
William K. Ford

John Marshall Law School, 7ford@jmls.edu

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COPY GAME FOR HIGH SCORE: THE FIRST VIDEO GAME LAWSUIT

William K. Ford

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* Assistant Professor of Law, The John Marshall Law School. The title of the Article is, of course, an homage to Atari's Pong, for which the key instruction was: "Avoid Missing Ball for High Score." See Pong (Atari 1972). Thanks to Shannon Ford, Raizel Liebler, Kimberly Regan, and Dave Schwartz for comments on earlier drafts.
“See, like I said, th[e] video game is yesterday’s newspaper . . . .”

—David Braun, Chairman and Chief Executive Officer, Allied Leisure Industries, Inc., June 14, 1974

I. INTRODUCTION

Commentators and industry historians generally agree that the multi-billion dollar video game industry began forty years ago in November 1972 with Atari’s release of Pong. Pong is among the simplest of video games: a version of ping pong or tennis requiring little more to play than a ball, two paddles, a scoring indicator, and a couple of memorable sounds. While it was not the first video game, Pong was the first video game hit. As such, Pong demonstrated the

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2 See, e.g., The Story of Pong, RETRO GAMER no. 104, 2012, at 22, 29 (“The impact of Pong on the industry simply cannot be diminished.”); HAROLD GOLDBERG, ALL YOUR BASE ARE BELONG TO US: HOW FIFTY YEARS OF VIDEOGAMES CONQUERED POP CULTURE 21 (2011) (“[T]he age of the videogame arcade was born.”); TRISTAN DONOVAN, REPLAY: THE HISTORY OF VIDEO GAMES 29 (2010) (“Pong’s popularity sent shockwaves through the amusement business . . . . The success of Pong restructured the amusement business.”); Matt Barton & Bill Longuidice, The History of Pong: Avoid Missing Game to Start Industry, GAMASUTRA (Jan. 9, 2009), http://www.gamasutra.com/view/feature/132293/the_history_of_pong_avoid_missing_.php (“Although it wasn’t the first, Atari’s Pong was the first video game to get the ball rolling—or bouncing, as it were.”); MARTIN CAMPBELL-KELLY, FROM AIRLINE RESERVATIONS TO SONIC THE HEDGEHOG: A HISTORY OF THE SOFTWARE INDUSTRY 269, 272 (2003) (“It is not an overstatement to say that Pong, produced by Atari, was the springboard for today’s vast computer entertainment industry.” (italics added)); Modern Marvels—Video Games: Behind the Fun (History Channel television broadcast Oct. 9, 2000) (available on DVD from A&E Home Video), at 15:26 (“Odyssey, the world’s first home video game, was a moderate success, but another game [Pong] took America by storm.”); Peter W. Bernstein, Atari and the Video-Game Explosion, FORTUNE, July 27, 1981, at 40 (“In the beginning, there was Pong, the electronic version of table tennis that sparked the creation of a new industry.” (italics added)). A notable dissenter from the view that Pong started the industry is Ralph Baer, the lead designer of the Magnavox Odyssey home game console released in 1972. See RALPH H. BAER, VIDEOGAMES: IN THE BEGINNING 7 (2005) [hereinafter BAER, VIDEOGAMES: IN THE BEGINNING] (“A look at the . . . detailed data of Magnavox videogame sales will put the nonsense about Pong having started the industry to rest.”). Cf. Ralph H. Baer, Forward in THE MEDIUM OF THE VIDEO GAME, at xiv–xv (Mark J.P. Wolf ed. 2001) (“PONG launched the arcade video game industry with a bang.” (emphasis added)).

3 See Pong (Atari 1972).

commercial viability of video games, and its success quickly generated a new industry, initially one of close imitators. Early on, much of what the industry produced was unlicensed copies and derivatives of Pong. Pong itself was inspired by a game called Table Tennis for the Magnavox Odyssey, the first home video game console. With so much unauthorized copying of a successful product occurring, it is not surprising that a lawsuit resulted in the fall of 1973, one that predates the more well-known litigation over the so-called “Pong Patent,” U.S. Reissue Patent No. 28,507 (the '507 patent).

The 1973 suit, likely the video game industry’s first lawsuit of any type, was between two of Atari’s competitors, Allied Leisure Industries, Inc. and Midway Manufacturing, Inc. The dispute involved Allied Leisure’s mechanical drawing of a printed circuit board, meaning the drawing or “artwork” depicting the layout of one of the typically green boards found in many electronic devices. Specifically, Allied Leisure claimed Midway had infringed its copyright in a drawing of a printed circuit board for its four-player tennis game, basically a four-player version of Atari’s Pong. Figure 1 provides a small excerpt from the drawing attached to Allied Leisure’s complaint. Allied Leisure also included a related claim against Midway for unfair competition. The case settled in April 1974 before a decision on the merits could be rendered.

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5 See supra text accompanying note 2.
6 See, e.g., GOLDBERG, supra note 2, at 30 ("[F]orty companies made knockoffs [of Pong]."); DONOVAN, supra note 2, at 29 ("Within a year of Pong's debut... more than 15 companies had piled into the coin-operated video game business that once was Atari's alone."); STEVEN L. KENT, THE ULTIMATE HISTORY OF VIDEO GAMES 61 (2001) ("Within three months of Pong's release, competitors with names like Electronic Paddle Ball started to surface."); A Red-Hot Market for Video Games, Bus. Week., Nov. 10, 1973, at 213 ("Atari's instant success has inspired a dozen or more companies to jump into the manufacture of video games, some of them outright copies of Pong.").
7 See infra Part II.B.
9 See U.S. Patent No. Re. 28,507 (filed Apr. 25, 1974); Steve Chang & Ross Dannenberg, The Ten Most Important Video Game Patents, GAMASUTRA (Jan. 19, 2007) (ranking the '507 patent as the most important video game patent of all time), http://www.gamasutra.com/features/20070119/ dannenberg_06.shtml.
10 The earliest cases discussed in the literature are part of the litigation involving the '507 patent. See, e.g., JON FESTINGER, VIDEO GAME LAW 7-12 (2005); KENT, supra note 6, at 46-48, 368.
11 See Complaint, Allied Leisure Indus., supra note 8, at 1.
12 See PREBEN LUND, GENERATION OF PRECISION ARTWORK FOR PRINTED CIRCUIT BOARDS 10 (1978).
13 Complaint, Allied Leisure Indus., supra note 8, at 3.
14 See id. at 1.
15 See Stipulated Dismissal Order, Allied Leisure Indus. v. Midway Mfg. Co., No. 73 C 2682 (N.D. Ill. Apr. 12, 1974) (dismissing the case "with prejudice to any action based upon any acts
The Allied Leisure lawsuit is missing from the existing literature, both popular and academic, on the video game industry. This Article provides an account of the case. Why focus on a forgotten and unknown case that quickly settled? Even with Atari on the sidelines of the case, the story of Allied Leisure is a significant part of the story of Pong, the game that started the video game industry. The case is interwoven with the major events of the industry’s birth. Allied Leisure should be of interest to industry historians for this reason, but the case should pique the interest of scholars concerned with the legal history of the video game industry. An analysis of Allied Leisure shows the very limited scope of intellectual property protection available to game manufacturers at the industry’s origin. In particular, it demonstrates the limits on the protection available both under the law of copyright and the law of unfair competition. Some forms of intellectual property protection were, of course, available. The frequently referenced—and frequently misunderstood—litigation over the '507 occurring prior to December 26, 1973”) [hereinafter Stipulated Dismissal Order-Allied].

16 Complaint, Allied Leisure Indus., supra note 8, at attachment.
17 For concise histories of the industry, see GREG LASTOWKA, VIRTUAL JUSTICE 29–48 (2010); CAMPBELL-KELLY, supra note 2, at 269–301. For a history of the early years of the industry, see BEFORE THE CRASH: EARLY VIDEO GAME HISTORY (Mark J.P. Wolf ed., 2012). For comprehensive histories of the industry's history, see DONOVAN, supra note 2; VAN BURNHAM, SUPERCADE (2001); LEONARD HERMAN, PHOENIX: THE FALL AND RISE OF VIDEOGAMES (3d ed. 2001); KENT, supra note 6. The books by Lastowka, Campbell-Kelly, Wolf, and Burnham are examples of academic press publications. The MIT Press is probably the leading and most prolific academic publisher of books on video gaming and other computer-related subjects. See, e.g., MIT Press, COMPUTER SCIENCE AND INTELLIGENT SYSTEMS 32–37 (2011) (cataloging MIT's "Game Studies" publications).
The '507 patent demonstrates the availability of patent protection for at least some game related innovations. The enforceable claims in the '507 patent involved a very basic game play mechanic in a video game. Put simply, the patent covered video games in which a player-controlled symbol struck a game-controlled symbol and caused the game-controlled symbol to move in a new direction. Many video games infringed this broad patent. Patents, however, are usually much more costly and difficult to obtain than other forms of intellectual

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18 The '507 patent litigation is often described in terms of copyright infringement. The claim is made that the decisive fact for proving infringement was Nolan Bushnell seeing Magnavox's Table Tennis game before assigning Al Alcorn to design Pong. See, e.g., HERMAN, supra note 17, at 15 (“Upon Pong's release Magnavox quickly sued Atari for copyright infringement... As far as the judge was concerned, the founder of Atari plainly copied the Odyssey game.”). In the earliest major decision on the '507 patent, the district court judge did consider Bushnell’s copying of Table Tennis relevant to the case, but only to the question of whether the patent was invalid for being obvious. See 35 U.S.C. § 103 (1976) (“Conditions for patentability; non-obvious subject matter.”); Magnavox Co. v. Chi. Dynamic Indus., Nos. 74 C 1030, 74 C 2510, 1977 U.S. Dist. LEXIS 17996, at *5-6 (N.D. Ill. Jan 10, 1977) (“Another factor that I took into consideration on the question of the obviousness of the '507 invention is the fact that it was imitated by others, and that is quite clear from the evidence in the case of the Pong game... When [Bushnell] did see the Odyssey game, what he did basically was to copy it.” (italics added)).

19 The term “mechanic” may be unfamiliar in this context, but as early as the 1960s the term has been widely used to describe game processes or methods, initially in board games and later in other types of games. See, e.g., RICHARD ROUSE III, GAME DESIGN THEORY & PRACTICE 361–66 (2d ed. 2005) (discussing the “Game Mechanics” section of a game design document); Richard C. Giberson, Jutland Play-by-Mail, THE GENERAL, July–Aug. 1968, at 9 (“This article will deal with the mechanics of play.”); Donald Greenwood, Buyers' Guide, THE GENERAL, Mar.–Apr. 1967, at 4 (describing Avalon Hill's D-Day wargame as having “easy mechanics”).

20 See Magnavox, 1977 U.S. Dist. LEXIS 17996, at *4 (“I do not regard the circuitry of the '507 patent as containing anything which is novel or patentable. I believe that the novelty and patentability reside entirely in this feature of the player-controlled hitting symbol, which coincides with a hit symbol and causes a distinct change of direction in the motion of the hit symbol, whether that change in motion be from a moving position or from a stopped position of the hit symbol.”); see also Ralph Baer, Video Game History: Getting Things Straight, in BEFORE THE CRASH: EARLY VIDEO GAME HISTORY 225, 228 (Mark J.P. Wolf ed., 2012) (“The lawsuits were mainly about infringing on those claims in our patents that dealt with the interaction between machine-controlled and manually controlled symbols on screen. If there was a change in the path, direction, or velocity of the machine-controlled symbol immediately after 'contacting'—that is, coming into coincidence with one of the manually controlled symbols on screen—then the game exhibiting these functions infringed our patents.”). For a more detailed breakdown of the relevant claims in the '507 patent, see Magnavox Co. v. Mattel, Inc., No. 80 C 4124, 1982 U.S. Dist. LEXIS 13773, at *8, *26–59 (N.D. Ill. July 29, 1982).

property protection.22 The Allied Leisure case demonstrates the limitations of two less costly sources of protection that might have been expected to prevent the copying of games.

