 55, at 233.
195 I.R.C. § 121(a).
taxpayer has not claimed an exclusion within the preceding two-year period.\textsuperscript{196}

To qualify for the exclusion under I.R.C. section 121, the taxpayer must have \textit{owned} and \textit{used} the residence as a principal residence for a period aggregating two of the five years prior to the sale or exchange.\textsuperscript{197} The term “residence” is broadly interpreted to include a house boat, house trailer, and stock in a cooperative housing unit, but does not include personal property that is not a fixture under local law.\textsuperscript{198} A residence can include surrounding acreage, if the surrounding acreage is not used for business or profit.\textsuperscript{199} To satisfy the two-year use requirement, occupancy is required; however, temporary absences, such as for vacations or other seasonal absences, are counted as periods of use even if the residence is rented.\textsuperscript{200} Thus, as long as the residence is used as a principal residence for an aggregate two-year period within the five-year period preceding the sale or exchange, the residence can be used as rental property at the time of sale or exchange.\textsuperscript{201}

Further, the residence must have been used as the \textit{principal} residence of the taxpayer for an aggregate period of two years during

\textsuperscript{196}I.R.C. § 121(b)(3).
\textsuperscript{197}I.R.C. § 121(a); Treas. Reg. § 1.121-1(a), -1(c)(1) (as amended in 2002). The requirements of ownership and use can be satisfied during nonconcurrent periods. Treas. Reg. § 1.121-1(c)(1) (as amended in 2002). \textit{See generally} I.R.C. § 121(d)(2) (allowing an unmarried individual to include the period a deceased spouse owned and used the residence); I.R.C. § 121(d)(3)(A) (allowing an individual, who receives a residence pursuant to I.R.C. § 1041 (transfers during marriage or incident to a divorce), to include the period the transferor owned and used the residence); I.R.C. § 121(d)(3)(B) (allowing an individual, whose former spouse is granted use of the residence under a divorce or separation instrument (as defined in I.R.C. § 71(b)(2)), to include the period the former spouse used the residence); I.R.C. § 121(d)(7) (allowing an individual, who is physically or mentally incapable of self-care, to include any period during the five-year period the individual is in a licensed health care facility if such individual owned and used the residence for one year); I.R.C. § 121(d)(9), (12) (suspending the five-year period for up to ten years for extended duty as a member of the uniformed service, the intelligence community, or the Peace Corps).
\textsuperscript{198}Treas. Reg. § 1.121-1(b)(1) (as amended in 2002).
\textsuperscript{199}Treas. Reg. § 1.121-1(c)(1) (as amended in 2002) (explaining that only the portion of the gain attributed to the residential use is excludable under I.R.C. § 121). \textit{See also} Lokan v. Comm’r, 39 T.C.M. (CCH) 168 (1979) (holding that the acres used in the taxpayer’s business of farming was not included as part of the principal residence).
\textsuperscript{200}Treas. Reg. § 1.121-1(c)(2) (as amended in 2002). \textit{See also} Gates v. Comm’r, 135 T.C. 1 (2010) (holding that the taxpayer’s principal residence did not meet the use requirement as the taxpayer did not occupy the residence after demolition and reconstruction).
\textsuperscript{201}Treas. Reg. § 1.121-1(c)(4), Ex. 1 (as amended in 2002).
the preceding five-year period.\footnote{202} If a taxpayer owns more than one residence, whether a residence is used as the taxpayer’s principal residence is determined by examining all of the facts and circumstances.\footnote{203} If the taxpayer alternates between two residences, the property that the taxpayer uses the majority of the time during the year will ordinarily be considered the taxpayer’s principal residence.\footnote{204} Other relevant factors in determining which residence is the taxpayer’s principal residence include: place of employment; principal abode of family members; address listed on tax returns, driver’s license, and automobile and voter registration; mailing address for bills and correspondence; location of banks; and location of religious organizations and recreational clubs.\footnote{205}

If the taxpayer meets the ownership and use requirements and has not excluded gain under I.R.C. section 121 within the preceding two years, the taxpayer may exclude from gross income a maximum of a $250,000 gain on the sale or exchange of the taxpayer’s principal residence.\footnote{206} If the principal residence is owned by two or more taxpayers, each taxpayer may exclude from gross income up to $250,000 gain attributable to the taxpayer’s interest in the residence.\footnote{207} Married taxpayers, whether filing jointly or not, may each exclude up to $250,000 gain on the sale or exchange of jointly owned or community property.\footnote{208} Nevertheless, if only one spouse owns the residence but both spouses use the residence as a principal residence for the requisite period, an exclusion of gain up to $500,000 is permitted on a joint return.\footnote{209}

**Example:** A married couple holds title to a residence as joint tenants or community property. The couple owned and used the residence as a principal residence

\footnote{202}{\textit{I.R.C.} $\S$ 121(a) (2006).}
\footnote{203}{Treas. Reg. $\S$ 1.121-1(b)(2) (as amended in 2002).}
\footnote{204}{Id.}
\footnote{205}{Id. \textit{See also} Guinan v. U.S., 91 A.F.T.R.2d 2003-2174 (D. Ariz. 2003) (applying the majority-of-the-time test and other relevant factors in determining which of taxpayer’s residences was the taxpayer’s principal residence).}
\footnote{206}{I.R.C. $\S$ 121(b)(1).}
\footnote{207}{Treas. Reg. $\S$ 1.121-2(a)(2) (as amended in 2002).}
\footnote{208}{I.R.C. $\S$ 121 (b)(2)(B); McDaniel, McMahon, Jr., Simmons, & Polsky, \textit{supra} note 55, at 228.}
\footnote{209}{I.R.C. $\S$ 121(b)(2)(A); Treas. Reg. $\S$ 1.121-2(a)(3) (as amended in 2002). The non-owner spouse cannot have used the exclusion under I.R.C. $\S$ 121 within the two years prior to the sale or exchange. I.R.C. $\S$ 121(b)(2)(A)(iii); Treas. Reg. $\S$ 1.121-2(a)(3) (as amended in 2002). An unmarried individual may exclude $500,000 of gain if the sale or exchange occurs not more than two years after the death of the individual’s spouse and the requirements of I.R.C. $\S$ 121(b)(2)(A) were met immediately before such death. I.R.C. $\S$ 121(b)(4).}
for a period aggregating two years during the five-year period prior to sale. If the gain on the sale of the principal residence is $800,000, the couple will only include $300,000 in income ($800,000 minus $500,000 ($250,000 exclusion amount x 2)). If title is held in the name of only one spouse and the couple files a joint return, again, the couple will only include $300,000 in income ($800,000 minus $500,000 exclusion amount).

Gain allocable to periods of nonqualified use of the residence is not excludable from gross income under I.R.C. section 121.\textsuperscript{210} The term “period of nonqualified use” means any period, after January 1, 2009, during which the residence is not used as the principal residence of the taxpayer or the taxpayer’s spouse or former spouse.\textsuperscript{211} The exceptions include any portion of the five-year period preceding the date of the sale or exchange after the last date the property was used as a principal residence.\textsuperscript{212} The gain allocable to the period of nonqualified use is determined by the ratio which the aggregate periods of nonqualified use during the taxpayer’s ownership of the residence bears to the period the taxpayer owned the property.\textsuperscript{213}

\textbf{Example:} Taxpayer, an unmarried individual, owned a residence from January 1, 2006, to December 31, 2013, which she sold for $200,000 gain. The residence was used as rental property from January 1, 2006 until December 31, 2010, and used as a principal residence from January 1, 2010, until its sale on December 31, 2013. Taxpayer has two years of nonqualified use (January 1, 2009 until December 31, 2010) and eight years of ownership. Of the $200,000 gain that would otherwise have been excluded from income, Taxpayer

\begin{footnotesize}
\begin{itemize}
\item \textsuperscript{210} I.R.C. § 121(b)(4)(5)(A),(B) (due to an error in the official code, (4)(5) will be used to refer to the second section (4) in the I.R.C. § 121(b) cites).
\item \textsuperscript{211} I.R.C. § 121(b)(4)(5)(C)(i).
\item \textsuperscript{212} I.R.C. § 121(b)(4)(5)(C)(ii)(I). The exceptions also include any period, not exceeding ten years, the taxpayer or the taxpayer’s spouse is serving on qualified official extended duty as a member of the armed forces, as a Foreign service officer, or as an employee of the intelligence community, or any period of temporary absence because of a change in employment, health condition, or other unforeseen circumstance. I.R.C. § 121(b)(4)(5)(C)(ii)(II), (III).
\item \textsuperscript{213} I.R.C. § 121(b)(4)(5)(C). To the extent the taxpayer was allowed depreciation deductions during the rental period, the gain allocable to the depreciation is not excluded from income. I.R.C. § 121(d)(6). The nonqualified use provision is applied after I.R.C. § 121(d)(6), and the allocation of gain to the period of nonqualified use is made without regard to I.R.C. § 121(d)(6). I.R.C. § 121 (b)(4)(5)(D).
\end{itemize}
\end{footnotesize}
will include $50,000 ($250,000 x 25% (2 years of nonqualified use ÷ 8 years of ownership)).

The exclusion of gain by a taxpayer under I.R.C. section 121 is allowed only once in a two-year period. Even though the taxpayer fails to meet the two-year ownership and use requirements or the once in two-years limitation, some or all of the gain may be excluded if the sale or exchange of the principal residence occurs by reason of an unforeseen circumstance. A facts and circumstances determination is made as to whether the primary reason for the sale or exchange was a change in employment, health, or other unforeseen circumstance. The Treasury Regulations provide several safe harbors in establishing the taxpayer’s primary reason for the sale or exchange: (1) a distance safe harbor by reason of change in employment; (2) a physician’s recommendation safe harbor by reason of a change in health; and (3) a specific event safe harbor by reason of unforeseen circumstances. If the exception to the “once every two-years” requirement applies, the amount of gain excludable is a fraction of the maximum exclusion amount of $250,000, or $500,000 in the case of a joint return. The maximum exclusion amount is multiplied by a fraction: the numerator of which is the shorter of (1) the aggregate periods within the preceding five-year period that the taxpayer owned and used the residence as a principal residence, or (2) the period from the most recent sale or exchange to which the exclusion applied, and the denominator of which is two years.

**Example:** Taxpayer, an unmarried individual, purchased a home on January 1, 2012, which she used as her principal residence. Twelve months later, she sells her principal residence for health reasons as recommended by a physician, realizing a $350,000 gain. Taxpayer has not excluded gain under I.R.C. section 121 within the prior two years. On the sale of

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214 I.R.C. § 121(b)(3)(A); Treas. Reg. § 1.121-2(b) (as amended in 2002). A taxpayer may elect not to have I.R.C. § 121 apply to the sale or exchange of a principal residence. I.R.C. § 121(f).
215 I.R.C. § 121(c)(2)(B).
216 I.R.C. § 121(c)(2)(B); See Treas. Reg. § 1.121-3(b) (as amended in 2002) (listing relevant factors to be considered in a fact and circumstances determination).
217 Treas. Reg. § 1.121-3(c)-(e) (as amended in 2002). The facts and circumstance determination and the safe harbors are applied with regard to a “qualified individual,” which includes individuals in addition to the taxpayer. Treas. Reg. § 1.121-3(f) (as amended in 2002).
218 I.R.C. § 121 (c)(1); Treas. Reg. § 1.121-3(g) (as amended in 2002).
219 I.R.C. § 121 (c)(1); Treas. Reg. § 1.121-3(g) (as amended in 2002).
her principal residence, Taxpayer may exclude up to $125,000 gain ($250,000 x 50% (12 months ÷ 24 months)). As a result, Taxpayer will include in income $225,000 gain ($350,000 gain minus $125,000 exclusion amount) from the sale of her principal residence.

If the principal residence was used in part for business purposes, either as a rental or a home office under I.R.C. section 280A, 220 I.R.C. section 121 may apply to the sale or exchange of the residence if the ownership and use requirements are met. 221 The Treasury Regulations require an allocation of gain if the residential use and nonresidential use of the property are not within the same dwelling unit, with only the gain allocable to the residential portion of the property excluded under I.R.C. section 121. 222 The allocation of gain is not necessary if the residential and nonresidential use is within the same dwelling unit. 223 Nevertheless, any gain attributable to depreciation deductions taken, and not appreciation in value, is not excludable from gross income under I.R.C. section 121. 224

Example: Prior to sale, Taxpayer, an unmarried individual, owned a residence for five years. For the first three years of ownership, Taxpayer used the residence as a principal residence and, for the last two years of ownership, Taxpayer used the dwelling unit as rental property. During the latter period, Taxpayer took $20,000 of depreciation deductions with respect to the property. Taxpayer’s gain on the sale of the residence is $200,000. Only $180,000 ($200,000 gain realized minus $20,000 depreciation taken) of gain may be excluded from income under I.R.C. section 121.

I.R.C. section 121 provides a mechanism for combining the exclusion of gain with the nonrecognition of gain pursuant to I.R.C.

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220 See discussion infra Part V. (examining the tax treatment of a residence that is used in part for the production of income under I.R.C. § 280A).
221 Treas. Reg. § 1.121-1(e) (as amended in 2002).
222 Id. Allocation based on the square footage of the residential and nonresidential portions of the dwelling unit is an appropriate method of allocating basis and amount realized. Poague v. United States, 947 F.2d 942 (4th Cir. 1991).
224 I.R.C. § 121(d)(6); Treas. Reg. § 1.121-1(d), (e)(1) (as amended in 2002). I.R.C. § 121 does not apply to gain that does not exceed the depreciation adjustments taken after May 6, 1997. I.R.C. § 121(d)(6); Treas. Reg. § 1.121-1(d) (as amended in 2002).
section 1033. Generally, under I.R.C. section 1033, at the election of the taxpayer, gain realized on the involuntary conversion of property into money is recognized only to the extent the amount realized on the conversion exceeds the cost of replacement property. An involuntary conversion of property includes “destruction in whole or in part, theft, seizure, or requisition or condemnation or threat or imminence thereof.” In order to defer gain under I.R.C. section 1033, the replacement property must be “similar or related in service or use” to the converted property. The basis of the replacement property is calculated as the cost of the replacement property reduced by the amount of gain not recognized on the involuntary conversion.

In applying I.R.C. section 1033 to the involuntary conversion of a principal residence, I.R.C. section 121 treats the involuntary conversion as a sale. The amount realized from the involuntary conversion for the purpose of applying I.R.C. section 1033 is reduced by the amount of gain excluded under I.R.C. section 121. The computation to apply the involuntary conversion rules under I.R.C. section 1033 is as follows: (1) the amount of gain excluded under I.R.C. section 121 reduces the amount of the gain realized for the purposes of I.R.C. section 1033; (2) for purposes of determining the amount of realized gain that may be deferred under I.R.C. section 1033, the I.R.C. section 121 exclusion is applied first against amounts received that are not reinvested in property similar or related in service or use; and finally, (3) the gain excluded under I.R.C. section 121 is added in the calculation of the taxpayer’s basis in the replacement property.

Example: Taxpayer’s residence is destroyed by fire in January of the current year. The residence had a basis of $200,000. Taxpayer, a single individual, had owned

\[225\] I.R.C. § 121(d)(5).
\[228\] I.R.C. § 1033(a). See Rev. Rul. 64-237, 1964-2 C.B. 319 (describing the “similar or related in service or use” standard as applied to owner-users of property and investor-lessees of property).
\[229\] I.R.C. § 1033(b)(2).
\[230\] I.R.C. § 121(d)(5)(A).
\[231\] I.R.C. § 121(d)(5)(B).
\[232\] Id.; Treas. Reg. § 1.121-4(d) (as amended in 2002); Rev. Proc. 2005-14 § 2.09, 2005-1 C.B. 528. The taxpayer will be treated as owning and using the new residence as her principal residence for the periods she owned and used the converted residence as her principal residence. I.R.C. § 121(d)(5)(C).
and used the house as her principal residence for ten years prior to the fire. Taxpayer’s insurance company pays her $800,000 for the destruction of the residence. On the involuntary conversion, Taxpayer realized $600,000 gain ($800,000 amount realized minus $200,000 basis). By the end of the current year, Taxpayer used $700,000 of the insurance proceeds to construct a new principal residence on the same property. For the purposes of I.R.C. section 121, the destruction of the residence is treated as a sale; therefore, Taxpayer may exclude $250,000 of the realized gain from her income. For the purposes of I.R.C. section 1033, Taxpayer’s amount realized is $550,000 ($800,000 amount realized reduced by the $250,000 exclusion amount) and realized gain is $350,000 ($550,000 amount realized minus $200,000 basis). As Taxpayer invested an amount equal to or greater than the amount realized of $550,000 in the construction of the new principal residence, Taxpayer may elect to defer recognition of the $350,000 realized gain under I.R.C. section 1033. Taxpayer’s basis in the new principal residence is $350,000 ($700,000 cost of the new principal residence minus the $350,000 unrecognized gain).

B. Revenue Procedure 2005-14—Integration of I.R.C. sections 121 and 1031

Congress enacted I.R.C. section 121(d)(10) because it was concerned that taxpayers might exchange real property held for production of income for residential rental property, and then convert the received residential rental property into a principal residence, ultimately excluding the gain on a later sale of the principal residence pursuant to I.R.C. section 121 that was earlier deferred pursuant to I.R.C. section 1031. Under this provision, the taxpayer may not exclude gain under I.R.C. section 121 if the principal residence was acquired in a like-kind exchange within the five-year period preceding the date of the sale or exchange. By effectively increasing the

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235 I.R.C. § 121(d)(10). This section applies to the taxpayer who received the
minimum holding period for property acquired in a like-kind exchange, Congress reduced the potential tax shelter created by combining the non-recognition section with the exclusion section\textsuperscript{236}. Conversely, a taxpayer who has used a residence both for personal and business purposes, either consecutively or concurrently, and who disposes of the property in a like-kind exchange, may exclude gain under I.R.C. section 121 and defer recognition of the balance of the gain under I.R.C. section 1031. Revenue Procedure 2005-14\textsuperscript{237} provides guidance on the application of I.R.C. sections 121 and 1031 to a single exchange of property that meets the requirements for both gain exclusion and non-recognition.\textsuperscript{238} For Revenue Procedure 2005-14 to apply, the taxpayer must exchange property that qualifies as the taxpayer’s principal residence under I.R.C. section 121 and also satisfies the statutory holding purpose of I.R.C. section 1031(a)(1), requiring both the relinquished property and the replacement property be held for productive use in a trade or business or for investment\textsuperscript{239}.

Similar to the integration of I.R.C. sections 121 and 1033,\textsuperscript{240} I.R.C. section 121 is applied before I.R.C. section 1031.\textsuperscript{241} For the computation of gain, the rules are as follows: (1) the amount of gain excluded under I.R.C. section 121 reduces the amount of gain realized for the purposes of I.R.C. section 1031; (2) under I.R.C. section 121(d)(6), the I.R.C. section 121 exclusion does not apply to gain attributable to depreciation deductions taken, after May 6, 1997, with respect to the business use of the residence, however, such gain may be deferred under I.R.C. section 1031; and (3) in applying I.R.C. section 1031, gain realized in exchange is recognized only to the extent the boot received exceeds the amount of the gain excluded under I.R.C. section 121.\textsuperscript{242} In determining the basis of the property received, any gain excluded under I.R.C. section 121 is treated as gain recognized and, therefore, is added to the taxpayer’s basis of the property received in the exchange.\textsuperscript{243}

\textsuperscript{238} Id. at 528-29.
\textsuperscript{239} Id.
\textsuperscript{240} See supra text accompanying notes 225-32 (examining the application of I.R.C. § 121 and I.R.C. § 1033 to the involuntary conversion of a principal residence).
\textsuperscript{242} Id.
\textsuperscript{243} Id.
Revenue Procedure 2005-14 includes six examples that illustrate the application of the above computational rules.\footnote{Id. at 529-30.} All of the examples assume that the taxpayer is an unmarried individual and has met the statutory requirements of I.R.C. sections 121 and 1031.\footnote{Id.} The examples are summarized as follows:

**Example #1:** Taxpayer purchased a residence for $210,000 that Taxpayer used as a principal residence for the first four years of ownership and then rented to tenants for the final two years of ownership. Taxpayer claimed depreciation deductions of $20,000 for the period of business use. Taxpayer exchanges the residence for $10,000 cash (boot) and a townhouse with a value of $460,000 that Taxpayer intends to rent to tenants. On the exchange, Taxpayer realizes $280,000 gain ($470,000 amount realized ($460,000 value of townhouse plus $10,000 cash) minus $190,000 adjusted basis ($210,000 cost minus $20,000 depreciation deductions)). Of the $280,000 gain realized, Taxpayer may exclude $250,000 under I.R.C. section 121 before applying the nonrecognition rules of I.R.C. section 1031. Under I.R.C. section 1031, Taxpayer may defer the remaining $30,000 of realized gain, including the $20,000 gain attributable to depreciation taken. Although Taxpayer received $10,000 cash, Taxpayer does not recognize $10,000 of the realized gain as the boot received does not exceed the amount of the gain excluded under I.R.C. section 121. Under I.R.C. section 1031, Taxpayer’s basis in the townhouse is $430,000 ($190,000 adjusted basis in the relinquished property plus $250,000 gain excluded minus $10,000 cash received).\footnote{Id. at 530.}

**Example #2:** Taxpayer purchased property for $210,000, consisting of a residence and a guesthouse. For the five-year period that Taxpayer owned the property, Taxpayer used the residence as a principal residence and the guesthouse as an office in Taxpayer’s business. Based on the square footage of the respective parts of the property, Taxpayer allocated two-thirds of the basis of the property to the residence and one-third

\footnote{Id. at 529-30.}
\footnote{Id.}
\footnote{Id. at 530.}
of the basis of the property to the guesthouse. Taxpayer claimed depreciation deductions of $30,000 for the business use of the guesthouse. Taxpayer exchanges the property for a dwelling unit that Taxpayer intends to use as a personal residence and a property that Taxpayer intends to use as an office in Taxpayer’s business. The total value of the replacement properties is $360,000. The value of the replacement residence is $240,000 and the value of the replacement business property is $120,000, which is equal to the value of the guesthouse. Taxpayer realizes a gain of $180,000 on the exchange. Under I.R.C. section 121, Taxpayer may exclude $100,000 of the realized gain attributable to the residential portion of the relinquished property ($240,000 amount realized ($360,000 total amount realized x 2/3) minus $140,000 basis ($210,000 total basis x 2/3)). However, none of the realized gain attributable to the exchange of the guesthouse is excludable under I.R.C. section 121 as the guesthouse is a separate structure that does not meet the requirements of I.R.C. section 121. Nevertheless, because the value of the replacement business property is equal to the value of the guesthouse and Taxpayer receives no boot, Taxpayer may defer the remaining realized gain of $80,000 ($120,000 amount realized ($360,000 total amount realized x 1/3) minus $40,000 adjusted basis (($210,000 total basis x 1/3) minus $30,000 depreciation deductions). Taxpayer’s basis in the replacement residential property is $240,000, which is the value of the replacement residential property at the time of the exchange. Because no portion of the realized gain attributed to the guesthouse is excluded under I.R.C. section 121, and Taxpayer receives no boot and recognizes no gain in the exchange, Taxpayer’s basis in the replacement business property is $40,000, which is Taxpayer’s adjusted basis of the guesthouse at the time of the exchange.\textsuperscript{247}

\textbf{Example #3:} Taxpayer purchased property for $210,000, consisting of a single dwelling unit. For the five-year period that Taxpayer owned the property, based on the square footage of the respective parts of

\textsuperscript{247} \textit{Id.}
the dwelling unit, Taxpayer used the dwelling unit two-thirds as Taxpayer’s principal residence and one-third as a home office in Taxpayer’s business. Taxpayer claimed depreciation deductions of $30,000 for the business use of the dwelling unit. The Taxpayer exchanges the dwelling unit for a property that Taxpayer intends to use as a personal residence and a property that Taxpayer intends to use as an office in Taxpayer’s business. The total value of the replacement properties is $360,000. The value of the replacement residence is $240,000 and the value of the replacement business property is $120,000, which is equal to the value of the business portion of the dwelling unit. Taxpayer realizes gain of $180,000 on the exchange. Under I.R.C. section 121, Taxpayer may exclude $100,000 of the realized gain attributable to the residential portion of the dwelling unit ($240,000 amount realized ($360,000 total amount realized x 2/3) minus $140,000 basis ($210,000 total basis x 2/3)). The remaining realized gain of $80,000 ($120,000 amount realized ($360,000 total amount realized x 1/3) minus $40,000 adjusted basis (($210,000 total basis x 1/3) minus $30,000 depreciation deductions) is attributable to the business portion of the dwelling unit. As to the remaining $80,000 of realized gain, I.R.C. section 121 applies before the nonrecognition rules of I.R.C. section 1031. Under I.R.C. section 121, Taxpayer may exclude $50,000 of the realized gain attributable to the business portion of the dwelling unit because the residential use and nonresidential use are within the same structure. Under I.R.C. section 121, Taxpayer may not exclude the remaining $30,000 gain attributable to depreciation deductions, but may defer the $30,000 gain under I.R.C. section 1031. Taxpayer’s basis in the replacement residential property is $240,000, which is the value of the replacement residential property at the time of the exchange. Taxpayer’s basis in the replacement business property is $90,000 ($40,000 adjusted basis in the business portion of the dwelling unit plus $50,000 gain excluded). ²⁴⁸

²⁴⁸ Id. at 530-31.
**Example #4:** The facts are the same as Example #3 except that Taxpayer receives $10,000 cash (boot) and replacement business property with a value of $110,000 in exchange for the business portion of the dwelling unit, with a value of $120,000. Taxpayer realizes gain of $180,000 on the exchange. Under I.R.C. section 121, Taxpayer may exclude $100,000 of the realized gain attributable to the residential portion of the dwelling unit ($240,000 amount realized ($360,000 total amount realized x 2/3) minus $140,000 basis ($210,000 total basis x 2/3)). The remaining realized gain of $80,000 ($120,000 amount realized ($360,000 total amount realized x 1/3) minus $40,000 adjusted basis ($210,000 total basis x 1/3) minus $30,000 depreciation deductions) is attributable to the business portion of the dwelling unit. As to the remaining $80,000 of realized gain, I.R.C. section 121 applies before the nonrecognition rules of I.R.C. section 1031. Under I.R.C. section 121, Taxpayer may exclude $50,000 of the realized gain attributable to the business portion of the dwelling unit because the residential use and nonresidential use are within the same structure. Taxpayer may not exclude the remaining $30,000 gain attributable to depreciation deductions under I.R.C. section 121, but may defer the $30,000 gain under I.R.C. section 1031. Although Taxpayer received $10,000 of cash, Taxpayer does not recognize $10,000 of the realized gain, as the boot received does not exceed the amount of the gain excluded under I.R.C. section 121. Taxpayer’s basis in the replacement residential property is $240,000, which is the value of the replacement residential property at the time of the exchange. Taxpayer’s basis in the replacement business property is $80,000 ($40,000 basis in the business portion of the dwelling unit plus $50,000 gain excluded minus $10,000 cash).

**Example #5:** The facts are the same as Example #3 except that the total value of the replacement properties is $540,000. The value of the replacement residence is $360,000, and the value of the replacement business property is $180,000. Taxpayer realizes gain of

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249 Id. at 531.
$360,000 on the exchange. Under I.R.C. section 121, Taxpayer may exclude $220,000 of the realized gain attributable to the residential portion of the dwelling unit ($360,000 amount realized ($540,000 total amount realized x 2/3) minus $140,000 basis ($210,000 total basis x 2/3)). The remaining realized gain of $140,000 ($180,000 amount realized ($540,000 total amount realized x 1/3) minus $40,000 adjusted basis (($210,000 total basis x 1/3) minus $30,000 depreciation deductions) is attributable to the business portion of the dwelling unit. As to the remaining $140,000 of realized gain, I.R.C. section 121 applies before the nonrecognition rules of I.R.C. section 1031. Under I.R.C. section 121, Taxpayer may exclude $30,000 of the realized gain attributable to the business portion of the dwelling unit, at which point Taxpayer excluded the maximum exclusion amount of $250,000 ($220,000 plus $30,000). Under I.R.C. section 1031, Taxpayer may defer the remaining realized gain of $110,000 ($140,000 realized gain minus $30,000 gain excluded), including the $30,000 gain attributable to depreciation deductions. Taxpayer’s basis in the replacement residential property is $360,000, which is the value of the replacement residential property at the time of the exchange. Taxpayer’s basis in the replacement business property is $70,000 ($40,000 basis in the business portion of the dwelling unit plus $30,000 gain excluded).\textsuperscript{250}

\textbf{Example #6:} The facts are the same as Example #3 except that the total value of the replacement properties is $750,000. The value of the replacement residence is $500,000, and the value of the replacement business property is $250,000. Taxpayer realizes gain of $570,000 on the exchange. Under I.R.C. section 121, Taxpayer may exclude $250,000 of the $360,000 realized gain attributable to the residential portion of the dwelling unit ($500,000 amount realized ($750,000 total amount realized x 2/3) minus $140,000 basis ($210,000 total basis x 2/3)). The realized gain of $110,000 ($360,000 realized gain minus $250,000 exclusion amount) in excess of the maximum exclusion

\textsuperscript{250} \textit{Id.} at 531-32.
The amount of $250,000 is included in Taxpayer’s income. The remaining realized gain of $210,000 ($250,000 amount realized ($750,000 total amount realized x 1/3) minus $40,000 adjusted basis (($210,000 total basis x 1/3) minus $30,000 depreciation deductions) is attributed to the business portion of the dwelling unit. Under I.R.C. section 1031, Taxpayer may defer the remaining realized gain of $210,000 attributable to the business portion of the dwelling unit, including the $30,000 gain attributable to depreciation deductions. Taxpayer’s basis in the replacement residential property is $500,000, which is the value of the replacement residential property at the time of the exchange. Taxpayer’s basis in the replacement business property is $40,000, which is equal to Taxpayer’s basis in the business portion of the dwelling unit at the time of the exchange.251

V. DEDUCTION LIMITATIONS UNDER I.R.C. SECTIONS 280A AND 183

A. General Explanation of I.R.C. sections 280A and 183

Concerned that taxpayers were converting nondeductible personal and living expenses252 into deductible trade or business or production of income expenses by claiming home offices or acquiring second homes, Congress enacted I.R.C. section 280A in 1976.253 Generally, I.R.C. section 280A disallows or limits the deduction of expenses incurred in connection with the use of the taxpayer’s residence for income producing activities.254 Prior to 1976, the allowance of such deductions depended on whether the activity of the taxpayer was engaged in for profit as required by I.R.C. section 183.255 Finding this standard too vague, Congress added I.R.C. section 280A, which

251 Id. at 532.
252 I.R.C. § 262(a) (2006). Unless specifically provided for in the Internal Revenue Code, no deductions are allowed “for personal, living, or family expenses.” Id.
255 See infra text accompanying notes 351-60 (examining the for profit requirement and deduction limitation under I.R.C. § 183).
provides objective criteria by which deductions relating to home offices and vacation homes may be evaluated.\textsuperscript{256}

I.R.C. section 280A begins by denying all deductions with respect to a dwelling unit that was used by the taxpayer as a residence during the year.\textsuperscript{257} Of course, I.R.C. section 280A provides an exception to this general disallowance of all deductions for expenses incurred without regard to the use of the taxpayer’s residence for income producing activities,\textsuperscript{258} including qualified residence interest,\textsuperscript{259} real property taxes,\textsuperscript{260} and casualty losses.\textsuperscript{261} Important exceptions to I.R.C. section 280A also allow the taxpayer to deduct, to a limited extent, expenses incurred in connection with the use of the personal residence, in whole or in part, as a home office or as a rental property.\textsuperscript{262}

For the purposes of I.R.C. section 280A, the use of property as a residence is defined as the personal use of the dwelling unit by the taxpayer and other individuals with an interest in the property, and the families of the taxpayer and such other individuals.\textsuperscript{263} In terms of time, the use of the property as a residence by the taxpayer is defined

\textsuperscript{256} McDaniel, McMahon, Jr., Simmons, & Polsky, supra note 55, at 610. If I.R.C. § 280A(a) applies with respect to any dwelling unit for the year, I.R.C. § 183 will not apply to the dwelling unit for the year but the year will be taken into account for the purposes of the five-year presumption under I.R.C. § 183(d). I.R.C. § 280A(f)(3).

