

Reproduced with permission from BNA's Patent, Trademark & Copyright Journal, 90 PTCJ 2215, 05/29/2015. Copyright © 2015 by The Bureau of National Affairs, Inc. (800-372-1033) <http://www.bna.com>

PATENTS

The authors provide an in-depth review of patent eligibility cases decided in light of the two-step framework of *Alice v. CLS Bank*.

A Practitioner's Guide to Section 101 Invalidation: Analyzing Abstract Concepts in the Wake of *Alice v. CLS Bank*



BY JONATHAN UFFELMAN AND LOUIS W. TOMPROS

On June 19, 2014, the Supreme Court decided *Alice Corp. Pty. Ltd. v. CLS Bank International*, holding that inventions claiming mere computer implementation of an abstract concept are not patent eligible.¹ This decision informs the analysis for identifying patent ineligible subject matter: A court first determines whether a disputed claim is directed to a law of nature, natural phenomena or abstract concept and, if so, then

¹ 134 S. Ct. 2347, 2352, 2014 BL 170103, 110 U.S.P.Q.2d 1976 (2014) (88 PTCJ 513, 6/20/14).

Jonathan Uffelman is a former senior associate at WilmerHale who was a member of the Litigation/Controversy Department and the Intellectual Property Litigation Practice Group.

Louis Tompros is a partner in the WilmerHale Intellectual Property Litigation and Appellate and Supreme Court Practice Groups, with a practice focused on intellectual property cases at the trial and appellate levels.

decides whether the claims as a whole, both individually and “as an ordered combination,” contain additional elements that “‘transform the nature of the claim’ into a patent eligible application.”² Courts have referred to this second step as a search for “something more” that confers patent eligibility.³ The concern driving this test is pre-emption—patent law must not grant monopolies over the “building blocks of human ingenuity.”⁴

Two of the biggest questions *Alice* raised are: (1) what constitutes an abstract concept; and (2) what “something more” is sufficient to confer patentability on an otherwise patent-ineligible abstract concept. This article surveys and synthesizes cases to identify claims and arguments that have and have not prevailed in Section 101 challenges.

I. *Alice* Step One: Whether a Claim Is Directed to an Abstract Idea⁵

The *Alice* Court did not “labor to delimit the precise contours of the ‘abstract ideas’ category,”⁶ and courts

² *Id.* at 2355 (quoting *Mayo Collaborative Servs. v. Prometheus Labs. Inc.*, 132 S. Ct. 1289, 1297-98, 2012 BL 66018, 101 U.S.P.Q.2d 1961 (2012) (83 PTCJ 727, 3/23/12)).

³ See, e.g., *Card Verification Solutions, LLC v. Citigroup Inc.*, No. 1:13-cv-06339 (N.D. Ill.), Mem. Op. and Order at 5, Sept. 29, 2014, ECF No. 50; *Data Distribution Techs., LLC v. BRER Affiliates, Inc.*, No. 1:12-cv-04878-JBS-KMW (D.N.J.), Op. at 26, Aug. 19, 2014, ECF No. 67.

⁴ *Alice*, 134 S. Ct. at 2354 (the focus of the second step of the test is whether the claims “disproportionately t[ie] up the use of the underlying ideas” (emphasis added) (internal quotation marks omitted)).

⁵ *Alice* confirmed that if a patent’s systems claims are no different in substance from its method claims, they will rise and fall together. 134 S. Ct. at 2360; see, e.g., *Walker Digital, LLC v. Google, Inc.*, No. 1:11-cv-00318-LPS (D. Del.), Mem.

have noted that “[d]istinguishing between claims that recite a patent-eligible invention and claims that add too little to a patent-ineligible abstract concept can be difficult, as the line separating the two is not always clear.”⁷ Indeed, one judge from the U.S. District Court for the Central District of California has likened the two-step analysis to Justice Stewart’s phrase “I know it when I see it.”⁸ As a result, the precise contours of the *Alice* step-one analysis remain somewhat unclear.

Nonetheless, there are a few guideposts. For example, most courts approach step one by identifying the purpose of the claim at issue and asking whether that purpose is abstract.⁹ When determining whether a claim is directed to an abstract idea, most courts agree that factoring out prior art or non-novel claim elements

Op. at 14, Sept. 3, 2014, ECF No. 311 (“[T]he system claims . . . merely take the abstract idea of claims 1, 2, 5, 10, and 11 and list generic computer components (processor, memory) to implement the abstract idea.”). The same was true of the *Alice* patent’s media claims. 135 S. Ct. at 2360.