This Article is organized as follows: Part II provides the historical background of the Allied Leisure case, including the origin of Pong and the subsequent development of the games by Allied Leisure and Midway that were at issue in the lawsuit. This section also describes the competitive environment of the early video game industry, an environment in which copying was common. A brief summary of this section may be helpful to those unfamiliar with the industry’s early history: Atari created Pong, a two-player tennis game. Allied Leisure, along with many other competitors, copied Pong’s design without a license from Atari and then sold the games using its own name and trademark.23 Midway, by contrast, licensed Atari’s design, probably because of its ongoing relationship with Atari. Allied Leisure subsequently produced a modified version of its two-player tennis game playable by four players. Midway copied that design without a license. As a result, Allied Leisure sued Midway for copyright infringement and unfair competition.

Part III describes this lawsuit and provides some context for the settlement, but it is primarily a doctrinal analysis of Allied Leisure’s copyright and unfair competition claims. On the merits, this Article argues that Midway had the clear edge over Allied Leisure, despite Midway’s copying of Allied Leisure’s design. Setting aside the patent issues, copying these early games was legal, given the state of the law in the early 1970s.

Part IV concludes. While the limited intellectual property protection initially available may not have been harmful to the industry’s early development, the conclusion briefly explains why additional protection was needed and how it resulted primarily through changes in the copyright laws.

A comment about sources: This Article is based in substantial part on the case files from the Allied Leisure lawsuit and the later litigation involving the ’507


23 Trademark protection was of course available to early game manufacturers, but this protection would not have been sufficient to prevent competitors from copying each other’s games and then selling the games under their own trademarks. See generally 15 U.S.C. §§ 1051–1127 (1970); Joseph P. Bauer, A Federal Law of Unfair Competition: What Should Be the Reach of Section 43(a) of the Lanham Act?, 31 UCLA L. REV. 671, 699–700 (1984).
As the National Archives and Records Administration (NARA) is now destroying a substantial number of its older judicial records, it is important to demonstrate ways in which these records can be used. These records offer more than just the components of old judicial decisions. They contain contemporary documents and testimony often going beyond the narrow questions eventually addressed in published judicial decisions, and sometimes, as in Allied Leisure, a case will not even result in a published decision. Although the records I rely upon in this Article currently qualify for preservation, other historically interesting records may not. Judges and court clerks can designate additional records for preservation, but the process for identifying the records worth preserving appears to vary from court to court. The value of certain records may not be obvious, especially when they relate to topics like games, but by making a contribution to the literature on the video game industry’s history, I hope this Article demonstrates that even case files about games have some historical value.

24 Prior to the closing of its public viewing room due to declining use (a possible consequence of the popularity of PACER), I was able to examine these files at the Federal Records Center in Chicago, a part of NARA’s storage system for inactive federal records. See 44 U.S.C. § 2907 (2012); Chicago Federal Records Center, http://www.archives.gov/frc/chicago/ (last visited July 30, 2012).

25 For the first time in decades, NARA is destroying records from federal cases. The quantity being destroyed is substantial: hundreds of thousands of records from federal cases filed between 1970 and 1995 and more recent records as time continues. These records are not digitally scanned before they are destroyed. NARA is preserving some records, including the records from cases that went to trial and the records from cases designated as historic, either because of the parties involved or because of the subject matter. See Admin. Off. of the U.S. Cts., Making Room, Saving History, THE THIRD BRANCH, May 2011, at 1, 1-2. As Professor Theodore Eisenberg notes, even records lacking historically important parties or issues still have value for showing trends over time, but many of these records are being lost. Id. See also Michael Tarm, Plans to Destroy Records have Some Riled, VIRGINIAN-PILOT, Aug. 26, 2011, at A14.

26 Under the current policy, NARA should preserve the Allied Leisure records because the case is classified as a copyright suit, and the case proceeded far enough into the litigation process to qualify for preservation. The ‘507 patent litigation records should be preserved for two reasons. First, records from patent cases are currently preserved no matter how far the suit progressed. Second, records from cases that went to trial are currently preserved, and two of the consolidated cases in the file went to trial. See Admin. Off. of the U.S. Cts., 10 GUIDE TO JUDICIARY POLICY appendix 6B (Oct. 5, 2012) (“Records Disposition Schedule 2”), available at http://www.uscourts.gov/CourtRecords/RecordsSchedule.aspx.

27 See Admin. Off. of the U.S. Cts., Making Room, Saving History, supra note 25, at 2; Maya Rhodan, Millions of Federal Court Records are Being Destroyed to Save Money, iWATCHNEWS (Jan. 27, 2012, 5:10 p.m.), http://www.iwatchnews.org/2011/08/02/5456/millions-federal-court-records-are-being-destroyed-save-money (noting that “Judge Hugh Brenneman of the U.S. District Court for the Western District of Michigan sent letters to lawyers, judges and clerks in Michigan to get input on what may be considered historic and should be preserved”).
II. BACKGROUND

A. ATARI, INC.

Atari, Inc. was formed in June 1972 by Nolan Bushnell and Ted Dabney. Originally, their intent was to design and license games to other arcade game manufacturers rather than to manufacture games themselves. There was an arcade industry before Atari, one largely based in Chicago, but for the most part, it did not produce video games. Instead, it mostly produced pinball and other electromechanical games. The industry's two exceptions were in California: Syzygy Company and Nutting & Associates. Prior to forming Atari, Bushnell and Dabney had formed Syzygy to design an arcade game based on Space War, a computer game involving combat between two spaceships. Space War was designed in the early 1960s for play on a university computer at MIT. Bushnell, an "avid" board game player, became an avid Space War player while in college at the University of Utah. Bushnell's idea for a Space War arcade game combined his gaming experience with his experience of working in an arcade (of the pre-video game type). After making some progress on the design for the game, Bushnell and Dabney licensed it to Nutting & Associates, a small amusement machine manufacturer in California. They then went to

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28 Atari's articles of incorporation have an execution date of June 9, 1972, and a filing date with the California Secretary of State of June 27, 1972. See Articles of Incorporation of Atari, Inc. (June 9, 1972), available at http://mcurent.name/atarihistory/Articles-of-Incorporation.pdf (last visited Oct. 28, 2012). See also DONOVAN, supra note 2, at 23 (discussing the origin of Atari).
32 KENT, supra note 6, at 16–21.
33 Id.
34 Bushnell, supra note 30, at approximately minute 1:25, minute 7:00.
35 KENT, supra note 6, at 30.
36 See generally id. at 28–31.
37 Kent puts the formation of Syzygy after Bushnell left Nutting, id. at 34, but Alcorn notes that Computer Space itself is labeled "syzygy engineered," Lowood, supra note 29, at 7. Other sources confirm that Syzygy predated Bushnell and Dabney's employment with Nutting. See, e.g,
work for Nutting and completed the design.\textsuperscript{38} Nutting called the game \textit{Computer Space} and began shipping the game to customers in November 1971, making it the first mass-produced commercial arcade game.\textsuperscript{39} Unfortunately, \textit{Computer Space} proved excessively complicated for common arcade game venues, such as bars, and was not the commercial success that \textit{Pong} would later become.\textsuperscript{40}

Several months after Nutting's release of \textit{Computer Space}, Bushnell and Dabney left Nutting and formed Atari.\textsuperscript{41} Their plan was again to design and license games, not to manufacture them.\textsuperscript{42} One of Bushnell’s earliest design agreements was with Bally Manufacturing Corporation, the parent company of Midway Manufacturing Company.\textsuperscript{43} Bally was a leading pinball manufacturer going back to the 1930s.\textsuperscript{44} Midway, the junior of the two game manufacturers, was founded in 1958 and made pinball and other electro-mechanical arcade machines.\textsuperscript{45} It became a subsidiary of Bally in 1969.\textsuperscript{46} \textit{Computer Space} gave Bushnell a basis for forming a relationship with Bally and Midway, two established members of the arcade industry.

Despite \textit{Computer Space}'s lack of commercial success, Bushnell’s experience with the new form of coin-operated games helped him arrange a meeting in Chicago with John Britz, Bally’s executive vice president.\textsuperscript{47} Bushnell and Britz

\textit{Interview with Ted Dabney at Midwest Gaming Classic 2011, YOUTUBE (Mar. 29, 2011), http://www.youtube.com/watch?v=ijTW14gEJ54.}

\textsuperscript{38} To maintain the rights in the game, Bushnell said he worked on Nutting's projects during regular work hours and on \textit{Computer Space} after hours. \textit{KENT, supra note 6, at 32.}

\textsuperscript{39} \textit{Computer Space} was not the first coin-operated arcade video game. \textit{Galaxy Game} appeared in the Tresidder Union at Stanford University in September 1971, but the makers of the game did not mass-produce it. Like \textit{Computer Space}, \textit{Galaxy Game} was also based on \textit{Space War}. See \textit{DONOVAN, supra note 2, at 15–21 (discussing the origin of \textit{Galaxy Game}).}

\textsuperscript{40} See \textit{id. at 20–21; KENT, supra note 6, at 33–34.}

\textsuperscript{41} Bushnell said in an affidavit that his obligations at Nutting & Associates ended on June 5, 1972. Britz Deposition Exhibit 3: Affidavit of Nolan Bushnell, Deposition of John Anthony Britz, Magnavox Co. v. Bally Mfg. Corp., No. 74-1030 (N.D. Ill. Jan. 17, 1975). As noted above, Bushnell and Dabney filed Atari's articles of incorporation on June 27, 1972. \textit{KENT, supra note 6, at 38; Business Search, California Secretary of State, available at http://kepler.sos.ca.gov/ (last visited June 30, 2012). The new corporation would have carried the original Syzygy name, but that name was in use by another company registered with the State of California and was therefore unavailable. See \textit{KENT, supra note 6, at 35. Atari was one of their alternative choices and the name was available, so it became the name of the new corporation. \textit{Id.}}

\textsuperscript{42} See Lowood, \textit{supra} note 29, at 16.

\textsuperscript{43} CHRISTIAN MARFELS, BALLY: THE WORLD'S GAME MAKER 48 (2001).

\textsuperscript{44} \textit{Id. at 5–10, 32–34, 51. Bally was originally a division of the now forgotten Lion Manufacturing Company. \textit{Id} at 8–9.}


\textsuperscript{46} See \textit{Ross Deposition, supra note 45, at 35; MARFELS, supra note 43, at 48.}

\textsuperscript{47} Deposition of John Anthony Britz at 12–15, Magnavox Co. v. Bally Mfg. Corp., No. 74 C
met on June 26, 1972, and Bushnell agreed to design two game prototypes for Bally, one a video game and the other a four-player pinball game.\footnote{See Exhibit 3: Royalty Agreement, Deposition of Henry Ross, Magnavox Co. v. Bally Mfg. Corp., No. 74 C 1030 (N.D. Ill. Jan. 17, 1975) [hereinafter Royalty Agreement]. Alcorn recalled a third project with Bally, which he described as “some kind of major arcade piece,” but neither the agreement nor a follow-up letter mentions a third project. See Lowood, supra note 29, at 11. Bushnell did eventually submit a pinball game design to Bally called Fireball, but Bally never released it. See Britz Deposition, supra note 47, at 18. Bally did, however, release a different pinball game with that same name. Id.} The agreement contained no details about the themes of the games,\footnote{Royalty Agreement, supra note 48, at 1–3.} but in a subsequent letter to Bally, Bushnell said that the video game would have a hockey theme and that it would be finished by November 15, 1972.\footnote{See Britz Deposition Exhibit 2: Letter from Nolan Bushnell to John A. Britz (July 10, 1972), Deposition of John Anthony Britz, Magnavox Co. v. Bally Mfg. Corp., No. 74 C 1030 (N.D. Ill. Jan. 17, 1975). Bushnell’s letter was on Syzygy letterhead, probably for the same reason that Bushnell continued to use the Syzygy name and letterhead in other contexts: either because Bushnell thought the original Syzygy Company might still have some value (either for name recognition value or for tax purposes) or because the alternative was to let costly letterhead go to waste. See Alcorn, supra note 29, at approximately minute 20:25 (explaining the use of the Syzygy name on the original flyer for Pong and the use of Syzygy letterhead internally at Atari). At some later point, Bushnell may have promised Bally a driving game instead of the hockey game. See Bushnell, supra note 30, at 25:30. During his 2003 comments about his contract with Bally, Bushnell made no mention of a hockey game, but Britz made no mention of a driving game in his June 1974 deposition, instead saying that Bushnell replaced the hockey game with a space game. See infra note 85 and accompanying text.} Although the agreement was formally between Bally and Bushnell,\footnote{See Royalty Agreement, supra note 48, at 1–2.} it referenced Bushnell’s “operation” and seems to have been treated, at least by Bushnell, as an agreement between Bally and Atari.\footnote{See Britz Deposition, supra note 47, at 8–10, 21 (discussing whether the agreement was between Bally and Bushnell or Bally and Atari).}

B. ATARI’S PONG

Around the time that Bushnell met with Bally, he instructed Al Alcorn, one of Atari’s earliest employees,\footnote{See Royalty Agreement, supra note 48, at 1 (referring to Bushnell’s obligation to “staff his operation adequately”).} to design a simple ping pong or tennis video game...
The project was just a training exercise to familiarize Alcorn with the video game technology; however, because Bushnell wanted Alcorn to take the project seriously, he told Alcorn that Atari had a contract with another company to design the game.