\textsuperscript{257} I.R.C. § 280A(a).


\textsuperscript{261} I.R.C. § 165(c)(3) (2006).

\textsuperscript{262} I.R.C. § 280A(c)(1), (3) (2006). Although I.R.C. § 280A is primarily concerned with deductions claimed for a home office and vacation homes, the provision also applies to dwelling units used for business entertainment and other for profit purposes. Bittker, McMahon, Jr., & Zealenak, supra note 7, ¶ 13.10[1].

as the use of the dwelling unit for personal purposes for more than fourteen days, or more than ten percent of the days for which the dwelling unit is rented at a fair rental, whichever is greater. The term “dwelling unit” includes “a house, apartment, condominium, mobile home, boat, or similar property,” “which provides basic living accommodations such as a sleeping space, toilet, and cooking facilities.” The term also includes unattached structures on the property such as garages, studios, and greenhouses.

B. Home-Office Deduction

Employees and self-employed individuals may not deduct expenses incurred in connection with the use of a portion of their residence as a home office unless specifically allowed by I.R.C. section 280A(c)(1). Deductions for the business use of a residence are only allowed under I.R.C. section 280A(c)(1) to the extent of any expenses “allocable to a portion of the dwelling unit which is used exclusively and on a regular basis” as: (1) the principal place of business of the taxpayer; (2) the place of business that is used by patients, clients, or customers in meeting or dealing with the taxpayer in the normal course of business; or (3) an unattached separate structure used in connection with the business of the taxpayer. An

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268 I.R.C. § 280A(c). Expenses allocable to space within the dwelling unit used regularly to store inventory or product samples for a business of selling products are excepted if the dwelling unit is the sole fixed location of the retail or wholesale business. I.R.C. § 280A(c)(2). Expenses allocable to the regular-use of a portion of the dwelling unit in the taxpayer’s business of providing day-care services for children or individuals who are over 65 or are physically or mentally unable to care for themselves are also excepted. I.R.C. § 280A(c)(4).
269 I.R.C. § 280A(c)(1). With regard to the perceived audit risk of claiming a home-office deduction, one commentator states, “Although an estimated 26 million Americans have home offices, just 3.4 million taxpayers claim home-office deductions . . . I suspect many people with home offices forgo the tax breaks because continued . . .
employee may not take deductions for the business use of a personal residence unless the use is for the convenience of the employer. A portion of the dwelling unit means “a room or other separately defined space,” although the space need not be marked by a permanent partition. The space must be used exclusively for business purposes, and if the space is used exclusively for more than one business, then the business purpose of each business must qualify under I.R.C. section 280A(c)(1). Furthermore, the space must be used as a business in the sense of I.R.C. section 162 and not merely a profit-seeking activity in the sense of I.R.C. section 212. The requirement that the business use of the space within the residence be on a regular basis is not satisfied by occasional or incidental business

they fear the write-offs will trigger a tax audit. Get over it. The tax sharpies I’ve spoken to say they believe home offices no longer set off alarms at the Internal Revenue Service.” Richard Eisenberg, Secrets of Claiming a Home-Office Deduction, FORBES (Feb. 8, 2013, 1:07 PM), http://www.forbes.com/sites/nextavenue/2013/02/08/secrets-of-claiming-a-home-office-deduction/.

270 I.R.C. § 280A(c)(1). See Hamacher v. Comm’r, 94 T.C. 348, 358 (1990) (defining “convenience of the employer” as when the home office is necessary for the function of the employer’s business or necessary to allow the employee to perform duties properly); Weissman v. Comm’r, 751 F.2d 512, 516-17 (2d Cir. 1984) (allowing a college professor to deduct the expenses of his home office, which he used for scholarly research and writing required as a condition of his employment, because his employer did not provide a suitable space for engaging in such employment-related activities).

271 I.R.C. § 280A(c)(1); Prop. Treas. Reg. § 1.280A-2(g)(1), 48 Fed. Reg. 33320, 33324 (July 21, 1983). See Hewett v. Comm’r, T.C.M. (RIA) 96,110 (1996) (holding that I.R.C. § 280A(c)(1) was satisfied by a piano teacher using a grand piano exclusively for teaching that was located in an alcove off the living room); Sengpiehl v. Comm’r, T.C.M. (RIA) 98,023 (1998) (allowing a deduction for a lawyer, who worked exclusively from a home office, of expenses relating to the living room of the residence as the taxpayer and his wife gave credible testimony that the living room was used exclusively as a conference room for the taxpayer’s legal practice and not used for personal purposes of the family).

272 Hamacher, 94 T.C. at 357-59 (finding that no deduction of expenses was allowed for a home office because the office was used by the taxpayer as the principal place of business of a sole proprietorship and also used by the taxpayer to perform work for an employer that was found not for the convenience of the employer).

273 See Comm’r v. Groetzinger, 480 U.S. 23, 35 (1987) (ruling that in order to be engaged in a trade or business the taxpayer must be involved in the activity with continuity and regularity and the taxpayer’s primary purpose for engaging in the activity must be for income or profit); Higgins v. Comm’r, 312 U.S. 212, 218 (1941) (holding that managing investments, no matter how continuous or extended, does not constitute carrying on a business); Curphey v. Comm’r, 73 T.C. 766 (1980) (allowing the deduction of expenses relating to a home office to a dermatologist as the dermatologist’s activities of managing rental properties qualified as a business).
use. These standards are clearly intended to disqualify residential space used by investors to study stock market quotations and keep records, by business executives to read or prepare business reports, by teachers to prepare for class and grade examinations, and by most self-employed taxpayers whose principal office is located elsewhere.\footnote{Christine v. Comm’r, T.C.M. (RIA) 2010-144 (2010) (disallowing the deductions under I.R.C. § 280A(c)(1) as the author failed to provide information concerning the amount of time spent writing at home).}

The standard for determining whether the home office constitutes the principal place of the business of the taxpayer has generated substantial controversy.\footnote{Bittker, et al., supra note 7, at ¶ 13.10[2][a].} Resolving the controversy, the Supreme Court held, in \textit{Commissioner v. Soliman},\footnote{Comm’r v. Soliman, 506 U.S. 168 (1993).} that the principal place of business of the taxpayer was the “most important or significant” location of the business, as determined by two primary considerations: "(1) the relative importance of the activities performed at each business location and (2) the time spent at each location."\footnote{Id. at 174.} The point where goods and services are delivered is given great weight in the relative importance analysis.\footnote{Id. at 175.}

In \textit{Soliman}, the taxpayer was a self-employed anesthesiologist who spent thirty to thirty-five hours per week administering anesthesia and postoperative care in three hospitals. As none of the hospitals provided office space, the taxpayer used one of the three bedrooms in his residence, exclusively and on a regular basis, as an office, where he performed a wide variety of essential tasks related to his medical practice.\footnote{Id. at 188-89 (Stevens, J., dissenting).} The Supreme Court denied the taxpayer a deduction for his home office, even though it was his only office and essential to carrying on his medical practice.\footnote{Id. at 178.} Applying the “relative importance” test, the Supreme Court found that the treatment that the taxpayer provided at the hospitals constituted “the essence” of his medical practice and the point where his services were delivered to his patients.\footnote{Id.} As to the comparison of the time spent at each location, the fact that the taxpayer spent more time at the hospitals than at his home office supported the determination that his home office was not his principal place of business.\footnote{Id.}

\footnote{I.R.C. § 280A(c)(1)(A) (2006); MCDANIEL, McMAHON, JR., SIMMONS & POLSKY, supra note 55, at 617.} Following \textit{Soliman}, the Treasury

\footnote{Id. at 174.}
Department announced that it will determine the taxpayer’s principal place of business by first applying the “relative-importance” test to compare the business activities of the taxpayer at each location and, if the relative-importance test does not provide a definitive answer, the “relative-time” test will be applied.  

In response to the harshness of Soliman, Congress amended I.R.C. section 280A(c)(1) in 1997.  

Pursuant to I.R.C. section 280A(c)(1), a home office qualifies as the taxpayer’s principal place of business if: (1) the home office is used by the taxpayer to conduct the administrative or management activities of the business and (2) the business does not have another fixed location at which the taxpayer conducts substantial administrative or management activities.  

Pursuant to the House Report, the taxpayer may take the home-office deduction even though substantial non-administrative or non-management business activities are performed by the taxpayer at a fixed location outside the residence, substantial administrative or management business activities are performed for the taxpayer by others outside the residence, or the taxpayer could have used an office outside the residence to perform administrative or management business activities but chose not to do so.  

Even if the taxpayer satisfies the business-use requirement, the amount of the deductions allowed for the home office is severely limited.  

First, the deductions allowed may not exceed the amount of income generated by the business use of the dwelling unit. To determine the amount of income, the gross income generated by the business use of the dwelling unit is reduced by the expenses incurred by the business apart from the business use of the dwelling unit, e.g., expenses for secretarial support, supplies, and business telephones. Second, the expenses incurred by the use of the dwelling unit must be

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284 Rev. Rul. 94-24, 1994-I CB 87; See Popov v. Comm’r, 246 F.3d 1190 (9th Cir. 2001) (holding that the taxpayer’s home office in her residence was her principal place of business, relying on the “relative time” test as the “relative importance” test did not yield a definitive answer).  
288 I.R.C. § 280A(c)(5) (2006) (applying limitations on deductions to the use of a personal residence to regularly store inventory or samples held for use in taxpayer’s retail or wholesale business; in the taxpayer’s business of providing day care services; or as a rental if the taxpayer uses the dwelling unit as a personal residence during the year).  
allocated to the portion of the dwelling unit used for business purposes by any reasonable method.\textsuperscript{291} Generally, the taxpayer will allocate expenses according to the percentage of the total floor space of the dwelling unit used for business purposes.\textsuperscript{292}

Pursuant to I.R.C. section 280A(c)(5), the deductions with respect to the business use of the dwelling unit are subject to the overall limit of the income generated by the business use of the dwelling unit and are allowed in the following order: (1) the allocable portion of the deductions allowable without regard to any business use of the dwelling unit, e.g., qualified residence interest\textsuperscript{293} and real estate taxes;\textsuperscript{294} (2) to the extent of any excess income, the allocable portion of the deductions allowable by reason of the business use of the dwelling unit that do not result in an adjustment to the basis of the property, e.g., utilities, homeowner’s insurance, and repair and maintenance;\textsuperscript{295} and (3) to the extent of any excess income, the allocable portion of the deductions allowable by reason of the business use of the dwelling unit that result in an adjustment to the basis of the property, e.g., depreciation deduction.\textsuperscript{296} Any business-related deductions not allowed within the current year by reason of the income limitation may be carried over to the subsequent year.\textsuperscript{297}

\textbf{Example:} Taxpayer is a self-employed attorney who maintains an office in her residence that is used exclusively and on a regular basis in her legal practice. For the current year, her gross income from the home office is $50,000, and her expenses for secretarial support, supplies, and a business telephone are $10,000. Taxpayer’s home office occupies approximately 20% of the total floor space of her residence. Annually, her home mortgage interest is $5,000 and real property taxes are $4,000. Her home expenses, i.e., utilities,\textsuperscript{298}

\textsuperscript{291} Prop. Treas. Reg. § 1.280A-2(i)(3), 45 Fed. Reg. 52399, 52404 (Aug. 7, 1980) (stating that expenses which are attributable exclusively to a particular portion of the dwelling unit will be allocated in full to that portion of the dwelling unit, e.g., painting and repairs).
\textsuperscript{292} Id. (stating if the rooms in the dwelling unit are of approximately equal size, the taxpayer may also allocate expenses according to the number of rooms used for business purposes and expenses which are not related to the use of the dwelling unit for business purposes are not to be taken into account, e.g., lawn care).
\textsuperscript{295} I.R.C. § 162(a) (2006).
\textsuperscript{297} I.R.C. § 280A(c)(5).
homeowner’s insurance, and repairs and maintenance, total $6,000. If the entire residence was used for business purposes, the depreciation deduction for the year would be $8,000. Taxpayer’s home-office deductions for the year are limited to Taxpayer’s net income from her business $40,000 ($50,000 gross income minus $10,000 business expenses). The income limit will first be applied against 20% of the home mortgage interest and real property taxes $1,800 (($5,000 plus $4,000) x 20%), then 20% of the cost of utilities, homeowner’s insurance, and repairs and maintenance $1,200 ($6,000 x 20%), and, finally, 20% of the depreciation deduction $1,600 ($8,000 x 20%). As the income generated by the business use of the residence exceeds the deductions ($40,000 income minus $4,600 deductions ($1,800 plus $1,200 plus $1,600)), the deductions attributable to the business use of the residence are fully allowed.

C. Revenue Procedure 2013-13—Safe Harbor for Determining the Amount of Deductible Expenses Attributable to a Home Office

Revenue Procedure 2013-13\textsuperscript{298} provides an optional safe-harbor method that taxpayers may use to determine the amount of deductible expenses attributable to the business use of a residence.\textsuperscript{299} The safe-harbor method is an alternative to the calculation, allocation, and substantiation of allowable deductions attributable to the use of a portion of the taxpayer’s residence for business purposes, which the Internal Revenue Service and the Treasury Department acknowledge “can be complex and burdensome.”\textsuperscript{300} Generally, if the business use by the taxpayer of the residence satisfies the “qualified business use” requirements of I.R.C. section 280A(c),\textsuperscript{301} the taxpayer may elect\textsuperscript{302} to

\textsuperscript{299} \textit{Id.}
\textsuperscript{300} \textit{Id.} at 479.
\textsuperscript{302} \textit{Id.} A taxpayer elects the the safe-harbor method by using the method to compute the deduction for the qualified business use of the residence on a timely filed, original federal income tax return for the taxable year, which once made is \textit{continued} . . .
determine the amount of deductible expenses by multiplying the allowable square footage of the qualified business use portion of the residence, not to exceed 300 square feet, by the prescribed rate of $5 per square foot. Thus, the maximum deduction under the safe-harbor method is limited to $1,500 (300 square feet x $5 rate).

If the taxpayer elects the safe-harbor method for the taxable year, the taxpayer may not deduct any actual expenses related to the business use of the residence for that year. Annually, the taxpayer may elect to use the safe-harbor method or to calculate and substantiate actual expenses for the purposes of I.R.C. section 280A(c). If the taxpayer uses the safe-harbor method, the taxpayer may deduct any expenses related to the residence that are allowable without regard to the business use of the residence. Under the safe-harbor method, no depreciation deduction is allowed, and the depreciation deduction allowable for that portion of the residence “is deemed to be zero.”

If the taxpayer uses the safe-harbor method for the current year and calculates and substantiates expenses for any subsequent year, the taxpayer must calculate the depreciation deduction allowable for the subsequent year using the appropriate optional depreciation table and the year that corresponds with the subsequent year based on the placed-in-service year of the property.

“The amount of deduction computed using the safe-harbor method” may not exceed “the gross income derived from the qualified business use” of the residence minus any business expenses unrelated to the qualified business use of the residence. Any amount of deduction in

irrevocable. *Id.*

*Id.* at 480. Rev. Proc. 2013-13 provides adjustments for determining the allowable square footage for a taxpayer with a qualified business use of a home for only a part of a year or a taxpayer who changes the square footage for a qualified business use of the residence during the year. *Id.*

*Id.* at 479. The Internal Revenue Service and the Treasury Department may update the prescribed rate as warranted. *Id.*

*Id.*

*Id.*

*Id.* Examples include qualified residence interest (I.R.C. § 163(h)(3)), property taxes (I.R.C. § 164(a)(1)), and casualty losses (I.R.C. § 165(c)(3)). *Id.*

*Id.* at 480. The taxpayer cannot take a cost recovery deduction under I.R.C. § 168, including the first-year depreciation bonus under I.R.C. § 168(k), or the election to expense under I.R.C. § 179. *Id.*

*Id.*


*Id.* Examples include expenses for advertising, wages, and supplies. *Id.*
excess of the income limitation is “disallowed and may not be carried over” to any subsequent year.\textsuperscript{313}

Revenue Procedure 2013-13 includes two examples that illustrate the application of the above computational rules.\textsuperscript{314} The examples are summarized as follows:

**Example #1:** Throughout 2013, Taxpayer, a sole proprietor, uses a room in his residence regularly and exclusively to meet customers in the normal course of his business of being a barber. Taxpayer placed the room in service in January 2013. Taxpayer determines that the room is 350 square feet and has a cost basis of $10,000. During 2013, Taxpayer earns $9,000 from his business and pays a total of $3,400 in business expenses as follows: supplies $1,500, advertising $800, professional fees $300, magazines/subscriptions $700, and postage $100. Taxpayer also pays a total of $17,000 in expenses related to his residence as follows: qualified residence interest $10,000, real property taxes $3,000, homeowner’s insurance $1,500, utilities $2,400, and repairs $900. For 2013, Taxpayer elects the safe-harbor method and determines the amount of his deduction for the qualified business use of his residence is $1,500 (300 square feet x $5 rate). Taxpayer may deduct the $3,400 total of business expenses unrelated to the business use of his residence and the $17,000 total of deductible expenses related to his residence but unrelated to the business use of his residence. Taxpayer may not deduct any portion of the actual expenses related to the qualified business use of the residence or any depreciation for the room, which is deemed to be zero. The income limit does not reduce Taxpayer’s deduction for the qualified business use of the residence because the amount of the deduction, $1,500, does not exceed the gross income derived from the qualified business use of his residence reduced by the business deductions unrelated to the business use of

\textsuperscript{313} Id. A taxpayer who uses the safe-harbor method cannot deduct in the current year any disallowed amount of deduction carried over from a prior year during which the taxpayer calculated and substantiated actual expenses but can deduct the carried over disallowed amount in the next succeeding taxable year in which the taxpayer calculates and substantiates actual expenses for the purposes of I.R.C. § 280A. Id.

\textsuperscript{314} Id. at 481.
his residence $5,600 ($9,000 gross income minus $3,400 business deductions). If Taxpayer does not elect the safe-harbor method for 2014, but instead calculates and substantiates actual expenses for the purposes of I.R.C. section 280A(c), he must determine his depreciation deduction by multiplying the $10,000 cost basis of the room by the annual depreciation rate for 2014 in the appropriate optional depreciation table.\textsuperscript{315}

\textbf{Example \#2}: Throughout 2013, Taxpayer, a sole proprietor, uses a room in her residence regularly and exclusively to meet customers in the normal course of her business of being an architect. Taxpayer placed the room in service in January 2010. Taxpayer determines that the room is 300 square feet and had a cost basis of $10,000. For 2010, 2011, 2012, Taxpayer depreciates the room as nonresidential real property under the general depreciation system of I.R.C. section 168, resulting in an adjusted basis of $9,241.45 as of December 31, 2012. For 2013, Taxpayer elects the safe-harbor method; therefore, she may not deduct any depreciation for the room, which is deemed to be zero. Thus, the adjusted depreciable basis of the room as of December 31, 2013, is $9,241.45. For 2014, Taxpayer resumes calculating and substantiating actual expenses for the purposes of I.R.C. section 280A(c). Taxpayer must use the appropriate optional table for determining the depreciation deduction allowable for the room for 2014, using annual depreciation rate for year five.\textsuperscript{316}

\section*{D. Vacation Homes}

I.R.C. section 280A also addresses deductions claimed by taxpayers for expenses associated with the rental of their vacation homes.\textsuperscript{317} Prior to the enactment of I.R.C. section 280A, the permissibility of such deductions depended on whether the rental

\textsuperscript{315} Id.

\textsuperscript{316} Id.

activity was engaged in for profit as required by I.R.C. section 183.318
In general, I.R.C. section 280A(e) limits the deduction of expenses incurred with respect to the rental use of a vacation home if the taxpayer uses the vacation home as a residence during the year.319

As with the home-office deduction,320 the taxpayer uses a dwelling unit as a "residence" if the taxpayer uses the dwelling unit for personal purposes more than fourteen days or more than ten percent of the days the dwelling unit is rented at a fair rental, whichever is greater.321 "Personal use" is defined as the personal use of the dwelling unit by the taxpayer or other individuals with an interest in the property, and the families of the taxpayer or such other individuals.322 Personal use by the taxpayer includes renting the dwelling unit to a nonfamily member if the dwelling unit is not rented at a fair rental.323 Personal use also includes renting the dwelling unit to a family member, even at a fair rental, unless the dwelling unit is the principal residence of the family member.324 A fair rental is determined on the basis of comparable rent in the area, with the taxpayer bearing the burden of proving the fair rental value of the dwelling unit.325 However, the use of the dwelling unit by the taxpayer for the purposes of repairs and annual maintenance is not considered personal use.326

I.R.C. section 280A provides different tax treatment for the four categories of dwelling units rented by the taxpayer as follows:327 First, if a dwelling unit is used by the taxpayer for personal purposes during the year for the number of days necessary to constitute a residence, and is rented for less than fifteen days during the year, I.R.C. section 280A(g) excludes the rent from the taxpayer’s income, but also

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318 See infra text accompanying notes 352-60 (examining the for profit requirement and deduction limitation under I.R.C. § 183).
319 I.R.C. § 280A(e), (g).
320 See supra text accompanying notes 263-67 (providing a detailed definition of the terms “residence” and “personal use” for the purposes of I.R.C. § 280A).
323 Colbert v. Comm’r, 63 T.C.M. (CCH) 1818 (1992) (renting a dwelling unit at less than a fair rental to a low-income family is deemed personal use by the taxpayer). See Rev. Rul. 89-51, 1989-1 C.B. 89 (holding that the donation by the owner of a vacation home for one week to a charity fund-raising auction with the use sold to the successful bidder for a fair rental constitutes one week of personal use by the taxpayer).
327 BITTKER, McMATHON, JR., & ZELENAK, supra note 7, ¶ 3.10[3].
disallows all deductions attributable to the rental use of the residence. Of course, deductions allowable to the taxpayer without regard to rental use, such as qualified residence interest, real property taxes, and casualty losses, are allowed. Second, if a dwelling unit is used by the taxpayer for personal purposes during the year for the number of days necessary to constitute a residence, and is rented for fifteen days or more during the year, the residence is subject to the allocation of expenses required by I.R.C. section 280A(e) and the overall income limit imposed by I.R.C. section 280A(c)(5). Pursuant to I.R.C. section 280A(e), the taxpayer may take deductions allowable without regard to the rental use of the residence, e.g., qualified residence interest and real estate taxes. However, only an allocable portion of the deductions allowable by reason of the rental use are allowed, e.g., utilities, homeowner’s insurance, repair and maintenance, and depreciation. The amount of the expenses deductible by reason of the rental use of the residence is determined by a percentage computed by dividing the number of days the residence is rented by the total number of days the residence is used for all purposes.

The income limitation of I.R.C. section 280A(c)(5) reduces the ability of the taxpayer to deduct the expenses attributable to the rental use of a vacation home if the residence is rented for fifteen days or more during the taxable year. Computing the income limitation, the gross income generated by the rental use of the residence is reduced by the expenses incurred by the rental activity apart from the rental use, e.g., realtors’ fees and advertising costs. The taxpayer must then determine the expenses allocable to the rental use of the residence using the same percentage required by I.R.C. section 280A(e), namely, a percentage computed by dividing the number of days the residence is rented by the total number of days the residence is used for all purposes.

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Pursuant to I.R.C. section 280A(c)(5), the deductions with respect to the rental use of the residence are subject to the overall limit of the income generated by the rental use of the residence and are allowed in the following order: (1) the allocable portion of the deductions allowable without regard to any rental use of the residence, e.g., qualified residence interest and real estate taxes; (2) to the extent of any excess income, the allocable portion of the deductions allowable by reason of the rental use of the residence which do not result in an adjustment to the basis of the property, e.g., utilities, homeowner’s insurance, and repair and maintenance; and (3) to the extent of any excess income, the allocable portion of the deductions allowable by reason of the rental use of the dwelling unit which result in an adjustment to the basis of the property, e.g., depreciation deduction. Any rental related deductions not allowed within the current year by reason of the income limitation may be carried over to the subsequent year.

**Example:** Taxpayer rents her vacation home for eighty days and uses the vacation home for personal purposes for twenty days. Taxpayer’s gross income from the rental use is $100,000, and her realtors’ fees and advertising costs total $10,000. Annually, her home mortgage interest is $5,000 and real property taxes are $4,000. Taxpayer’s other expenses, such as the cost of heating, air conditioning, water, and electricity, total $6,000. If her vacation home was used as a rental for the entire year, the depreciation deduction would have been $8,000. Taxpayer’s deductions related to the rental use of her vacation home for the year will be limited to her net rental income $90,000 ($100,000 gross income minus $10,000 realtors’ fees and advertising costs)
advertising costs). The income limit will first be applied against 80% (80 days of rental use / 100 days of total use)\textsuperscript{345} of the home mortgage interest and property taxes $7,200 (($5,000 plus $4,000) \times 80%), then 80% of the cost of utilities $4,800 ($6,000 \times 80%), and, finally, 80% of the depreciation deduction $6,400 ($8,000 \times 80%). As the income from the business use of the residence unit exceeds the deductions ($90,000 minus $18,400 ($7,200 plus $4,800 plus $6,400)), the deductions attributable to the rental use of the vacation home are fully allowed.

Third, if the dwelling unit is rented for fifteen days or more during the year but the dwelling unit is used by the taxpayer for personal purposes less than the number of days necessary to constitute a residence, the dwelling unit is subject to the allocation required by I.R.C. section 280A(e), but not the overall income limitation imposed by I.R.C. section 280A(c)(5). Pursuant to I.R.C. section 280A(e), the taxpayer may take deductions allowable without regard to the rental use of the dwelling unit;\textsuperscript{346} however, only an allocable portion of the deductions allowable by reason of the rental use are allowed.\textsuperscript{347}

Fourth, if the dwelling unit is never used for personal purposes, I.R.C. section 280A has no application to the dwelling unit.\textsuperscript{348} Generally, the taxpayer may deduct all expenses and fully depreciate cost if the dwelling unit constitutes a business activity\textsuperscript{349} or an investment activity.\textsuperscript{350} Nevertheless, the deductions are subject to the rules of I.R.C. section 183 if the "activity is not engaged in for profit."\textsuperscript{351}

\textsuperscript{345} As to the mortgage interest and real property taxes, the Tax Court, Ninth Circuit, and Tenth Circuit would apply a percentage limitation of only 22% (80 days of rental use / 365 total days of the year); thereby, offsetting the income generated by the rental use of the residence by a lesser amount. See supra note 339 (citing the cases so holding).


\textsuperscript{348} I.R.C. § 280A(a), (d)(1), (e)(1).


\textsuperscript{350} I.R.C. § 212(1)-(2); I.R.C. § 167(a)(2). See I.R.C. § 168.

Enacted in 1969, I.R.C. section 183 reflected the court decisions that denied deductions on the basis that the activity carried on by the taxpayer was not a business activity, but merely a hobby. I.R.C. section 183 requires a facts and circumstances determination as to whether "the taxpayer entered into [an] activity, or continued [an] activity, with the objective of making a profit." The Treasury Regulations list nine relevant, nonexclusive factors to consider and weigh in determining whether an activity is engaged in for profit. Courts often look to the predominant purpose of the taxpayer in applying the weighing process, with greater weight given to objective facts than to the statement of the taxpayer’s intent. I.R.C. section 183 also contains a rebuttable presumption that the activity is engaged in for profit if the activity was profitable for three years in the preceding five-year period. Similar to I.R.C. section 280A, if an activity is determined not to have been engaged in for profit, I.R.C. section 183 allows the taxpayer to deduct business expenses, but subject to an overall limitation of the amount of income generated by the activity. I.R.C. section 183 does not provide for the carryover of

[1.183-1(a) (1972).  I.R.C. § 183 has also been extended to partnership activities. Brannen v. Comm’r, 78 T.C. 471, 499-500 (1982), aff’d, 722 F.2d 695, 706 (11th Cir. 1984).]


Treas. Reg. § 1.183-2(b) (1972). The relevant factors are: “(1) the manner in which the taxpayer carries on the activity; (2) the expertise of the taxpayer or his advisors; (3) the time and effort expended by the taxpayer in carrying on the activity; (4) the expectation that assets used in the activity may appreciate; (5) the success of the taxpayer in carrying on other similar or dissimilar activities; (6) the taxpayer’s history of income or losses with respect to the activity; (7) the amount of occasional profits, if any, which are earned; (8) the financial status of the taxpayer; (9) the elements of personal pleasure or recreation.” Id. No one factor is determinative, nor are the nine listed factors necessarily the only factors to be considered. Id.

Burke & Friel, supra note 82, at 483. But see Faulconer v. Comm’r, 748 F.2d 890, 895-96 n. 10 (4th Cir. 1984) (failing to decide whether the taxpayer must have a “primary” or “predominate” purpose of making a profit under I.R.C. § 183).


I.R.C. § 183(d) (2006); Treas. Reg. § 1.183-1(c)(1)(ii) (1972). In the case of an activity which consists in major part of breeding, training, showing, or racing horses, a rebuttable presumption that the activity was engaged in for profit if the activity was profitable for two years in the seven-year period ending with the taxable year. I.R.C. § 183(d); Treas. Reg. § 1.183-1(c)(1)(i) (1972). No inference that the activity is not engaged in for profit will arise by reason of the taxpayer not meeting the presumption under I.R.C. § 183(d). Treas. Reg. § 1.183-1(c)(1)(ii) (1972).

I.R.C. § 183(b)(2); Treas. Reg. § 1.183-1(b)(1) (1972). If the taxpayer continued...
any unused deductions.\textsuperscript{360}

The complex rules of I.R.C. section 280A with respect to vacation homes have been summarized as follows:

Thus, the statute in effect creates specific rules for four different situations: (1) If the rental use is less than 15 days, there is no income inclusion and no deduction (except for qualified home mortgage interest, etc.); (2) if the rental use is 15 days or more and personal use is greater than 14 days or 10 percent of the rental period, then expenses are prorated between rental and personal use and deductions are limited to the income which the property generates; (3) if the rental use is 15 days or more and the personal use is insufficient to trigger § 280A, then expenses are prorated between rental and personal use, but deductions in excess of income may be allowed; and (4) if the rental use is 15 days or more and there is no personal use, all deductions are fully allowable, subject only to limitation under § 183 if a profit-seeking motive is not present, though this situation would be unlikely.\textsuperscript{361}

E. Revenue Procedure 2008-16—Safe Harbor for Determining Whether a Vacation Home Qualifies under I.R.C. section 1031

In Moore v. Commissioner, the Tax Court held that the vacation homes exchanged by the taxpayers did not constitute properties held for investment as required by I.R.C. section 1031 because the primary motive of the taxpayers for holding the properties was for personal use and not for appreciation in value.\textsuperscript{362} Following Moore, the Treasury Inspector General for Tax Administration (TIGTA) issued a report recommending greater oversight of like-kind exchanges to ensure taxpayer compliance.\textsuperscript{363} The TIGTA report also recommended that engages in several activities, each activity must be tested separately as to a profit motive. Treas. Reg. § 1.183-1(d) (1972).