Bushnell’s inspiration for the assignment came from a game for the Magnavox Odyssey home video game console. At the time, Magnavox was demonstrating the Odyssey at various promotional events around the country. One of the Odyssey games was Table Tennis, a ball and paddle game designed by William Rusch. Bushnell did not mention the Odyssey game to Alcorn, but Bushnell had played Table Tennis at a May 1972 Magnavox promotional event in Burlingame, California. Magnavox’s game did not impress Bushnell, making it seem especially suitable for Alcorn’s training exercise.

While a trial court judge in the litigation over the '507 patent concluded that there was a lack of evidence to prove it, Bushnell may have conceived of a ping pong or tennis game while he was still a student at the University of Utah. In addition to playing Space War while in college, Bushnell

56 See Lowood, supra note 29, at 10–11; Alcorn, supra note 29, at approximately minute 11:15; Bushnell, supra note 30, at approximately minute 21:30; Kent, supra note 6, at 40–41.
57 See Bushnell, supra note 30, at approximately minute 21:45 (discussing the controversy about how he got the idea for Pong).
58 BAER, VIDEOGAMES, IN THE BEGINNING, supra note 2, at 75–76, 80.
59 Although Baer designed the Odyssey, Rusch had the idea for the tennis or ping pong game. See generally BAER, VIDEOGAMES: IN THE BEGINNING, supra note 2. See U.S. Patent No. Re. 28,507 (filed Apr. 25, 1974) (“Television Gaming Apparatus”); BAER, VIDEOGAMES: IN THE BEGINNING, supra note 2, at 45–47 (“Bill Rusch came up with the idea of using that spot as a ‘ball’ so that we could play some sort of ball game with it [. . .] such as Ping-Pong . . . .”); Deposition of Ralph H. Baer at 11, Midway Mfg. Co. v. Magnavox Co., No. 74 C 1657 (S.D.N.Y. Oct. 8, 1976) (deposition taken Feb. 18, 1976) (“Q. Do you credit Mr. Rusch with having conceived the ping pong type game where one image appears to bounce off another? A. To the best of my recollection, that’s how it was.”).
60 See BAER, VIDEOGAMES: IN THE BEGINNING, supra note 2, at 81 (showing an image of the sign-in sheet with Bushnell’s signature); Bushnell, supra note 30, at approximately minute 21:45; Trial Transcript at 1501-06, Magnavox Co. v. Chi. Dynamic Indus., Nos. 74 C 1030, 74 C 2510 (N.D. Ill. Jan. 5, 1977) (quoting a section from the deposition of Nolan Bushnell about his visit to the Magnavox event).
61 Lowood, supra note 29, at 10–11; Bushnell, supra note 30, at approximately minute 22:30.
62 See Magnavox Co. v. Chi. Dynamic Indus., Nos. 74 C 1030, 74 C 2510, 1977 U.S. Dist. LEXIS 17996, at *5–6 (N.D. Ill. Jan 10, 1977) (“Yet there is no real evidence which I find persuasive that Mr. Bushnell had conceived of anything like the Pong game prior to the time that he saw the Odyssey game.”) (italics added).
63 Bushnell said, “I’ve said that I saw the [Odyssey] game and it reminded me, but [Ralph Baer] knows full well that I had a similar game designed in my lab book.” Benj Edwards, VC&G Interview:
did maintain notes on ideas for games and even wrote some programs himself. Tennis plausibly could have been among these games. Either way, Bushnell saw Magnavox’s *Table Tennis* game at the event, and it at least reminded Bushnell of an earlier idea for a game.

With some assistance from Bushnell and Dabney, Alcorn completed the *Pong* design over the summer of 1972. Like *Computer Space*, but unlike later video games, the original arcade version of *Pong* was exclusively hardware-driven. There was no microprocessor; there was no software. As it turned out, Alcorn’s game design appeared to have potential. In contrast to Magnavox’s *Table Tennis*, which lacked sound and did not keep track of the players’ scores, Bushnell thought *Pong* was a fun game. Bushnell and Dabney decided to market *Pong*’s design rather than discard it. As a test run in September 1972, they placed a *Pong* prototype in Andy Capp’s Tavern in Sunnyvale, California, a bar that was already home to a *Computer Space* game. However, unlike *Computer Space*, *Pong* was simple. The complete instructions were:

- DEPOSIT QUARTER
- BALL WILL SERVE AUTOMATICALLY
- AVOID MISING BALL FOR HIGH SCORE

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64 *See* Kent, *supra* note 6, at 30 (discussing Bushnell’s college years).

65 *See* Henry Lowood, *Videogames in Computer Space: The Complex History of Pong*, IEEE ANNALS OF THE HISTORY OF COMPUTING, July–Sept. 2009, at 15 (“Not a single line of software code was involved in the construction of *Pong*.“); Alcorn, *supra* note 55 (“But what *Pong* is electronically is a logical circuit with a crystal oscillator and dividers and counters, and out comes the ball signal. The sounds come sneaking out of there. Basically, it’s just a bunch of logic. It’s a machine that just plays *Pong*. A lot of people, a lot of young engineers have trouble imagining how you could build something without a computer chip. And so, that’s how.” (italics added)).


67 *See* Bushnell, *supra* note 30, at approximately minute 23:00; Kent, *supra* note 6, at 43 (quoting Bushnell: “And, dammit, it was fun.”).

68 Kent, *supra* note 6, at 42.

69 *See*, e.g., Donovan, *supra* note 2, at 23; Burnham, *supra* note 17, at 87.

70 Kent, *supra* note 6, at 43.

According to the often-told story, *Pong* was such a success that after being told that the machine had broken down, Alcorn discovered it was not broken but was jammed with quarters.72

Sometime around the start of *Pong*’s test-run at Andy Capp’s Tavern,73 Bushnell traveled to Chicago to demonstrate *Pong* to Bally and Midway as a possible substitute for the hockey video game he had originally planned to develop for Bally.74 Bushnell first demonstrated *Pong* for Bally’s John Britz.75 After doing so, Bushnell and Britz both went to Midway’s facility, where Bushnell demonstrated the game for Midway’s president, Marcine Wolverton.76 Bushnell “sold them pretty hard”77 and wanted *Pong* to fulfill his contract with Bally,78 but Britz said he “did not see the merits of so-called *Pong*.”79 Britz added, “[E]verybody concerned thought it was a rather interesting game, but nobody actually got all excited over it.”80 At the time, Britz and Wolverton both passed on the game, which appears to have been a rather serious mistake.81 Part of the industry’s lore is that Bally and Midway actually were interested in *Pong* as part of the contract with Bushnell, but once Bushnell found out about *Pong*’s success at Andy Capp’s Tavern, he tricked Bally and Midway into passing on the game.82 Britz’s deposition casts serious doubt on this story,83 and contrary to one source, Bally did not cancel the contract with

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72 See, e.g., DONOVAN, supra note 2, at 24; BURNHAM, supra note 17, at 87; Bushnell, supra note 30, at approximately minute 24:30 (“Yes, the story is true.”). *See also* Tom Goulter, *The Top 7... Videogame Legends We Never Want to Hear Again*, GAMESRADAR (June 15, 2009) (“6. Bushnell’s Bucket”), http://www.gamesradar.com/the-top-7-videogame-legends-we-never-want-to-hear-again/.


74 *See* Britz Deposition, supra note 47, at 20–21, 25–26.

75 Id. at 21.

76 Id. at 24. Marcine “Iggy” Wolverton was both the president and co-founder of Midway. *See* Kenan Heise, *Marcine “Iggy” Wolverton*, CHI. TRIB., Apr. 20, 1994, at 11 (obituary).

77 KENT, supra note 6, at 43 (quoting Bushnell).


79 Id. at 25 (italics added).

80 Id. at 26.

81 Id. at 25–27.

82 Alcorn said Bushnell engaged in a “masterpiece of subterfuge” to convince Bally and Midway not to take *Pong*. Lowood, supra note 29, at 17. According to *Retro Gamer*, “In a move that would make Obi-Wan Kenobi proud,” Bushnell “convinced Bally that this wasn’t the droid it was looking for.” *The Story of Pong*, supra note 2, at 28.

83 It is possible that after the initial demonstration, Bally or Midway later wanted Bushnell to deliver *Pong* as part of the original contract. However, Britz was explicitly asked about further contacts with Bushnell, and he said nothing about Bally or Midway later trying to claim *Pong* as
Bushnell after rejecting *Pong*. Instead, Bushnell eventually fulfilled his video game obligation in the contract with the design for another game, one Midway sold with the name *Asteroid* (not to be confused with Atari's 1979 blockbuster game *Asteroids*). In the meantime, Atari was left to manufacture *Pong* itself. Starting with an initial production run of just eleven units, Atari released *Pong* in November 1972. Atari went on to sell thousands of *Pong* units, with most estimates ranging from 3,000 to 8,000 units. Atari's competitors, however, sold even more.

part of the original contract. See Britz Deposition, supra note 47, at 25–29. Atari and Midway did enter into an agreement involving *Pong* months later, but it was not part of the original contract. See infra note 109 and accompanying text.

Apparently relying on the recollection of Ted Dabney, *Retro Gamer* reports that Bally originally owned *Pong* as a result of the June 1972 contract with Bushnell, but that Bally later released these rights to Atari in a letter. See *The Story of Pong*, supra note 2, at 22, 26, 28. Britz's and Ross's depositions do not support these claims. The *Retro Gamer* article also reports that Bally's letter cancelled Atari's outstanding obligations under the contract. Id. As documented in this section, Britz and Ross both said otherwise.

Even though Bushnell's contract was with Bally, it was Midway rather than Bally that manufactured *Asteroid*. See *id.* Atari also released its own version of *Asteroid* called *Space Race*, which arguably put Bushnell in breach of his contract with Bally. *Burnham*, supra note 17, at 96; Ross Deposition, supra note 45, at 26. As a resolution, the parties orally agreed that Midway would not pay any royalties to Bushnell or Atari on sales of *Asteroid*. *id.* Regarding the release and success of Atari's 1979 *Asteroids* game, see Tom Vanderbilt, *Asteroids*, in *Supercade*, supra note 17, at 197, 197 ("[W]ith some 70,000 units released it eclipsed *Space Invaders* and briefly held sway as the most popular coin-op ever . . . .").

*Donovan* reports that Nutting also turned down the opportunity to license *Pong*. See *Donovan*, supra note 2, at 24.

See id. (quoting Bushnell); Bushnell, supra note 30, at approximately minute 27:30.

According to Al Alcorn, Atari sold approximately 3,000 *Pong* units. Alcorn, supra note 55. *Business Week* put the number at 6,000 by November 1973. *A Red-Hot Market for Video Games*, supra note 6, at 212. Many other sources put the number in the neighborhood of 8,000. *Donovan*, supra note 2, at 25; *In the Chair . . . with Nolan Bushnell*, *Retro Gamer* no. 21, 2006, at 58, 60; *Burnham*, supra note 17, at 90; *Cohen*, supra note 88, at 34. Bushnell once said the number of coin operated *Pong* machines reached between 150,000 and 180,000 at its peak, but this number does not sound plausible. See Liane Hansen, *The Ping Heard 'Round the World*, NPR (Dec. 2, 2007), http://www.npr.org/templates/story/story.php?storyId=16816188 (interview with Nolan Bushnell). Bushnell may have been referring to the number of ping pong (or tennis) type games of all types by all manufacturers or even to the number of coin operated video games in general. Although Bushnell's numbers still seem high, at least for ping pong games, some sources do report that there were about 100,000 ping pong games by 1974 (and that Atari manufactured about 10,000 of them). See Scott Stilphen, *Nolan Bushnell: A Man and His Empire*, 2600 *Connection*, March/April 1993, at 6–7; *Bernstein*, supra note 2, at 42.
COPY GAME FOR HIGH SCORE

C. THE JACKALS' "PONGS"

Atari's competitors, including Allied Leisure, copied *Pong*'s design, and within about three months of *Pong*'s release, they started releasing their own versions of the game. Allied Leisure called its version *Paddle Battle.*91 During the '507 patent litigation, David Braun, Allied Leisure's chairman and chief executive officer, said that the circuit board for *Paddle Battle* was developed by Universal Research Laboratories (URL) in Chicago.92 He was not asked how URL developed the board, but in a 2000 interview, a former game-designer at Allied Leisure named Jack Pearson offered some relevant details.93 Pearson said Allied Leisure bought *Pong* from a California distributor and then sent at least the printed circuit board to URL.94 He added that URL "more-or-less copied the circuitry" and then produced the boards for Allied Leisure.95 With circuitry based on Atari's *Pong*, Allied Leisure released *Paddle Battle* in March or possibly April 197396 and went on to sell about 22,000 units,97 far more than Atari's sales of *Pong*. Other companies took a similar approach to designing their own versions of *Pong*. Chicago Dynamic Industries, for example, began producing what it called *TV Ping Pong* in April 1973.98 During his deposition in the '507

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92 See *Braun Deposition*, supra note 1, at 26–30.
94 *Id.* at 8. Unlike Bally and Midway, Allied Leisure had not had any kind of business relationship with Atari as of June 14, 1974. See *Braun Deposition*, supra note 1, at 46.
95 See *Smith, supra note 93*, at 8. In support of Pearson's recollection, in 1973 Midway's chief engineer examined *Paddle Battle*'s printed circuit board and concluded it was "substantially identical" to Atari's printed circuit board, which was the same as Midway's printed circuit board. See Affidavit of George T. Blahuta at 2, Allied Leisure Indus. v. Midway Mfg. Co., No. 73 C 2682 (N.D. Ill. Oct. 19, 1973) [hereinafter Blahuta Affidavit].
97 *Smith, supra note 93*, at 8.
patent litigation, the vice president of engineering for Chicago Dynamic Industries explained how the company designed TV Ping Pong.

Q. Did someone at Chicago Dynamic develop the game TV Ping Pong?
A. No, sir.
Q. Was that borrowed, as you use the term?
A. That’s the right expression.
Q. And from whom was that borrowed?
A. Atari.
Q. Was it borrowed subject to any arrangement or agreement of any kind?
A. No, sir.

Copying was the norm in the earliest period of the video game industry and often occurred without objection, legal or otherwise, from the original sources. Bushnell was not fond of the competitors who copied Pong’s design—he referred to them as “jackals”—but his view was that staying ahead of the copiers meant producing new and innovative games while the copiers lagged a step behind. At least initially, Bushnell even thought it could work to Atari’s advantage if his competitors devoted themselves to copying Atari’s games. Bushnell figured that so long as they focused on copying Atari’s games, the competitors would devote fewer resources to developing their own original games. Atari could therefore stay three to six months ahead of them in terms of product design. Bushnell’s strategy was at least plausible. At the time, there was a fairly limited window of opportunity in which to sell a new game before the various arcade game locations acquired the desired number of units.

99 Id. at 61–62 (emphasis added).
100 During his deposition, Jerry Koci, the vice president of engineering, was asked, “Has any competitor or other person or company charged Chicago Dynamic with improperly copying or borrowing from any of their games.” Id. at 55. After clarifying that this question was confined to video games, Koci responded, “No, sir.” Id.
101 BURNHAM, supra note 17, at 90; KENT, supra note 6, at 61.
102 See Bushnell, supra note 30, at approximately minute 37:30. Bushnell said Atari even used some obscure components (“bizarre chips”) to slow down copiers and increase Atari’s lead time. Id.
103 Id.
104 See A Red-Hot Market for Video Games, supra note 6, at 212 (noting that “sales of the video games are bound to slow when every location has been supplied with one and there is only the replacement market to live on”).
Midway is often listed among the "jackals" that produced knock-offs of Pong, sometimes even by Bushnell and Alcorn, but Midway’s position was quite different. With Pong a demonstrated success, Midway reconsidered its initial lack of interest in the game, but Midway did not produce an unlicensed clone. Bally and Midway’s rejection of Pong in the fall of 1972 did not end the relationship with Bushnell. Had Midway released an unlicensed version of Pong, it could have strained the still-ongoing relationship with Bushnell and Atari. Henry Ross, the secretary-treasurer of Midway, instead worked out a licensing agreement with Bushnell in February 1973. Bushnell’s interest in this agreement might have been that Atari lacked the manufacturing capacity to meet the current demand for Pong but whatever Bushnell’s thinking, Atari agreed to provide Midway with the information and engineering support it needed to produce a version of Pong identical to Atari’s game—but with a different name. Midway agreed to pay Atari a royalty of $31.00 per unit. Midway called its version of the game (its first video game) Winner and began producing it in April 1973.

105 See, e.g., KENT, supra note 6, at 61.
106 See Bushnell, supra note 30, at approximately minute 35:30 (using Midway’s Winner as an example of a knock-off of Pong).
107 See Lowood, supra note 29, at 18 (quoting Alcorn as saying Bally/Midway “knocked off and copied Pong” (italics added)); Alcorn, supra note 29, at approximately minute 21:45 (using Midway’s Winner as an example of one of the copies of Pong). A few minutes earlier in the 2007 presentation, Alcorn referred to Bally copying Pong like “everybody else,” but this was probably meant as a reference to Midway (and Midway’s game Winner), given the close relationship between Bally and Midway. Id. at approximately minute 18:20. Some sources do note the licensing arrangement between Atari and Midway. See, e.g., DONOVAN, supra note 2, at 23, 25; BURNHAM, supra note 17, at 97.
108 See Ross Deposition, supra note 45 at 3, 34.
109 Ross Deposition Exhibit 2: Agreement of Feb. 22, 1973, Deposition of Henry Ross, supra note 45. Ross is listed as president of Midway on this agreement by mistake. See Ross Deposition, supra note 45, at 10 (“Well, it is a mistake, obviously.”).
110 See DONOVAN, supra note 2, at 24–25 (discussing the early difficulties Atari had with meeting the demand for Pong).
111 Agreement of Feb. 22, 1973, supra note 109, at 1–2. The cabinets of the two games also varied. See BURNHAM, supra note 17, at 86, 97.
112 Agreement of Feb. 22, 1973, supra note 109, at 2. Donovan reports a royalty rate of 5 percent of Midway’s sales, but the contract says $31.00 per unit sold. See DONOVAN, supra note 2, at 25. Initially, Midway also purchased printed circuit boards and other components from Atari. Ross Deposition, supra note 45, at 23, 54.
113 See Ross Deposition, supra note 45, at 23, 28.
D. FOUR-PLAYER "PONGS"

Pong and its various copies sold well for a few months, but the demand for two-player tennis games cooled after the debut of similar tennis games playable by four players. In July or August 1973, Allied Leisure released a tennis game playable by two or four players.114 Allied Leisure sold the same game under two different names, one with the name Tennis Tourney and the other with the name Ric-o-chet.115 Shortly thereafter, manufacturers stopped producing exclusively two-player games. Chicago Dynamic Industries ceased production of TV Ping Pong in August 1973.116 Midway ceased production of Winner in approximately September 1973.117 One explanation for the declining sales of the older two-player games is that most locations had already acquired the games,118 but even new locations probably preferred games offering both two and four-player options. Midway's Henry Ross reportedly blamed Allied Leisure's Tennis Tourney and Ric-o-chet games for the declining sales of Winner.119 Presumably, either Wolverton or Ross thought Midway needed its own four-player tennis game because Midway followed Allied Leisure's lead and designed one using Allied Leisure's game.

Midway's engineers started their development of a four-player game with the printed circuit board for Midway's two-player Winner game,120 but they needed to prepare a drawing or artwork for a printed circuit board with four-player functionality.121 A printed circuit board starts as a base material, such as epoxy glass, covered with a copper foil.122 The excess copper on the board is removed

114 See Smith, supra note 93, at 8 (stating that Tennis Tourney was released in July 1973); Ross Deposition, supra note 45, at 45 (stating that Tennis Tourney was released at the end of August 1973).
115 See Tennis Tourney (Allied Leisure promotional flyer undated); Ric-o-chet (Allied Leisure promotional flyer undated); Braun Deposition, supra note 1, at 25 (“Ric-o-chet was the same as Tennis Tourney.”).
116 See Koci Deposition, supra note 98, at 59–60 (stating that Chicago Dynamic produced TV Ping Pong from April 5, 1973 to August 12, 1973).
117 Ross Deposition, supra note 45, at 24. On its own, this page of the transcript is somewhat confusing because it lacks an explicit reference to Winner. Ross was asked, “When was the VP-1 last made?” Id. He answered, “Approximately September of ‘73.” Id. The term VP-1 was Atari's model designation for Pong. Id. at 23. A few pages later, Ross said that Midway called its version of the VP-1 Winner. Id. at 28. Hence, the transcript confirms that Midway ended production of Winner in “[a]pproximately September of ‘73.” Id. at 24.
118 See A Red-Hot Market for Video Games, supra note 6, at 212.
119 See Smith, supra note 93, at 10 (quoting Jack Pearson as saying, “[W]e announced the 4-player and Hank Ross told us that they couldn’t give their game away.”).
120 See Ross Deposition, supra note 45, at 50–51 (discussing the conversion from Winner to Winner IV).
121 See Blahuta Affidavit, supra note 95, at 3 (mentioning the preparation of artwork).
122 Michael Flatt, Printed Circuit Board Basics 6 (2d ed. 1992); Lund, supra note 12, at 10.
through a chemical etching process to leave behind only the lines of copper traces needed to connect the various components that will eventually be added to the board. As the copper is conductive, a circuit can be created on the board in a uniform layout without the need for hand-wired components. The artwork depicts the layout of the desired copper lines or traces on the board and is a critical part of the manufacturing process: "it serves as a master from which to reproduce the electronic circuit on the board." 

In preparing the artwork for a four-player version of Winner, Midway's engineers used one of Allied Leisure's four-player printed circuit boards. Like Midway, Allied Leisure had produced a version of Atari's Pong, the previously mentioned Paddle Battle game. It is therefore understandable that Midway's engineers were interested in Allied Leisure's four-player game because it could have been a modification of Allied Leisure's two-player Paddle Battle game. Not surprisingly, after examining Allied Leisure's four-player board, Midway's chief electronics engineer "concluded that approximately 80%" of the layout of Allied Leisure's four-player board matched the two-player boards used by Atari, Midway, and Allied Leisure. The remaining 20% included the layout for new circuitry to achieve four-player functionality. Allied Leisure's board was therefore very informative about how to modify Midway's Winner's two-player board to achieve four-player functionality, so Midway copied at least that portion of the board that added four-player functionality. Although Midway did not duplicate it completely, Midway's engineers did incorporate many, if not most, of the features of Allied Leisure's board into Midway's new artwork and then into the boards Midway produced with this artwork.