\textsuperscript{360} I.R.C. § 183(b)(2); Treas. Reg. § 1.183-1(b)(1) (1972).
\textsuperscript{361} McDaniel, McMahon, Jr., Simmons & Polsky, supra note 55, at 621.
\textsuperscript{363} Treasury Inspector Gen. for Tax Admin., Like-Kind Exchanges Require Oversight to Ensure Taxpayer Compliance 3 (2007), available at http://treas.gov/tigta/auditreports/2007reports/200730172fr.pdf. Recommendation #1 of the TIGTA report was for the Internal Revenue Service to conduct a study of “issue-related returns” to determine what data should be captured in future National Research Programs in order to ensure appropriate oversight of taxpayer compliance continued . . .
the guidance provided by the Internal Revenue Service in forms, instructions, and publications, be revised to provide consistent and adequate information to taxpayers engaging in like-kind exchanges.\textsuperscript{364} Finally, the TIGTA report recommended that additional guidance be provided to taxpayers regarding the rules and regulations governing like-kind exchanges with respect to second and vacation homes that are not used exclusively by owners.\textsuperscript{365}

The TIGTA report noted that the rules and regulations governing the like-kind exchange of second and vacation homes not used exclusively by owners are complex and that little exists with respect to a published position by the Internal Revenue Service on like-kind exchanges involving such properties.\textsuperscript{366} The TIGTA report stated “in our opinion, the absence of clarification on this issue leaves unrebutted the sales pitch of like-kind exchange promoters who may encourage taxpayers to improperly claim deferral of capital gains tax by selling non-qualifying second and vacation homes through ‘tax-free’ exchanges.”\textsuperscript{367}

In pursuit of such clarification, Revenue Procedure 2008-16 was issued shortly after the publication of the TIGTA report.\textsuperscript{368} Revenue Procedure 2008-16 provides a safe harbor under which the Internal Revenue Service will not challenge whether a second or vacation home qualifies as property held for productive use in a trade or business or for investment for the purposes of I.R.C. section 1031.\textsuperscript{369} The safe harbor applies if a personal-use residence satisfies “the qualifying use standards, which include holding period requirements, rental requirements, and personal-use limitations.”\textsuperscript{370} Generally, personal use is defined as any day the dwelling unit is used by the taxpayer, any member of the taxpayer’s family, or any other person if the dwelling unit is not rented at a fair rental.\textsuperscript{371} “Whether a dwelling

\begin{verbatim}
with the tax laws pertaining to like kind exchanges.
\end{verbatim}

\textsuperscript{364} Id. at 5 (discussing Recommendation #2).
\textsuperscript{365} Id. at 8 (discussing Recommendation #3).
\textsuperscript{366} Id. at 6.
\textsuperscript{367} Id.
\textsuperscript{368} Borden & Hamrick, supra note 100, at 1260.
\textsuperscript{369} Rev. Proc. 2008-16, 2008-1 C.B. 547. For the purposes of Revenue Procedure 2008-16, the term “dwelling unit” means “real property improved with a house, apartment, condominium, or similar improvement that provides basic living accommodations, including sleeping space, bathroom, and cooking facilities.” Id. at 548.
\textsuperscript{370} Borden & Hamrick, supra note 100, at 1260.
unit is rented at a fair rental is based on all the facts and circumstances that exist” at the time the rental agreement is executed.\textsuperscript{372}

The “qualifying use standard” applies to the relinquished property and the replacement property independently.\textsuperscript{373} Therefore, the safe harbor provided in Revenue Procedure 2008-16 applies to a like-kind exchange “if either the relinquished property or the replacement property is a personal-use residence.”\textsuperscript{374} The relinquished property satisfies the qualified use standard if the following requirements are met: (1) the dwelling unit is owned by the taxpayer for at least twenty-four months immediately before the exchange (qualifying use period) and (2) within the qualifying use period, in each of the two twelve-month periods immediately preceding the exchange, the taxpayer rents the dwelling unit at a fair rental for at least fourteen days and the period of personal use by the taxpayer does not exceed the greater of fourteen days or ten percent of the number of days during the twelve-month period that the dwelling unit is rented at a fair rental.\textsuperscript{375}

Applying the safe harbor to the replacement property, the replacement property satisfies the qualified use standard if the following requirements are met: (1) the dwelling unit is owned by the taxpayer for at least twenty-four months immediately after the exchange (qualifying use period) and (2) within the qualifying use period, in each of the two twelve-month periods immediately after the exchange, the taxpayer rents the dwelling unit at a fair rental for at least fourteen days and the period of personal use by the taxpayer does not exceed the greater of fourteen days or ten percent of the number of days during the twelve-month period that the dwelling unit is rented at a fair rental.\textsuperscript{375}

If the taxpayer reports on a federal income tax return a transaction as a like-kind exchange based on the expectation that the replacement property will meet the qualified use standard and subsequently determines that the replacement property does not meet the qualified use standard, the taxpayer must file an amended return.\textsuperscript{377}

\textsuperscript{373} Borden & Hamrick, \textit{supra} note 100, at 1260.
\textsuperscript{374} \textit{Id.} For example, if a personal-use residence that satisfies the qualifying use standards is exchanged for undeveloped land, the safe harbor will apply to the relinquished property and, if the transaction otherwise satisfies the requirements of I.R.C. section 1031, the exchange will qualify for nonrecognition treatment. \textit{Id.}
\textsuperscript{375} Rev. Proc. 2008-16, 2008-10 I.R.B. 547, 548. The first twelve-month period immediately preceding the exchange ends on the day before the exchange takes place, and the second twelve-month period ends on the day before the first twelve-month period begins. \textit{Id.}
\textsuperscript{376} \textit{Id.} The first twelve-month period immediately after the exchange begins on the day after the exchange takes place, and the second twelve-month period begins on the day after the first twelve-month period ends. \textit{Id.}
\textsuperscript{377} \textit{Id.}
As stated, the TIGTA report expressed a concern that the lack of clarification by the Internal Revenue Service allows promoters to encourage taxpayers to improperly claim non-recognition of gain through like-kind exchanges.\textsuperscript{378}

Over the last few years, the concept and reality of “flipping” property throughout many parts of the country made like-kind exchanges popular with real estate speculators.

. . . While the absence of guidance may be a more effective deterrent to abuse than publication of guidance, in this case, unscrupulous or uninformed promoters are already taking advantage of the IRS’ silence. For example, one promoter advised that taxpayers could sell their vacation homes using like-kind exchanges even though the homes were never rented. The promoter indicated “attempts” to rent vacation homes could qualify these properties for like-kind exchanges and attempts could consist of placing advertisements in distant cities. More taxpayers may take the advice of these promoters if the IRS fails to provide adequate guidance.\textsuperscript{379}

Revenue Procedure 2008-16 addresses these concerns by requiring that the personal-use residence relinquished be owned and rented for at least fourteen days during each of the two years immediately before the exchange, and that the replacement personal-use residence be owned and rented for at least fourteen days during each of the two years immediately after the exchange.\textsuperscript{380} Requiring the personal-use residence to be owned for at least twenty-four months prevents the taxpayer from “flipping” the property.\textsuperscript{381} Further, requiring the personal-use residence to be rented for at least fourteen days during each two-year period prevents a taxpayer from satisfying the qualified use standard by renting, or attempting to rent, a personal-use residence for a short period immediately before an exchange or renting, or attempting to rent, a personal-use residence for a short period immediately after the exchange.\textsuperscript{382} The qualifying use standard also greatly restricts personal use by the taxpayer in each of the two-year

\textsuperscript{378} \textsc{Treasu ry Inspector Gen. for Tax Admin.}, supra note 363, at 6-8.
\textsuperscript{379} \textit{Id.} at 7-8.
\textsuperscript{381} Borden & Hamrick, supra note 100, at 1261.
\textsuperscript{382} \textit{Id.}
periods immediately before or after the exchange. Nevertheless, if the taxpayer’s primary purpose at the time of acquisition is to hold the residence for investment, the exchange may satisfy the requisite holding requirement of I.R.C. section 1031, even though the qualifying use standard established in the safe harbor is not satisfied.

VI. CONCLUSION

The federal income tax law with respect to personal residences is extremely complex and uncertain. As stated in the TIGTA report, this complexity and uncertainty has resulted in noncompliance, either intentionally or inadvertently, by taxpayers and their advisors. This noncompliance is not limited to the exchange of second homes, but also extends to the exchange of residences used as principal residences and residences held for mixed personal and business purposes. By limiting the benefits of gain deferral to the exchange of properties held for productive use in a trade or business or for investment, the current law falls short of the economic realities and expectations of American taxpayers.

Amending I.R.C. section 1031 to include the exchange of personal-use real property would simplify this area of tax law and encourage investment in the residential real estate market. Certainly, to the extent a residence is used for personal purposes, any expenses or losses attributable to personal use should not be deductible, as such costs represent personal consumption. If the personal residence is converted from personal use, or is used in part for a business or income-producing purpose, losses on the disposition of the residence, and expenses and depreciation deductions with respect to the business or income-producing use of the residence should continue to be carefully limited under I.R.C. sections 165(c), 183, and 280A. Further, I.R.C. section 121 should continue to limit the exclusion of gain on the disposition of a principal residence to the extent the residence is used for the production of income.

However, as I.R.C. section 1031 is only a tax-deferral section, upon the ultimate disposition of the property, the gain deferred in the exchange will be recognized. If the personal-use real property is not a


384 Borden & Hamrick, supra note 100, at 1261-62. See Meltzer, supra note 140, at 268 (stating that, although Revenue Procedure 2008-16 provides additional guidance on the treatment of mixed-use properties, the Internal Revenue Service failed to “seize” the opportunity to define held “for investment” as it applies to mixed-use property for the purposes of I.R.C. § 1031).
principal residence, the unrecognized gain would be preserved in its entirety through the mechanism of the exchange basis as required by I.R.C. section 1031. For the purposes of a loss, the basis of the acquired residence would be the value of the relinquished residence on the date of the exchange as is the case with residences converted from personal use. If the residence qualifies as a principal residence under I.R.C. section 121, the current approach of integrating I.R.C. sections 121, 1033, and 1031 can be modified to preserve any gain not excluded under I.R.C. section 121 and exclude personal-use real property from boot received under I.R.C. section 1031.

In enacting I.R.C. section 1031, Congress was primarily concerned with the inequity of forcing a taxpayer to recognize theoretical gains while the unliquidated investment of the taxpayer continued in property of like kind. Throughout the last century, the definition of the term “like kind” has been broadly interpreted as it applies to real property, resulting in a broad interpretation of what constitutes a continuation of investment as applied to real property. Cases involving the exchange of real property have also resulted in a broad interpretation of the term “exchange,” culminating in the codification of the deferred exchange. In a structure designed to avoid constructive receipt of cash, I.R.C. section 1031 now permits a taxpayer to defer gain in a deferred exchange in which cash is received by a qualified intermediary if, at the direction of the taxpayer, the cash is reinvested in property of like kind. Allowing the exchange of personal-use real property is just one step further in the liberalization of I.R.C. section 1031 as it applies to real property. Such a result would also be a step towards vertical and horizontal equity in taxation, as most taxpayers, regardless of economic level, consider their personal residence an investment asset and, often, their only investment asset.
OPEN SOURCE MODELS IN BIOMEDICINE: WORKABLE COMPLEMENTARY FLEXIBILITIES WITHIN THE PATENT SYSTEM?

Aura Bertoni†

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I. INTRODUCTION

As innovation occurs through technological changes, innovators adapt their approach to research in order to take full advantage of scientific progress. As the Legislative and Judicial branches respond to scientific advances, new regulations of technical information will impact the development of further innovation. In this reciprocal exchange, old and new patent problems arise. In particular, the advent of biotechnology has been accompanied by closer relations between academia and industry to ensure that inventions leave university laboratories and are able to benefit society as a whole. The commercial involvement of academic research was supported by the patentability of its outputs, and later on, by knowledge industries that pushed governments toward a strong worldwide reliance on proprietary rights for spurring innovation. Whereas mere economic incentives and typical static distortions of the patent system cause allocation problems in the research agenda, new dynamic distortions, like patent proliferation and blocking patents, are likely to inhibit follow-up research and breach the traditional “social contract” between governments and patentees for innovation enhancement.\(^1\) Old-fashioned “check and balance” mechanisms of patent law are quite inadequate for the modern face of biomedical innovation, and while a rebalancing between private and public interests in patents is more urgently required, new or renewed means of encouraging innovation need to be explored and applied.

Within this distinctive conjunction of public and private interests into patent law, private ordering flexibilities, such as open source models, are revolutionizing the intellectual property (IP) landscape by providing a new way to reconcile these competing and often conflicting, interests.\(^2\) In fact, inside the open source approach, the self-interest of the knowledge developer combines with the norm of sharing a public good such as knowledge development.\(^3\) Although this movement started within the computer programming field, which is mainly covered by copyright protection, it appears to be a promising solution for overcoming obstacles created by patent distortions in biomedical research.

Part II of this work discusses the traditional justifications and

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1 See Peter Lee, Toward a Distributive Commons in Patent Law, 2009 Wis. L. Rev. 917, 929-30 (2009).
collateral functions of patents, and explains typical and emerging tradeoffs of the patent system in order to clarify the reasons behind the need for flexibilities. Part III focuses on biomedical patents and their mutated role in the upstream research scenario. Shortcomings of current public law flexibilities in mitigating economic and allocative distortions in biomedical research and development (R&D) will be also illustrated, together with an assessment of the use of open source models as private complementary flexibilities. Part IV examines concrete open source initiatives along the biomedical research course, from upstream to downstream research, illustrating the areas of this research field where it is desirable to use such models, and the essential characteristics needed in different stages of research development. The conclusion describes how open source philosophy may constitute both a private ordering flexibility of patent rights and a scheme with normative force, because a norm of sharing knowledge is introduced into the IP regime, where in the past exclusion and control were deemed natural and essential for the promotion of its own development. It is at this point that the traditional sharing norms of science, partially lost through the “propertization” of upstream research, have an original opportunity to be restored by “privatizing” patent regulation.

II. INHERENT AND EMERGING TRADEOFFS IN PATENT LAW

Monopolies, externalities, and information problems are all examples of market failures. Since they engender economic inefficiency and distributional inequities, the public interest often requires state regulation to correct them. However, governments may decide to delegate the regulatory authority to private ordering and to articulate, within public law, efficiency and non-efficiency policy aspirations for which private actors act.

IP can be acknowledged as a public good for being non-rival, where the use by one person of it does not diminish the use by another person, and non-excludable, where its possession or use does not preclude others from possessing or using it as well, and consequently, there may be no incentive to bear the costs of its creation. In this sense, intangibles, such as technological information, are clear

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4 Schwarz, supra note 2, at 330.
5 Schwarz, supra note 2, at 337-39.
7 See David Barnes, The Incentives/Access Tradeoff, 9 NW. J. TECH. & INTELL. PROP. 96 (2010).
examples of market failure.⁸

Recognizing that innovation incurs the danger of under-production and has an essential role in social welfare and economic progress, western legal systems have increasingly granted property rights in the products of technical and scientific knowledge by issuing patents.⁹ According to neoclassical economic arguments, patents secure a “social contract” between national governments and patentees, conferring limited monopolies to the patent holders for a 20-year period in exchange for the disclosure of their inventions, which in turn, increases innovation.¹⁰

By itself, the patent system is traditionally identified as a tradeoff between static efficiency, which “requires providing wide access to users at marginal social cost,” and dynamic efficiency, which depends upon incentives to invest in innovation for which the social value exceeds development costs.¹¹ Balancing the public interest in accessing useful innovation with the private interest to exercise property rights, national governments impose a number of public ordering safeguards, not only in terms of patentability requirements, but also by setting limitations on monopolistic powers.¹² In other words, while patent law employs market incentives to correct the market failure due to underinvestment in intellectual products, the existence of internal flexibilities already implies the acknowledgment that it is an incomplete solution.

More precisely, patents introduce economic distortions since they grant patentees an exclusive right to control the commercial exploitation of their inventions, which permits them to set monopolistic prices on patented products.¹³ The supra-marginal prices and the reliance on mere economic incentives for spurring innovation entail that the patent system may also produce allocative distortions, in both access to and the creation of knowledge.¹⁴ Considering that private patent rights are designed to maximize the aggregate welfare through innovation enhancement, distributive concerns have generally been taken into consideration, but only into imposed public

¹⁰ Id.
¹¹ Maskus, supra note 8, at 4-5.
¹² Id. at 20.
¹³ Lee, supra note 1, at 929-31.
¹⁴ Id. at 929 (defining the inefficiencies produced by the patent system as allocative distortions).
safeguards, like the flexibilities within patent systems.  

Nevertheless, today’s patent system goes beyond this standard tradeoff by introducing dynamic distortions. The patent holder’s exclusive right permits him to prevent others from using his invention, mainly through granting him the right to restrict licensing or refuse to license patented products. With regard to certain fields, like biomedicine, that are based on cumulative and sequential research, such exclusivity may inhibit the development of follow-on innovation if that patent covers essential features of the invention which cannot be “invented around,” therefore triggering a so-called blocking patent.

Emblematic of how patents and restrictive licensing practices can harm “the transfer and dissemination of technology,” is the Myriad case, which concerns the patenting of clinical genetics. In the early 1990s, two major genes, BRCA1 and BRCA2, in which germ line mutations cause breast and ovarian cancer susceptibility, were identified thanks to a number of academic scientists. They were then

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16 Lee, supra note 1, at 929-30.


[i]tthe protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology, to the mutual advantage of producers and users of technological knowledge and in a manner conducive to social and economic welfare, and to balance rights and obligations.

The Vienna Convention on the Law of Treaties provides that “[a] treaty shall be interpreted in good faith in accordance with the ordinary meaning to be given to the terms of the treaty in their context and in the light of its object and purpose.” The Vienna Convention on the Law of Treaties, art. 31, May 23, 1969, 1155 U.N.T.S. 151. Therefore blocking patents (like in the above-mentioned Myriad case) and the unfair terms of their licenses “should” not be justified neither in the light of the exclusive right of patents, because of rationales behind the “social contract” between state and patentee, nor considering the instrumentalist approach of the TRIPS Agreement as expressed in its Article 7. For a reference to the instrumentalist approach of the patent system as translated in the international sphere, see, e.g., David W. Opderbeck, A Virtue-Centered Approach to the Biotechnology Commons (or, the Virtuous Penguin) 59 Me. L. Rev. 316 (2007).

cloned and sequenced by the industry, specifically, by the enterprise Myriad Genetics (hereinafter “Myriad”).\textsuperscript{19} Several patents were granted to Myriad for these two genes, and later Myriad developed diagnostic tests for mutation detection.\textsuperscript{20} Myriad’s policy of not licensing the resulting blocking patents, or licensing at conditions unacceptable by academic laboratories, meant that all tests would have had to be performed in its own laboratories. This choice was strongly contested by European geneticists, both by ignoring patents and continuing to practice different BRCA tests, and objecting to Myriad’s patents at the European Patent Office (EPO).\textsuperscript{21} Their American fellows did the opposite in discontinuing the gene tests, since the United States Patent and Trademark Office (USPTO) did not allow a similar opposition procedure, and because the fear of patent infringement lawsuits was enough to deter non-Myriad laboratories from further in-house testing.\textsuperscript{22}

Therefore, it is evident that proprietary rights, even on a single gene, pose serious risks, as they can cause both substandard quality of gene testing, and barriers to subsequent research on that gene, as well as multi-gene based disorders. In addition, the emerging use of genetic markers as predictors of drug efficacy and toxicity in \textit{pharmacogenomics}, a new branch of pharmaceutical research that represents a promising tool for optimizing drug development, would be affected by the adverse effect of gene patenting.\textsuperscript{23}

Furthermore, some of the institutional and technological changes over the last few years, above all the “commercialization” of academic research, together with biotechnology and gene patenting, have led to


\textsuperscript{21} For an overview on European reactions to Myriad’s licensing practices, see Gert Matthijs, \textit{The European Opposition Against the BRCA Gene Patents}, \textit{5 FAMILIAL CANcer 95} (2006).

\textsuperscript{22} Gert Matthijs & Gert-Jan B. Van Ommen, \textit{Gene Patents: From Discovery to Inventions, in Gene Patents and Collaborative Licensing Models} 179-83 (Geertrui van Overwalle ed., 2009).

an ever-increasing number of patents. However, while this phenomenon can be considered a good index of innovative activities, it might increase the burden of patent law distortions. This ongoing process of patent proliferation may represent the last straw in the landscape of patent failures. In fact, when patent proliferation combines with the static distortion of monopolistic prices, a royalty-stacking problem arises. At the same time, when a multitude of patentees hold multiple blocking patents, “patent thickets” are likely to emerge and hinder accessibility to patented technology.

III. THE EVOLUTION OF PATENT RIGHTS IN BIOMEDICAL RESEARCH & DEVELOPMENT

A. Norms of Science Modulation through Proprietary Claims: The Reach of Patent Rights from Downstream to Upstream Research

Despite traditionally having different goals and roles in the process, both public and private actors have contributed to biomedical R&D. While private enterprises invested in developing and improving applied inventions, public research organizations, mainly universities, pursued basic scientific research and its wide dissemination into the public domain. However, the traditional goal of academic research changed when governments encouraged universities to come out of their “ivory towers” and facilitate the commercial application of the fruits of innovative activity. In order to expand technological transfers from upstream to downstream research, as well as increase collaboration between the public and private sector, proprietary protection, that is patents, has been

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28 Id. at 1722-23.
extended from end products to basic research outputs. Consequently, the long-established “open science” model no longer prevails.\textsuperscript{29}

As illustrated by the \textit{Myriad} case, the aforementioned considerations of the impact of patenting and licensing practices on innovation progress has gained strength in biomedical science, where the traditional scientific method relies on cumulative investigation combined with hypothesis testing, and where the face of innovation process has dramatically changed over the years.

The Eighties may be considered a crucial decade in the transition toward the “privatization” of technical and scientific knowledge. The advent of genetic engineering and the resulting establishment of spin-off biotechnology companies from academic laboratories, the wide scope given to patents on genetically modified organisms, and the multiplication of potential patentees, including public-funded research organizations, are considered major factors of that change.\textsuperscript{30}

Furthermore, initiatives to overcome the territoriality principle of IP rights have also played a relevant role in the innovation process. Since the nineteenth century, those countries that consider themselves net exporters of creative and technical knowledge have adopted international treaties to protect their IP holders outside national borders.\textsuperscript{31} While the initial bilateral treaties only allowed IP holders to claim the protection of their national laws in the other country, the subsequent multilateral agreement and the principle of national treatment permitted treating parties to export the IP model they developed in order to support information creation.\textsuperscript{32} Even though the impact of western national policies, driven by “knowledge cartels,”\textsuperscript{33} was widespread by the 1980s, since 1995, several minimum standards largely derived from the U.S. patent system, and more generally coined by western regulatory regimes, formally extend to all members of the World Trade Organization (“WTO”).\textsuperscript{34}

\textsuperscript{29} \textit{Id.} at 1726.
\textsuperscript{31} Justin Hughes, \textit{A Short History of “Intelectual Property” in Relation to Copyright}, 33 \textit{CARDozo L. REV.} 1293, 1296-97 (2012).
\textsuperscript{32} \textit{Id.}
\textsuperscript{34} See BENTLY & SHERMAN, \textit{supra} note 9, at 5-8. In the Eighties, the U.S. realized its innovative potential and, taking advantage of its trading power, threatened and imposed sanctions against countries not providing sufficient levels of continued . . .
of the TRIPS Agreement requires WTO Members to grant patents for any inventions, both products and processes, which meet the criteria of novelty, inventive step (i.e., non-obviousness), and industrial application.35

Still in that period the nature of the U.S. university as an institution with a public interest mission changed. The starting point for that change came in the late-Seventies when the academic scientist Herbert Boyer, after having created the first genetically engineered organism, joined together with the venture capitalist Robert Swanson to found Genentech, the first biotechnology firm.36 In August 1978, Genentech announced the synthesis of human insulin, thus bringing about a terrific escalation of value in the Wall Street stock market, the rapid establishment of hundreds of other biotech companies, as well as the enactment of the Bayh-Dole Act (BDA) in the U.S.37

The BDA of 198038 represented the expression of the “revised social contract” between universities and the U.S. government, authorizing the public funded recipients to patent their results and to decide their own licensing practices through dedicated technology transfer offices (TTOs), thus changing the presumption of ownership, which until that moment favored the funding agencies.39 Although it is often assumed that the BDA originated from the need to capitalize on the commercial exploitation of public-funded research, in reality the role of patents as a source of finance is marginal considering that on average, half of all U.S. universities have less than one million dollars of income per year from patent royalties.40 The main justification of patent rights as economic reward for investing into patent protection through Section 301 of the U.S. Trade Act. The American unilateralism was reinforced by the lobbying activities of the pharmaceutical industry. See Robert Weissman, A Long, Strange Trips: The Pharmaceutical Industry Drive to Harmonize Global Intellectual Property Rules, and the Remaining WTO Legal Alternatives Available to Third World Countries, 17 U. PA. J. INT’L ECON. L. 1069, 1075-77 (1996). In particular, the reform of 1988 established the so-called “Special 301” under the U.S. Trade Act allowing USTR to impose sanctions on countries that did not have U.S. style patent law. See Wendy S. Vicente, Questionable Victory for Coerced Argentine Pharmaceutical Patent Legislation, 19 U. PA. J. INT’L ECON. L. 1101, 1105 (1998) (describing the case of Argentina).

35 See TRIPS Agreement, supra note 17, at art. 27.
37 Id.
innovation gives way to secondary arguments in support of patents, such as their transactional and signaling functions.\textsuperscript{41}

In fact, each patent defines the boundaries of a claim, so that the reliance on patents by U.S. universities is mainly intended to foster collaboration with the industry by exclusive licenses,\textsuperscript{42} or directly for the establishment of spin-off companies from universities’ laboratories.\textsuperscript{43} Moreover, this new patenting approach has permitted U.S. universities to raise funding from strategic alliances with the pharmaceutical industry, such as the well-known 1998 Berkeley-Novartis agreement,\textsuperscript{44} and to signal innovative capabilities for measuring academic success.\textsuperscript{45}

The increase of U.S. university patenting was also due to judicial developments expanding the scope of patentable subject matter. Several key decisions reinforced proprietary trends for biological research, with Diamond \textit{v. Chakrabarty}\textsuperscript{46} representing the cornerstone, and Harvard \textit{Oncomouse} the conclusive perspective. The principles elucidated by these cases also reached the European patent system.\textsuperscript{47}

The privatization of publicly-funded research has received


\textsuperscript{43} See CIPIH Report, supra note 41, at 73.

\textsuperscript{44} This kind of agreement, together with exclusive licenses of academic patented innovation, may have negative effects by facilitating corporations in the control of academic duties. There is a conflict of interests, \textit{i.e.} public interest against private economic interest, determining a decrease of inventions accessibility, a lack of independence of faculties, the tendency of market-driven research policies, and increased secrecy for preserving proprietary rights. See Lieberwitz, supra note 39, at 765-66.


\textsuperscript{46} In 1980, the U.S. Supreme Court ruled in favor of defendant Dr. Chakrabarty and confirmed that a genetically modified microorganism constitutes a patentable subject matter since “a live, human-made micro-organism constitutes a ‘manufacture’ or ‘composition of matters.’” Sidney A. Diamond, Commissioner of Patents and Trademarks \textit{v. Ananda M. Chakrabarty}, et al., 447 U.S. 303 (1980).

\textsuperscript{47} In 1988 the USPO granted a patent on a mouse that was genetically-modified to develop cancer by injecting an ‘oncogene.’ The patentability of this invention was then challenged in different countries. The European patent application was initially refused by the EPO, but in the end, after a number of rulings, it was maintained on an amended form: (1989) OJ EPO 451 (Exam), T19/90 (1990) OJ EPO 490 (TBA), T19/90 (1991) EPOR 525 (Exam), (2003) OJ EPO 473 (Opposition Division). For a wider examination of the \textit{Oncomouse} case, see BENTLY & SHERMAN, supra note 9, at 442-44.
criticism with reference to the use of public funding as an indirect subsidy to private businesses and for diverting the public interest goals of universities toward market-oriented research, but even more so because the increase of university-owned patents is a fundamental element of the potential “tragedy of the anticommons” in biomedicine.

In a 1968 article published in the journal Science, Garrett Hardin raised the problem of individuals’ overuse of shared resources and introduced the metaphor “tragedy of the commons,” referring to circumstances where too many owners have a “privilege of use” and no one has “rights of exclusion.” Thirty years later, Michael Heller and Rebecca Eisenberg, in the same journal, suggested an opposite type of problem, the “tragedy of the anticommons,” in which individuals underuse scarce resources because too many owners have a right to exclude each other, but no one has an effective privilege of use.

Indeed, a fragmented ownership of complementary technology assets requires coordination among the owners, and heightens the transaction costs associated with the transfer of those rights via licensing or other exchange mechanisms. Furthermore, the BDA gives universities the discretion to grant exclusive licenses of their patents to private companies, hence to limit subsequent works by others. In other words, these two academic lawyers highlighted and put a name to biologists’ fear of the ongoing proliferation of patent rights in biomedical research and its potential detrimental effects on the progress of cumulative scientific research. Insofar as the access to knowledge has always been considered the essential element for cultural and scientific progress, in the past the existence of exclusive

48 See Lieberwitz, supra note 39, at 766.
50 See Heller & Eisenberg, supra note 49, at 698; see also MICHAEL A. HELLER, THE GRIDLOCK ECONOMY 1-22 (2008) (explaining further the “tragedy of the anticommons”).
51 See Heller & Eisenberg, supra note 49, at 700.
52 See Lieberwitz, supra note 39, at 764-66.
53 In the U.S., the number of patents in biotechnological areas increased from 2,000 patents granted in 1985 to over 13,000 in the year 2000, a growth of more than 600 percent. See John P. Walsh, Ashish Arora, & Wesley M. Cohen, Effects of Research Tool Patents and Licensing on Biomedical Innovation, in PATENTS IN THE KNOWLEDGE-BASED ECONOMY 285, 293 (Wesley M. Cohen & Stephen A. Merrill eds., 2003).
54 See Arti K. Rai & Rebecca S. Eisenberg, Bayh-Dole Reform and the Progress of Biomedicine, 66 L. AND CONTEMP. PROBS. 289, 295-303 (2003) (arguing that patents in biotechnology “hinder research by permitting owners to charge a premium for the use of discoveries that might otherwise be more cheaply available in a competitive market or in the public domain”).
rights in academic inventions appeared counterintuitive, and nowadays in spite of scientists’ departure from the Mertonian communitarian norms, it appears very dangerous in light of the potential negative effects on innovative development.

B. Academic Patenting: Utilitarian Considerations Other Than Ethical Concerns?

The departure from the traditional norms of science inside public research organizations, given their roles as patent holders, has raised criticism and concern for the potential of frustrating the public interest goals of academic freedom and dissemination of knowledge. Now, not only do public universities’ interests overlap with private economic interests of innovative corporations, but the privatization of academic outputs is leading to a corporatization of universities, thereby creating a conflict of public and private interests within universities themselves.

Currently, universities seem to act as private firms in the way they license their patented research to the industry, gain faculty research support, and obtain faculty consulting fees. In exchange, they lose control of their results, sacrifice the independence of faculty, admit publication restrictions, and accept limitations on sharing knowledge that was developed with public funding.

Nonetheless, concerns about the potential impact of commercial incentives accorded to universities by patents also have a practical perspective. The strong rights conferred by patents provide patent holders with the power to define the “environmental conditions” of follow-on research. When thickets or blocks are created,

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56 Whereas the scientific community relies on Isaac Newton's epigram, “[i]f I have seen farther, it is by standing on the shoulders of giants;” nowadays the use of prior discoveries in subsequent research is regulated by licenses (contractual arrangements) as a substitute for communal ownership. Rebecca S. Eisenberg, Patents and the Progress of Science: Exclusive Rights and Experimental Use, 56 U. CHI. L. REV. 1017, 1048-56 (1989).

57 See Lieberwitz, supra note 39, at 762-63.

58 Id. at 765-66.

paradoxically, they may hinder instead of spur biomedical research. Thus far, whether or not a “tragedy of anticommons” has actually occurred remains a vexed empirical question, however, obstacles in the patent landscape have already appeared.