124 See Flatt, supra note 122, at 6; Goldberg, supra note 123, at 1 (“Using printed-circuit boards gives a high rate of reliability in production. All circuits are uniform in layout, eliminating the wiring errors common to hand-wired electronic circuits.”). 
125 Goldberg, supra note 123, at 16; see also Lund, supra note 12, at 141 (discussing the importance of the artwork). 
126 See Blahuta Affidavit, supra note 95, at 3 (“Because of the similarities between the printed circuit board for the ATARI two player game and the board of the ALLIED four player game including components, functions, and locations of parts, the ALLIED board was examined during the design of the MIDWAY printed board, but original art work was prepared for the MIDWAY board and neither photographs nor tracings of the ALLIED board were made or used in the design of the MIDWAY board.”). 
127 Id. at 2–3. 
128 See id. at 4 (“During the design of the MIDWAY four player printed circuit board, [Blahuta] examined the ALLIED four player printed circuit board with the purpose of obtaining the same functions in the MIDWAY four player game as were present in the ALLIED four player game.
Midway released *Winner IV*, a four-player version of *Winner*, in mid-October 1973.\textsuperscript{130} By then, the competition for four-player games was substantial, with about eleven other manufacturers producing four-player versions,\textsuperscript{131} including Atari.\textsuperscript{132} But Allied Leisure took a special interest in Midway's game and the similarities between Midway's printed circuit board and Allied Leisure's board.\textsuperscript{133} Supposedly, Allied Leisure's philosophy for dealing with copiers was at one time similar to Bushnell's philosophy: innovate to stay ahead of them. In his 2000 interview, Jack Pearson, the former designer at Allied Leisure, said:

> At the time, the idea was that anybody could copy anybody at any time. Our philosophy was that if you wanted to make any money you had to go out there and get it first and go like the devil while you've got it because someone else is going to be coming with it later. So put it out and go as fast as you can so that by the time the next guy copies it and gets into the market you will have your profit out of it. And that was the philosophy we all lived on.\textsuperscript{134}

Even if Allied Leisure usually accepted "the idea that anybody could copy anybody at any time," there was at least one clear exception.

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\textsuperscript{132} See The Story of Pong, supra note 2, at 29 (reporting that Atari released *Pong Doubles* in September 1973).

\textsuperscript{133} See Complaint, Allied Leisure Indus., supra note 8.

\textsuperscript{134} Smith, supra note 93, at 8.
III. THE LAWSUIT

On October 18, 1973, Allied Leisure filed a complaint against Midway in the United States District Court for the Northern District of Illinois.135 Allied Leisure claimed Midway infringed its copyright in the mechanical drawing of a printed circuit board for its four player tennis games.136 At least in the complaint, Allied Leisure did not claim that Midway actually copied from the drawing, and there is no evidence in the record that Midway had access to a copy of the drawing.137 Allied Leisure instead claimed that Midway copied the "printed circuit drawing by obtaining an actual sample of [Allied Leisure’s] printed circuit and tracing the drawing thereon."138 The day after filing its complaint, Allied Leisure sought a temporary restraining order to prevent Midway from manufacturing, advertising, or selling Winner IV,139 Midway’s only game in production at the time.140

In several ways, the case was a warm-up for future litigation in the industry. The Northern District of Illinois became a common venue for the industry’s

135 Complaint, Allied Leisure Indus., supra note 8, at 1.
136 Id. at 3 (referring to the drawing as "the subject matter of the copyright in suit"). In some places, however, Allied Leisure said the board itself was copyrighted. See Motion for Temporary Restraining Order at 2, Allied Leisure Indus. v. Midway Mfg. Co., No. 73 C 2683 (N.D. Ill. Oct. 19, 1973) ("Defendant’s printed circuit board is substantially identical to Plaintiffs copyrighted printed circuit board.").
137 See, e.g., Blahuta Affidavit, supra note 95, at 3–4 ("Neither [Blahuta] nor, to the best of his knowledge, anyone else under his supervision involved in the design of the MIDWAY four player board has ever seen any drawings, photographs, tracings or wiring diagrams of the ALLIED four player printed circuit board.").
138 Id. at 5. Some statements were made during the case about Midway copying from Allied Leisure’s drawing, but these examples are confusing and seem to be the result of some imprecise language. The affidavit of William Olliges said,

I recently learned that Defendant was marketing a four player ping pong or tennis game for playing on a cathode ray tube, and I obtained a specimen of the printed circuit board which is used in Defendant’s said game. I have personally compared Defendant’s printed circuit drawing with Plaintiff’s copyrighted printed circuit drawing and note that they are substantially identical.

Olliges Affidavit, supra note 129, at 3–4 (emphasis added). Olliges went on to say that Midway’s reproduction of several false lines in Midway’s drawing—or perhaps he meant Midway’s board—was conclusive evidence that Midway copied Allied Leisure’s drawing, but the record indicates that these false lines were included on Allied Leisure’s board too. Id. at 4; Blahuta Affidavit, supra note 95, at 4. Therefore, the presence of some false lines in either Midway’s drawing or Midway’s board does not, by itself, reveal whether Midway copied from Allied Leisure’s drawing or from Allied Leisure’s board.

early litigation, including much of the '507 patent litigation. The attorneys for both Allied Leisure and Midway would go on to become prominent lawyers for the video game industry. Allied Leisure was represented by George Gerstman, who later represented Stern Electronics in Stern Electronics, Inc. v. Kaufman. Stern was a landmark case for the video game industry in which the United States Court of Appeals for the Second Circuit held that the audio-visual elements of a video game can satisfy the fixation requirement for copyright protection, even though players of the game inevitably manipulate the images in different ways each time they play. Midway was represented by Donald Welsh and A. Sidney Katz. Among their later cases, they represented Midway in Midway Manufacturing Co. v. Artic International, Inc., in which the Seventh Circuit endorsed the conclusion in Stern, thereby solidifying an important rule for the industry. Gerstman, Welsh, and Katz were also involved in the multi-decade '507 patent litigation.

The Allied Leisure case was assigned to Judge Bernard Decker, but Judge William Bauer, who would later be promoted to the United States Court of

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143 Stern Elecs., Inc. v. Kaufman, 669 F.2d 852 (2d Cir. 1982).
144 Id. at 855–56.
148 See Complaint, Allied Leisure Indus., supra note 8, at 1; Civil Docket at 1, Allied Leisure Indus.
Appeals for the Seventh Circuit,\textsuperscript{150} heard the October 19th motion for a temporary restraining order, his first exposure to the video game medium.\textsuperscript{151} For the court to grant a temporary restraining order against Midway, Judge Bauer said Allied Leisure needed to show a probability of success at trial and a threat of irreparable injury or harm.\textsuperscript{152} The Second Circuit, at the time the busiest circuit in the area of copyright law,\textsuperscript{153} had long presumed irreparable harm in cases where a plaintiff made a showing of copyright infringement,\textsuperscript{154} but it would be another decade before the Seventh Circuit took the same position.\textsuperscript{155} (The Second Circuit has since departed from that longstanding rule in light of recent Supreme Court precedent.)\textsuperscript{156} As Midway was capable of satisfying any future monetary judgment that might result from the case, Judge Bauer said Allied Leisure was not facing irreparable harm; therefore, he denied the request for a temporary restraining order without considering whether Allied Leisure was likely to succeed on the merits.\textsuperscript{157} When the case went before Judge Decker the following week, he similarly denied Allied Leisure’s
motion for a preliminary injunction.\textsuperscript{158} The record does not include a written explanation for Judge Decker’s decision or a transcript of a hearing.\textsuperscript{159} Like Judge Bauer, Judge Decker may have agreed that Allied Leisure was not facing irreparable harm or that Allied Leisure was not likely to succeed on the merits—or both.\textsuperscript{160} Indeed, Allied Leisure was not likely to succeed on the merits.

A. THE MERITS

Allied Leisure included two claims in its complaint against Midway: one for copyright infringement under federal law and the other for unfair competition, most likely under state law.\textsuperscript{161} The law strongly favored finding Midway not liable for copyright infringement. While neither claim was likely to succeed, the unfair competition claim, if based on a theory of misappropriation under state law, was the stronger of the two. The complaint did not explicitly reference misappropriation, but it would have been the likely theory for Allied Leisure to pursue if the case had not settled when it did.\textsuperscript{162} Also, there was enough

\textsuperscript{158} See Civil Docket-Allied Leisure, supra note 149, at 2.
\textsuperscript{159} I did not find a transcript of the hearing before Judge Decker in the file. The docket report does not record the addition of one to the file. See id. (recording the filing of the transcript of the hearing before Judge Bauer but not Judge Decker).
\textsuperscript{160} Similar standards applied to granting the preliminary injunction and to granting the temporary restraining order. See Bernard J. Nussbaum, Temporary Restraining Orders and Preliminary Injunctions—The Federal Practice, 26 Sw. L.J. 265, 270–71 (1972).
\textsuperscript{161} The complaint did not explicitly state whether the unfair competition claim was grounded in state law or the federal Lanham Act, specifically, section 43(a) of the Lanham Act as codified in 15 U.S.C. § 1125(a). The jurisdictional statement refers to a federal question based only on the federal copyright act. The complaint invokes 28 U.S.C. § 1338 as the basis for the court’s jurisdiction, and the court did have jurisdiction over a state unfair competition claim under 28 U.S.C. § 1338(b) (1970). Complaint, Allied Leisure Indus., supra note 8, at 1. On the possibility of a federal unfair competition claim, see generally Bauer, supra note 23. In that 1984 article, Professor Joseph Bauer noted the reluctance of the courts to extend section 43(a) to situations involving copying. Id. at 699–700.
\textsuperscript{162} The complaint did reference unlawful price cutting, Complaint, Allied Leisure Indus., supra note 8, at 5, 6, which can constitute unfair competition. See CDW LLC v. NETech Corp., No. 10-530, 2011 U.S. Dist. LEXIS 97388, at *10–12 (S.D. Ind. Aug. 26, 2011) (discussing predatory price cutting under Indiana law); Cleaning & Dyeing Plant Owners Ass’n v. Sterling Cleaners & Dyers, Inc., 2 N.E.2d 149, 154 (Ill. App. Ct. 1936) (“The courts are not concerned with the conduct of a business enterprise unless it appears that those engaged in the business seek by their methods to destroy a business adversary, and that such methods are used only for the evident purpose of driving from the business field a competitor by acts which indicate an intent to destroy and injure. . . . The fact that there are sales for less than those of a like business is not of itself unfair. In order to determine the purpose it is necessary to consider the facts and circumstances concerning such competition, and the court will consider such facts and the reason...”)
uncertainty about the law of unfair competition and misappropriation to give Allied Leisure a better chance of success with that claim than the copyright claim, even though success was still unlikely.

1. Copyright Infringement. Critical to understanding the copyright claim in Allied Leisure is recognizing the difference between Allied Leisure’s drawing of the printed circuit board and the printed circuit board itself. The distinction between the drawing and the actual board is related to a longstanding distinction in intellectual property law. It is the distinction recognized by the Supreme Court in Baker v. Selden, between explaining or communicating some scientific or useful art and the underlying art itself. Baker involved a book that explained a “peculiar” book-keeping system and that contained the blank forms needed to use the system. The question in the case was whether Baker infringed Selden’s copyright in the book by using Selden’s system in his own accounting books. As a general matter, the Supreme Court explained:

A treatise on the composition and use of medicines, be they old or new; on the construction and use of ploughs, or watches, or churns; or on the mixture and application of colors for painting or dyeing; or on the mode of drawing lines to produce the effect of perspective,—would be the subject of copyright; but no one would contend that the copyright of the treatise would give the exclusive right to the art or manufacture described therein.

Applying this rule in Baker, the Court said the explanation of the book-keeping system is subject to copyright protection, but the underlying art “is the province of letters-patent, not of copyright.” The forms were “necessary incidents to the art” and therefore unprotected, absent a patent.

for cutting the price, and if the court finds that such price cutting is for the primary purpose of destroying the competition business, then such purpose is not fair competition.”). Based on the facts, the merits of this claim do not appear strong, but this topic is too far afield from the intellectual property issues presently of interest and will not be discussed further.

163 101 U.S. 99 (1880).
164 Id. at 101–04.
165 Id. at 99.
166 Id. at 104–05.
167 Id. at 100.
168 Id. at 102.
169 Id.
Following Baker, the drawing of the printed circuit board in Allied Leisure was subject to copyright protection, but the board itself, even if limited only to the design elements supporting four-player functionality, probably was not. Just as they are currently protected under the Copyright Act of 1976,171 scientific and technical drawings were protectable under the Copyright Act of 1909.172 URL registered the copyright in the drawing—not the board itself—with the Copyright Office and then assigned the copyright in the drawing to Allied Leisure.173 In the complaint, Allied Leisure claimed Midway infringed the copyright in the drawing.174

Unlike the drawing of the board, it is not likely that the printed circuit board itself could be protected by copyright, either before or after the enactment of the Copyright Act of 1976. While a 1999 decision of the United States Court of Appeals for the Fifth Circuit upheld a jury's finding of infringement of a "printed circuit board assembly,"175 the court said nothing about whether a printed circuit board is within the subject matter of copyright.176 No reported decision considers this question,177 but there are very good reasons for doubting a printed circuit board's eligibility for copyright protection, even though the Fifth Circuit once assumed something to the contrary. A printed circuit board is part of a machine, the usual domain of patent law.178 Machines are not

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171 See 17 U.S.C. § 102(a)(5) (2006) ("Works of authorship include the following categories: ... pictorial, graphic, and sculptural works."); id. § 101 ("Pictorial, graphic, and sculptural works' include ... charts, diagrams, models, and technical drawings, including architectural plans.").

172 See 17 U.S.C. § 5(i) (1970) ("Drawings or plastic works of a scientific or technical character."); 37 C.F.R. § 202.12(a) (1973) ("Works registrable in Class I include diagrams or models illustrating scientific or technical ... information in linear or plastic form, such as, for example: a mechanical drawings.").

173 See Registration of a Claim to Copyright in a Drawing or Plastic Work of a Scientific or Technical Character, Registration No. 11237 (July 2, 1973) ("Printed Circuit Part AL5500 Top and Bottom Sides"); Olliges Affidavit, supra note 129, at 3.

174 See Complaint, Allied Leisure Indus., supra note 8, at 3.

175 Alcatel USA, Inc. v. DGI Techs., Inc., 166 F.3d 772, 790-91 (5th Cir. 1999).

176 See id.; John R. Ackerman, Toward Open Source Hardware, 34 U. DAYTON L. REV. 183, 205 (2009).

177 Id. ("No reported United States case has determined whether a circuit board is so utilitarian that it is ineligible for copyright protection, and no scholarly journal appears to have considered the question."); DAVID A. BLUMENTHAL ET AL., ELECTRONIC & COMPUTER PATENT & COPYRIGHT PRACTICE 1:24 (Irving Kayton ed. 1988) ("No cases have been found which address the copyrightability of printed circuit boards having original layouts, although the drawings for the layouts are copyrightable.").

178 See 35 U.S.C. § 101 (2006) ("Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title." (emphasis added)).
ordinarily afforded copyright protection.\textsuperscript{179} Computer programs, for all the challenges they raise for copyright law,\textsuperscript{180} at least involve text.\textsuperscript{181} Computer programs provide instructions to machines.\textsuperscript{182} The lines on a printed circuit board, by contrast, "say" nothing, not even to a machine. The lines are drawn with functional considerations in mind, such as minimizing the risk of a short circuit.\textsuperscript{183} One set of drafting guidelines notes, "This is no time to get carried away with wild artwork. Keep the lines and [solder] pads in a practical format."\textsuperscript{184} Even with the components added to the printed circuit board, it is still just a collection of machine parts.\textsuperscript{185} And as these boards are usually found inside of a machine, there would ordinarily be no reason to add aesthetic elements to the board separate from its utilitarian features.\textsuperscript{186}

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\footnotesize
\textsuperscript{179} See Taylor Instrument Cos. v. Fawley-Brost Co., 139 F.2d 98, 100 (7th Cir. 1943) ("[T]he chart neither teaches nor explains the use of the art. It is an essential element of the machine; it is the art itself. It is our judgment that plaintiff's charts are not the proper subject of copyright."); 1 MELVILLE B. NIMMER & DAVID NIMMER, NIMMER ON COPYRIGHT § 2.09[D][1] (2012) ("[T]he projector, the television, and the computer are not themselves copyrightable; each is a machine, usable by all (unless subject to a patent monopoly) for individual copyrightable works."); Lloyd L. Weinreb, Copyright for Functional Expression, 111 HARV. L. REV. 1180-81 (1998) ("The first patent statute specified the subject matter of patent as a 'useful art, manufacture, engine, machine, or device, or any improvement therein,' categories that have remained substantially unchanged ever since."); Pamela Samuelson et al., A Manifesto Concerning the Legal Protection of Computer Programs, 94 COLUM. L. REV. 2308, 2348, 2350 (1994) ("Copyright law has traditionally excluded machines and technological processes from its domain, leaving their protection to patent law.... Copyright law does not protect the behavior of physical machines (nor their internal construction), no matter how much originality they may embody. Historically, innovations in the design of machine behavior have been left to the rigors of patent law.").

\textsuperscript{180} See id. at 2316; NAT'L COMM'N ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS, FINAL REPORT 9-12 (1979) (discussing computer programs as "a form of writing").

\textsuperscript{181} See id. at 2316; NAT'L COMM'N ON NEW TECHNOLOGICAL USES OF COPYRIGHTED WORKS, FINAL REPORT 9-12 (1979) (discussing computer programs as "a form of writing").

\textsuperscript{182} See 17 U.S.C. § 101 ("A 'computer program' is a set of statements or instructions to be used directly or indirectly in a computer in order to bring about a certain result."); see also Ricoh Co., Ltd. v. Quanta Computer, Inc., 550 F.3d 1325, 1335 (Fed. Cir. 2008).

\textsuperscript{183} See Goldberg, supra note 123, at 23-27 (providing guidelines for the layout of printed circuit boards).

\textsuperscript{184} Id. at 23.

\textsuperscript{185} See Flatt, supra note 122, at 8 ("[P]rinted circuit boards provide a... method for interconnecting electronic components.").

\textsuperscript{186} See Blumenthal et al., supra note 177, at 1:24-25. If someone added a non-utilitarian feature to a printed circuit board, it could be eligible for copyright protection. See Mazer v. Stein, 347 U.S. 201, 202, 213-14 (1954) (holding that "statuettes of male and female dancing figures" used as lamp bases are subject to copyright protection). On the unusual difficulties in this area of copyright law, see 1 NIMMER & NIMMER, supra note 179, § 2.08[B][3]; WILLIAM F. PATRY, 1 PATRY ON COPYRIGHT §§ 3:124-147 (Feb. 2012).
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Much like Professor Arthur Miller's argument that computer programs should be subject to copyright protection because they involve "imagination, originality, and creativity,"\(^{187}\) John Ackerman suggests that printed circuit boards should qualify for a thin or "weak" copyright because of the design choices involved.\(^{188}\) According to Ackerman, "Given that the arrangement of components and wiring traces on a printed circuit board is subject to personal choices on the part of the designer, it is reasonable to argue that the circuit board is a work subject to copyright, but as with most of the outputs of the design process, that copyright is likely to be weak."\(^{189}\)

As Professor Dennis Karjala pointed out in response to Miller's argument about computer programs, the construction of a machine also involves personal choices on the part of the designer,\(^{190}\) but again, machines are ordinarily not subject to copyright. The presence or absence of personal choice does not explain much about the respective domains of patent and copyright law.\(^{191}\) Printed circuit boards, as purely utilitarian objects, are unlikely to qualify even for a thin copyright.\(^{192}\)

The legal distinctions in this area are not without problems. A tennis video game can be generated by either hardware or software.\(^{193}\) There were hardware versions of tennis, including Atari's *Pong* and its clones, and there were software versions, including Atari's *Video Olympics* cartridge released in 1977 for its VCS home console.\(^{194}\) Both the hardware and software are functional, yet only the

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\(^{187}\) Arthur D. Miller, *Copyright Protection for Computer Programs, Databases, and Computer-Generated Works: Is Anything New Since CONTU?*, 106 Harv. L. Rev. 977, 983–84 (1993) ("Computer programs, like other literary works, are expressive. The imagination, originality, and creativity involved in writing a program is comparable to that involved in more time-honored literary works and far exceeds various mundane efforts that have long enjoyed protection under the copyright rubric.").


\(^{189}\) Id.

\(^{190}\) See Dennis S. Karjala, *Copyright Protection of Computer Documents, Reverse Engineering and Professor Miller*, 19 U. Dayton L. Rev. 975, 996–97 (1994) ("Many technological works, from airplanes to electronic circuitry to drugs, involve much imaginative intellectual creativity.").

\(^{191}\) See id. (criticizing Professor Arthur Miller's argument that computer programs should be subject to copyright protection because they involve "imagination, originality, and creativity").

\(^{192}\) See Blumenthal et al., *supra* note 177, at 1:24–25 (noting the difficulty of establishing copyright protection for a printed circuit board because the "layout is usually determined solely by utilitarian considerations").

\(^{193}\) See, e.g., Dennis S. Karjala, *Distinguishing Patent and Copyright Subject Matter*, 35 Conn. L. Rev. 439, 444 (2003) (referring to "the principle that for every general purpose computer running under the control of computer software there is an equivalent device consisting solely of hardware that is indistinguishable"); Samuelson et al., *supra* note 179, at 2319 ("Computer science has long observed that software and hardware are interchangeable: Any behavior that can be accomplished with one can also be accomplished with the other.").

\(^{194}\) The *Video Olympics* cartridge included *Pong* and multiple variations of the original two-player
code for the software version of the game could qualify for copyright protection (at least after the changes to the copyright laws in 1976 and 1980). Why the software version is protected but the hardware version is not may best be explained by longstanding conventions. Computer programs "fit comfortably within the expansively abstract definition of a literary work." Copper wiring—or copper traces on a printed circuit board—do not.

Thus, if Allied Leisure's drawing of the circuit board was indeed protected by copyright, even though the board itself was not, did Midway infringe the copyright in the drawing by using Allied Leisure's board to: (1) prepare its own drawing or (2) produce a circuit board based on that drawing? Even decades after the Allied Leisure case, there is still no clear answer from the courts, but based on the longstanding rule derived from Baker v. Selden, the answer was no. Midway did not infringe Allied Leisure's copyright either by making the drawing or by producing the board. The copyright in a technical drawing does not prevent someone from using the drawing to build the object depicted. Courts often hold that the constructed object is not even a "copy" of the drawing. As one commentator described the issue in the context of...
architectural plans, “An architectural plan is a technical writing. It is capable of being copied only by similar technical writings, that is, by other plans, etc. A structure is the result of plans, not a copy of them.”199 Whether it is called a “copy” or not, the important point is that the constructed object does not infringe the copyright in the drawing. Nor does the copyright in a technical drawing prevent someone from engaging in a form of reverse engineering by examining and measuring the physical object to create a new technical drawing (which is called a “measured drawing” in the architectural field).200 A 1972 decision of the Fifth Circuit is on point.

In Imperial Homes Corporation v. Lamont,201 Imperial Homes owned a copyright in the architectural drawings for its “Chateau” home design and sued the Lamonts for copyright infringement when they built a home matching the Chateau design.202 There was no question that the Lamonts visited and measured a model Chateau home and then prepared the necessary drawings to construct a substantially similar home to the Chateau.203 In preparing their plans, the Lamonts did not copy from Imperial Homes’ original architectural drawings, but they may have copied from an advertising brochure that contained the Chateau’s floor plan.204 Invoking Baker, the Fifth Circuit said that a copyright in architectural plans does not give the author the exclusive right to build the structure.205 While it would have been infringing to create new plans by copying from the original plans—or in this case from the brochure—it would not have been infringing to create new plans based on the structure itself.206 The Fifth Circuit held that the Lamonts would be liable for infringement only if they copied the floorplan from the brochure.207 As the trial court had already determined that the Lamonts did not copy from the

200 See Todd Hixon, The Architectural Works Copyright Protection Act of 1990: At Odds with the Traditional Limitations of American Copyright Law, 37 Ariz. L. Rev. 629, 654 (1995) (“In the context of intellectual property law, measured drawings can be characterized as a form of reverse engineering, which is recognized as a legally acceptable method of acquiring a technology. Plans derived from measured drawings should be viewed analogously as a legitimate and legal means to obtain the design of a constructed building.”); REPORT OF THE REGISTER, supra note 198, at 197.
201 Imperial Homes Corp. v. Lamont, 458 F.2d 895 (5th Cir. 1972).
202 Id. at 896–97.
203 Id. at 897.
204 Id.
205 Id. at 899.
206 Id. at 899–900.
207 Id. at 899.
architectural drawings, the court remanded the case to the trial court to determine whether they copied from the brochure.208

There was no evidence that Midway had access to Allied Leisure’s drawing, let alone that Midway copied from it.209 The evidence indicates that Midway copied only from Allied Leisure’s printed circuit board.210 In copying only from the board itself, Midway prepared, as its chief engineer said, its own “original art work.”211 And just as it was not infringing for the Lamonts to prepare plans based on the actual Chateau home, it should not have been infringing for Midway to prepare a drawing based on the actual Allied Leisure board. Midway’s chief engineer denied that anyone traced the lines on the printed circuit board,212 but as far as the question of infringement is concerned, it should not have mattered how Midway copied the board because the board was unprotected. As Midway did not copy from Allied Leisure’s drawing, Midway did not infringe Allied Leisure’s copyright in the drawing. Allied Leisure would have faced an uphill battle to persuade the district court or the Seventh Circuit to decide otherwise.