The most frequently cited example is the aforementioned *Myriad* case, and the inherent adverse effects of gene patenting and licensing on access to diagnostic tests for mutation detection. However, patents covering other fundamental biological functions may have an even greater impact than patents that claim DNA or genes. For the most part, universities own patents that do not involve commercial end products (on the contrary, the peculiarity of genetic diagnostic tests is their dual use as both clinical and commercial products), but rather fundamental research tools. The term research tool generally refers to instruments, reagents, methods, and information, “the main commercial value of which is in furthering research.” For example, a survey of major U.S. universities showed that the medical school at Columbia University accounts for nearly 85 percent of all Columbia licensed patents, and more than 50 percent of those patents cover research tools. As said, research tools broadly include all useful technologies for early-stage research, which lead, step by step, to commercial end products. Thus, patents of research tools may quickly block subsequent innovation.

A clear example of research tool patents are those that cover biological pathways, patents which claim various methods of treating human diseases based on the functionality of a pathway. A biological pathway is a group of cellular constituents wherein each constituent is influenced by one or more other cellular constituents in the group. In June 2002, Harvard University, MIT, and the Whitehead Institute obtained a patent on publicly-funded research of NF-kB cell signaling pathways, in which they later granted an exclusive license to the private company Ariad Pharmaceuticals (hereinafter “Ariad”). Since NF-kB is a fundamental pathway involved in many diseases, from cancer and osteoporosis to atherosclerosis and rheumatoid arthritis,
this patent covers all drug treatments for such diseases. As a consequence, Ariad is in the position to block the development or commercialization of any drug that inhibits that pathway and did so soon after becoming the exclusive licensee of NF-kB patents. For instance, Evista and Xigris, two drug products marketed by the firm Eli Lilly, infringed 20 claims of the Nf-kB patents, which led to a 65 million dollar award for Ariad.66

Another area of upstream research where patent blocks are likely to appear and follow-on activities are likely to slow down is in the area of stem cell lines. A prominent example is the University of Wisconsin’s broad claim of the patent on primate embryonic stem cells.67 During the Nineties, the American National Institute of Health (NIH) provided funding to the university to derive embryonic stem cells from rhesus monkeys and macaques, however a broader patent that claimed all primate embryonic stem cells covered the results.68 Later, the same research team isolated human embryonic stem cells, but because of a moratorium on public funding for this research topic, subsequent activities were funded by Geron, a private biotechnology enterprise, in exchange for exclusive rights on six types of differentiated cells that could be derived from human stem cells.69

These cases clearly show how the combination of broad patent scopes, exclusive licensing practices of universities, and the cumulative character of upstream research in biotechnology, may curb the actual amount of potential players in the biomedical field, as they restrict access to essential research tools with wide applications in cumulative innovation.

Nevertheless, there is also evidence that upstream patent rights may obstruct not only further basic research activities, but also applied developments. In particular, proprietary barriers, like blocking patents and higher transaction costs, have a peculiarly dramatic impact on low commercial value research, such as research for neglected tropical diseases.70


68 Rai & Eisenberg, supra note 54, at 292-93, 301.

69 Id. at 293 n.23.

The Global Forum for Health Research, in its 2003 report, underlined an allocative emergence for biopharmaceutical R&D, calling it the “10/90 Gap” because “of the U.S. $70 billion a year invested in global health research . . . less than 10% [of which] is devoted to research into health problems that account for 90% of the global disease burden.” Where private financial resources for drug development are already scarce because market-based incentives behind patent systems are not enough to stimulate innovation for unprofitable markets, the current extended “commercialization” of academic research with highlighted transaction costs, may further sharpen global health disparities. For instance, the PATH Malaria Vaccine Initiative (MVI), a program of the nonprofit organization PATH, whose mission is to accelerate the development of malaria vaccines, reported complex patent nets surrounding each antigen relevant for malaria vaccines, as 34 groups of patents claim the antigen MSP-1.

These examples show that patents may create barriers from the beginning to the end of the biomedical innovation pipeline, and how, in several cases, certain worries expressed in the recent past by the scientific community have become reality. Looking at the current landscape of biomedical R&D, perhaps it is actually difficult to distinguish mere fears from oncoming dangers. The relevance of biotechnologies inside biomedical science is a fundamental element for understanding the lack of predictability and the co-existence of static and dynamic patent failures in this innovative field. Biotechnology is a new, cutting-edge technology that refuses to behave traditionally, hence old-fashioned solutions adopted in the past are no longer sufficient.

In the framework of patent law and its inherent second-best solution of excludability for sustaining investments in technical information goods, some solutions are provided to face the typical


74 Maskus & Reichman, supra note 33, at 8.
tradeoff between static costs and dynamic benefits, but not the dynamic problem of patent proliferation.\(^{75}\) In fact, even though derogations from patent protection are permitted by the minimum standards setting of the TRIPS Agreement, they are expressly described as limited and subject to a number of conditions.\(^{76}\) Moreover, on the one hand, the right to invoke these so-called flexibilities was reaffirmed with specific reference to public health goals in the Doha “Declaration on the TRIPS agreement and Public Health.”\(^{77}\) On the other hand, The World Trade Organization Dispute Settlement Body decisions have been resistant to the admittance of exceptions to patent property rights and their exercise.\(^{78}\) This is even more burdensome in light of the so-called “Spaghetti Bowl” phenomenon, the entwined networks of regional and bilateral free trade agreements which followed the origin of the WTO, as well as where the minimum standards of the TRIPS agreement are heightened by TRIPS-plus provisions.\(^{79}\)

Access to biomedical research is a natural premise for access to health care. Besides the problems posed by the globalization of the IP regime, the strong connection between commercial and non-commercial interests causes specific concerns, being that this technological sector is crucial for health care’s economic potentialities, but also for producing health-related goods.

C. The Unstable and Uneasy Use of Traditional Patent Law Flexibilities into the Biomedical Arena

The commoditization of academic research has also conveyed obstacles in the use of traditional patents safeguards, such as post-grant flexibilities.

A typical engine to mitigate the tension between public and private interests in the production of biomedical innovation is the scientific

\(^{75}\) See id. at 9.

\(^{76}\) TRIPS Agreement, supra note 17, art. 13, at 325.


research exemption. According to the vague text of Article 30 of the TRIPS Agreement, WTO Members may provide limited exceptions to the exclusive right conferred by a patent when the public interest is superior to the private interest of the patent holder.  

As said, in the biomedicine context it is especially relevant that the scientific research-experimental use exception exists because follow-on innovation often depends on patented know-how. The application of this exception permits access to and use of the invention covered by proprietary rights without patent infringement.

It is undoubted that this provision of the TRIPS Agreement permits acts done for purely scientific purposes, but each Member has adopted a different approach to the undefined terms of Article 30, in regards to acts done for commercial purposes. The U.S., in contrast with developing countries and other western legal systems, does not have a statutory defense for the experimental use of a patented innovation. Historically, federal courts, and later the Court of Appeals for the Federal Circuit (CAFC), have recognized a limited defense for the use of patented innovation for scientific purposes and have adopted a “very narrow” interpretation when commercial activities are involved.

Nonetheless, the American research community has always wrongfully believed that educational institutions such as universities were fully protected by an experimental use exception to patent law. This is in part explained by the traditional use of an “informal” experimental use exception by academic researchers, which is an “ignore patents” norm that is endorsed by the industry as well. Many reasons contributed to the adoption of an “ignoring infringement behavior” from companies, such as the high cost of public reputation, detection, and enforcement, but mostly the adoption was because of

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80 TRIPS Agreement, supra note 17 at art. 30.
82 See Poppenhusen v. Falke, 19 F. Cas. 1048, 1049 (S.D.N.Y. 1861) (conclusively defining the boundaries of the scientific research exception, stating that “an experiment with a patented article for the sole purpose of gratifying a philosophical taste, or curiosity, or for mere amusement [was] not an infringement of the rights of the patentee.”).
the ties that bound companies with universities. However, this kind of solution remains imperfect because it is not enforceable under the law, leaving follow-on innovators uncertain about a final outcome.

In addition, it is essential to underline that accessibility to IP in academic research has become even more limited as a consequence of the current private economic interests in universities’ policies, in particular with reference to their patenting and licensing practices after the BDA. The 2002 Federal Circuit Court of Appeals decision, Madey v. Duke University, potentially precluded any unlicensed use of patents as the Madey Court found that universities are, in effect, commercial entities that use research activities (and patenting) to compete for fund raising and prestige. As said, such uses were already illegal under the U.S. patent system. However, this decision calls the attention of academia to potential future liabilities as a consequence of unauthorized uses of IP.

In sum, the workability of formal and informal research exceptions faces the difficulty of a blurred line between scientific and commercial experimentation because of the ever-increasing commercial connections of the academic community. Further, the side effects of academic privatization become far more acute given the absence of a shared approach for their scope among different national systems. At the same time, the dependence upon informal social norms of infringement leaves ambiguity and raises skepticism considering its need of a close-knit homogenous community to operate. In particular, the changing nature of biomedical research and its tendency to attract members from other communities, such as information technology and nanotechnology, may transform “working solutions” of ignoring patents into unworkable responses.

Also, the use of compulsory licenses to guarantee the freedom of access to essential patented technology, even if it can be considered a possible remedy to the problem of blocking patents, brings with it

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85 Id. at 1538.
87 Id.
88 Walsh, Arora & Cohen, supra note 53, at 335.
90 See Rebecca S. Eisenberg, Noncompliance, Nonenforcement, Nonproblem? Rethinking the Anticommons in Biomedical Research, 45 HOUS. L. REV. 1059, 1095 (2008) (Noting that the restrictive terms of patent license over Harvard-DuPont Oncomouse gathered much controversy, probably as a consequence of the fact that DuPont has its core business in chemistry and, hence, was less inclined to respect the traditional social norms of biomedical research).
some shortcomings. Since those licenses are exceptions to exclusive rights conferred by patents, strict procedures for their grant are set at both the international level by Article 31 of TRIPS and at the national level by federal patent legislation.\footnote{See TRIPS Agreement, supra note 17, at art. 31; Esther van Zimmeren, \textit{Clearinghouse Mechanisms in Genetic Diagnostic}, in \textit{Gene Patents and Collaborative Licensing Models} 63, 64 (Geertrui van Overwalle ed., 2009).} Therefore, compliance with these legal constraints requires long and time-consuming operations, rendering this remedy an inappropriate tool to ensure day-to-day access to and use of patented inventions.\footnote{See Zimmeren, supra note 91, at 63-64.}

At the end of this analysis on the adverse effects of the commercialization of academic biomedical research, especially with regard to the BDA, combined with flaws that affect traditional flexibilities provided by the patent regimes, it might be assumed that these are problems confined to American boundaries. However, the dynamics of international relations, national economies, and innovation policies make this an international issue.

In spite of debates and unanswered questions about the impact of the BDA on academic integrity and efficiency, other developed and developing countries are considering adopting analogous legislation for the purpose of spurring national innovation.\footnote{See generally Michael S. Mireles, \textit{The Bayh-Dole Act and Incentives for the Commercialization of Government-Funded Invention in Developing Countries}, 76 UMKC L. REV. 525 (2007-2008) (referencing incentives for invention in South Africa, Malaysia and the Philippines); Hafiz Aziz ur Rehman, \textit{Equitable Licensing and Publicly Funded Research: A Working Model for India?}, 16 SW. J. INT’L LAW 75 (2010) (discussing India and the dangerous influence of The Protection and Utilisation of the Public Funded Intellectual Property Bill (PUPFIP) on public science).} Beyond that, a 2003 report by the Organization for Economic Co-operation and Development (OECD) encourages universities to seek opportunities to commercialize their inventions through spin-off companies and joint ventures with the biopharmaceutical industry, and explicitly refers to the benefits received by U.S. institutions.\footnote{See \textit{Org. Econ. Co-operation Dev.}, \textit{Turning Science into Business: Patenting and Licensing at Public Research Organisations} 39-40 (2003).}

Moreover, the provision of public goods such as scientific knowledge and health care has an undoubted supranational, and in some way also international, dimension. National regimes are located in a globalized context, with interlinked domestic policies, reciprocal influences and cross-border externalities. As a consequence, sooner or later, similar problems – and perhaps some additional problems for developing countries – are likely to emerge, and models, which permit the progress of science as well as the access of scientific benefits, need
to be explored.

**IV. OPEN SOURCE MODELS IN BIOMEDICINE: WORKABLE COMPLEMENTARY FLEXIBILITIES INTO THE PATENT SYSTEM?**

Looking at the considerable evolution that the life sciences are experiencing, some scholars have even seen “a different kind of scientific revolution” in the paradigm shift in the values underpinning its development and thus, a deep breakthrough that solicits the “reconstruction and reevaluation” of what it was, for determining what it should be.⁹⁵

Whether or not these changes truly embody a scientific revolution, a number of attempts have been arranged in recent economic and legal literature to overcome the negative effects caused by the privatization of public-interest biomedical inventions and, in particular, to propose mechanisms in order to “clear” patents.⁹⁶ Other than “working solutions,” such as ignoring or inventing around patents, as well as traditional tools like the use of research exemptions, there have been proposals for new collaborative models which would rehabilitate the communal values of science, restore the functions of free access to and use of innovation, and reconcile both private and public interests in the exercise of IP.⁹⁷

One “engine of public availability” adduced to cope with patent proliferation and fragmentation is “open source” (“OS”). It is worthwhile to first make it clear that the term open source when applied to patents (in this case, to biomedical patents) is necessarily a misnomer in that disclosure of the invention is an essential requirement for the grant of the proprietary right. Most importantly, there are no source codes outside of the software development to be opened, where on the contrary, OS philosophy is deeply rooted.⁹⁸

*Open science* is a term generally adopted to refer to practices of transparency and sharing in science, like those adopted in the pre-1980 era.⁹⁹ The use of the expression open source with different attributes (from the broad reference to biology, to the narrower contexts of bioinformatics, genomics, and drug discovery) is a more useful term to describe private ordering methods employed to guarantee and maintain the public accessibility of knowledge. The main strategy of OS is to

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⁹⁵ See HOPE, supra note 55, at 3-4.
⁹⁶ See van Zimmeren, supra note 91, at 64.
⁹⁷ Id.
⁹⁹ Id. at 329-30.
leverage the distinctive exclusivity of IP rights in order to enable the sharing of intellectual products\textsuperscript{100} and to establish a “bazaar,”\textsuperscript{101} or other methods of commons-based production, in biomedical R&D. Such a “bazaar” is a common feature between the idea of contractual-based biomedical research commons and open source software (“OSS”).

In most cases, the recourse to private ordering mechanisms is deployed for intensifying IP protection, which is to expand the monopoly rights granted by IP law, as Digital Rights Management (DRM) does in copyright.\textsuperscript{102} On the contrary, the OSS movement got under way with the purpose to counteract copyright expansion in computer programming and, above all, proprietary restrictions on access and use of source codes.\textsuperscript{103} During the same period in which “a

\textsuperscript{100}In truth various, and sometimes misleading, meanings have been attributed to OS in the biomedical field. Sometimes OS is regarded as a set of licensing criteria, see Hope, supra note 55, at 142; or a mode of production centered on the concept of “open and collaborative research,” see Arti K. Rai, “Open and Collaborative” Research: A New Model for Biomedicine, in INTELLECTUAL PROPERTY RIGHTS IN FRONTIER INDUSTRIES 131 (Robert W. Hahn ed., 2005); as a metaphor for restructuring networks and flows of information between researchers, Anthony S. Taubman, Several Kinds of Should. The Ethics of Open Source in Life Science Innovation, in GENE PATENTS AND COLLABORATIVE LICENSING MODELS, supra note 91, at 219, 230; and it is also applied making reference to collaborative projects whose license agreements require contributors to share non-patented innovations and potential improvements within organized communities, see What is OSDD, OPEN SOURCE DRUG DISCOVERY, http://www.osdd.net/about-us (last visited Sept. 11, 2013). For the sake of convenience, I will refer to Open Source Biology (OSB) for all the projects in the biomedical area intended to increase the access to inventions, peers cooperation and data sharing, both where IP rights are contemplated or not. In forthcoming examples, due clarifications will be provided as to peculiar aspects specific to each project.

\textsuperscript{101}More than the legal instrument of licenses, OS has been well characterized for its peculiar form of governance, in particular by a contrast between cathedrals and bazaars as icons of organizational structures. Cathedrals are top-down, centralized, hierarchical organizations, while Bazaars are defined as bottom-up, decentralized, collective organizations: see ERIC RAYMOND, THE CATHEDRAL AND THE BAZAAR: MUSING ON LINUX AND OPEN SOURCE BY AN ACCIDENTAL REVOLUTIONARY (Tim O'Reilly ed., rev. ed. 2001). According to this approach, OS in life science would be a manifestation and a translation of the bazaar model, that is, a "biobazaar." Hope, supra note 55, at 18, 106-41.


\textsuperscript{103}See generally CHRISTOPHER M. KELTY, TWO BITS: THE CULTURAL SIGNIFICANCE OF FREE SOFTWARE 144–178 (2008) (describing the history of Open Systems Software, including the motivations behind its creation). Although there are many different OSS licenses, they all have some essential general features: (1) the access to the source code; (2) the right to copy and redistribute, use, modify for personal use, and redistribute modified versions of the software; and, optionally, (3) continued . . .
kind of scientific revolution” arose in biomedicine, comparable changes also occurred in the software field since spin-off companies from universities started to produce proprietary products. The concept of OSS was a plan for reacting to the transformation of software in a proprietary commodity. The development of the GPL (General Public License) by Richard Stallman, together with the operating system Linux and open clearinghouses like SourceForge.net, rapidly demonstrated the effectiveness of OS projects, so much so that OSS was later employed by governments all around the world as well as private companies, such as IBM.

Starting from this achievement in copyright, “patent communities” have started to take inspiration from OS and its use of the legal instrument of licensing for improving the dissemination of innovation, especially for enabling tools and genes whose patentability is often prevented. Not ignoring the importance of ameliorating patent
quality, as well as refining patent scope in biomedicine, the distinctive feature of these initiatives is to use original private strategies, owning the typical strong points of efficiency and adaptability pertaining to commercial private ordering regulation, but endowed with the singularity of also incorporating the public interest to disseminate patented innovation.

Nevertheless, the difficulties for opening patents are wider and more intricate than for copyright. Above all, from the umbrella of open source biology (“OSB”) come disparate projects, in which IP has a notably different role, and thus different kinds of problems arise. Several projects only transfer contractual rights, not IP rights, because they either contain unpatented discoveries or are merely collections of data. Other projects simply provide free access to information that is already in the public domain. In contrast, “pure” OSB projects rely solely on contractual methods, i.e., licenses, to convey IP rights in a manner that increases, instead of limiting, innovation. These experiments are dedicated to properly clearing patents with open-licensing mechanisms, and they aim to subvert the IP regime from within by utilizing other, less-restrictive mechanisms to achieve the same results.

A. Open Access Models for Publicly Available Bio-Databases

The rationales behind OSB models are well explained by the race to sequence the human genome and the subsequent controversies over private ownership of sequencing results.


108 Essentially, two main approaches proceed from existing OSB experiments: to design a common where researchers freely share data without any license, or to leverage patents through a peculiar exercise of their exclusive rights in order to not interfere with follow-on developments: see Nolan-Stevaux, supra note 70, at 292–98.


111 Dusollier, supra note 102, at 1394.

technique to isolate protein-coding sequences of genes by the use of gene fragments, known as expressed sequence tags (“ESTs”). ESTs can provide functional information only if matched with other genes with an already known functionality and should not be patentable because they lack an inventive step. However, in 1991 NIH filed patent applications on a number of ESTs that claimed not only the gene fragments, but also the whole genes and any proteins involved with each expression. Two kinds of defensive motivations explain that choice. The first was the concern about Venter’s intention to capture those results after leaving NIH to establish his own private research institute, and more generally, the ability of the private sector to free ride on public-sector genomic data. Although these perils were temporarily resolved by the intervention of the pharmaceutical giant Merck, who strategically funded gene sequencing and ESTs data mining through the Merck’s Gene Index Database, worries over a high number of proprietary databases that would threaten the progress of future research remained.

In 1999, while the race to decode the human genome was at its apex, Venter announced his intention to compile a proprietary databank of another type of sequence information, the single nucleotide polymorphisms (“SNP”). Tim Hubbard, head of the Sanger Institute in the UK, found an “irresistible analogy” between the OS movement philosophy and the aims behind the Human Genome Project (HGP), an international collaboration to map and make publicly available the genome sequence. Within a month, Hubbard, with the help of Richard Stallman, the deus ex machina of the OSS movement and father of the GPL, drafted a license to protect genomic data from misappropriation and subsequent locking into proprietary rights. The idea was never implemented because this kind of information was historically released into the public domain and any kind of constraint was considered too restrictive by the genetic research community, which preferred to set a number of agreements, the so-called Bermuda Principles, in order to secure the free release of pre-publishing data among scientists.

113 HOPE, supra note 55, at 37.
114 Id.
115 See id. at 38-39.
117 HOPE, supra note 55, at 307-08.
118 Cukier, supra note 116.
119 Id.
120 Rebecca S. Eisenberg, Genomics in the Public Domain: Strategy and Policy, continued . . .
B. Open Licensing Schemes of Non-Patented Biomedical Innovation

Nevertheless, this new idea to apply OS principles into biomedical research has represented a breakthrough within the scientific community and constituted the foundations of other projects. Starting from Hubbard's experiment to shape “copyleft” licenses for spurring the international transfer of biotechnology among researchers, a few implementations of this idea have been followed and have been directed both to upstream and downstream research.\textsuperscript{121}

1. Open Licensing for Publicly Accessible Genetic Databases

By the efforts of the SNP consortium - a group of private companies and nonprofit organizations originated to cope with the alarm of patent applications on SNPs and the inherent potential anticommons\textsuperscript{122} – the HapMap project was created. HapMap was born with the aim of identifying patterns of common genetic variations, called haplotypes, and employing them as disease markers. To this end, HapMap embraced a copyleft model based on the GPL license, to permit access to its haplotype mapping information, while at the same time preventing users from filing patents that would block other users’ access to database information.\textsuperscript{123} In particular, HapMap pursued an OS approach by using a click-wrap license which required users to register for accessing the “HapMap Genotype Database” and to agree "not to reduce others access to the data and to share the data only with others who have made the same agreement."\textsuperscript{124} Afterwards, this policy was abandoned and all data was put into the public domain, in part because the primary goal to avoid blocking patents was reached, but also, due to problems deriving from the license obligations.

Firstly, it is worth noting that there were no IP rights to assert, since haplotype data was not patented, and the HapMap database does not benefit from US copyright nor sui generis database protection; hence, the click-wrap license relied only upon contractual

\textsuperscript{1} \textit{Nature Rev. Genetics} 70, 72-73 (2000).
\textsuperscript{121} See Hope, supra note 55, at 164-87.
obligations. Secondly, in order to ensure that third parties were not able to access data without agreeing to the same license terms, the license put restrictions on publications based on the data, and, therefore, could not be properly peer-reviewed. Finally, while HapMap licensing was adopted with the aim to reconcile the public access and the use of haplotype information, as well as the goal to permit downstream users to file patents on product developments, the use of complex and ambiguous provisions simply nullified those ambitions.

In spite of such loopholes and shortcomings affecting HapMap policies, its mere existence has demonstrated the willingness of both the public and private sector to translate the OSS model into biomedical research, with the view to re-open science to its traditional sharing norms.

2. *Open Source Platforms for Drug Discovery*

Since the patent system is a mechanism designed for spurring innovation based on mere economic incentives, it fails with regards to diseases that are prevalent in countries whose markets are typically not commercially profitable.

For many reasons, R&D is particularly costly in the pharmaceutical sector, especially because most drug candidates fail to reach the market after being submitted to long and complex clinical trials. This aspect, combined with the pharmaceutical industry’s languishing financial performance and below-average productivity in recent years, discourages the investment of resources in low commercial value research. In fact, where drug markets are limited, because they are too small (like the case of orphan drugs for rare illnesses), or too poor (such as medicines for tropical neglected diseases), patents are not an effective instrument in stimulating innovation and developing new products.

In order to cope with this patent failure directly affecting the

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creation and the enjoyment of two fundamental public goods, such as scientific knowledge and health care, the Tropical Disease Initiative (“TDI”) established a decentralized and web-based project intended to tackle the problem of low commercial value research for tropical diseases, and has adopted an OS collaboration to identify drug targets and candidates. The idea comes from the acknowledgement by lawyers Stephen Maurer and Arti Rai, and computational biologist Andrej Sali, of the convergence between biology and computing. In the same way software developers find bugs and write patches, biologists look for proteins that are the targets of drugs and select the chemicals, or drug candidates, to use for further development and research. Thus, bearing in mind the so-called Linus Law, “with enough eyeballs all bugs are shallow,” a bazaar-style governance for the development of a cure for tropical diseases has been considered.

The initiative is divided into two phases. In the first phase, volunteers rely on bioinformatics, a biological research method conducted using computers, in order to select drug targets, identify drug candidates that could bind those targets, and estimate the efficacy of each drug candidate. These research efforts are aggregated, little by little, through the TDI webpage in a way similar to how Linux incrementally improves its own operating system; its purpose is to diminish the need for expensive wet-lab experimentation. The second phase involves the participation of virtual pharmaceutical companies, or so-called “Virtual Pharmas.” Virtual Pharmas are venture capital firms that, after selecting drug candidates, outsource development stages to corporate partners and monitor the performance.

At the moment, the TDI outputs are not protected by IP rights and not linked to any specific OS license. The TDI considers it unlikely that pharmaceutical companies will manifest an interest in patenting trivial improvements for the low value commercial market of neglected diseases and, in any case, until the collaboration will be

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128 HOPE, supra note 55, at 310.
129 The reference is to Linus Torvalds, who released the first official version of the Linux operating system in 1994 when he was a computer science graduate at the University of Helsinki. Any further improvements of Linux have been permitted by the distributed character of OSS collaboration. See Weber, supra note 90, at 54-65, for an extended overview on the “ideal type” of OS collaborations.
131 Id.
132 Actually, TDI deems the use of typical OS viral clauses in drug discovery fields inadequate since such a scheme would be expensive and legally dubious. See Leticia Ortì et al., A Kernel for Open Source Drug Discovery in Tropical Diseases, 3 PLOS NEGLECTED DISEASES 1, 8-9 (2009) available at http://www.plosntds.org/article/info%3Adoi%2F10.1371%2Fjournal.pntd.0000418

continued . . .
stabilized, the intention is to leave TDI community members the freedom to develop their own licenses.\textsuperscript{133}

C. Open Source Licensing of Patented Biomedical Innovation

All the previous examples of attempts to import the OS approach from software to biomedical research have bound the reference to this model with regards to the development methodology element (that is the bazaar-style governance paired to the traditional hierarchical organization), as just another mode of research production or a “project management technique.” However, OS also stands out for being an original IP management model that is centered on licensing mechanisms.\textsuperscript{134}

Ironically, and contrary to the diffused idea that OSS developers are hostile to the concept of IP rights, within the OSS movement are some of the most “fervid defenders” of copyright. In fact, source developers still rely on copyright in order to maintain control over the future open use of the source code they have developed, and use licensing terms to design their desired OSS model.\textsuperscript{135} In other words, licensing terms vary considering how open each OSS should be.

In fact, whereas the “bazaar-governance” is recurrent in all OSS models, its utilization can be distinguished into two broad categories, in respect of the use, or nonuse, of so-called copyleft licenses. Copyleft is a play on the word copyright since OSS communities, relying on this type of license, make an inverted use of copyright to protect their work since the rights of users are set above the rights of holders. According to this concept, developers allow users to copy, modify and distribute the source code, so long as the users agree to keep open their derivative works that make use of the same original “copyleft” license.\textsuperscript{136}

In patent law, the proposed ambition of sharing ideology and aiming to promote the availability of both the original technology and following developments cannot be obtained through a viral clause like that in copyleft, but rather with a mechanism of grant-back. Inserting this type of arrangement into OSB license terms requires the patentee to grant the right to use and sublicense any improvements of the patented technology. It essentially gathers users who contribute to the

\textsuperscript{133} HOPE, supra note 55, at 311.
\textsuperscript{134} GONZÁLES, supra note 98, at 335, 336.
\textsuperscript{136} Id. at 872-79.
project into ‘protected’ or ‘self-binding’ commons pools. The basic common idea of these projects is to translate proprietary rights, i.e. patent rights, into biomedical research, to secure access and use of innovation and its derivative works, or better, improvements, for a potential open class of users.\(^{137}\)

1. **OSB Licensing for Non-Profit Organizations: BiOS CAMBIA Project**

The Center for Application of Molecular Biology in International Agriculture (CAMBIA) is a non-profit research organization located in Australia which was initially focused only on green agricultural and biotechnology; it is currently expanding its action toward red, or health, biotechnology as well.\(^{138}\) The goal of this center is to fill access and research gaps affecting life sciences and, for that purpose, it combines wet-lab development of biotechnological research tools with web-based collaborative development platforms and a patent searching database. It is mainly financed by prominent philanthropic organizations such as the Bill and Melinda Gates Foundation, as well as public national and international funding bodies, but also by subscription fees from CAMBIA members.\(^{139}\) In 2005, it launched the BIOS (Biological Innovation for Open Society) initiative whose fundamental aspect is “Biological Open Source” or “BiOS” licensing. CAMBIA offers two types of BiOS licenses, one for Plant Molecular Enabling Technology (PMET) and one for Health Technologies (even if the latter is still a draft version that requires additional refinement to be used), both of which must be read in conjunction with its own Technology Support and Materials Transfer Agreement.\(^{140}\)

Even though parallels between OSS and BiOS licenses may be quite hazardous, some similarities are detectable. First, BiOS licenses permit the “free use,” or better a non-exclusive, royalty-free right to use,\(^{141}\) as well as the “free distribution” expressed in the right to

\(^{137}\) Nolan-Stevaux, *supra* note 70, at 296.


\(^{141}\) Id.
 sublicense the invention to third parties.142 Most importantly, they are copyleft-style licenses requiring the licensees to make any improvements available to other members of the BIOS project.143

It is well rendered that the basic purpose behind these license terms is to obtain a viral effect in order to re-open science to its traditional sharing norms and enable the access to data. As previously discussed, in patent law such a proposed ambition of openness may be performed through a grant-back mechanism in favor of the patent holder. Exactly, CAMBIA is the patent holder and retains control over technology, initially licensed and further distributed, so that licensees cannot prevent other licensees from using the patented technology, together with relevant know-how and materials, in the development of different products.144 In this way, the BiOS approach creates a protected commons where the grant-back entails a “patent ‘plus’ pool” for the benefit of all members of the CAMBIA community.145 As a consequence, CAMBIA deviates from pure bazaar-governance of contributions to research development for a more centralized model where the community members can discuss in confidence the formation and collective defense of their patentable inventions.146

The creation of these commons patent pools is thus beneficial to mitigate blocking patents and anticommons in upstream biomedical research, but this scheme might be suitable for downstream research as well. By providing a “one-stop shop,” patent “plus” pools would reduce transaction costs and institutionalize the exchange of technical information not covered by patents. Moreover, BiOS-style licenses do not prevent the commercialization of the technology received from the patent holder, whereupon they might be useful for commons pools devoted to drug discovery. When a new drug target would be developed and enclosed inside intellectual information protected by the pool itself, this system might actually decrease the costs necessary to bring that new drug to the market. Since BiOS-style licenses cover not only patented innovation, but also inherent know-how, they too

142 Id. at cl. 2.2.1.
143 Id. at cl. 3.1.
144 The OS version of the traditional licensing term grant-back might be ‘reverse grant-back’ since the control is not directed to an assignment of rights, but rather to prevent blocking patents on the follow-on improvements. See Sara Boettinger & Dan L. Burk, Open Source Patenting, 1 J. INT’L BIOTECHNOLOGY L. 221, 228 (2004).
145 Nolan-Stevaux, supra note 70, at 304–08.
favor sharing of any relevant information for drug development, and may even diminish the costs to meet regulatory standards in the phase of clinical trials.\textsuperscript{147} Thus, other non-profit entities, such as public-private partnerships (PPPs) devoted to neglected diseases research, should consider employing these kinds of licenses between partners, in order to discover and develop new therapeutical treatments quicker and more cost-effectively.

2. \textit{OSB Licensing for Universities: UAEM and Yale University Project}

Another proposal intended to facilitate research on neglected diseases and to improve access and use of biomedical innovation in developing countries is the proposal put forward by Universities Allied for Essential Medicines (UAEM). In 2001, then postdoctoral researcher Amy Kapczynski and her colleagues at Yale University, together with \textit{Médecines Sans Frontières}, convinced the patent holder Yale and the exclusive licensee Bristol-Myers Squibb to permit generic production of stavudine, a drug used in antiretroviral combination therapy for HIV/AIDS.\textsuperscript{148} Since this memorable decision, this group of students has become UAEM, a worldwide student organization committed to tackling the “access gap” for essential medicines, and the “R&D gap” for neglected diseases affecting poor countries.\textsuperscript{149} Combining these two goals, in 2003 UAEM developed a twofold-licensing scheme for universities’ patents, taking inspiration from the OS approach to IP management in order to create “self-binding commons” supporting the initiatives to address the access and research gaps.\textsuperscript{150}

In particular, the Equitable Access (“EA”) license was designed to safeguard the “freedom to operate” for any licensee that manufactures and distributes the licensed innovation and subsequent follow-on inventions in developing countries.\textsuperscript{151} In order to do so, TTOs grant non-exclusive, fair royalty licenses to commercial entities that provide

\textsuperscript{147} Nolan-Stevaux, \textit{supra} note 70, at 309.
\textsuperscript{149} For past and current UAEM projects, see UAEM, http://essentialmedicine.org/ (last visited Sept. 12, 2013).
\textsuperscript{150} As of this writing, the latest version of “Model Provisions for an ‘Equitable Access and Neglected Disease License’” is Version 1.0 available at http://uaem.org/cms/assets/uploads/2013/03/EAL.pdf (last visited Sept. 12, 2013).
the patented invention in low-income or middle-income countries. To preserve the availability of an invention and its derivative products, the EA license contains a grant-back provision for any improvement patents, and a cross-license mechanism for any licensee rights that could be used to block production of further innovation.\footnote{Id.} Moreover, EA licenses have an “automatic open licensing structure” because rights and obligations are automatically extended to any third party that notifies the university, and the licensee who developed the end product, of his intent to produce the item in question for sale in developing countries.\footnote{Id.} In order to preserve the availability of academic inventions necessary for research on diseases that affect developing countries, the UAEM drew up a specific Neglected Disease (“ND”) licensing strategy. In truth, while still employing the EA notification structure, this scheme more precisely entails a ND exemption in case those universities enter into exclusive licenses for research tools. This license is directed to guarantee the use of licensor technology for carrying out research on neglected diseases anywhere, and also to market the resulting end products in developing countries. It has been arranged as a very flexible scheme which may be customized to specific needs and surrounding circumstances. Hence, the licensee might be required to grant-back and cross license his improvements. The exemption could be limited to academic institutions and non-profit entities or, on the contrary, applied to commercial enterprises, but for a definite list of neglected diseases, or diseases that meet the low-commercial value general standard,\footnote{See generally Kapczynski et al., supra note 60 (for an exhaustive analysis of the EA and ND licenses terms).} such as rare diseases.\footnote{Orphan Drug Act, 21 C.F.R. § 316 (2013) (The first enacted legislation for rare diseases is the U.S. Orphan Drug Act (ODA) of 1983. It assigns the “orphan” status to disorders affecting fewer than 200,000 people in the U.S., or for which there is no reasonable expectation that the cost of R&D investments will be recovered in the U.S. market. In 2000, by means of Regulation EC/141/2000, the EU also adopted a specific legislation on this matter, moreover expanding the definition of orphan’s condition to also cover some tropical neglected diseases. Similar legislations exist in Australia and Japan as well).}

Notwithstanding the evident differences between UAEM and OSS approaches, for example, UAEM does not aspire to the typical OS philosophy to build an alternative model of knowledge production, the parallels between the two are still strong. In particular, EA licenses, as the GPL does in the copyright field, leverage the exclusive rights of patents to ensure freedom to access and operate along the chain of
patented technology development to a potential open class of licensees and, treating all actors symmetrically with a standardized scheme, insert the key element of competition for permitting a quicker and less expansive production of innovation.\textsuperscript{156}

V. CONCLUSION

Recent years have witnessed the changing picture of biomedical innovation. Traditional players, such as universities and pharmaceutical companies, have modified their structure and conduct. In the pharmaceutical industry, there have been processes of concentration, through mergers and acquisitions, and at the same time, a separation of duties. Biotech companies, often comprising spin-offs from universities, license inventions to pharmaceutical firms that act more and more as “Virtual Pharmas,” outsourcing increasing parts of drug development as well as clinical testing to specialist research organizations. In addition, universities have converged their basic research efforts to commercial utilization and exploitation. The number of players in the R&D process has thereby increased and this evolution brings opportunities and complications in coordinating and negotiating activities.\textsuperscript{157}

The performance of the biomedical research industry is highly influenced by the policy framework set by governments, with particular reference to public sector funding and incentives for private investment. In order to promote innovation investments, governments, more or less extensively, have finalized a social contract with all potential patentees, granting them a 20-year period of exclusive rights to control the exploitation of their inventions.\textsuperscript{158} This market-based incentive for the enhancement of technical knowledge produces allocative distortions in private investments since it implies insufficient incentives when commercial profitability is low, as demonstrated by the gap in tropical and rare diseases research.

While firms are typically hierarchical structures that are centrally coordinated, markets are decentralized and coordinated through price signals. Although network-based production is decentralized as well, the coordination depends on long-term commitments of participants with a direct reciprocity. In this context, the distinctive image of OS as a bazaar has emerged, wherein contributions are not consciously organized and labor is not divided, but rather distributed, on the basis of voluntary participation and voluntary selection of tasks. Traditional

\textsuperscript{156} See Kapczynski et al., supra note 72, at 1090-91.
\textsuperscript{157} CIPIH Report, supra note 33, at 39.
scientific research and OSS are both, by nature, examples of commons-based peer, or else, bazaar, production. In both areas, contributors' primary relationship is not with each other but with the project, and in OSS, exact project's attributes determine the extension of their “freedom to operate,” as reflected in more or less constraining terms of each OSS license.\footnote{See HOPE, supra note 45, at 106-11.}

Again, OSS projects are generally undertaken by small numbers of individuals who are prospective users of the end product and are connected by clearinghouse websites for sharing their developments. In a similar way, the TDI has created a web-based community of scientists exchanging research results on tropical diseases, and whose contributions are decentralized and voluntary.

The incentives to enter into OSB projects may be similar to the traditional ones pertaining to OSS programmers that, besides the ego gratification from peer recognition, have relevant economic connotations as well. In fact, OS constitutes an alternative business model, and more precisely, a system where financial returns do not derive directly from knowledge exploitation, but rather indirectly from knowledge dissemination. More clearly, OSS projects have demonstrated the offer of strong signaling incentives for contributors, gained through the publication of their works. In doing so, the contributors have increased their opportunities to obtain job offers, venture capital funding, and shares in start-up software companies. Therefore, OSB projects like the TDI should be designed to gain enough effectiveness and popularity for permitting the same level of incentives and benefits offered by OSS.

However, assuming that these voluntary contributions in OSB projects actually lead to a drug candidate, the following phase of drug development remains in the hands of pharmaceutical manufacturers, and insufficient private rewards persevere as an obstacle for the production of low-commercial value medicines. While recent years have seen philanthropic initiatives starting to get involved in drug discovery activities for tropical diseases (such as the PATH Malaria Vaccine Initiative), the further stage of drug development remains uncovered.\footnote{Nicholas J. White, \textit{A Vaccine for Malaria}, 365 NEW ENG. J. MED. 1926 (2011).} In this context, such non-profit organizations, as well as the public sector, may enter into PPPs with private companies owning the necessary capabilities to develop pharmaceuticals, acting as Virtual Pharmas in charge of monitoring “outsourced” R&D activities.

Notwithstanding the ever-increasing commitments of the
wealthiest individuals to philanthropy, these programs should have cost containment as a priority, as drug development implies high risks and costs. OS governance may also be a useful and workable tool in this stage of biomedical R&D. In particular, pharmaceutical enterprises involved in the production of low profitability tropical disease drugs should choose this type of collaboration model. More generally, they might also consider opting for a bazaar-style production in relation to those aspects of the drug development pipeline that do not create a significant competitive advantage for the firm. Essentially, OS-style collaborations would represent a notable opportunity in the final stages of the drug development chain, for example, predictive toxicology testing as well as clinical trial data management.

At the same time, private powers involved in IP production traditionally exert a decisive influence in law making, which in the last few years, has reached the international arena as well. Powerful big firms gathered in de facto “knowledge cartels” have locked in their competitive advantages and persuaded governments to protect private interests through public ordering. Meanwhile, this claimed extension of their monopolistic rights has been accepted by governments for securing private investments into cultural and technological production, as well as for industrial policy concerns. Later, other private actors, such as non-governmental organizations, arrived in the globalized IP regime, and even if not acting in a forum dedicated to hard-law negotiations, have achieved a role as representatives of public interests and for shedding light on the adverse effects of expanded exclusive rights on intellectual goods.

Nowadays, it appears that the time to react has come for other private players involved in the IP rights system. Intellectual commons directly in charge of knowledge production and dissemination originated the OS movement, a process of new “spontaneous ordering” which has led to the formation of communities of users with group identity. Those commons have also perceived the need to formally

161 See, e.g., The Giving Pledge: Pledger Profiles, THE GIVING PLEDGE, http://givingpledge.org/ (last visited Sep. 30, 2013) The Giving Pledge initiative’s goal is to motivate American billionaires to publicly pledge their support into charitable causes and explain the reasons behind that choice in a way to induce other individuals to further commitments.

162 See HOPE, supra note 55, at 253-54.


164 See Peter Drahos, The Regulation of Public Goods, in INTERNATIONAL PUBLIC GOODS AND TRANSFER OF TECHNOLOGY UNDER A GLOBALIZED continued . . .
regulate the exchange of knowledge goods, constituting both inputs and outputs during the exercise of their skills. In other words, OS licensing simultaneously serves the private interest of knowledge developers in ensuring IP availability and the public interest of cultural and technological progress.165

The seed of OS is located in the copyright field but has extended its roots to patent-based biomedical research. These steps are conveying toward a privatization of IP regulation because OS licensing has become a different way to exert IP management. OS licensing has become a model for IP or contract-based agreements in which public interest goals have room, and that now, for this reason, attract the interest of institutionalized collaborations, such as non-profit organizations and universities, as well as public institutions, like governments and state agencies.

The advocates of OS arguments consider this IP management model a means to convey a real change in the law itself. In the framework of the software sector, OS philosophy actually entails an unconventional approach to IP law, in which sharing becomes the new norm. On the contrary, OS-style approaches into biomedical research should just be considered a new way to recoup traditional sharing norms of science and the principle of open access to data. In any case, and exactly for succeeding in sharing goals, often OSS licenses include mechanisms with the aim of contaminating the open scheme applied to the creative work first licensed to derivative works. By doing so, such licenses present the peculiar feature of producing effects that are not limited, and go beyond, the contracting parties, so that private ordering rules tend to gain a public ordering and a normative dimension. The “public character” of copyleft, that is the viral effect, is obtained by a mechanism that ties together the license and the computer program.166 Conversely, biomedical patented inventions are not commercialized as commodities, but directed to specialized persons/scientists, for specific research purposes. Therefore, the copyleft element in OSB, if pursued, needs to be designed on totally different premises, but above all faces peculiar challenges.

In order to mitigate a potential “tragedy of anticommons,” the answer promoted by the OS movement does not actually reside in the public domain. This neologism coined by Michael Heller mirrors the older concern for a “tragedy of the commons,” caused by an overuse

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165 See Dusollier, supra note 102, at 1394.
166 Id. at 1395.
or underuse of intellectual goods. The public domain may still constitute the right choice for securing public availability of inventions which are not a source of competitive advantage for their owners, but more likely of costs, if patented, similar to the case of SNP Consortium. However, the decision to leave an invention in the public domain and unprotected by the law in case of misappropriation, poses a danger in the sustainability of open access and use of innovation. This limitation of public domain clearly explains why OSS projects, in which the lever of copyright is used to maintain the public accessibility of works, are objects of evaluation and attempts of translation in the biomedical area. In the latter case, the strategy shall be to use the exclusive rights of patents through grant-back provisions inserted in license agreements. Other than some competition law concerns deriving from that use of grant-back provisions, the distinction between improvements and a new invention is crucial, but could be quite intricate. Further, contractual clauses inserted in existing projects are not always helpful since they are often mere statements with ideological flavors.

The sharing norm within OS philosophy is only truly effective if it persists along the chain of successive parties. When innovation developed through OSB projects deviates from the protection offered by patents, in whole, like genetic databases, or in part, such as know-how, there is the problem that entire contracts or some contractual clauses are based on pure private ordering mechanisms in such a way that erga omnes opposability is compromised. Furthermore, seeing as the basic purpose of OSB projects is to widen the dissemination of scientific knowledge and its benefits, some considerations about the impediments deriving from the territorial scope of patents are required, as well as an evaluation of the “global propensity” of OS licenses for obtaining a worldwide application of licenses' terms.

Recently, the success of OSS as a governance structure whose

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167 Id. at 1397-98.
169 For example, the BiOS CAMBIA project is a protected commons based on a licensing mechanism which guarantees a non-exclusive, royalty-free right to the access and use of its patents for all members, on the condition that any improvement, patented or not, is subject to the same contractual obligations, and giving the power to the members to consider as an improvement any other invention that they want to share with the pool. BiOS-compatible Agreement Listing, CAMBIA, http://www.bios.net/daisy/bios/mta/agreement-patented.html (last visited Aug. 29, 2013). See also Dusollier, supra note 102, at 1408.
170 See Dusollier, supra note 102, at 1427-33.
methodologies minimize production and transaction costs, and ensure adaptability in case of customization needs, have induced public administrations to cast a glance toward OS as a way to face resource constraints and obstacles deriving from standardized, but sometimes not interoperable, software programs. On similar grounds, the great anxiety deriving from the privatization of knowledge goods coupled with the discovery of OS licensing schemes intended to guarantee knowledge availability by contractual means, led public and public-interest institutions to use private ordering mechanisms as well. For instance, and with reference to the biomedical field, policy goals have been embedded into contracts with research funding recipients in order to mitigate the adverse effects of patent exclusive rights. An outstanding example is the IP policy of the California Institute for Regenerative Medicine (“CIRM”), a state agency funding human embryonic stem cell research. While patenting by recipients of public money is allowed, CIRM requires by contract that patented inventions be “readily accessible” to Californian institutions for non-commercial research purposes.

This effort, together with all previous illustrations of university and non-profit organization initiatives for patent regulation, may not only manifest that a real anticommons peril exists, but also illustrate that a contractual approach is able to minimize its effects. Although the features of these actions are profoundly different, there are commonalities in rationales for adopting these OS-style funding agreements and licenses. They all reveal that traditional public patent law flexibilities, such as research exemptions, are recognized as limited in their effectiveness, not only by individuals engaged in innovation development, but also by organizations which fund those activities and where research takes place. These entities have become aware of the potential of alternative private ordering mechanisms to guarantee the fulfillment of their public interest goals, including scientific progress and access to health care, pursued, in some degree,


thanks to public money.\textsuperscript{173}

\textsuperscript{173} See Lee, \textit{supra} note 173, at 889.
PRIVATE FAIR USE: STRENGTHENING POLISH COPYRIGHT PROTECTION OF ONLINE WORKS BY LOOKING TO U.S. COPYRIGHT LAW

Michał Pękała†

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I. INTRODUCTION

In 2008, Poland was sixth in the world in illegally publishing copyrighted works on the Internet, providing about 5% of the world’s pirated works.¹ Such illegal activity in Poland² is so pervasive that often movies or music albums are available online before the official date of release. With illegal computer software, the situation is even worse. Poland contributes 8% of the world’s pirated computer games and programs.³

Rampant piracy in Poland is possible due to the absence of legislation that prohibits downloading pirated files from the Internet. According to the fair use provision in Article 23 of the Polish Copyright Act (“PCA”), downloading files from the Internet for personal use is permitted.⁴ This provision is an incentive for illegal activity among Internet users.⁵ Publishing houses lose millions of

² In Poland, piracy is illegal. Art. 115.1 of Polish Copyright Act provides that “[w]hoever usurps the authorship or misleads others as to the authorship of a whole or a part of another person's work or another person's artistic performance shall be liable to a fine, restriction of liberty, or deprivation of liberty of up to three years.” Ustawa o Prawie Autorskim i Prawach Pokrewnych [Ustawa o Prawie Autorskim] [The Copyright Act] (consolidated text DZIENNIK USTAW RZECZYPOSPOLITEJ POLSKIEJ [Dz. U.] [JOURNAL OF LAWS OF THE REPUBLIC OF POLAND], 1994, vol. 24, item 83, art. 115.1), available at http://www.wipo.int/wipolex/en/text.jsp?file_id=129378 (hereinafter Polish Copyright Act).
³ Anam, supra note 1. The country with the highest piracy rate is China (86% of users in China download infringing content). Kamila Urbańska, 48% Polskich Internautów to Piraci Komputerowi [48% of Polish Internet Users are Software Pirates], EGOSPODARKA.PL (Sept. 15, 2011), http://www.egospodarka.pl/70924,polskich-internautow-to-piraci-komputerowi,1,39,1.html.
⁴ Polish Copyright Act art. 23.
⁵ On the other hand, uploading files online without the consent of a copyright owner is illegal under Polish law. Existing provisions give law enforcement a small opportunity to fight against online pirates, but in reality it does not work. According to the Polish criminal code, if a person uploads files illegally he may be sentenced to a fine, a restriction of liberty, or be sent to jail for two years. Polish Copyright Act art. 116-122. In Poland, so far only one person has been sentenced to prison for copyright infringement. Most online pirates are sentenced to a fine or suspended imprisonment. In 2009, the District Court of Koszalin sentenced an Armenian merchant to two years of imprisonment for selling infringed copyrighted works. The court decided on such punishment because the Armenian had been previously sentenced to suspended imprisonment for the same crime in 2005. In 2010, during continued . . .
zlotys each year because more and more people decide to acquire movies, music and books from “pirate websites.” Consequently, publishing companies raise their prices or even withdraw from the Polish market. Accordingly, individuals who want to legally buy music or movies must pay more. Inevitably many decide not to, which perpetuates this vicious cycle.

An Ipsos Public Affairs poll of Polish Internet users showed that more than 48% use illegal software and share other’s work without the creator’s consent. The survey included Internet users with varying levels of sophistication. The outcome showed that even business decision-makers admit to obtaining online content illegally.

Poland is not the only country struggling with illegal downloading. The state of piracy in the U.S. portrays how widespread the problem is. The Recording Industry Association of America ("RIAA") maintains statistics about the size of the problem. According to one notorious case, a student was sentenced by the court to suspended imprisonment and returning two percent of the value of all pirated works he had. The total value of infringed works was almost $120,000. "Ciężkie Czasy dla Piratów [Hard times for the Pirates], FAKT.PL (Jan. 5, 2010, 6:19 PM), http://www.fakt.pl/Ciezkie-czasy-dla-piratow,artykuly,61081,1.html.


8 Id. (providing that an average US music CD costs $17, in Poland the CD would cost 50zl, while an average monthly US income is around $2500, in Poland the average is 2000zł).

9 Urbańska, supra note 3.


11 Urbańska, supra note 3. See Baranowska-Skimina, supra note 6 (noting that such activity has a negative outcome on the global market). A survey performed by International Data Corporation shows that online piracy inhibits the economic growth of the country and the global market itself. Id. According to this survey, in 2009 every fourth computer user in the world had used illegal software and shared another’s works without consent; that the total value of these works and software was estimated at more than $51 billion USD. Id.
official information from the RIAA website, between 1999 and 2009, music sales income in the U.S. dropped 47%, from $14.6 billion to $7.7 billion. In 2009, U.S. consumers paid for only 37% of music downloads. Although the U.S. struggles with its own problems concerning online piracy, it has developed useful mechanisms to protect authors and copyright holders against unauthorized Internet downloading.

Considering the facts and statistics presented above, Poland needs to improve its existing copyright law in the field of Internet protection. This article will focus on the need to change the existing fair use provision in Polish copyright law to match the applicable U.S. fair use model (within the possible scope allowed by European Union directives) and explain why the U.S. approach would be most appropriate for the Polish legal system. Part I will describe the current Polish online copyright law, present shortcomings of a fair use doctrine in Polish law, and compare Polish law to U.S. law regarding this matter. Part II is dedicated to presenting proposals for amending Polish law in the field of fair use provisions, or creating a new solution using the U.S. model. Part II will also describe the process of implementing the proposed solutions and describe the advantages of each solution. Part III will discuss potential critiques and concerns raised by these proposals.

II. COMPARATIVE VIEW OF POLISH AND U.S. ONLINE COPYRIGHT LAW: PROBLEMS WITH DOMESTIC PROTECTION IN POLAND UNDER THE CURRENT REGULATIONS

In theory, the PCA appears to be very well organized and to include all necessary elements required to protect the rights of an author. It follows all the basic ideas of how authors should be treated and what rights they should have. Looking at the statute itself, it may seem that in Poland, an author’s rights are well protected against


13 Id.

14 The Copyright Act and Digital Millennium Copyright Act both cover the issue of protecting authors against unauthorized and unfair use of digital content. Digital Millennium Copyright Act, Pub. L. No. 105-304, 112. Stat. 2860; Copyright Act of 1976, Pub. L. 94-553, 90 Stat. 2541 (not disqualifying any medium from protection).

15 The Polish Copyright Act is generally very similar to the U.S. Copyright Act. Section 106 of the U.S. Copyright Act covers the same rights as Articles 1 and 17 of the Polish Copyright Act. Compare Polish Copyright Act art. 1, 17, with 17 U.S.C. § 106 (2012).
online infringement.\footnote{According to Black’s Law Dictionary, infringement is an “act that interferes with one of the exclusive rights of a patent, copyright, or trademark owner.” \textit{BLACK’S LAW DICTIONARY} 851 (9th ed. 2009). In reference to copyrights, infringement is the act of violating any of a copyright owner’s exclusive rights granted by the federal Copyright Act. 17 U.S.C. §§ 106, 602 (2012). In general, legislators did tremendous work, including a comprehensive copyright law in one uniform act. Legislators provided a transparent and well-organized statutory structure. The entire act contains only 129 articles, divided into chapters and subsections. Legislators also included definitions of the most frequently used terms. \textit{See} Polish Copyright Act art. 6.1.}{16} 

Unfortunately, what seems good in theory does not necessarily work in practice. Because of Article 23 of the PCA,\footnote{Id.}{17} a whole concept of online copyright protection does not exist. Unfortunately, what was meant to provide a balance between the rights of authors and the interest of end users, instead created a gaping hole in a well-crafted mechanism. Part I explores the shortcomings of the fair use provision in the Polish Copyright Act and compares the Polish system with the U.S. approach.

A. Polish Copyright Law Fails to Adequately Protect Authors of Online Works

The following subsection describes end user liability for online activity in light of the PCA and explains the general rights of authors in their works under Polish copyright law. This subsection also explains the lack of sufficient provisions in Poland that could possibly prevent end users from exploiting the works of others.

1. Exclusive Rights of an Author

The most important statute regarding copyright law in Poland is the Act on Copyright and Neighboring Rights, which was enacted on February 4, 1994.\footnote{Id.}{18} The PCA has several general principles that are the very essence of the whole statute and Polish copyright law itself.\footnote{The subject matter under the Polish Copyright Act is “… any manifestation of creative activity of individual nature, established in any form, irrespective of its value, purpose or form of expression,” usually called intellectual work. Polish Copyright Act art. 1. The work is protected if it is man-made and has an individual character, regardless of the form, shape or market value. An intellectual work is understood to be an expression, a non-material legal good embodied in a material object like a book, painting, sculpture, CD, DVD, software stored on computer hard-drive or files stored in cloud computing. Expression, however is the only thing protected by the act. Ideas, methods of procedure, and mathematical formulas are not}
Under Article 17, “an author shall have an exclusive right to use the work and to manage its use throughout all the fields of exploitation and to receive remuneration for the use of the work.”\(^{20}\) Moreover, Article 6 defines a “disseminated work” as one which “has been made available to the public in any way by its author’s permission.”\(^{21}\) Regarding online works, authors are entitled to use online shops like iTunes or Amazon to sell their songs or movies. They may also post their works on websites like YouTube or Pandora.\(^{22}\) Most importantly, under this provision, authors are the only ones who can decide how to disseminate their works, unless they license the works to another individual.\(^{23}\) Thus, any person who wishes to use or copy an author’s work needs the author’s consent.\(^{24}\)

2. **Permissible Use of Protected Works, or “Fair Use”**

Before moving forward, one must understand that European countries, including Poland, do not generally use the term “fair use” to describe copyright limitations. In its place however, different states have developed domestic terminology to describe the same concept, including private use, use of another’s work without permission, etc.\(^{25}\) In Poland, the preferred phrase is “permissible use of protected works,” which is discussed in Chapter 3, division 3 of the Polish Copyright Act.\(^{26}\) However, for the purpose of this article, the general term “fair use” will be used to address all copyright limitations in Poland.

Fair use provisions in Polish law follow the established worldwide approach of balancing the author’s rights with the public’s interest.\(^{27}\)
Thus, the Polish legislature understood that although authors have exclusive rights to their own creations, in order to promote the arts and sciences, there must be limits and exceptions to these rights. Providing such exceptions is important to enable the public to support education and contribute to and benefit from scientific achievements.

Fair use is protected by Polish law in Chapter 3, Articles 23-35 of the PCA. These provisions distinguish between two kinds of fair use: public fair use and private fair use.

a. Public Fair Use

Public fair use is defined in a very clear and simple way. The ultimate goal of public fair use is to secure equal access to knowledge and the useful arts by many. According to the PCA, the public may use works of others in the form of comments, parodies, news reports, and public debates. For the purpose of education, schools may use already disseminated works, teachers may make copies for class materials, and whole collections may be shared with third parties working on research objectives. Moreover, everyone is entitled to use already disseminated works for religious purposes, public security reasons, commercial advertising, and judicial proceedings.

Polish public fair use follows the general standards accepted by most countries and the World Intellectual Property Organization (“WIPO”), and is therefore not a subject matter of this article.

b. Private Fair Use

Articles 23 and 231 of the PCA address a separate group of fair use provisions regarding private entities. The original intent of these provisions was to secure the right of a buyer to purchased products.


29 Polish Copyright Act art. 23-35.
30 Pawel Podrecki et al., supra note 28, at 399.
31 Polish Copyright Act art. 25.1, 26.
32 Id. art. 28, 29.
33 Every work used for these purposes must be properly acknowledged with the name of the author and the source it was taken from. Polish Copyright Act, art. 33, 34.
34 Polish Copyright Act art. 23, 231.
35 Pawel Podrecki et al., supra note 28, at 402.
It was understood at the time of enactment, that everyone should have the right to dispose of previously purchased products without inconvenient legal obstacles. According to the original intent, a person should have the right to make, for his own use, copies of purchased books, CD’s, movies, photos, and maps, and to share them with family and close friends.36

Unfortunately, the construction of Article 23 has caused a lot of discrepancies in interpretation. The English translation of this provision, as provided by the World Intellectual Property Organization, is as follows:

1. It shall be permitted to use free of charge the work having been already disseminated for purposes of personal use without the permission of the author…

2. The scope of personal use shall include use of single copies of works by a circle of people having personal relationships, and in particular any consanguinity, affinity, or social relationship.37

This provision means that for works already disseminated, a person may use the work for personal use free of charge and without the permission of the author.

At the time the Copyright Act was implemented, the Internet in Poland had only recently emerged, and thus, the legal reasoning of Article 23 regarding private fair use was accurate and up to date.38 However, as technology moved forward and access to the Internet expanded rapidly, particularly in cities, Article 23 remained the same. As it was drafted, the legislature did not predict that technology would change so quickly; thus, Article 23 is now outdated and operates contrary to the original intent of the legislature.

Article 23 refers to already disseminated works, which Article 6 defines as works that have, with the permission of the author, been made available to the public in any way.39 Once a work is disseminated, it will always be considered “already disseminated.” Thus, Article 23 in connection with Article 6, allows anyone to use the work of another once that work appears in any medium, whether radio,

36 Id.
37 Polish Copyright Act art. 23
39 Polish Copyright Act art. 6.
television, or YouTube.\textsuperscript{40}

The drafters of the PCA did not limit Article 23 so as to only permit personal use of works that were previously purchased legally. As a result, there is a gaping hole in the PCA. What was supposed to be a facilitation for rightful buyers has become a gateway for immoral and exploitative activity. Downloading movies, music, and books without paying for them is allowed. Moreover, according to the same article, a person who downloads music or movies may share them with family, friends, and even workmates.\textsuperscript{41}

Some scholars argue that, to understand the true meaning of Article 23, one should look to Article 35, the last article in the “Permissible Use” section of the PCA.\textsuperscript{42} Article 35 provides that a fair use “must not infringe the normal use of the work or violate the rightful interests of the author.”\textsuperscript{43} Scholars argue that when read together, these articles show that the creators of the PCA specifically stated that no one should exploit the permissible use of another’s work and the interests of authors. These same scholars believe downloading and using other’s work without remuneration to violate the rightful interests of an author.\textsuperscript{44}

Notwithstanding this reading, courts tend to choose a different approach. According to “Rzeczpospolita Prawo,” a popular and respected Polish daily newspaper about legal matters,\textsuperscript{45} there is no single judgment that concludes downloading files from the Internet is a violation of the law.\textsuperscript{46} Conversely, there is no record of any judgment that determines whether downloading files from the Internet is valid or not.\textsuperscript{47} Accordingly, it appears that no cases have been filed alleging violations of Article 23 or 35. The only time that Article 35 appears in court rulings is when it is used in a supplementary form, in order to explain the court’s reasoning in particular cases, none of which involve a claim of illegal downloading of online works.\textsuperscript{48}

\textsuperscript{40} Id. art. 23.
\textsuperscript{41} Id.
\textsuperscript{42} PODRECKI ET AL., supra note 28, at 402-03.
\textsuperscript{43} Polish Copyright Act art. 35.
\textsuperscript{44} PODRECKI ET AL., supra note 28, at 403.
\textsuperscript{45} See RZECZPOSPOLITA: PRAWO [REPUBLIC: THE LAW], http://prawo.rp.pl.
\textsuperscript{47} For purposes of this paper, research was performed on LexPolonica, the Polish equivalent of LexisNexis, in order to find judgments regarding violations of Articles 23 and 35 of the PCA. At the time of this Article, no judgments were reported.
\textsuperscript{48} At the time of this Article, only three cases mentioned Article 35 of the PCA, continued . . .
c. Protection of Computer Programs in Copyright Act

In contrast to its treatment of online works, the PCA dedicates a separate chapter of the Act to a particular kind of work, software, and adequately protects it from infringement. In general, computer programs are not subject to the permissible use exception. According to Article 74, “[c]omputer programs shall be subject to protection as literary works, unless the provisions of this Chapter provide otherwise[.]”\(^49\) and Article 77 adds that “Article 23 . . . shall not apply to computer programs.”\(^50\) Consequently, no one may download computer programs without consent of the owner, even for a private purpose. Downloading software like Microsoft Word or Quake without payment to the owner is illegal and can result in civil and criminal liability.\(^51\) Rightful owners cannot lend their copies of a computer program to a friend, nor can they make another copy for their own use.

There are many cases involving illegal downloading of computer programs in Poland and in most cases, courts find the downloaders guilty of violating Articles 74 and 77 of the PCA.\(^52\)

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\(^49\) Polish Copyright Act art. 74.

\(^50\) Id. art. 77.