2. Unfair Competition. Allied Leisure’s claim of unfair competition was somewhat stronger than its copyright claim, thanks to the uncertainty at the

208 Id. at 899–900.
209 See Blahuta Affidavit, supra note 95, at 3–4 (“[N]either he nor . . . anyone else . . . involved in the design of the board has ever seen any drawings . . . .”).
210 See id.
211 See id. at 3 (“original art work was prepared”). Similarly, URL’s William Olliges, who prepared the printed circuit board drawing for Allied Leisure, said it was an “original effort on [his] part,” even though Pearson’s and Blahuta’s accounts show the drawing owed much to Pong’s printed circuit board. Olliges Affidavit, supra note 129, at 2. It is true that a mere transfer of a work from one medium to another would not qualify as original. See Schrock v. Learning Curve Int’l, Inc., 586 F.3d 513, 519 n.3 (7th Cir. 2009) (“[A] mere shift in medium, without more, is generally insufficient to satisfy the requirement of originality for copyright in a derivative work.”); L. Batlin & Son, Inc. v. Snyder, 536 F.2d 486, 4901–91 (2d Cir. 1976) (discussing the originality requirement for reproductions of a work in a different medium); Millworth Converting Corp. v. Sližka, 276 F.2d 443, 444–45 (2d Cir. 1960) (discussing when the reproduction of a work satisfies the originality requirement for copyright protection); Wihtol v. Wells, 231 F.2d 550, 553 (7th Cir. 1956) (same). Someone who transfers another person’s unaltered image from a sheet of paper to a T-shirt probably cannot claim the image on the T-shirt is original, but a printed circuit board drawing, which is based on an underlying work that is not even subject to copyright protection, should be sufficiently different from the physical object to satisfy the originality standard (whether or not additional lines are added to change the functionality). Hence, Blahuta and Olliges were being truthful in claiming originality. Had Midway’s engineers actually traced the lines on Allied Leisure’s board and done nothing more, then perhaps it strains even copyright law’s low standard for claiming originality, but there appears to be no caselaw applying the originality standard to reverse-engineered technical drawings.
212 See Blahuta Affidavit, supra note 95, at 3.
time in this area of the law. The Supreme Court narrowed the permissible scope of state unfair competition laws in *Sears, Roebuck & Company v. Stiffel Company* and *Compco Corporation v. Day-Brite Lighting, Inc.*, a pair of cases decided on the same day in 1964. *Sears* involved a pole lamp; *Compco* involved a fluorescent lighting fixture. In both cases, the lower courts held that the defendants violated Illinois's unfair competition law by copying the plaintiffs' products. In both cases, the Supreme Court reversed, holding that state unfair competition laws that prohibit the copying of articles unprotected by either the patent or copyright laws conflict with and are therefore pre-empted by federal law. The Court ruled that people have "free access to copy whatever the federal patent and copyright laws leave in the public domain." Some lower courts resisted the broad language of *Sears* and *Compco* by holding that states could continue to prohibit unfair competition in the form of misappropriation. Neither *Sears* nor *Compco* referenced the Supreme Court's earlier decision in *International News Service v. Associated Press* (1918), the case that created the amorphous tort of misappropriation as a matter of federal common law. In *International News Service*, the Court held that one news service could be enjoined from copying another news service's uncopyrighted material, at least for a short time while the news was commercially valuable. While *Erie Railroad v. Tompkins* wiped out the federal version of misappropriation, it remained viable as a state law doctrine, unless blocked or limited by the Court's decisions in *Sears* and *Compco*. To insulate the

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214 Id. at 234.
215 See id. at 225–26 (describing the pole lamp as "a vertical tube having lamp fixtures along the outside, the tube being made so that it will stand upright between the floor and ceiling of a room").
216 *Compco*, 376 U.S. at 234.
218 *Sears*, 376 U.S. at 231–33; *Compco*, 376 U.S. at 234.
219 *Compco*, 376 U.S. at 237.
221 See Consold Pac., Inc. v. Polaris Indus., 433 F.3d 952, 960 (7th Cir. 2006) (noting that the concept of unfair competition or misappropriation in *International News Service* was "based on the federal courts' subsequently abandoned authority to formulate common law principles" and suggesting that it lacked "reasonable limits"); Douglas G. Baird, *The Story of INS v. AP: Property, Natural Monopoly, and the Uneasy Legacy of a Concocted Controversy*, in *INTELLECTUAL PROPERTY STORIES* 9, 32 (Jane C. Ginsburg & Rochelle Cooper Dreyfuss eds., 2006) ("Justice Pitney's opinion lacked the essential quality that justifies common law adjudication. Its reasoning was entirely ungrounded. Instead of resolving an actual dispute between two opposing litigants, it merely gave an abstract pronouncement of a grand principle that has no obvious boundaries.").
223 See *Erie* R.R. v. Tompkins, 304 U.S. 64, 78 (1938) ("There is no federal general common
misappropriation doctrine from *Sears* and *Compco*, several lower court decisions relied on a dubious distinction between “copying” and misappropriation, a distinction based on the method of duplication and the extent of the copier’s or appropriator’s free-riding. These courts viewed “copying” as a high-cost and permissible form of duplication but “misappropriation” as a low-cost and therefore impermissible form of duplication. According to one Central District of California decision, the defendant could have copied the plaintiff’s public domain book if it had done its own typesetting. The district court said that that form of duplication would be copying, and that under *Sears* and *Compco*, a state could not prohibit copying. However, the defendant wanted to photographically reproduce the plaintiff’s book. The district court said that form of low-cost duplication would instead be misappropriation, something states could still prohibit under *Sears* and *Compco*.

The Supreme Court later added to the confusion about the scope of *Sears’s* and *Compco’s* restrictions on state laws. While claiming to reaffirm *Sears* and *Compco* in 1973 in *Goldstein v. California*, the Court held that states *could* prohibit the unauthorized copying of sound recordings that are unprotected by federal copyright law. Instead of finding a conflict between state and federal law as it did in *Sears* and *Compco*, the Court said Congress simply left “unattended” the status of sound recordings made or “fixed” prior to a certain date. In May 1974, a month after *Allied Leisure* settled, the Supreme Court reached a similar conclusion about state trade secret law in *Kewanee Oil Company v. Bicron*. 

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227 *Id.* at 607.

228 *Id.* at 606.

229 *Id.*

230 *Id.* at 607. The court did not use the term “misappropriation,” but it used the term “unfair competition” and cited the Supreme Court’s decision in *International News Service*. *Id.*


232 *Id.* at 570. The relevant date is February 15, 1972. *Id.* at 552. For an overview of the status of sound recordings fixed before or after the critical date, see 1 NIMMER & NIMMER, supra note 179, § 2.10.
Corporation, holding that trade secret law is not pre-empted by federal patent law. In Kewanee, the Court took a more "pragmatic" approach to preemption than what was suggested by the "absolutist" language in Sears and Compco. The Court said that trade secret law does not result in protection for publicly disclosed patentable subject matter. The "weaker protection" of trade secret law does not prohibit either independent creation or reverse engineering, and trade secret law promotes privacy interests by prohibiting corporate espionage. Additionally, patent law and trade secret law have long coexisted without disruptive consequences or objections from Congress.

There was enough uncertainty and variation about the extent to which states could prohibit misappropriation as a form of unfair competition to put Allied Leisure's unfair competition claim in a better position than its copyright claim, but it was still unlikely to succeed. As in Sears and Compco, the printed circuit board was patentable subject matter. It was not, as in Goldstein, something outside the subject matter of both federal patent and copyright law. Nor was it, as in Kewanee Oil, something the owner tried to keep secret and out of the public domain. Even if the case had not settled and the district court in Allied Leisure had made a distinction between copying and misappropriation, the court would have needed to define some form of duplication as copying and some form as misappropriation. The fact that Midway did not trace the lines on Allied Leisure's board should have kept its method of duplication in the copying category. (If not, where would the line have been?) Plus, Midway was not marketing just a duplicated board. It was marketing its own fully functional cabinet arcade game. The board was just one component. Much of what Midway was doing was therefore based on its own work and effort. Midway's actions were quite different from a book publisher selling a photocopy of a public domain book originally published by a competitor. Nevertheless, as other decisions suggest, the court could have defined misappropriation broadly

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234 Bonito Boats v. Thunder Craft Boats, 489 U.S. 141, 154-56 (1989). The Court said, "Read at their highest level of generality, the two decisions [in Sears and Compco] could be taken to stand for the proposition that the States are completely disabled from offering any form of protection to articles or processes which fall within the broad scope of patentable subject matter." Id. at 154.
235 Kewanee Oil, 416 U.S. at 484. See Bonito Boats, 489 U.S. at 155 (discussing Kewanee Oil).
236 Kewanee Oil, 416 U.S. at 487, 489-90. See Bonito Boats, 489 U.S. at 155 (discussing Kewanee Oil).
237 Kewanee Oil, 416 U.S. at 493. See Bonito Boats, 489 U.S. at 155-56 (discussing Kewanee Oil).
238 See Goldstein, 412 U.S. at 571 ("Congress has indicated neither that it wishes to protect, nor to free from protection, recordings of musical performances fixed prior to February 15, 1972.").
239 See Kewanee Oil, 416 U.S. at 484 ("[T]he policy that matter once in the public domain must remain in the public domain is not incompatible with the existence of trade secret protection.").
enough to encompass Midway's action and Sears and Compco narrowly enough to avoid preempting the claim.\textsuperscript{240}

B. SETTLEMENT

After the court denied Allied Leisure's motions for a temporary restraining order and a preliminary injunction, the parties perhaps made some progress in the discovery process,\textsuperscript{241} but the case settled on April 12, 1974 before any decision on the merits.\textsuperscript{242} Apart from their views of the merits, the parties' willingness to settle may have been influenced by some other developments. A little over two months before the settlement, on January 31, 1974, Allied Leisure's facility caught fire and suffered extensive damage.\textsuperscript{243} Of likely concern to both parties, sales of video games were on the decline. Although Allied Leisure continued to produce some games for Europe, it stopped producing games for the United States sometime before the fire.\textsuperscript{244} Midway faced similar market conditions and stopped producing video games in April or May of

\textsuperscript{240} A relevant example from the Northern District of Illinois is Data Cash Sys., Inc. v. JS\&A Grp., Inc., 480 F. Supp. 1063 (N.D. Ill. 1979). The district court said,

In Goldstein a California statute making it a criminal offense to pirate recordings produced by others was challenged and the Supreme Court held \textit{inter alia} that the California statute did not violate the Supremacy Clause of the Constitution. In so holding, the Supreme Court distinguished Sears and Compco from Goldstein on the grounds that in Sears and Compco the state was giving protection which conflicted with the objectives of the federal patent laws while in Goldstein the state was giving protection which did not conflict with any federal law. Since Congress had left the area of sound recordings unprotected, the state was free to act.

\textit{Id.} at 1070-71. So far, this was an unobjectionable statement of the law, but the court then added, “Thus, states may prohibit the misappropriation of a property right or a commercial advantage of another.” \textit{Id.} at 1071. This broad conclusion did not follow. The states could only prohibit unfair competition \textit{to the extent that the prohibition did not conflict with federal law}, and the court did not evaluate that possibility. In Data Cash, the relevant “article” was computer object code embodied in ROM. \textit{Id.} at 1066. The court defined the object code as a “mechanical tool or machine part” without also defining it as outside of both patent and copyright law, as in Goldstein. \textit{Id.} at 1065, 1069. \textit{See also} Data Cash Sys., Inc. v. JS\&A Grp., Inc., No. 79-591, 1984 U.S. Dist. LEXIS 18446, at *12–17 (N.D. Ill. Mar. 20, 1984) (discussing the preemption issue without resolving it).