\(^51\) See Id. art. 79, 116. Article 79 of the PCA states that: “1. The rightholder may request from the person who infringed his/her economic rights to: 1) cease such infringement; 2) eliminate the consequences of the infringement; 3) repair the inflicted damage: a) on the general terms or b) by payment of double, or where the infringement is culpable, triple the amount of respective remuneration that would have been due as of the time of claiming it in exchange for the rightholder’s consent for the use of the work; 4) render the acquired benefits.” Id. art. 79. Article 116 constitutes the criminal liability of the infringer: “1.) Whoever, without authorization or against its terms and conditions, disseminates other persons’ work, artistic performance, phonogram, videogram or broadcast in the original or derivative version shall be liable to a fine, restriction of liberty or imprisonment for up to 2 years. 2.) If the offender commits the act specified in paragraph 1 above in order to gain material benefits, he/she shall be liable to imprisonment for up to 3 years. 3.) If the offender commits the offence specified in paragraph 1 above a regular source of income or organizes or manages a criminal activity as specified in paragraph 1, he/she shall be liable to imprisonment for 6 months to 5 years. 4.) If the offender of the act specified in paragraph 1 above acts unintentionally, he/she shall be liable to a fine, restriction of liberty or imprisonment for up to one year.” Id. art. 116.

\(^52\) There are many cases involving the violation of Articles 74 and 77 of the PCA. See, e.g., Sąd Najwyższy [Supreme Court of Poland] Aug. 19, 2009, WYROC continued . . .
Computer programs are protected in a superior way to music, movies, and books. This discrepancy is adverse to the interests of authors and the public. Because of this distinction, courts may understand the legislative purpose of Article 23 to permit anyone to download files from the Internet without their creators’ consent. People learn that they do not have to pay for certain types of goods, and model their behavior accordingly.53

B. U.S. Copyright Law for Online Works Sufficiently Protects Authors

American and Polish laws are similar in that they both set forth the exclusive rights of a copyright owner. Section 106 of the U.S. Copyright Act and Articles 17–22 of the PCA adopt a similar approach, stating that copyright holders have the exclusive rights to use, reproduce copyrighted works in copies or phonorecords, disseminate, prepare derivative works based upon previous works, and distribute copies for remuneration.54 The major difference between the American and Polish approach, however, is Section 107 of the U.S. Copyright Act (in contrast to Article 23 of the PCA).55

Fair use in the United States is a doctrine that limits the exclusive rights granted by copyright law and provides that in some circumstances, people should not be liable for actions otherwise infringing copyrights.56 A reason for this limitation can be found in the U.S. Constitution, which states that “[t]he Congress shall have Power . . . [t]o promote the Progress of Science and useful Arts, by securing for limited Times to Authors and Inventors the exclusive Right to their respective Writings and Discoveries,” which is the basis for copyright protection in general.57 The emphasis however, should be placed on the expression “[t]o promote the Progress of Science and
useful Arts . . .,” because every creation made by a man is somehow derivative or influenced by works of others, and therefore, fair use is necessary to secure that progress.\(^{58}\) If fair use did not exist, no one could ever write a research paper, or create a love story about two young kids whose families’ hate of each other eventually led to their death.\(^{59}\)

Although at first not codified, fair use emerged from court rulings and finally found its place in Section 107 of the U.S. Copyright Act in 1976.\(^{60}\) Section 107 provides an exception to copyright infringement: where the use of the work is “for purposes such as criticism, comment, news reporting, teaching (including multiple copies for classroom use), scholarship, or research.”\(^{61}\) To determine whether the use is fair use, Section 107 states that a court must consider four factors:

1. the purpose and character of the use, including whether such use is of a commercial nature or is for nonprofit educational purposes;
2. the nature of the copyrighted work;
3. the amount and substantiality of the portion used in relation to the copyrighted work as a whole; and
4. the effect of the use upon the potential market for or value of the copyrighted work.\(^{62}\)

Courts must always consider at least these four factors, but may consider additional elements that may be important to the particular case.\(^{63}\)

The first factor, the character and purpose of the use, is considered to be “the heart of the fair use doctrine.”\(^{64}\) It addresses the issue of whether the use was justified because it stimulated artistic creativity or

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\(^{59}\) See Nichols v. Universal Pictures Corp., 45 F.2d 119 (2d Cir. 1930) (ruling that there has to be some limits to the protection of works, otherwise people would be unable to express new ideas).

\(^{60}\) Even though fair use is mostly an outcome of the common law, U.S. courts have also looked to a British approach, especially The Statute of Anne from 1710. Statute of Anne, 1710, 13 Ann., c.19 (Eng.). See Suntrust Bank v. Houghton Mifflin Co., 268 F.3d 1257, 1260 (11th Cir. 2001).


\(^{62}\) Id.


benefited the public, the core goal of copyright.\textsuperscript{65} In order to answer this question, courts usually divide each case into two questions: whether the use was for commercial or nonprofit educational purposes, and whether the use was transformative.\textsuperscript{66}

Commercial use is more likely to be found as infringing, but this element is not decisive and depends on the particular circumstances surrounding a case.\textsuperscript{67} Courts are likely to conclude that a use is infringing if it led the copyright owner to lose profits. \textsuperscript{68} Noncommercial use, on the other hand, is usually considered to be fair use, because the user does not strive to gain profit. One should remember, however, that even though the use may not be oriented to gain profit, it may still detract from the owner’s monetary gain, and therefore lead to exploitation of his work.\textsuperscript{69}

The other issue regarding the first factor is whether the use was transformative or merely derivative. To answer that, the court will examine if the use of the copyrighted work added any new expression or meaning to the original work.\textsuperscript{70} Transformation of a work may include comments, parody, summary of the facts, or aesthetic declaration.\textsuperscript{71}

The second factor, the nature of the copyrighted work, is directed at the principle that only expressions, and not ideas, may be protected by Copyright.\textsuperscript{72} Thus, the concept of a superhero wearing a mask is not protected, as long as the character is presented in a different way that is sufficient to determine that the new concept was not derived from the original. The second factor also refers to the nature of bare facts, which are also not protected. Reported news or facts covered in


\textsuperscript{66} See Suntrust Bank v. Houghton Mifflin Co., 268 F.3d 1257, 1269 (11th Cir. 2001). See also Blanch v. Koons, 467 F.3d 244, 251-53 (2d Cir. 2006).

\textsuperscript{67} See Campbell, 510 U.S. at 585.

\textsuperscript{68} Id. at 590-91.

\textsuperscript{69} For example, if someone put a copy of an author’s book on the Internet only to prove how good it is and encourage others to buy a copy, it may still lead to loss of the author’s income because others may take the “free copy,” rather than buy the legal one. See A & M Records, Inc. v. Napster, Inc., 239 F.3d 1004, 1017 (9th Cir. 2001).

\textsuperscript{70} See Campbell, 510 U.S. at 569.

\textsuperscript{71} Leval, supra note 58, at 1111.

\textsuperscript{72} See Feist Publications, Inc. v. Rural Telephone Service Co., Inc., 499 U.S. 340, 350-51 (1991) (holding that a compilation of facts can be copyrighted, provided that there is sufficient originality in the compilation, but that the copyright only protects the original elements added by the author and cannot be applied to cover the facts themselves).
a biography can be used to write different stories, as long as the expression of the original story is not copied. However, the scope of fair use is narrower in the case of unpublished works because the author has the exclusive right to control the first appearance of his work.

The third factor, the amount and substantiability of the work taken, considers how much of the original work was used to create a new one. Usually, the larger the amount of original work used, the more likely that copyright infringement will be found. But this factor refers not only to the amount used, but also to the substantiability and quality of the portion taken. Even copying a small part of a work may be found infringing if it is a key component – “the heart” – of the original work.

The last factor, the effect of the use upon the potential market, has its basis in the economic value of the creation. This factor is used to evaluate whether the new use can deprive the original work’s author of income. In other words, courts will determine if the new use results in monetary harm to the original creation. If the new use damages the market value of a copyright owner, this will most likely not be fair use. The same rule applies even if the new use does not compete with the original work. If the new creation could affect the potential market of the original work, it will be found to be infringing.

Fair use in U.S. Copyright law is very broad and has characteristic open-ended standards. Courts have vast discretion in evaluating whether or not one act constitutes fair use, following the four required factors and using their own reasoning. Fair use recognizes a broad spectrum of possibilities of utilizing the works of others without being liable of infringement. Private use, however, is not specifically addressed in Section 107. In order to claim private use is a fair use, one must prove that the four-factor test weighs in his favor, and/or that the court should apply different standards in a particular case.

73 Id. at 353-54.
72 See Campbell, 510 U.S. at 587-88; Leval, supra note 58, at 1122.
73 Campbell, 510 U.S. at 587.
74 In the case involving President Ford’s memoir, the court found that using less than 400 words from the book was actually “the heart of the book,” and thus infringing. See Harper & Row, Publishers, Inc. v. Nation Enters., 471 U.S. 539, 564-65 (1985); Leval, supra note 58, at 1123.
75 See Campbell, 510 U.S. at 590.
76 Id. at 593.
77 See Rogers v. Koons, 960 F.2d 301 (2d Cir. 1992).
79 See Sony Corp. of Am. v. Universal City Studios, Inc., 464 U.S. 417, 496-97
continued...
In most cases, end users will not be allowed to download and share files on the Internet without the copyright owner’s consent. In the recent case of BMG Music v. Gonzalez, the defendant used Kazaa, a file sharing website, to download 30 songs without the authorization of the artists. The defendant claimed that she only acquired samples to determine whether she wanted to buy whole albums. However, the court held that downloading unauthorized copies of musical files using Kazaa software infringed on copyrights of the owners and awarded remedies in the amount of $22,500 to the plaintiff. This ruling applies to all circumstances of downloading and sharing illegal files over the Internet. Apart from the case mentioned above, there are other examples where courts found that downloading files from the Internet without the consent of the authors was an infringement.

C. European Union Directives Permit Poland to Change its Copyright Laws to Close the Loophole Created by Article 23

In order to introduce revisions or amendments into Polish copyright law, they must comply with the applicable EU directives. Any changes may be performed only within the scope granted by these directives. The following subsection will describe the relevant EU directives.

1. Free Private Use Can Be Redesigned

Directive 2001/29/EC (“the Directive”) refers to the issue of fair balance between the interests of right holders and Internet users. The Directive provides the possible scope of exceptions and limitations on the rights of authors. According to Article 5 of the Directive, a Member State may provide “exceptions or limitations” to reproduction rights in regards to use by a private entity. Such use occurs when a natural person reproduces a work in any medium for non-commercial

81 BMG Music v. Gonzalez, 430 F.3d 888 (7th Cir. 2005).
82 Id. at 890.
83 Id.
84 Id. at 889.
87 Id. art. 5.
private use.\textsuperscript{88}

Any Member State may or may not decide to implement exceptions or limitations to reproduction rights. Moreover, subsection 5 of Article 5 expressly states that exceptions and limitations should be applied only in very certain and special cases, so as not to disturb the interests of right holders and not to conflict with the normal exploitation of the works.\textsuperscript{89}

In addition, the Preamble of the Directive provides a guide on how to implement provided solutions in a domestic legal system. Section 31 of the Preamble states that “the existing exceptions and limitations to the rights as set out by the Member States have to be reassessed in the light of the new electronic environment” because they may have a potentially negative impact on the internal market and commerce.\textsuperscript{90}

Another section of the Preamble, Section 38, states that private digital copying may have a greater economic impact on a market, and therefore Member States should take into account “the differences between digital and analogue private copying and a distinction should be made in certain respects between them.”\textsuperscript{91}

Current Polish copyright law’s implementation of Article 5 of the Directive does not fulfill the true principles of European Union law presented in the Preamble and is harmful to copyright owners in Poland. It therefore should be changed. Moreover, the Directive allows the Polish government to change the existing shape of Article 23 of the PCA, which is necessary to cure copyright protection.

\textit{2. Poland May Apply More Restrictive Sanctions for Copyright Infringement}

Directive 2004/48/EC in Article 16 states that, without conflicting with the other principles provided in this Directive, “Member States may apply other appropriate sanctions in cases where intellectual property rights have been infringed.”\textsuperscript{92} This provision gives an opportunity to increase liability for copyright infringement in Poland, in addition to the sanctions expressly proposed in the Directive.

\textsuperscript{88} Id. As explained earlier, the Polish government enacted Article 23 of the Polish Copyright Act, which allows any natural person to use and copy the work of others, as long as that use is for a private and non-profit purpose. Polish Copyright Act art. 23.


\textsuperscript{90} Id. pmbl. § 31.

\textsuperscript{91} Id. pmbl. § 38.

III. CLOSING THE “GAPING HOLE” IN THE POLISH FAIR USE PROVISION

In order to cure the problem created by Article 23 of the PCA, there is a strong need to amend or replace the existing provision. Part III of this Article presents two possible solutions. The first solution does not dramatically change the existing law, but rather proposes an amendment to Articles 6 and 23 of the PCA. The second solution proposes an entirely new approach to Polish fair use. The second solution is borrowed from the U.S. law of fair use.

The first solution, the “Simple Solution,” should be considered as a better remedy for the existing problem, and the Polish legislature should choose this path. On the other hand, taking into account all of the advantages of the first proposal, amending an existing provision is usually a short-term solution; therefore, in the future, the legislature should take steps to introduce the second proposal as a permanent solution.

A. “Simple” Solution: Amend the Offending Laws

Poland is a civil law country, and as a member of the family of civil law countries, it has developed its own legal standards and methods of legal interpretation. This situation also applies to copyright law and fair use regulations. The following subsection will describe a method of resolving the current problem by amending the existing regulations in the Polish Copyright Act.

1. A Proposed Amendment of Articles 23 and 6 of the Polish Copyright Act

At the outset, it is important to remember that existing Polish law has developed legal standards of interpretation. Thus, to prevent confusion and another dilemma with interpretation, it may be advisable to only add additional provisions to existing Article 23 of the PCA, instead of changing it entirely.

The current Article 23 reads as follows:

1. It shall be permitted to use free of charge the work having been already disseminated for purposes of personal use without the permission of the author. This provision shall not authorize to build constructions according to other authors’ architectural works as well as architectural and urban planning works and to use electronic data bases possessing the features of a piece
of work unless this applies to one’s own scientific use not connected with any profit-gaining purposes.

2. The scope of the personal use shall include use of single copies of works by a circle of people having personal relationships, and in particular any consanguinity, affinity or social relationship.\(^\text{93}\)

In order to maintain the general shape of the current regulations, an amendment should be performed in a subtle way so as not to perturb overall construction. Thus, Article 23 should not be rewritten as a whole. Rather, adding one additional paragraph that refers only to digital works is sufficient. Amended Article 23 of the PCA would read as follows:

1. It shall be permitted to use free of charge the work having been already disseminated for purposes of personal use without the permission of the author.

1\(^1\). This provision does not authorize building constructions according to other authors’ works in the field of architecture and town planning.

1\(^2\). \textit{In relation to online digital works, this Article applies only where one has legally purchased a copy of the work or where the authors of those works have stated that they do not expect remuneration.}

2. The scope of the personal use shall include the circle of people remaining in personal relationship and in particular family relations, kinship, or social relationship.

The first paragraph has been separated into two subparagraphs in order to simplify the understanding of the provision. The key meaning of the added regulation is to express that Article 23 refers only to works acquired in a legal way. This presented solution is clear and simple, does not interfere with the rest of the act, and is easy to interpret. If the work was legally acquired, one may use it for private purposes, such as making backup copies or sharing with family or friends. This paragraph also provides a clarification regarding online digital works, especially those available over the Internet. No longer may one argue that since the work was already disseminated, he or she can download a movie or music from a website for free unless the author of the work has stated otherwise.

\(^{93}\) Polish Copyright Act art. 23.
In order to avoid future misinterpretation, Article 6 of the PCA should be amended as well to provide a clear definition of the term “online digital work.” In its current form, Article 6 reads as follows:

Pursuant to this Act:

(1) published work shall mean a piece of work which has been reproduced and its copies have been made available to the public by its author’s permission;

(2) simultaneous publication shall mean publication of a piece of work on the territory of the Republic of Poland and abroad within the period of 30 days from the date of its first publication;

(3) disseminated work shall mean a piece of work which has been made available to the public in any way by its author’s permission.\(^94\)

To provide a transparent understanding of Article 23, the following definition should be added to Article 6: (4) online digital work shall mean a material that resides on a system or a network controlled or operated by or for an internet service provider.

The above definition will clarify a term used in the amendment to Article 23 to avoid problems regarding interpretation of the article. The term “digital work” was selected based upon the language used in the “Agreed statement concerning Article 1(4)” of the World Intellectual Property Organization Copyright Treaty (hereinafter “WIPO WCT”).\(^95\) Since Poland is a member to the WIPO WCT, using the term “digital work” is appropriate. The word “online” however, was added to clarify that the amendment to Article 23 should refer to works published in an online environment.

The construction of the definition itself was taken from the U.S. Digital Millennium Copyright Act (“DMCA”).\(^96\) Section 202 of the DMCA defines “online material” as “material that resides on a system or the network controlled or operated by or for the service provider.”\(^97\) Although the DMCA is concerned with the liability of Internet service providers rather than downloading, its definition of “online material” still fits into the concept presented in the proposal.

\(^94\) Polish Copyright Act art. 6.
2. Advantages of the First Approach

The purpose of every policy proposal is to provide a simple, effective, and clear solution to the existing problem. The above-presented idea meets all of these goals. The amendment as a whole is efficient; the total outcome adds only two new paragraphs to the entire body of the statute. The language is plain and simple, does not leave room for ambiguity, and provides clear definitions of terms. The proposal does not create its own language, but rather borrows from verified sources like international treaties and U.S. legislation. This means that the amended PCA could easily be understood by foreign lawyers and copyright holders, which is important given the worldwide scope of copyright law.

On the other hand, domestic regulation would not be affected, causing new problems. The presented solution simply clarifies the existing approach and helps protect legitimate interests of both authors and buyers.

B. The Complex Solution: Replace the Offending Laws with American–Style Fair Use Provisions

Alternatively, the legislature might consider adopting a totally new approach to fair use in Poland. The following subsection will introduce and discuss such an approach, which includes elements derived from the U.S. approach.

1. Fair Use Provision Based on the U.S. Approach

Taking into account the advantages of the American approach, Poland might incorporate a U.S.-style fair use provision into the existing PCA. More specifically, Article 23 of the PCA could be replaced with an entirely new formula based on Section 107 of the United States Code.98

A new version of Article 23 could read as follows:

Article 23

Notwithstanding articles 17 – 22 of this act, the permissible use of a copyrighted work for the purpose of personal use is not an infringement of copyright. In determining whether the use made of a work in any

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particular case is a permissible use, the factors to be considered shall include:

(1) the purpose and character of the use;

(2) whether the amount and substantiality of the portion used in relation to the copyrighted work as a whole is reasonable; and

(3) whether the effect of the use upon the potential market for or value of the copyrighted work does not harm the copyright owner.

The structure of the above provision is very similar to Section 107 of the United States Code. The factor-based test and open-ended standards of interpretation would allow Polish courts to address fair use on a case-by-case basis. This is advantageous given that technology will always be one step ahead of the legislature. What is up to date now may be obsolete tomorrow. The best example is the current Polish fair use provision. Even though it was enacted in 1994, it does not reflect current needs for copyright protection. The U.S. fair use provision on the other hand, despite the fact that it is almost 20 years older, is flexible and still works.

Although the above solution is derived from the U.S. approach, it has a few major differences. First, it applies only to private use. As was stated in the previous section, public use in Polish copyright law does not require any changes. Second, each factor in the factor-based test is slightly different from the U.S. test. The first factor refers to the character and purpose of use but does not distinguish between a commercial or noncommercial use, which would allow each court to determine the character and purpose of the use in a particular case. Thus, courts would not have to determine whether a commercial aspect was important or not in any particular case. For example, based upon the meaning of the first factor, if someone makes a copy of a rented movie, the purpose and character of the use does not constitute a fair use defense. But, if the same person purchases a movie from a legal source and later makes a backup copy for personal use, that constitutes a fair use of protected work.

The second factor is almost an exact copy of Section 107 of the United States Code, with one exception: the addition of “reasonable.” This word was added to emphasize that even though the amount and substantiality of the use are important, each use must be reasonable. Therefore, using the whole work may be a reasonable fair use in one situation, while in another situation, only a small portion may be sufficient to constitute fair use. Courts in each case will focus on the reasonableness of the use, as well as measuring the amount and
The last factor appears directly as it does in Section 107 of the United States Code. According to this factor, courts would make sure that use of the protected work does not harm the work’s potential or existing market.

Like U.S. courts, Polish courts would not be limited to the factor-based test. Rather, courts would maintain a wide discretion to apply additional factors, as each case demands.

Finally, it is important to note that the new provision does not include the second factor of the U.S. fair use test—“the nature of the copyrighted work.” That factor considers whether one copies ideas, expressions, or bare facts. As was previously stated, however, Polish fair use provides sufficient protection in the matter of public fair use. Therefore, inclusion of the second American factor might interfere with existing regulations and eventually cause ambiguity or contradiction.

2. Advantages of the Second Approach

Introducing a U.S.-style fair use provision to the Polish system would entirely change the scope of the current regulation. Courts would no longer have to deal with the narrow existing regulation. Further, no more could one say that it is not clear whether he or she may download content from the Internet. If an act of downloading would not be fair use according to the factor-based test or additional elements applied by the court, it would be an infringement. Moreover, ever-changing technological conditions could be applied to a new provision, according to current needs. The legislature would not have to amend the fair use provision every time a new medium of fixation appeared.

IV. CRITICISMS OF THE PROPOSED SOLUTIONS

The following section will describe potential criticisms to the presented proposals and respond to them.

A. Criticisms of Both Solutions

The obvious objection to both solutions is that they will not work. As noted in the Introduction, even though the PCA explicitly states that downloading and uploading computer programs without consent is prohibited, it still takes place. Why then, would amending the PCA
or adding an entirely new provision make a difference regarding copyrighted works?
The first reason is because the current law allows downloading copyrighted content. The most important step is to state that this is no longer allowed. Both solutions provide a mechanism to do this. Regardless of the method selected, downloading files from the Internet without the owners consent would no longer be allowed.

Second, either solution will become a tool for authors, giving them a legal basis for protecting their works in court. It will be possible to prove in court that not every use is fair and therefore lawful. The outcome will be similar to the U.S. situation, where one must have a good reason to use the works of others; otherwise, one faces possible liability.

B. Criticisms of the Complex Solution

The following subsection will describe criticisms of the complex solution and responses to them.

1. Political Infeasibility

Because the complex solution introduces a U.S. approach to the Polish legal system, perhaps the most compelling criticism would concern its foreign nature. One could argue that Poland has its own legal and political traditions and that they should not be mixed with foreign customs and ideas.

It is true that Poland is a civil law country and did not develop a fair use provision similar to the American model. However, as was described in the previous section, implementation of a U.S.-style fair use doctrine is very feasible from a technical point of view. It is also politically feasible, as evidenced by recent statements of the Polish government. In October 2012, the Polish Minister of Justice declared that the government is working on a proposal to introduce changes into Polish law, similar to the U.S. legal system. According to information acquired by the Polish law newspaper, Rzeczpospolita Prawo, the government plans to introduce more adversarial proceedings into the Polish law system, where the burden of proof would be put on parties, instead of the judge. The judge would


101 Id.
become a referee, ensuring the fairness of the trial. The current inquisitorial role of the judge would be abolished.

Moreover, Professor Roman Tokarczyk, a well-known and respected Polish scholar specializing in American law, believes that Poland could adopt a U.S. approach to the appointment of judges. He believes, specifically, that one who has demonstrated exemplary work in other legal professions over years of practice may apply for judicial nomination.

Adopting legal standards from other countries is not a new idea in Poland. The existing Polish codification contains ideas and approaches taken from different legal systems, such as Germany, Russia or the U.S. The current Polish Civil Code, for instance, was enacted in 1964, at a time when Poland was governed by communists, and as a result, was inspired by Soviet ideas of that period. Although the code was vastly amended in 1990, adding all necessary elements of a democratic system, the general structure remained the same.

Current Polish regulations have several examples that implement U.S. law. The biggest impact of the U.S. model can be found in Polish criminal procedure. For instance, the Polish Code of Criminal Procedure provides for plea-bargaining, requesting a conviction without trial, and voluntary submission to penalty, all of which are inspired by the U.S. model. The U.S. origin of some provisions in Polish law is particularly important because it already exists and functions without any problems. Therefore, introducing a regulation based on U.S. fair use would not interfere with the spirit of Polish law in any matter. Moreover, research conducted did not show any evidence of Polish politicians opposing the idea of implementing solutions taken from other legal heritages.

2. Ineffectiveness

A final concern that may be raised is that the U.S. approach will not help because the U.S. has its own problems with online piracy. However, the fact that one country has problems with enforcement of

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102 Id.
103 Id.
104 See id.
105 Id. According to current regulations, to become a judge in Poland, one must attend the National Judicial School after graduating from law school. The vast majority of appointed judges in Poland are around the age of 30, without experience.
106 Ustawa Kodeks Cywilny [KC] [Civil Code], Apr. 23, 1964 (Pol.).
107 Ustawa Kodeks Postępowania Karnego [KPK] [Code of Criminal Procedure], June 7, 1997 (Pol.).
108 Domagalski, supra note 100.
a law does not necessarily mean that another country would have similar issues.

V. CONCLUSION

Poland faces a serious problem with the unauthorized downloading of copyrighted works from the Internet. Therefore, the current Polish copyright law requires a change. The proposed solutions answer the problem of online piracy in Poland, and one of them should be implemented into the Polish Copyright Act. Changing the law is the first step to closing the gaping hole in the Polish copyright law.
THE DMCA'S SAFE HARBOR PROVISION: IS IT REALLY KEEPING THE PIRATES AT BAY?

Charles K. Lane†

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Imagine you’re the captain of a giant cargo ship in the middle of an ocean. Your ship is surrounded by countless other ships, some of which are using the ocean for innocent purposes, such as fishing. The rest are fleets of pirate ships constantly stealing your cargo. Generals of the fleets command their ships from a harbor. You could quickly stop the attacks if only you could take out the generals, but unfortunately your attacks cannot reach the harbor. Instead, you have two attack options – target individual pirate ships (an inefficient use of your resources), or launch massive attacks (running the risk of damaging fishing boats and pirate ships alike).

This is the battle currently being waged over copyrighted material on the Internet. Compare the cargo ship to a copyright holder (e.g., a music record label) and the cargo to the label’s copyrighted material. The maritime pirates, of course, play the role of their brethren of the Internet variety. The fishing boats play the role of legally protected fair users of copyrighted material, and the generals can be equated to Internet service providers who qualify for Digital Millennium Copyright Act (“DMCA”) safe harbor protection.

This scene illustrates the conundrum of copyrighted material on the Internet: a copyright holder cannot protect his copyright until it has been infringed, and a fair user cannot defend his use until it has been inhibited. This article proposes a solution that benefits both the copyright holder and the copyright user, while curbing circumvention of copyright protections. This solution, discussed in depth below, essentially proposes two things: a modification to the anti-circumvention devices actually placed on copyrighted material and an expedited, third party takedown procedure for faster resolutions.

This article will provide background on selected portions of the DMCA addressing safe harbor protection, anti-circumvention measures, and takedown procedures. It will then identify two primary problems with the DMCA: circumvention of copyright protection is too easy, and copyright holders have too much power in the takedown process. Finally, the article will address these two issues with proposed solutions that will benefit all parties involved.

The Internet is a vast area, and copyrights protect expression in many forms. In the interest of precision, this article will focus primarily on copyright protection as it relates to digital audio files to illustrate the current landscape of the safe harbor.
II. THE DIGITAL MILLENNIUM COPYRIGHT ACT OF 1998 (DMCA)

A. Background

Congress passed the DMCA in 1998 in response to growing concerns over copyright protection on the Internet.1 As the story goes, the Clinton administration desired to strengthen online copyright protection to increase the spreading of ideas on the Internet.2 Met with resistance at home, the Clinton administration pushed for an international conference on copyright protection.3 The administration hoped that an international treaty would inspire confidence through international uniformity among copyright holders.4 In 1996, member nations of the World Intellectual Property Organization (“WIPO”), an agency of the United Nations, gathered to discuss copyright law.5

This international conference resulted in two treaties: the WIPO Copyright Treaty (“WCT”) and the WIPO Performances and Phonograms Treaty (“WPPT”).6 In 1998, Congress codified portions of these treaties in the form of the DMCA.7 The following two sections discuss the two portions of legislation most relevant to this article: the “safe harbor” provisions and the anti-circumvention measures.

B. Section 512: The Safe Harbor Provision

While Congress passed the DMCA generally to encourage copyright holders to spread information, Section 512 serves an opposite, yet equally important function: to encourage service providers to handle copyrighted material without constant fear of litigation.8 The DMCA defines a service provider as “an entity

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2 David Robinson, DMCA Week, Part I: How the DMCA Was Born, FREEDOM TO TINKER (Oct. 27, 2008), https://freedom-to-tinker.com/blog/dgr/dmca-week-part-i-how-dmca-was-born/.
3 Id.
4 Id.
5 Id.
8 Frequently Asked Questions (and Answers) About DMCA Safe Harbor, CHILLING EFFECTS, https://www.chillingeffects.org/dmca512/faq.cgi (last visited continued...
offering the transmission, routing, or providing of connections for
digital online communications, between or among points specified by
a user, of material of the user's choosing, without modification to the
content of the material as sent or received” or “a provider of online
services or network access, or the operator of facilities therefor.”
Examples of service providers are YouTube, which hosts user-
submitted videos, and MP3tunes, which hosts “lockers” where users
may store files.

The so-called “safe harbor” provision of the DMCA protects
service providers that meet several basic requirements. A service
provider may escape liability for hosting infringing material if it:

(A) (i) does not have actual knowledge that the material
or an activity using the material on the system or
network is infringing; (ii) in the absence of such actual
knowledge, is not aware of facts or circumstances from
which infringing activity is apparent; or (iii) upon
obtaining such knowledge or awareness, acts
expeditiously to remove, or disable access to, the
material;

(B) does not receive a financial benefit directly
attributable to the infringing activity, in a case in which
the service provider has the right and ability to control
such activity; and

(C) upon notification of claimed infringement as
described in paragraph (3), responds expeditiously to
remove, or disable access to, the material that is
claimed to be infringing or to be the subject of
infringing activity.

In addition to these requirements, a service provider must notify its
users of its policies regarding copyright infringement and follow
proper notice and takedown procedures initiated by copyright
holders.


13 See CHILLING EFFECTS, supra note 8.
15 See CHILLING EFFECTS, supra note 8.
C. Anti-Circumvention Measures

Another important facet of the WIPO treaties and the DMCA was the method by which they sought to punish those who attempted to circumvent copyright protection.\textsuperscript{16} Digital copyrighted works are generally protected by one or both of two kinds of mechanisms: access control and copy control mechanisms.\textsuperscript{17}

Section 1201 of the DMCA defines an access control mechanism as one that “in the ordinary course of its operation, requires the application of information, or a process or a treatment, with the authority of the copyright owner, to gain access to the work.”\textsuperscript{18} An example of this may be a password, without which an end user cannot access the copyrighted material.\textsuperscript{19}

Section 1201 likewise defines a copy control mechanism as one that “in the ordinary course of its operation, prevents, restricts, or otherwise limits the exercise of a right of a copyright owner.”\textsuperscript{20} Examples of copy controls include those that “limit what you can do with the work after you have access (e.g., whether you can copy the work, how many copies can be made, how long you can have possession of the work, and the like).”\textsuperscript{21}

The act of circumvention of one of these controls means “to descramble a scrambled work, to decrypt an encrypted work, or otherwise to avoid, bypass, remove, deactivate, or impair a technological measure, without the authority of the copyright owner.”\textsuperscript{22} Circumvention in this context equates to the pirates jumping onto your ship and breaking down a locked door before stealing your cargo. The policy rationale underlying Section 1201 reflects the feeling that copyright holders will be more confident spreading information if they can adequately safeguard who uses and copies the information.\textsuperscript{23}

The relative ease of circumvention of copyright protection is arguably one of the biggest flaws in the current system. The digital

\begin{itemize}
  \item \textsuperscript{16} 17 U.S.C. § 1201 (2006).
  \item \textsuperscript{17} Frequently Asked Questions (and Answers) About Anticircumvention (DMCA), CHILLING EFFECTS, \url{https://www.chillingeffects.org/anticircumvention/faq.cgi} (last visited Oct. 3, 2013).
  \item \textsuperscript{19} See CHILLING EFFECTS, supra note 17.
  \item \textsuperscript{21} Circumventing Copyright Controls, DIGITAL MEDIA L. PROJECT, \url{http://www.dmlp.org/legal-guide/circumventing-copyright-controls} (last visited Oct. 3, 2013).
  \item \textsuperscript{23} See Robinson, supra note 2.
\end{itemize}
rights management ("DRM") system illustrates this problem. In one common example, a user purchases a song file with an attached encryption key embedded in the file, which works forever. The catch is that this encryption key will only decode the file contents when it is accessed from the computer on which it was originally downloaded. If the user tries to transfer that song to another device, the encryption key will not decode, and the user will not hear the song.