\textsuperscript{241} \textit{See} Civil Docket-Allied Leisure, \textit{supra} note 149, at 1 (recording defendant's notice of taking deposition and plaintiff's request for production of documents and things).

\textsuperscript{242} Stipulated Dismissal Order-Allied, \textit{supra} note 15.

\textsuperscript{243} \textit{See} Braun Deposition, \textit{supra} note 1, at 7 (“That [fire] wiped us out pretty much of everything.”); Ghostly Firemen, NEWS TRIB., Feb. 1, 1974, at 2 (“The blaze was at an Allied Leisure Industries building in Hileah. No major injuries were reported.”).

\textsuperscript{244} Braun Deposition, \textit{supra} note 1, at 10.
Indeed, in an assessment that later proved quite inaccurate, David Braun said the video game industry was “played out like yesterday’s newspaper.” Additionally, there was potentially costly patent litigation ahead for both Allied Leisure and Midway.

The new legal threat to Allied Leisure and Midway involved patents owned by Sanders Associates (a defense contractor) and licensed by Sanders to Magnavox. Well before the Allied Leisure lawsuit began, Magnavox was aware of Midway’s arrangement with Atari to produce a Pong game. In an April 2, 1973 letter, Magnavox offered Midway a non-exclusive license for two patents. The first was U.S. Patent No. 3,659,284 (the ‘284 patent”), which was issued in the name of inventor William Rusch. The second was U.S. Patent No. 3,659,285 (“the ‘285 patent”), which was issued in the names of Ralph Baer, William Rusch, and William Harrison, the original design team at Sanders for what became the Magnavox Odyssey. In a subsequent May 24, 1973 letter, Magnavox informed Midway of a third patent that had recently issued, Ralph Baer’s U.S. Patent No. 3,728,480 (“the ‘480 patent”), which Judge John F. Grady of the Northern District of Illinois later described as the “pioneer patent” of the video game industry. Braun said that he discussed the Magnavox patents with Henry Ross during the litigation between their two companies, so both Allied Leisure and Midway were aware of Magnavox’s

245 Ross Deposition, supra note 45, at 23 (stating on June 25, 1974 that Midway had not made any games “for approximately one month, two months” because “[m]arket conditions did not dictate making any further video games”).
246 Braun Deposition, supra note 1, at 9.
247 BAER, VIDEOGAMES: IN THE BEGINNING, supra note 2, at 18, 56–59.
249 Id.
252 See BAER, VIDEOGAMES: IN THE BEGINNING, supra note 2, at 30–39, 44–45, 58–59 (discussing the development of the Magnavox Odyssey); Trial Transcript, at 352, Magnavox Co. v. Chi. Dynamic Indus., Nos. 74 C 1030, 74 C 2510 (N.D. Ill. Dec. 27, 1976) (referring to a stipulation that the patents at issue “resulted from work done at Sanders by a research group which first included Ralph H. Baer and at least as early as May, 1967 also included William L. Harrison and William T. Rusch”).
256 See Braun Deposition, supra note 1, at 60–61.
potential claims. Midway even decided to act first in what would turn out to be the video game industry's longest series of intellectual property disputes, disputes mainly about the '507 patent.

The opening moves of the '507 litigation occurred the same week Allied Leisure and Midway settled. On April 12, 1974, the actual day of the settlement, Midway filed a complaint against Magnavox and Sanders seeking a declaratory judgment of non-infringement of four patents: the '284, the '285, the '480, and another one issued to William Rusch, U.S. Patent No. 3,778,058. Midway filed the complaint in the United States District Court for the Southern District of New York. Presumably, Midway preferred a district court in the Second Circuit because of its long-standing reputation for ruling against patent owners. Magnavox responded a few days later on April 15, 1974, by filing a complaint in the Northern District of Illinois against Bally, Chicago Dynamic Industries, Atari, Allied Leisure Industries, and Empire Distributing, the latter a subsidiary of Bally that distributed coin-operated games. Like Midway, Magnavox was probably forum-shopping, as the Seventh Circuit's reputation at the time was more favorable to patent owners than the Second Circuit's. Although Magnavox initially omitted Midway from the list of defendants, Magnavox added Midway the following month in an amended complaint. In its original and first amended complaints,


259 See Complaint for Patent Infringement-Magnavox, supra note 257.

260 Compare Complaint for Declaratory Relief-Midway, supra note 257.

261 See GLORIA K. KOENIG, PATENT INVALIDITY: A STATISTICAL AND SUBSTANTIVE ANALYSIS 4-28 (rev. ed. 1980). From 1953 to 1972, the Second Circuit found only 14.3% of patents both valid and infringed.


263 See KOENIG, supra note 260, at 4-48, App. 171. From 1953 to 1972, the Seventh Circuit found 38% of patents valid and infringed. Although 1973 was the start of a bad run for patent owners before the Seventh Circuit, it seems unlikely that the Seventh Circuit's reputation would have changed much by the time Magnavox filed suit in April 1974.

Magnavox claimed the defendants infringed the '284 and '285 patents. By the time Magnavox filed its second amended complaint, the Patent Office had reissued the '284 patent as U.S. Patent Reissue No. 28,507. It was this patent, the “oft-litigated '507 patent,” that became the critical one during Magnavox's years of litigation against many of the industry's major players.

Magnavox's litigation over the '507 patent against various defendants lasted at least until 1998, and it all started just as Allied Leisure ended.

The terms of the April 1974 settlement between Allied Leisure and Midway are not in the record or revealed elsewhere. During the '507 litigation, David Braun was asked if Allied Leisure had granted Midway any rights to produce
Allied Leisure's games or printed circuit boards. He answered that he did not know, but Braun did say that the lawsuit between Allied Leisure and Midway settled "amicably."  

IV. CONCLUSION

Allied Leisure illustrates the challenge the early video game industry faced in protecting its investments in creativity. At least at the beginning, however, it is not clear that the industry needed more protection. In a well-known article published in 1970, Professor (now Justice) Stephen Breyer concluded that "the general case for copyright protection is weak" and that publishers might have sufficient incentives to publish books and software even without protection from copiers. In part, book publishers might be able to rely on their lead time over copiers (approximately six to eight weeks as a 1970 estimate). Software publishers might be able to rely, at least in part, on the revenue they receive from the sale of both hardware and support services that go with the software. Pong was not a book, nor was it software. However, similar incentives could apply to arcade games. Atari benefitted from as much as three months of lead time, and it sold the Pong game as part of a dedicated arcade cabinet. Producing an arcade game was expensive. At the time Allied Leisure filed its suit, Midway's cost of materials alone for each Winner IV game was $515. Early arcade games may illustrate the merits of Breyer's argument.

The lack of effective protection under the copyright and unfair competition laws may have promoted the quick establishment of the industry, facilitating the easy entry of many arcade game manufacturers into the video game business without the need to negotiate with Atari. Future innovation, however, likely required more protection than what was available under the patent or other laws. Nolan Bushnell soon came to think so.

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271 See Braun Deposition, supra note 1, at 58–59.
272 Id.
274 Id. at 299–300.
275 Id. at 344–46.
277 Bushnell found the patent system ineffective for Atari, at least early on. See Bushnell, supra note 30, at approximately minute 35:45; see also Lowood, supra note 29, at 18–19 (discussing Atari's attempts to enforce its patents).
At a major trade show in Chicago—probably the one in November 1973—Bushnell offered a lengthy “rant” (his word) at other industry representatives who had produced clones and variations of Atari’s Pong. He argued that copying was undermining innovation in the industry. Bushnell even thought that industry practices changed after that particular event. Assuming his perception of changes in industry practices was correct, maybe Bushnell was particularly persuasive. Maybe the Allied Leisure lawsuit affected industry practices. Maybe other causes were at work. But the cost of producing games would rise and the cost of copying would fall. While a single arcade game cost several hundred dollars to copy in the early 1970s, games sold for the home market on cartridges, floppy disks, CD-ROMs, DVDs, and Blu-rays were and are much cheaper to copy—costing pennies or a few dollars at most. Yet the budgets for home games can now be in the millions of dollars.

Better protection than what was initially available was needed, and the availability of copyright protection did improve (and perhaps even went too far). In part, the scope of protection increased through the video game industry’s switch from hardware to software and through the protection afforded to computer programs under the Copyright Act of 1976 and its amendments in the Computer Software Copyright Act of 1980. Protection

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278 See Jukebox Meetings, BILLBOARD, Oct. 20, 1973, at 33 (listing the date of the Music Operators of America exposition as November 9–11, 1973). Bushnell’s comments in 2003 were not completely clear about the year—it could have been the 1974 exposition rather than the 1973 exposition—but the 1973 exposition seems more likely, based on what he said. See Bushnell, supra note 30, at approximately minute 40:00. My efforts to locate a copy of the program from the 1973 exposition, which might have resolved any doubts about the date, were not successful.

279 Bushnell, supra note 30, at approximately minute 40:00.

280 Id.

281 Id.

282 Fortune reported in 1982 that the cost of materials for a cartridge, the most expensive of these several media formats, was $4 to $5. Andrew C. Brown, Cashing in on the Cartridge Trade, FORTUNE, Nov. 15, 1982, at 125.

283 See, e.g., Chris Suellentrop, War Games, N.Y. TIMES, Sept. 12, 2010, at 64 (“[T]he entrance fee to develop a big-budget, mainstream video game is now north of $20 million.”).

284 See 17 U.S.C. § 101 (defining “computer program”); Vault Corp. v. Quaid Software, Ltd., 847 F.2d 255, 259–61 (5th Cir. 1988) (discussing the evolution of software protection); 1 NIMMER & NIMMER, supra note 179, § 2.04[C]; Samuelson et al., supra note 179, at 2348 n.146 (“The turning point in the international debate about legal protection for computer programs came in 1980 when the United States Congress endorsed the recommendations of the CONTU Commission favoring copyright protection for programs.”). The first arcade video game with a microprocessor and computer program was Midway’s pathbreaking 1975 game Gun Fight. BURNHAM, supra note 17, at 120. Yet another new source of limited protection was the Semiconductor Chip Protection Act of 1984, 17 U.S.C. §§ 901–914. See 1 NIMMER & NIMMER,
also increased through the judicial decisions extending copyright protection to the audio-visual elements of games.\textsuperscript{285} To some extent, courts even extended protection to game mechanics in video games, despite the restriction on protecting methods and processes under 17 U.S.C. § 102(b).\textsuperscript{286} At least some of this increased protection was surely needed to promote further creativity in the video game industry, particularly as the home gaming market developed, but for a short time, the lack of effective protection may have accelerated the industry's development.


\textsuperscript{286} See 17 U.S.C. § 102(b); UNITED STATES COPYRIGHT OFFICE, Form Letter 108 (Dec. 2011) ("Copyright does not protect the idea for a game, its name or title, or the method or methods for playing it."). Examples of protecting game methods or processes arguably can be found in cases like Midway Mfg. Co. v. Artic Int'l, Inc., in which the Seventh Circuit held that an unauthorized kit that sped up Galaxian infringed the copyright in the game, even though the kit arguably affected only the game's unprotected processes or methods of play. Midway Mfg., 704 F.2d at 1013–14. See generally Thomas M.S. Hemnes, \textit{The Adaptation of Copyright Law to Video Games}, 131 U. PA. L. REV. 171 (1982). In theory, \textit{Pong} and similar early games might be protected by claiming copyright protection in the audio-visual displays of the games, but other than the modest sound effects, \textit{Pong} has no aesthetic elements unrelated to the method or process for playing the game. Protecting the audio-visual display of \textit{Pong} through copyright would therefore mean the method or process for playing a game \emph{is} protectable, despite the black letter rule to the contrary. But for all practical purposes, the black letter rule is probably wrong. See Tetris Holding, LLC v. Xio Interactive, Inc., 863 F. Supp. 2d 394 (D.N.J. 2012).