This setup seems secure, but the problem arises when a clever user learns how to detach that encryption key from the file, allowing the song to be played on any device. A quick Google search for “DRM removal” shows how many programs have been designed to carry out the basic function of stripping encryption from protected files. The flaw in the system is that the song file can exist separately from the encryption key. Consider the cargo ship again – the cargo remains intact after the pirates bust down the door. But what if the removal of the access control ruined the song itself? What if the door had dynamite attached to it that detonated when someone broke down the door, destroying the cargo inside? This solution could prevent a substantial amount of copyright infringement on the front end, with little effort from the copyright holder on the back end of the takedown procedure.

D. The Takedown Procedure

Like the steps to qualify for safe harbor protection, the steps to file an effective DMCA takedown notice are fairly simple. To file such a notice, a copyright holder must give a service provider only the following information:

1. The name, address, and electronic signature of the complaining party.
2. The infringing materials and their Internet location, or if the service provider is an "Information

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25 Id.
26 Id.
27 Id.
Location Tool" such as a search engine, the reference or link to the infringing materials.\footnote{17 U.S.C. § 512(d)(3).}

3. Reasonably sufficient information to identify the copyrighted works.\footnote{17 U.S.C. § 512(c)(3)(A)(iv).}

4. A statement by the owner that it has a good faith belief that there is no legal basis for the use of the materials complained of.\footnote{17 U.S.C. § 512(c)(3)(A)(v).}

5. A statement of the accuracy of the notice and, under penalty of perjury, that the complaining party is authorized to act on the behalf of the owner.\footnote{17 U.S.C. § 512(c)(3)(A)(vi).}

Once a service provider receives knowledge of infringing material, through notice from a copyright holder or through its own volition, it must immediately remove the allegedly infringing material to maintain the protection of the safe harbor.\footnote{17 U.S.C. § 512(c)(1)(C) (establishing that in order to qualify for safe harbor protection, a service provider must “respond[] expeditiously to remove, or disable access to, the material that is claimed to be infringing or to be the subject of infringing activity.”).}

No step in the procedure requires that the service provider verify the status of the alleged copyrighted material.\footnote{See CHILLING EFFECTS, supra note 8.}

If a copyright holder meets the requirements above, the service provider will be required to remove the materials immediately or he will face liability.\footnote{Id.}

The result of the takedown procedure is that any user of copyrighted materials, for any purpose, will face the constant threat of takedown with no notice or opportunity to defend himself. Section 512 does, however, provide a post-takedown remedial procedure for users of copyrighted materials.\footnote{Id.}

Once a service provider has notified its subscriber that the subscriber’s material has been removed pursuant to a DMCA takedown notice, the subscriber may file a counter-notice.\footnote{Id.}

The subscriber’s counter-notice to the service provider must include:

1. The subscriber’s name, address, phone number and physical or electronic signature.\footnote{17 U.S.C. § 512(g)(3)(A), (D) (2006).}
2. Identification of the material and its location before removal.41

3. A statement under penalty of perjury that the material was removed by mistake or misidentification.42

4. Subscriber consent to local federal court jurisdiction, or if overseas, to an appropriate judicial body.43

Once a proper counter-notice has been filed, the service provider must immediately notify the claiming copyright holder of the subscriber’s objection to the takedown.44 If the claiming copyright holder does not bring a lawsuit against the subscriber in fourteen days, the service provider must restore the material in question to its original location.45

E. Ramifications of the Takedown Procedure

The takedown procedure poses problems for all parties involved. First, the subscriber has no defense before its material disappears. This article sympathizes not with the subscriber who plainly infringes a copyright, but with the subscriber who has a fair use defense to the copyright holder’s takedown claim. A fair user may have amassed hits and commentary on a video or a number of downloads that he stands to lose if a takedown notice removes his material. Whereas the original motivation behind the DMCA was to encourage the dissemination of copyrighted material, this takedown framework seems to discourage fair uses such as commentary and education (though opinions may differ on the deterrence factor of the takedown threat).

Second, the takedown procedure may not be the most efficient way for copyright holders to protect their copyrights. A copyright holder has to file takedown notices for each individual instance of allegedly infringing material. Alternatively, the copyright holder may save time by using a program that identifies the copyrighted material within a search filter, with no distinction between plain infringement and fair use, or even actual ownership of the copyright.46 This equates to the

cargo ship firing a large blast, eliminating both the pirate ships and the fishermen alike. Even this does not fully benefit the copyright holder: the holder must constantly file individual lawsuits in the short time period after the takedown, and may not wish to litigate every instance of infringement. This situation also presents a moral hazard, because the copyright holder likely values his own copyright more than he values the fair use rights of the individual subscribers.47

Third, the takedown procedure burdens the service provider who, although protected by the safe harbor, must nevertheless act as a conduit between the copyright holder and subscriber. The subscriber may justifiably have a duty to remove infringing material pursuant to a takedown notice; however, it seems inefficient to put the service provider in the role of middleman for counter-notices.

A better solution would allow a more accurate determination of the nature of the use of copyrighted material before takedown. This would benefit both the copyright holder and subscriber by providing a degree of certainty, rather than reverting to litigation for every case. It would also benefit the subscriber who stands to have its material removed without warning. The proposed solution discussed below will expand this and other suggestions to expedite the takedown procedure and (theoretically) please everyone.

III. INTERPRETING THE SAFE HARBOR PROVISION – MP3TUNES

In 2011, the United States District Court for the Southern District of New York, in Capitol Records, Inc. v. MP3tunes, delineated what the safe harbor does and does not protect.48 MP3tunes is a website that allows subscribers to save files in a “locker” hosted on MP3tunes.com.49 Lockers store three categories of files: those purchased directly from MP3tunes, those uploaded from a subscriber’s

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49 Id. at 633.
personal offline hard drive, and those stored elsewhere on the Internet via hyperlink.\textsuperscript{50} MP3tunes owns and operates a separate website called Sideload.com that allows users to search the Internet for files and save them in lockers via hyperlink.\textsuperscript{51} Both MP3tunes and Sideload.com display an anti-infringement policy and contact information for a registered agent designated to process takedown notices.\textsuperscript{52}

In 2007, EMI, Inc. sent a takedown notice to MP3tunes demanding removal of specific song titles and web addresses, as well as “all of EMI’s copyrighted works, even those not specifically identified.”\textsuperscript{53} Upon request from MP3tunes, EMI refused to specify any more infringing materials, alleging that the information provided was enough to require MP3tunes to remove all infringing material.\textsuperscript{54} These files included files hosted by subscribers who were not parties to this lawsuit and files hosted by MP3tunes founder Michael Robertson.\textsuperscript{55}

The court granted partial summary judgment in favor of both EMI and MP3tunes.\textsuperscript{56} EMI won two summary judgment motions.\textsuperscript{57} The first alleged contributory copyright infringement against MP3tunes and Robertson for song titles specifically mentioned in takedown notices that MP3tunes and Robertson failed to remove from user lockers.\textsuperscript{58} EMI’s second successful motion alleged direct infringement against Robertson for “songs he personally sideloaded from unauthorized sites.”\textsuperscript{59}

MP3tunes’ successful motion alleged safe harbor protection for the songs hosted on its website in user lockers.\textsuperscript{60} The court granted this motion with respect to the songs not specifically named in takedown notices.\textsuperscript{61} This holding reinforces the provision in Section 512 that a service provider must have actual knowledge of infringing material before it can be held liable.\textsuperscript{62} The holding makes clear that a service provider must remove all files for which it has actual notice, but is not

\textsuperscript{50} \textit{Id.} at 633-34.
\textsuperscript{51} \textit{Id.} at 634.
\textsuperscript{52} \textit{Id.} at 635.
\textsuperscript{53} \textit{Id.}
\textsuperscript{54} \textit{Id.}
\textsuperscript{55} \textit{Id.} at 650-51.
\textsuperscript{56} \textit{Id.}
\textsuperscript{57} \textit{Id.}
\textsuperscript{58} \textit{Id.}
\textsuperscript{59} \textit{Capitol Records, Inc.}, 821 F. Supp. 2d at 651.
\textsuperscript{60} \textit{Id.}
\textsuperscript{61} \textit{Id.}
considered to have actual notice unless a copyright holder specifically lists the files in a takedown notice.

IV. The Future of Copyright Battles: Waging War in the “Cloud”

Congress passed the DMCA in 1998 to respond to the changing landscape of copyright law – namely, how to protect copyrights on the Internet.63 Today, copyright law faces a similar transition. MP3tunes has extra significance and marks the beginning of a shift to cloud-based computing. What differentiates MP3tunes from file-sharing services of the past (e.g., Limewire) is that rather than downloading files to a personal hard drive, users upload files to MP3tunes’ server and can access the files from any Internet-connected device. The last several years have welcomed cloud-based storage services from Apple, Google, Amazon, and others.64 These services use a controversial process called “deduplication.” Deduplication means that Apple, for example, rather than store multiple copies of the same file uploaded by different users, stores one master copy of the file and allows multiple users to access it.65 Users can only access files that they already own, but the file they access from Apple’s server is not their own – it belongs to Apple. Companies like Apple find this process beneficial because it greatly reduces the amount of server space they have to maintain. For example, if 500,000 Apple subscribers want to stream a song by Justin Bieber, Apple provides its own copy of the song for all subscribers to access rather than storing 500,000 copies of that song. This process saves Apple roughly 190TB of storage space for that one song alone.66 For comparison, the storage

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63 UC RIVERSIDE, supra note 1.
64 Apple’s website, for example, describes its “iTunes Match” program as a service that “determines which songs in your collection are available in the iTunes Store. Any music with a match is automatically added to iCloud for you to listen to anytime, on any device.” http://www.apple.com/itunes/itunes-match/. For more information on Amazon Cloud Player, visit http://www.amazon.com/b/ref=UTF8&node=2658409011. For more information on Google play, visit https://play.google.com/about. For a comparison of all three services, see Peter Kafka, Google’s Music Locker Now Works Like Apple’s and Amazon’s. Except It’s Free, ALLTHINGSD (Dec. 18, 2012, 10:00 AM), http://allthingsd.com/20121218/googles-music-locker-now-works-like-apples-and-amazons-except-its-free.
66 According to Google, 190.735TB = 195,312.5GB = 200,000,000MB = 4MB * 500,000 (an average song at standard compression rate can be estimated around 4MB).
space of an average consumer external hard drive today ranges from 100GB to 4TB.67

V. PROBLEM, PART 1: CIRCUMVENTION IS TOO EASY

DRM protection can be circumvented in several ways. Two common ways are hacking the DRM encryption (illegal) and making a sound recording of a DRM-protected file (sometimes legal).68 The first method is internal in nature – a user would manipulate the file him or herself. The process of making a sound recording to create a new DRM-free file, on the other hand, is external in nature. Unfortunately, it is virtually impossible to fathom an anti-circumvention measure to combat the user who skirts DRM protection by making a sound recording. The next section focuses on the problem that hacking the DRM encryption is relatively easy, and the audio file still plays normally after the DRM encryption has been hacked.

VI. PROPOSAL, PART 1: SELF-DESTROYING FILES

In the “Mission: Impossible” television series from the 1960s, Jim Phelps would receive a top secret mission on a tape recorder concluding with the message: “This tape will self-destruct in five seconds.”69 The tape recorder would then go up in a puff of smoke only 1960s special effects could deliver, rendering the machine unusable and the classified information irretrievable. Copyright protection should make digital audio files similarly irretrievable to pirates, or to return to the recurring metaphor, the cargo should self-destruct when pirates break down the door.

In theory, DRM protection already does exactly this. However, it, unfortunately fails to hold up against circumvention techniques.70 Instead, DRM protection should be adapted to scramble a file in response to a piracy attempt. When a DRM removal tool attempts to

70 See CHILLING EFFECTS, supra note 8 (Noting that the availability of DRM Removal tools online suggests a level of ease to removing DRM protection and using copyrighted material).
unlock a file, the file could scramble itself.

This solution has multiple benefits. First, it only responds to those who attempt to hack the DRM; it does not affect the regular user who uses the file within the parameters of the DRM protection. Second, heightened DRM protection would likely be cost-efficient to the copyright holder. The cost imposed on the copyright holder to implement heightened DRM protection would likely be negated by the revenue saved by preventing DRM stripping. In turn, a reduction in the instances of DRM stripping would likely decrease the quantity of infringing files on the Internet. A lower quantity of infringing files would relieve another burden on the copyright holder because it would reduce the number of DMCA takedown notices the copyright holder needs to file.

**VII. Problem, Part 2: The Existing Takedown Procedure Burdens Copyright Users and Service Providers**

Copyright users face their own burdens in the existing DMCA system. To recap the DMCA takedown procedure: a copyright holder gives notice to a service provider, who then pulls down files named specifically in the notice. If a copyright user believes the takedown to be unjustified, the user may file a counter-notice.\(^\text{71}\) This system treats the fair user and the infringing user exactly the same way; it denies both users the opportunity to defend their respective uses before takedown. Here the means (taking down all allegedly infringing material without notice to the copyright user) is not narrowly tailored to the end (preventing infringement).\(^\text{72}\)

This process puts enforcement in the hands of the copyright holder, who in some cases may have no vested interest in protecting fair use of its copyright. Unfortunately for copyright users, the DMCA does not require the copyright holder to verify that it holds a copyright to each file it names in a takedown notice.\(^\text{73}\) Instead, the DMCA only holds the copyright holder liable for erroneous takedown

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\(^{72}\) An online legal dictionary, TransLegal, defines “narrowly tailored” as “to carefully draft laws or make policies to address a specific objective without affecting other rights or the smooth running of business.” TransLEGAL, http://www.translegal.com/legal-english-dictionary/narrowly-tailored (last visited Oct. 3, 2013).

notices when the copyright holder “knowingly materially misrepresent[s]” its copyright claim. This eases the burden on, but invites abuse by, a large-scale copyright holder. This scenario creates the potential for intentional and unintentional bogus takedown notices.

In 2011, file-hosting service Hotfile claimed that Warner Brothers abused the takedown process by removing files from Hotfile that Warner Brothers did not own. In court, Warner Brothers confirmed the allegation, admitting that: “given the volume and pace of new infringements on Hotfile, Warner could not practically download and view the contents of each file prior to requesting that it be taken down through use of the SRA tool.” Warner Brothers asserted that an overbroad automated search filter erroneously named material Warner Brothers did not own.

In addition to unintentional false takedowns, Warner Brothers admitted to purposefully taking down material it did not own. In one instance, a Warner Brothers employee took down open-source software designed to “facilitate the rapid downloading of the infringing Warner content.” Warner also conceded that it “was not the owner of the software itself.”

The Hotfile-Warner Brothers conflict illustrates the imbalance of power in the DMCA takedown process. A copyright holder can take down three kinds of material without notice to the user: infringed material it owns, fairly used material it owns, and material it does not own. All three types of material are subject to immediate removal, even though only the first type deserves to be taken down pursuant to the law. The next section will propose a solution that expedites the process and gives the user an opportunity to defend its use before removal.

74 Id.
75 See Ernesto, supra note 46 (“Hotfile has evidence that Warner used an antipiracy tool provided by Hotfile at Warner’s request to improperly remove material for which Warner did not own a copyright, and that Warner removed some material without ever verifying the contents of what it was deleting.”).
77 Id. (“Warner admits that its records indicate that URLs containing the phrases ‘The Box That Changed Britain’ and ‘Cancer Step Outsider of the Box’ were requested for takedown through use of the SRA tool.”).
78 Id.
79 Id.
80 Id.
The copyright holder has the upper hand in the current takedown procedure. An ideal solution would bring this power back into balance. That solution needs to address two overarching goals: (1) notify the copyright user before takedown, and (2) put enforcement of takedowns in the hands of an independent entity.

A. Pre-Takedown Notice for the Copyright User

First and foremost, the copyright user must receive notice before the service provider removes the material in question. This move will create its own issues, but no solution can adequately address the shortcomings of the DMCA takedown procedure without it. The copyright holder will notify the service provider, who will then provide notice to the user but take no further action.

This modification has obvious advantages to the copyright user. A fair user finally gains the opportunity to defend itself and keep its material online without a gap. It also protects users from erroneous takedown notices like those discussed in the context of Hotfile and Warner Brothers.

However, this modification taken in a vacuum also presents a new burden to the copyright holder. The time period in which the copyright user may defend its use means more time that infringing material remains online. Therefore, a solution implementing this change needs to retain an element of efficiency. The longer the process takes, the longer a copyright holder must wait to rightfully remove its material from the Internet.

Another issue arises when the nature of the copyrighted material does not clearly specify whether a use should be classified as fair or infringing. In a recent example, Don Henley, a member of American classic rock band The Eagles, threatened a lawsuit against Frank Ocean, a musician who used a sample of the Eagles’ classic song “Hotel California.” August Brown, The Eagles’ Rep Responds to Frank Ocean’s ‘Hotel California’ Sample, L.A. TIMES (Mar. 1, 2012, 8:56 AM), http://latimesblogs.latimes.com/music_blog/2012/02/the-eagles-reps-respond-to-frank-oceans-hotel-california-sample.html.
of use involved and treats all uses equally. Therefore, any adequate solution should provide for at least some analysis of the type of use involved before takedown.

B. Independent Copyright Dispute Resolution Entity

The Hotfile-Warner Brothers conflict illustrates how much power the copyright holder can have in the takedown process. The holder determines which files come down, subject to a standard of "good faith" belief. Any adequate solution should remove bias from the determination of which files to remove. This duty would be best suited for an independent entity.

The question then becomes: which entity can make determinations of which files to remove, and how can that entity remain independent? The determinations will affect federal copyright law. Presumably, the authority could only be vested in the federal government, perhaps through an executive branch agency. Such an agency carries with it the opportunity of influence by lobbyists. This would give large-scale copyright holders like record labels significant power over individual copyright users. Therefore, passage of lobbying or donation limitations should accompany the creation of such an agency.

The existence of such an agency has several notable advantages over the current system. First, as previously mentioned, it takes the sole discretion over takedowns out of the hands of the self-interested copyright holder. An independent agency has the ability to determine which files should be taken down based on precedent from existing copyright law. The agency can serve as a mediator between the copyright holder and copyright user.

Second, an agency dedicated to this function would theoretically have the ability to process takedown disputes quicker than a service provider acting as the middleman. This would alleviate some of the concern addressed above that the process would need to operate much quicker if copyright users were to have notice before takedown. Third, by handling all such takedown disputes, the agency could develop a system of precedent, potentially streamlining the process and offering consistency to the files selected for takedown.

Fourth, using that precedent, the agency could offer the equivalent of advisory opinions before or immediately after a takedown request, giving the parties some insight into the likelihood of takedown success. This has the added benefit of reducing the number of claims that go through litigation, thus saving money for all parties, and

lightening court dockets. For example, if the agency offered an advisory opinion based on precedent that a particular file should almost certainly be removed, the copyright user would be less likely to fight the takedown notice. In the current system, the implicated user has no guidance on the likelihood of success of a counter-notice.

Significantly, these advisory opinions would not carry the weight of law or any binding agreement. The parties would still have the opportunity to litigate any dispute at their discretion. The goal of this aspect is only to sift out some of the disputes with clear-cut winners. A binding system would introduce a new, tangled web of litigation where disgruntled parties challenge the agency’s advisory opinions, undermining the very goal of this proposal.

Fifth, the agency would make final determinations on takedowns. These orders would dictate whether files in takedown notices are actually to be taken down, and the orders would be binding on service providers to comply. Again, here the parties retain the option to litigate any matter at their discretion. Litigation, however, would take the form of appeals of agency decisions rather than trials settling copyright disputes.

Ideally, this agency would issue its advisory opinions if necessary and make final determinations of takedowns quicker than the current system. This would present several challenges that must be addressed. First, the involvement of the executive branch would inevitably face its share of supporters and detractors. In the current political climate, any expansion of government will not fall on deaf ears. The agency would need to develop credibility as the original decision maker in copyright disputes. Assuming it gained such credibility, staffing the agency would become another tense decision. For one agency to handle all copyright disputes, it would have to employ a large base of workers from entry-level to highly specialized expertise. Certainly in an economy where jobs are at somewhat of a premium, entry-level workers would presumably be easy to find. Would the agency be able to find enough specialized workers to handle all the takedown notices from day one?

One final decision to consider concerns who would make the staffing decisions. Would the President appoint or nominate agency heads; would voters select agency members? Also of concern: would these employees serve terms, or would they arrange employment-at-will agreements? The agency would need to insulate itself from political influence to negate the lobbying advantage of large-scale copyright holders. This raises the traditional concern of political actors: long terms of service invite corruption and discourage democracy, but short terms prevent consistency. Short terms of service for agency employees would potentially undermine the
strength of precedent of copyright dispute resolutions. All of these
factors considered point to a preferred solution of at-will employees
with limits placed on lobbying and political influence.

In summary, this agency would settle disputes quicker than the
current system. It would do so by being dedicated to this sole function
of copyright law, and by providing advisory opinions that reduce the
amount of litigation. The agency would consist of at-will employees
with efforts to insulate the employees from outside political influence.

IX. Conclusion

The DMCA has faced heavy criticism since its inception.83 Record companies and large-scale copyright holders welcomed the
Act, unsurprisingly, because they lobbied hard for it.84 This lobbying
success was a bad omen of what was to come in the enforcement of
the DMCA.85 Copyright holders have too much power, and can take
down virtually anything.86 Copyright users feel that the free flow of
information has become stifled.87

On the other hand, pirates roam the seas in droves, pilfering cargo
that rightfully belongs to the cargo ship. Somehow, both sides find
themselves unhappy in the wake of the passage of the DMCA. This
article has identified several problems to address in the current system.
Copyright holders have too much power and often file bogus
takedown notices. Copyright users, regardless of the nature of their
use, are treated the same in the takedown process. Service providers
have the burden of removing any file specified by copyright holders,
regardless of who actually owns it, in order to stay within the safe
harbor of Section 512. Even though the DMCA contains anti-
circumvention provisions, users can routinely get around anti-
circumvention measures.

The ideal solution, as discussed above, would create a way for files to
self-destruct in response to certain circumvention attempts. It would
require notice to copyright users before takedown. It would increase
the burden of proof on copyright holders before naming files in a
takedown notice. Finally, it would create an independent dispute
resolution agency to speed up the process and restore the balance of
power, while alleviating the court system of frivolous litigation.

83 See DMCA Criticisms, DMCA INFO, http://www.dmca-info.com/dmca-
84 Id.
85 Id.
86 Id.
87 Id.
PERMISSIBLE ERROR?: WHY THE NINTH CIRCUIT’S INCORRECT APPLICATION OF THE DMCA IN MDY INDUSTRIES, LLC V. BLIZZARD ENTERTAINMENT, INC. REACHES THE CORRECT RESULT

James Harrell†

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I. INTRODUCTION

Americans spent over $16.6 billion on video games in 2011.¹ Young Americans spend over an hour per day playing video games.² With more than 145 million Americans playing in 2011,³ video games have become one of America’s new favorite pastimes.⁴ At its peak in 2010, Blizzard Entertainment, Inc.’s “World of Warcraft” (“WoW”) had over twelve-million monthly subscribers.⁵ Although its user count has dropped somewhat, WoW is still one of the world’s most popular computer games.⁶

Blizzard, like most other video game producers, is protected under U.S. copyright law as an “audiovisual work.”⁷ With the possibility of statutory damages up to $150,000 or actual damages (if provable),⁸ it is imperative that the court system draws clear and logical standards for issues stemming from copyright protections, especially in burgeoning industries like video games, where confusion could cause major negative impacts.

The Ninth Circuit recently made waves in the area of law where video games and copyright intersect with their decision in MDY Industries, LLC v. Blizzard Entertainment, Inc. In this case, the Ninth Circuit employed the “Vernor Test” to determine if WoW players were licensees or owners of the game software.⁹ The court also used a test employed in Sun Microsystems, Inc. v. Microsoft Corp. (“Sun Test”) which differentiated between “covenants” and “conditions” to determine whether WoW players infringed on Blizzard’s copyright by using a “bot” program.¹⁰ The largest amount of controversy caused by the MDY decision comes from the court’s holding that the Digital Millennium Copyright Act (“DMCA”) § 1201(a)(2) created a new

² Id.
³ Id.
⁴ See id.
⁹ MDY Indus., LLC v. Blizzard Entm’t, Inc., 629 F.3d 928, 938-39 (9th Cir. 2010).
¹⁰ Id. at 939-40.
This holding created a circuit split and made accurate interpretation of the DMCA more difficult.

Although some argue that the Ninth Circuit erred in their holding in *MDY*, this note will argue that the correct result was achieved, although through somewhat contorted means. This note argues that the use of the Vernor Test employed by the Ninth Circuit is the best test for determining whether a game user is a licensee or owner of the game software. This note also argues against the court’s use of the Sun Test. Finally, it argues that although the court was incorrect to interpret the DMCA § 1201(a)(2) as creating a cause of action absent infringement, the conduct of MDY should be a violation of copyright law, and should thus be actionable under the DMCA. Part II will describe the background of the parties involved in the *MDY* decision and the Ninth Circuit decision. Part III will analyze the court’s holdings and reasoning, and offer suggestions for changes in copyright law that would increase copyright protection of video game manufacturers.

### II. BACKGROUND

#### A. U.S. Copyright Law and The Digital Millennium Copyright Act

U.S. copyright law is based on a balance of rights between a copyright holder and users of copyrighted goods. Under copyright law, holders of a copyright are granted the exclusive right to reproduce, modify, distribute, display publicly, and perform publicly the subject matter protected by their copyright.

The DMCA was enacted in 1998 to update U.S. copyright law and bring the nation in line with several World Intellectual Property Organization (“WIPO”) treaties.

The DMCA was enacted in 1998 to update U.S. copyright law and bring the nation in line with several World Intellectual Property Organization (“WIPO”) treaties. There are five titles under the

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11 *Id.* at 945.
12 See *id.* at 950 (“While we appreciate the policy considerations expressed by the Federal Circuit in Chamberlain, we are unable to follow its approach.”).
14 Relevant sections to this paper are contained in 17 U.S.C. § 1201(a)(1)(A), (a)(2), and (b)(1) 2006.
DMCA that implement the WIPO treaties, prohibit circumvention of technological protections of copyrighted material, and create penalties for violators, among other things.\textsuperscript{17} There are three sections of the DMCA relevant to this note: § 1201(a)(1)(A),\textsuperscript{18} § 1201(a)(2),\textsuperscript{19} and § 1201(b)(1).\textsuperscript{20} Section 1201(a)(1)(A) expressly prohibits circumvention of a technological measure that “effectively controls access to a work protected under” the copyright statutes.\textsuperscript{21} Section 1201(a)(2) prohibits individuals to “manufacture, import, offer to the public, provide, or otherwise traffic in any technology” that’s primary use or main purpose is to circumvent a technological protection meant to control access to a copyrighted work.\textsuperscript{22} Similarly, § 1201(b)(1) also prohibits the trafficking of certain technologies, but the class of technologies prohibited is broader, covering any technology that circumvents a

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\textsuperscript{17} See id.

\textsuperscript{18} 17 U.S.C. § 1201(a)(1)(A) (2006) (“Violations regarding circumvention of technological measures.—(1)(A) No person shall circumvent a technological measure that effectively controls access to a work protected under this title. The prohibition contained in the preceding sentence shall take effect at the end of the 2-year period beginning on the date of the enactment of this chapter.”).

\textsuperscript{19} 17 U.S.C. § 1201(a)(2) (“No person shall manufacture, import, offer to the public, provide, or otherwise traffic in any technology, product, service, device, component, or part thereof, that—

(A) is primarily designed or produced for the purpose of circumventing a technological measure that effectively controls access to a work protected under this title;

(B) has only limited commercially significant purpose or use other than to circumvent a technological measure that effectively controls access to a work protected under this title; or

(C) is marketed by that person or another acting in concert with that person with that person's knowledge for use in circumventing a technological measure that effectively controls access to a work protected under this title.”).

\textsuperscript{20} 17 U.S.C. § 1201(b)(1) (“Additional violations.—(1) No person shall manufacture, import, offer to the public, provide, or otherwise traffic in any technology, product, service, device, component, or part thereof, that—

(A) is primarily designed or produced for the purpose of circumventing protection afforded by a technological measure that effectively protects a right of a copyright owner under this title in a work or a portion thereof;

(B) has only limited commercially significant purpose or use other than to circumvent protection afforded by a technological measure that effectively protects a right of a copyright owner under this title in a work or a portion thereof; or

(C) is marketed by that person or another acting in concert with that person with that person's knowledge for use in circumventing protection afforded by a technological measure that effectively protects a right of a copyright owner under this title in a work or a portion thereof.”).


\textsuperscript{22} 17 U.S.C. § 1201(a)(2).
protection of any rights of a copyright holder under copyright law. To enforce these protections, the DMCA contains penalties for violations. Parties injured by a violation of § 1201 can choose to bring a civil action in Federal court under § 1203, where the statute allows equitable and monetary relief, including statutory damages of up to $2,500 per act of circumvention/product distributed. In addition to civil penalties, the DMCA also imposes criminal penalties for those who “willfully and purposefully” violate the DMCA for “commercial advantage and private financial gain,” of up to $500,000 and five years in prison for a first offense.

B. The First Sale Doctrine and Essential Step Defense

There are certain statutory limitations on the rights of copyright holders which protect a user in some cases of infringement. These protections include the First Sale Doctrine and the Essential Step Defense. The First Sale Doctrine allows owners of a copy of a copyrighted work to resell the copyrighted work to others without seeking permission from the copyright holder. Thus, this statutory right limits the copyright holder’s right of distribution to the initial sale of a copyrighted good.

Like the First Sale Doctrine, the Essential Step Defense limits the rights of a copyright holder. The Essential Step Defense allows an owner of a copy of copyrighted software to make a copy of that software onto their computer if creating a new copy is “an essential step in the utilization of the computer program.” This is a very important protection for owners of a copy of software because installing a program onto a computer requires the computer to make a copy of the program.
C. World of Warcraft

World of Warcraft ("WoW") is a massively multiplayer online role-playing game ("MMORPG"), which allows thousands of players from around the world to play simultaneously in a virtual world. Players create and customize a virtual character, picking from a variety of mythical races including humans, dwarves, and orcs, each with their own unique benefits. Players also choose a "class" for their character, such as warrior, shaman, or rogue, which determines the skills and strategy that a player will use while playing their character. As the player progresses through the game, their character gains experience and becomes stronger, allowing them to explore higher level areas of the game that lower experience characters could not survive in.

Before playing WoW, a player has to download game client software, which is stored on the player’s computer, and the game server software, which allows subscribing players to access Blizzard’s online servers. Blizzard also requires players to accept an End User License Agreement ("EULA") and Terms of Use ("ToU") before playing. This EULA expressly calls the relationship between Blizzard and the game user a license agreement, stating “[s]ubject to the license granted hereunder, [users] may not . . . copy, photocopy, [or] reproduce” the game. The Blizzard EULA also places restrictions on the user’s ability to transfer the program, stating that in order to transfer, the user must transfer all of the materials “solely in the form” in which the game was purchased from Blizzard. Other restrictions are placed on the user as well, such as restricting the right to keep copies of the WoW software upon termination of the EULA, an inability to stop Blizzard from modifying the WoW software through patches, and an inability to force Blizzard to

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36 Id.
37 Id.
38 See id.
39 See MDY Indus., LLC v. Blizzard Entm’t, Inc., 629 F.3d 928, 935 (9th Cir. 2010).
40 See id.
42 Id. at 6.
43 Id.
continue the EULA if Blizzard decides to terminate the agreement.\textsuperscript{44} Players who choose not to accept both the EULA and the ToU are not allowed to play the game, and can receive a refund of the purchase price.\textsuperscript{45}

D. Glider Program and Blizzard Response

In March, 2005, a man named Donnelly, who was both a software programmer and WoW player, developed a program called Glider.\textsuperscript{46} Glider is a software “bot” that acts as an autopilot for the early gameplay of WoW.\textsuperscript{47} A player using Glider can leave the game running while they spend time doing other activities, returning to find a character with more experience and loot.\textsuperscript{48} In the summer of 2005, Donnelly started to sell Glider to other WoW users through MDY’s website.\textsuperscript{49} At that point, Blizzard’s EULA and ToU did not prohibit the use of bot programs.\textsuperscript{50}

In the fall of 2005, Blizzard implemented a technology called Warden to prevent WoW players using bots, and other third-party software, from playing WoW.\textsuperscript{51} Blizzard underwent significant costs to implement this protective software.\textsuperscript{52} Blizzard changed its ToU to make using bot programs a violation and began banning players caught using them.\textsuperscript{53} In response to Blizzard’s launch of Warden, Donnelly created Glider Elite, a program designed to avoid detection by Warden, and continued selling this new program, despite being aware that Blizzard forbade the use of bot programs.\textsuperscript{54} MDY received $3.5 million in revenue from roughly 120,000 sales of the Glider programs.\textsuperscript{55}

E. The Initial Suit and the District Court Opinion

MDY initiated a suit against Blizzard in December 2006 “seeking a declaration that Glider [did] not infringe Blizzard’s copyright or
other rights.56 Blizzard counterclaimed, alleging MDY and Donnelly committed vicarious copyright infringement, violated the DMCA §§ 1201(a)(2) and (b)(1), and tortuously interfered with contracts between Blizzard and WoW players.57

The district court partially granted Blizzard’s motion for summary judgment, finding that MDY and Donnelly were liable under the DMCA § 1201(a)(2) because it accessed WoW’s source code.58 The district court also granted summary judgment in favor of Blizzard for the issues of vicarious copyright infringement and tortious interference with contract.59 Following a bench trial, the district court also found MDY and Donnelly liable under the DMCA § 1201(b)(1) because Glider was being designed to avoid detection by the Warden technology.60 As penalties, the court entered a judgment for $6.5 million in damages and also “permanently enjoined MDY from distributing Glider.”61

F. The Ninth Circuit Decision

The Ninth Circuit reversed both the district court’s finding that MDY and Donnelly were liable under the DMCA § 1201(b)(1), and on the issue of vicarious infringement.62 The Ninth Circuit also reversed the trial court’s granting of summary judgment on the issue of tortious interference with contract, remanding the issue for trial.63 Finally, the Ninth Circuit upheld the trial court’s finding that MDY and Donnelly were liable under the DMCA § 1201(a)(2).64

1. Issue of Vicarious Infringement

The first issue contemplated by the Ninth Circuit was whether MDY committed contributory or vicarious infringement when it sold Glider to WoW players.65 The court stated that MDY would be guilty of vicarious infringement if “it (1) ha[d] the right and ability to control Glider users’ putatively infringing activity and (2) derive[d] a direct

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56 Id. at 937.
57 Id.
58 Id.
59 Id.
60 Id.
61 Id.
62 Id. at 935.
63 Id.
64 Id.
65 Id. at 937.
financial benefit from their activity." In order to decide this issue, the court first had to determine whether or not WoW players directly infringed on Blizzard’s copyright, since there can be no secondary infringement without direct infringement by a third party.

a. The Vernor Decision Analysis

While performing this infringement analysis, the Ninth Circuit first had to decide whether WoW players owned their copy of WoW, or licensed the software. If players owned their copy of WoW, then copying WoW onto their RAM after violating the EULA and ToU would not constitute direct infringement under the Essential Step Defense. In its analysis, the court applied the test it used in Vernor v. Autodesk, Inc. In Vernor, the plaintiff purchased copies of a design program created by Autodesk, Inc. from one of Autodesk’s customers, which the defendant then attempted to sell on eBay. The software program was sold with an accompanying “Software License Agreement” (“SLA”), which customers had to agree to before installation of the software. Purchasers of the program who chose not to accept the SLA were allowed to return the software and received a full refund. Plaintiff was in the business of selling items on eBay, and had purchased a copy of the program at a garage sale. Plaintiff was aware that sales of the program were normally accompanied with an SLA, but plaintiff did not believe he was bound by the SLA since he did not purchase the program through Autodesk. After his purchase of the program, the plaintiff put the program copy on eBay, which eBay halted after Autodesk filed a DMCA take-down
notice. Although the plaintiff eventually sold several copies of the program on eBay, his account with eBay was suspended due to repeated complaints by Autodesk, which led to an action by plaintiff against Autodesk. In the action, plaintiff sought a declaratory judgment that his selling of the program on eBay was protected by the First Sale Doctrine. During its analysis, the Ninth Circuit examined past cases which addressed similar issues, and from those cases, the court prescribed the three considerations that have become the “Vernor Test.” Under this test, a court examines three considerations to determine if a software user is a licensee or owner of a copy: (1) “whether the copyright owner specifies that a user is granted a license;” (2) “whether the copyright owner significantly restricts the user’s ability to transfer the software;” and (3) “whether the copyright owner imposes notable use restrictions.” The court then applied this test to the facts and found that all three elements were met, so the parties that sold the program to plaintiff were licensees, who were not entitled to sell their copy of the program to plaintiff. Therefore, because plaintiff had improperly acquired the software, the Ninth Circuit vacated the district court order granting summary judgment in favor of plaintiff, and remanded the decision for further proceedings where Vernor could not rely on the First Sale Defense or the Essential Step Doctrine.

Using the Vernor Test in MDY, the Ninth Circuit examined the Blizzard EULA, noting the EULA referred to the agreement as a “license,” imposed transfer restrictions on users, and imposed significant other use restrictions on users. This finding led the Ninth Circuit to conclude that WoW players were licensees, which meant that “Glider users may not claim the essential step defense” to infringement.

b. The Sun Microsystems Decision Analysis

Once determining that WoW users had a license to use the WoW

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75 Id.
76 Id. at 1106.
77 Id.
78 Id. at 1110-11.
79 Id.
80 Id. at 1111-12.
81 Id. at 1116.
82 MDY Indus., LLC v. Blizzard Entm’t, Inc., 629 F.3d 928, 938 (9th Cir. 2010).
83 Id.
84 Id. at 939.
software, the Ninth Circuit then determined whether violating the EULA and ToU constituted direct infringement. If Glider users were found to violate the scope of their license, this would constitute direct infringement, which would lead to a finding of vicarious infringement by MDY and Donnelly. The court applied the standard used in *Sun Microsystems, Inc. v. Microsoft Corp.*, which distinguishes between “conditions,” which limit a license’s scope, and “covenants,” which are all other license terms.

In the *Sun Microsystems* decision, Sun Microsystems (“Sun”) sued Microsoft for copyright infringement, alleging that Microsoft had exceeded the scope of their license to use the Java program. The Java program is primarily used by programmers to write programs that are able to work on any operating system. Sun had granted Microsoft a license to “make, access, use, copy, view, display, modify, adapt, and create Derivative Works of the Technology in Source Code form” and to “sell or otherwise distribute” any improvements in the Java program to customers. One of the terms of the license agreement required that any version of Java that Microsoft produced be compatible with Java’s standards of compatibility. After more than a year, Sun took issue with a “polluted” version of Java that Microsoft was distributing to its customers, which had been modified and no longer conformed to Java’s compatibility standards, leading to the action before the court.

The district court granted Sun’s motion for a preliminary injunction, which stopped Microsoft from selling its version of Java or from distributing programs that had been developed with Java, but were not compatible with Java’s standards. The Ninth Circuit began its analysis with the copyright infringement claim to see if the preliminary injunction was properly granted. The court noted that the issue would turn on whether or not Microsoft had acted outside the scope of its license, or if it had merely violated a condition, which was

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85 See id.
86 Id.
87 Id. at 938 (“If Glider users directly infringe, MDY does not dispute that it satisfies the other elements of contributory and vicarious infringement.”).
88 Id. at 939 (citing *Sun Microsystems, Inc. v. Microsoft Corp.*, 188 F.3d 1115, 1120 (9th Cir. 1999)).
89 *Sun Microsystems, Inc., v. Microsoft Corp.*, 188 F.3d 1115, 1117 (9th Cir. 1999).
90 Id. at 1118.
91 Id.
92 Id.
93 Id.
94 Id. at 1118–19.
95 Id. at 1119.
not actionable under any copyright law, and would lead the preliminary injunction to fail.\textsuperscript{96} The “Sun Test,” distinguished between “covenants” and “conditions.”\textsuperscript{97} “Conditions” are terms in a license agreement which “limit a license’s scope.”\textsuperscript{98} A violated condition amounts to exceeding a license’s scope, which can give rise to infringement claims.\textsuperscript{99} “Covenants” are the terms in license agreements that are not conditions.\textsuperscript{100} Violating a covenant does not create an action for infringement, and the only remedy for a copyright holder would be under contract law.\textsuperscript{101}

Applying the Sun Test, the \textit{MDY} court examined the language of the EULA and ToU and determined that the provisions breached by Glider’s use were covenants.\textsuperscript{102} Because the provisions were covenants, Glider users did not infringe on Blizzard’s copyrights,\textsuperscript{103} which led to a reversal of the district court’s finding that MDY and Donnelly were liable for vicarious infringement.\textsuperscript{104}

\textbf{2. DMCA Issues}

The second issue considered by the Ninth Circuit was whether MDY violated DMCA §§ 1201(a)(2) and (b)(1) by reprogramming the Glider program to avoid detection by the Warden technology.\textsuperscript{105} The court noted that the DMCA was enacted “to provide effective legal remedies against the circumvention of protective technological measures used by copyright owners,” and began its analysis of the two provisions at issue with this goal in mind.\textsuperscript{106}

The court first examined the DMCA provisions at issue to decide whether they prohibit circumvention of access controls when no infringement of a copyright has occurred.\textsuperscript{107} After analyzing the text, the court determined § 1201(b)(1) was only intended to “reinforce copyright owners’ traditional exclusive rights under § 106,” but § 1201(a)(1)-(2) was read to extend “a new form of protection, i.e., the

\textsuperscript{96} Id.
\textsuperscript{97} MDY Indus., LLC v. Blizzard Entm’t, Inc., 629 F.3d 928, 939 (9th Cir. 2010).
\textsuperscript{98} Id.
\textsuperscript{99} Id.
\textsuperscript{100} Id.
\textsuperscript{101} Id.
\textsuperscript{102} Id. at 939-40.
\textsuperscript{103} See id. at 939-42.
\textsuperscript{104} Id. at 941-42.
\textsuperscript{105} Id. at 942-43.
\textsuperscript{106} Id. (citing Universal City Studios, Inc. v. Corley, 273 F.3d 429, 440 (2d Cir. 2001)).
\textsuperscript{107} Id. at 943.
right to prevent circumvention of access controls, broadly to works protected . . . ” under copyright law. By reaching this holding, the Ninth Circuit declined to follow the Federal Circuit’s interpretation of § 1201(a), which held that the statute requires plaintiffs to demonstrate an “infringement nexus,” i.e., requiring proof of infringement before the DMCA could be violated.

After this DMCA analysis, the court applied each section of the statute to the facts. Starting with § 1201(a)(2), the court concluded that all the elements for violating the statute were met “with respect to WoW’s dynamic non-literal elements,” i.e., the audio visual display of the game. After concluding that § 1201(a)(2) was violated, the Ninth Circuit upheld the district court’s injunction against MDY. Unlike the § 1201(a)(2) claim, the Ninth Circuit held that MDY did not violate § 1201(b)(1). The court referred to its finding that using Glider was a violation of a covenant, which did not constitute copyright infringement, and since Warden did not protect against violation of Blizzard’s copyright protections, MDY was not liable under § 1201(b)(1).

3. The Tortious Interference Claim

The final issue contemplated by the Ninth Circuit was the tortious interference claim. The district court granted summary judgment in favor of Blizzard on this issue, finding that even viewing the facts most favorably to MDY, all of the elements for tortious interference with a contract under Arizona law were met. On appeal, the Ninth Circuit noted that four of the five elements of the claim were met, but held that there was a triable issue of fact on whether MDY’s actions were improper. As such, the Ninth Circuit vacated the order granting summary judgment to Blizzard.

108 Id. at 945.
109 Id. at 948. For a complete explanation of the “infringement nexus requirement,” see Chamberlain Grp., Inc. v. Skylink Techs., Inc., 381 F.3d 1178, 1203 (Fed. Cir. 2004).
110 Id. at 953-54.
111 Id. at 954.
112 Id.
113 Id. at 954-55.
114 Id. at 955.
115 Id.
116 Id.
117 Id. at 957-58.
III. ANALYSIS

The Ninth Circuit’s *MDY* holding can be split into two segments, both of which have major implications: first, the court’s analysis of the vicarious infringement claim under the Vernor Test and the Sun Test; and second, the court’s DMCA analysis.

A. Implications of the Vicarious Infringement Analysis

During its analysis of the vicarious infringement issue, the Ninth Circuit used two tests: the Vernor Test and the Sun Test. The court’s decision to use both of these tests comes with major consequences on copyright law and will greatly impact decisions in the gaming industry.

1. Implications of the Ninth’s Circuit’s Use of the Vernor Test

The Ninth Circuit’s decision to use the Vernor Test is a huge victory for copyright holders. This test establishes a low threshold that allows copyright holders to create a license through careful wording of their EULA. If a EULA “specifies that the user is granted a license,” the owner “significantly restricts the user’s ability to transfer the software,” and the owner “imposes notable use restriction,” then courts following the Ninth Circuit’s decision will treat the user as a licensee.\(^\text{118}\)

Whether the purchaser of software is an owner or licensee of the software has huge implications on the purchaser’s rights, and the rights of the copyright holder. If a purchaser is an owner of a copy of software, they are allowed to transfer that software under the protection of the First Sale Doctrine.\(^\text{119}\) Under the First Sale Doctrine, individuals who own a copy of copyrighted software may resell the copy, effectively infringing on a copyright holder’s exclusive distribution right.\(^\text{120}\) Licensees, by contrast, are not able to resell a copyrighted good if it exceeds the scope of their license.\(^\text{121}\)

Like the First Sale Doctrine, a licensee of copyrighted software cannot invoke the Essential Step Defense.\(^\text{122}\) Under the Essential Step Defense, the exclusive right to copy a copyrighted program is limited

\(^\text{118}\) Id. at 938 (quoting Vernor v. Autodesk, Inc., 621 F.3d 1102, 1111 (9th Cir. 2010) (internal quotations omitted)).
\(^\text{120}\) UMG Recordings, Inc. v. Augusto, 628 F.3d 1175, 1180 (9th Cir. 2011).
\(^\text{121}\) Vernor v. Autodesk, Inc., 621 F.3d 1102, 1111 (9th Cir. 2010).
\(^\text{122}\) *MDY Indus., LLC*, 629 F.3d at 938.
in certain circumstances. This defense allows owners of a copy of copyrighted software to make a copy of that software if the copy is “created as an essential step in the utilization of the computer program in conjunction with a machine and . . . is used in no other manner.”

Although some writers are critical of the Vernor Test, it does have many benefits. Perhaps the greatest benefit is the clarity that the Vernor Test provides when determining whether a purchaser of copyrighted software is a licensee or owner of the particular copy purchased. Given the implications of the licensee versus owner distinction, it is imperative that courts use a test that allows copyright holders and consumers to predict whether they own their copy of copyrighted software, or are licensees. Therefore, the ease of application of the Vernor Test will allow all parties to a EULA to quickly and accurately know their rights under copyright law.

2. Implications of the Ninth Circuit’s Use of the Sun Test

Unlike the decision to use the Vernor Test, the Ninth Circuit’s decision to use the Sun Test does far more harm than good for copyright law. While the Vernor Test creates clarity for all parties involved, the Sun Test creates chaos. The Ninth Circuit attempted to explain the difference between a covenant and a condition, but all that remains clear is that the breach of a condition results in infringement, and the breach of a covenant can only be remedied through contract litigation. No guidance is given that would allow parties to determine whether any particular provision of a license agreement is a covenant or condition. This confusing standard will lead many lower courts astray when trying to determine if a violated license agreement amounts to infringement, or is only actionable through contract law.

B. Implications of the DMCA Analysis

By holding that MDY violated the DMCA § 1201(a)(2) without

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124 Id.
126 See id. at 213.
127 MDY Indus., LLC, 629 F.3d at 939.
128 Id.
129 Id.
finding that the Glider program facilitated infringement, the Ninth Circuit effectively gave a new right to copyright holders. Previously, in *Chamberlain Group, Inc. v. Skylink Technologies, Inc.*, the Federal Circuit had held that the DMCA anti-circumvention provisions “do not establish a new property right.” With an eye towards the purposes of the DMCA and copyright law, the Federal Circuit concluded that the DMCA was intended to give copyright holders new means to protect their rights, but those rights remain limited to those traditionally protected under copyright law.

The *MDY* holding grants technological copyright holders a new weapon, which they can wield against parties who are not infringing on their copyright protections. Traditionally copyright holders had exclusive rights to control reproduction, modification, distribution (i.e. control access to), public displays, and public performance of the copyrighted subject matter. If one of these rights was infringed upon, a copyright holder could sue for infringement, but without infringement, no action was allowable under U.S. copyright law. After the *MDY* holding, copyright holders can sue creators of programs which do not deprive the copyright holder of any traditional copyright rights, if use of those programs is not allowed by a copyright holder, and there is a technological protection to prevent access while using that program.

A hypothetical will better illuminate this problem. Assume Blizzard decided it did not want users to use any internet browsers while playing WoW, and Blizzard adopted a technological measure to stop its users from logging in while a browser window was open. Under the Ninth Circuit holding, if Google Chrome was programmed to avoid detection by Blizzard’s technological protection, Google has violated § 1201(a)(2), even though the use of Chrome in no way infringes upon Blizzard’s copyright rights associated with WoW. This holding leaves the door wide open for determining who may be violating the DMCA § 1201(a)(2), and provides no logical bounds as

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130 Chamberlain Grp., Inc. v. Skylink Techs., Inc., 381 F.3d 1178, 1192 (Fed. Cir. 2004).
131 Id. at 1202 (citation omitted) (“The statutory structure and the legislative history both make it clear that the DMCA granted copyright holders additional legal protections, but neither rescinded the basic bargain granting the public noninfringing and fair uses of copyrighted materials, § 1201(c), nor prohibited various beneficial uses of circumvention technology, such as those exempted under §§ 1201(d),(f),(g),(j).”).
133 17 U.S.C. § 501 (2006); see also MDY Indus., LLC, 629 F.3d at 939 (noting that a violation of license provision that did not result in infringement was only actionable through “breach of contract”).
to who may be found liable. Given the major penalties that come with violating the DMCA and copyright law, the broad and vague standard imposed by MDY could result in nervous developers, and stymie beneficial developments in the future. As such, the Ninth Circuit’s holding should make all programmers very nervous about their future activities, especially actions that help their programs run incognito.

C. Why the Ninth Circuit Got it Right (Mostly)

Although there are several flaws with the Ninth Circuit’s analysis in MDY, the court ended up getting most of the decision correct, and reached the proper holding for this set of facts.

1. The Court Found MDY Liable for Its Harmful Actions

MDY sought to feed off of Blizzard’s success by creating a product to be used in conjunction with WoW. While attempting to have success alongside Blizzard was a legitimate goal, the Glider program’s success was directly dependent on corruption of WoW gameplay. Any success that Glider achieved was done so by perverting the system Blizzard had created and maintained for the good of all WoW players, and as such, the conduct of MDY was worthy of a penalty under U.S. copyright law.

Furthermore, as added evidence that MDY was at fault in this circumstance, MDY was likely to be found liable of tortious interference of contract by inducing WoW players to violate the EULA and ToU agreements. Although the Ninth Circuit found there were triable issues of fact and remanded the tortious interference claim, the district court had previously granted summary judgment in favor of Blizzard on the issue. While far from conclusive, this initial holding is at least an indication that Blizzard had a good case against MDY, and could very possibly have succeeded on the issue before a jury.

2. The Court Used the Vernor Test

Scholars have argued that having a EULA determine whether or not a user is a licensee or an owner of a copy of software limits freedom of contract. Proponents of this argument note that users

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134 MDY Indus., LLC, 629 F.3d at 955.
135 Id. at 937.
136 See Crowther, supra note 13, at 472 (citing Dennis S. Karjala, Protecting Innovation in Computer Software, Biotechnology, and Nanotechnology, 16 VA. J.L. continued . . .
often accept the EULA without reading the document, and that the user has no right to negotiate. The document only reflects the will and desires of the software creator. However, disregarding a EULA simply because a customer does not read the agreement is a more egregious limitation on the freedom of contract than enforcing the EULA determination. Removing a creator’s power to craft how his or her software is distributed goes against the core ideas behind the copyright—that the holder has a monopoly to control distribution, use, and access.

Furthermore, users have the power to choose not to enter into a EULA and to entirely avoid the restrictions EULAs bring. In this way, the market will determine if expansive EULAs are worth the cost of losing software users. If software copyright holders lose enough users and profits due to backlash from their EULAs, in pursuit of profits they will redraft their EULAs to be less expansive, and thus entice more users with greater usage rights. However, while they hold the copyright, holders should have all rights to determine who can use their software and the expanse of rights they wish to assign to users.

Finally, although the Vernor Test may lessen the applicability of the First Sale Doctrine to software, the use of this test creates several benefits for consumers. The use of this test will allow holders of software copyrights more control over what users are able to use their program. This limitation on unknown distribution will allow developers to know exactly who their users are, how they are using the program, and what the user’s needs and wants are in terms of future upgrades to the program. If copyright holders can better keep tabs on who is using their program, they can create more specific upgrades for the program that may be more beneficial to their known user base.

This benefit is epitomized by Apple, Inc., a company whose brand was recently valued at $623.5 billion. As part of their business strategy, Apple routinely collects data on their users. Apple then uses this data to “develop, deliver, and improve [their] products, services, content, and advertising.” Although this approach is sometimes criticized, Apple’s use of consumer info has allowed them to develop

137 Id.
138 See MDY Indus., LLC, 629 F.3d at 935 (noting that if WoW players don’t want to accept the EULA and ToU, they can return the game for a refund).
one of the world’s most intuitive platforms for smart-phones, and has granted Apple a stranglehold on a significant share of the smart-phone market.\textsuperscript{141}

3. Problems with the MDY Holding and Solutions

While the Ninth Circuit correctly adjudicated the holding and parts of the analysis, there are several areas of the MDY holding where the Ninth Circuit fell short.

a. Use of the Sun Test

Plainly put, the Ninth Circuit’s use of the Sun Test is a mistake, and its use should be ended at the next possible opportunity. While at surface level, it seems like a good idea that not every breach of a license agreement should result in infringement, the court’s explanation of the Sun Test makes it unclear whether any given provision of a license agreement is a condition or a covenant, and thus it is impossible to say with certainty whether violation of any particular provision results in infringement. This vague standard compromises the certainty of the Vernor Test. By using the Vernor Test, the Ninth Circuit has embraced the idea that a carefully worded EULA almost always creates a license that binds the parties involved.\textsuperscript{142} It seems unnecessary to also go through a covenants versus conditions analysis. Since the terms of the EULA are given such weight, if those terms specify that any breach of the EULA exceeds the scope of the license granted, any breach should result in infringement. Given that the use of the Sun Test diminishes the utility gained from the use of the Vernor Test, the Ninth Circuit would be better suited to toss out the Sun Test entirely, and simply rely on whether the EULA was breached to determine if the scope of a license was exceeded, resulting in infringement.

Had the Ninth Circuit not used the Sun Test, and simply relied on the EULA to determine if the scope of the license was breached, the court would have found that WoW players who used the Glider program had committed infringement, which would have led to a finding that MDY was liable for vicarious infringement.\textsuperscript{143}

\begin{footnotes}
\item 141 See Mat Smith, Strategy Analytics: Apple Tops US Phone Market for Q4 2012, but Samsung Takes the Year, ENGADGET (Feb. 1, 2013, 4:50 AM), http://www.engadget.com/2013/02/01/strategy-analytics-apple-tops-us-phone-market-for-q4-2012/ (stating that Apple’s iPhone total market share for Q4 of 2012 was 34%).
\item 142 See MDY Indus., LLC, 629 F.3d at 938-39.
\item 143 See id. at 941.
\end{footnotes}
b. DMCA Violation Absent Infringement

The Ninth Circuit’s holding, that the DMCA § 1201(a)(2) could be violated without a finding that infringement is facilitated by a circumventing measure, goes against the legislative intent of the DMCA, and against logic. First, the Ninth Circuit disregarded the plain language of § 1201(c)(1) of the DMCA, which states “[n]othing in this section shall affect rights, remedies, limitations, or defenses to copyright infringement . . . under this title.” This provision makes it evident that the DMCA was not intended to create any new rights for copyright holders.

Not only does the plain language of the statute go against the MDY holding, the legislative intent of copyright law does as well. In enacting copyright protections, Congress sought to strike a balance of power between copyright holders and users of copyrighted information. While copyright holders are granted a limited monopoly, Congress’ main purpose was to “provide just enough incentive to prompt the creation of new works.” More specifically, the DMCA was enacted to combat piracy of copyrighted works, so that the type of circumvention that Congress sought to prohibit was circumvention that facilitated infringement, not that which allowed lawful copyright use.

Furthermore, this new right granted to copyright holders could be used to sue countless programmers if copyright holders desire. In declining to extend this new right, the Federal Circuit noted that allowing a violation of § 1201(a) without infringement would grant a copyright holder “unlimited rights to hold circumventors liable under § 1201(a) merely for accessing the work” even if the access only allowed lawful use. The Federal Circuit then noted that this removed many of the protections and lawful uses afforded the public.

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146 Universal City Studios, Inc. v. Corley, 273 F.3d 429, 435 (2d Cir. 2001) (stating “Congress sought to combat copyright piracy in its earlier stages, before the work was even copied. The DMCA therefore backed with legal sanctions the efforts of copyright owners to protect their works from piracy behind digital walls such as encryption codes or password protections. In so doing, Congress targeted not only those pirates who would circumvent these digital walls (the “anti-circumvention provisions,” contained in 17 U.S.C. § 1201(a)(1)), but also anyone who would traffic in a technology primarily designed to circumvent a digital wall (the “anti-trafficking provisions,” contained in 17 U.S.C. § 1201(a)(2), (b)(1)).”).
147 *See id.* at 459.
148 Chamberlain Grp., Inc. v. Skylink Techs., Inc. 381 F.3d 1178, 1200 (Fed. Cir. 2004).
under copyright law, and would go against the Congressional intent to limit a copyright holder’s monopoly in ways that “give the public appropriate access” to the copyrighted work.\(^{149}\)

Therefore, because U.S. copyright law and the DMCA legislative intent support finding a § 1201(a)(2) violation only if infringement is facilitated by a circumventing measure, the Ninth Circuit should overrule the holding in MDY, and follow the Federal Circuit’s holding that “circumvention is not a new form of infringement, but rather a new violation prohibiting actions or products that facilitate infringement.”\(^ {150}\)

c. New Legislation That Would Bring MDY’s Conduct Under the DMCA

When Congress implemented the Visual Artists Rights Act of 1990 (“VARA”) and § 106A, it did so to protect the “moral rights” of artists, including the rights to integrity and disclosure.\(^ {151}\) Under § 106A(a)(3)(A), an artist has the right “to prevent any intentional distortion, mutilation, or other modification of that work which would be prejudicial to his or her honor or reputation, and any intentional distortion, mutilation, or modification of that work is a violation of that right.”\(^ {152}\) The works currently protected under VARA are limited to “works of visual art,”\(^ {153}\) which does not include video games. However, under VARA, Congress was attempting to protect works which existed in one entity or small quantities from mutilation and distortion.\(^ {154}\)

While video games and MMORPGs in particular are not currently covered under VARA, given their nature, they fit within the intent of the legislation and should be protected against distortion and mutilation. First, although many copies of the game are sold, in some cases, only one game world exists. In WoW, all users play together in a single online world.\(^ {155}\) Like someone defacing the Mona Lisa, a distortion of the WoW universe affects the only copy of the universe that users have access to. There are no other worlds that remain

\(^{149}\) Id. (citing Eldred v. Ashcroft, 537 U.S. 186, 204-05 (2003)).

\(^{150}\) Chamberlain Grp., Inc., 381 F.3d at 1197.


\(^{153}\) See 74 AM. JUR. 3D, supra note 151, at § 5.

\(^{154}\) See id. (the wording of the statute mentions “existing in a single copy” or “in a limited edition of 200 copies or fewer”, indicating that larger, mass produced works were not intended to be protected).

undistorted that users could take their gaming.

Second, the Glider program and other bot programs hinder MMORPG’s integrity. Nobody likes to play with cheaters, and if a significant number of users are induced to cheat, it ruins the game for legitimate players. According to the Ninth Circuit’s findings, MDY sold roughly 120,000 copies of Glider to users.\textsuperscript{156} Blizzard’s users submitted 465,000 complaints about bot users, indicating that Glider was negatively affecting the gameplay of WoW.\textsuperscript{157} Furthermore, Blizzard had previously lost many customers due to bot programs “ruining” the online gameplay of another Blizzard game, Diablo II.\textsuperscript{158}

While not an exact fit, the characteristics of an MMORPG make their inclusion under § 106A less farfetched than the inclusion of other audiovisual works, where individual copies exist in separate form. Since these single-world games are susceptible to distortion and mutilation from outside sources, it would be beneficial to expand coverage of the VARA to cover MMORPGs. Doing so would have led the Ninth Circuit to find that MDY had mutilated and distorted Blizzard’s “art” through Glider’s widespread negative impact on gameplay for so many users, and would protect future MMORPG game developers and players from outside developers that seek to allow some users to get ahead at the expense of many others.

\section*{IV. CONCLUSION}

Although the Ninth Circuit mistakenly used the Sun Test and held that § 1201(a)(2) could be violated without an infringement nexus, finding MDY liable for its actions is the proper result. MDY would have been found liable for vicarious infringement had the court wisely avoided the covenants/conditions distinction employed by the Sun Test. Furthermore, the Ninth Circuit’s choice to use the Vernor Test creates clarity for future cases where the distinction between an owner of a program copy and a licensee is at issue. As such, although the Ninth Circuit made several mistakes, the outcome of \textit{MDY} was proper. Finally, if copyright law was expanded in the ways outlined here, similar actions of distortion and mutilation to the only copy of existing audiovisual works would constitute infringement under § 106A.

\textsuperscript{156} MDY Indus., LLC v. Blizzard Entm’t, Inc., 629 F.3d 928, 936 (9th Cir. 2010).
\textsuperscript{157} Id.
\textsuperscript{158} See Seth Schiesel, \textit{Grounding Autopilot Players of World of Warcraft}, N.Y. TIMES (Feb. 6, 2009), http://www.nytimes.com/2009/02/07/arts/television/07bliz.html?_r=0 (stating “I have seen bots and hacks destroy other online games, in particular a previous Blizzard product called Diablo II.”).