⁶ *Alice*, 134 S. Ct. at 2357.

⁷ *DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1255, 2014 BL 342453 (Fed. Cir. 2014) (89 PTCJ 370, 12/12/14); *Modern Telecom Sys. LLC v. Juno Online Servs., Inc.*, No. 8:14-cv-00348-DOC-AN (C.D. Cal.), Order Den. Mot. for J. on the Pleadings at 8, Mar. 17, 2015, ECF No. 61 (“This standard is easier to articulate than it is to apply.”).

⁸ *McRO, Inc. v. Namco Bandai Games Am., Inc.*, No. 2:12-cv-10322-GW-FFM (C.D. Cal.), Ruling on Defs.’ Mot. for J. on the Pleadings Based on Unpatentability Under 35 U.S.C. § 101 at 7-8, Sept. 22, 2014, ECF No. 365 (citing *Jacobellis v. Ohio*, 378 U.S. 184, 197 (1964) (Stewart, J. concurring)).

⁹ See *Enfish LLC v. Microsoft Corp.*, No. 2:12-cv-07360-MRP-MRW (C.D. Cal.), Order Granting Defs.’ Mot. for Summ. J. on Ineligibility Under 35 U.S.C. § 101 at 7, Nov. 3, 2014, ECF No. 303; see also *Ultramercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715, 112 U.S.P.Q.2d 1750 (Fed. Cir. 2014) (89 PTCJ 166, 11/21/14) (patent claimed abstract idea of “using advertising as an exchange or currency” even though the claims did not specifically identify it as such); *Intellectual Ventures I LLC v. Symantec Corp.*, No. 1:10-cv-01067-LPS (D. Del.), Mem. Op. at 37, Apr. 22, 2015, ECF No. 726 [hereinafter *Symantec*] (“[T]he Court’s conclusion that the asserted claims . . . fail *Mayo*’s step 1 is derived solely from the claims, specification, and file history.”); *Advanced Auctions LLC v. eBay, Inc.*, No. 3:13-cv-01612-BEN-JLB (S.D. Cal.), Order Granting Mot. for J. on the Pleadings at 5-6, Mar. 27, 2015, ECF No. 81 (“Even if the claims and specification did not explicitly identify an auction, it would still be directed or drawn to the abstract idea of an auction because that is what the claims describe.”); *Enpat, Inc. v. Tenrox Inc.*, No. 6:13-cv-00948-GAP-KRS (M.D. Fla.), Order at 7, Feb. 10, 2015, ECF No. 90 (claims were directed to the abstract idea of “project management” even though that phrase did not appear in the claims); *In re: TLI Commc’ns LLC Patent Litig.*, No. 1:14-md-02534-TSE-JFA (E.D. Va.), Mem. Op. at 20, Feb. 6, 2015, ECF No. 202 (in *Alice*, the Court “distilled the claim . . . in issue to its essential purpose”); *Morsa v. Facebook, Inc.*, No. 8:14-cv-00161-JLS-JPR (C.D. Cal.), Order Granting Def.’s Mot. for J. on the Pleadings at 10, Dec. 23, 2014, ECF No. 66 (the purpose of the patents made clear that the patents were directed to abstract ideas). *But see Ameranth, Inc. v. Genesis Gaming Solutions, Inc.*, No. 8:11-cv-00189-AG-RNB (C.D. Cal.), Order Den. Defs.’ Mot. for Summ. J. of Invalidity of the ‘969 Patent Under 35 U.S.C. § 101 at 6, Nov. 12, 2014, ECF No. 215 (noting that because only one of twelve asserted claims required a compensation system, “a customer loyalty program” was a poor formulation of the abstract idea); *id.* at 9-10 (detailing claim elements unrelated to a customer loyalty program).

is improper.¹⁰ And at least one court has stated that a plurality of abstract ideas is not necessarily patent eligible.¹¹

A. Patents That Have Survived Step One

Only a handful of claims have been held to satisfy Section 101 under step one of the *Alice* test addressing abstract ideas. Such claims have generally been directed to solving a problem that arises in a specific technological context, or have contained elements that narrowed their scope.

For example, in *Intellectual Ventures I LLC v. Symantec Corp.*, a patent directed to “screen[ing] computer data for viruses within a telephone network before communicating the computer data to an end user” was found not to be abstract.¹² The court found it significant that the asserted claim was directed not to screening generic “data” or “information,” but instead to screening for a “computer virus,” and that this is a function the human mind cannot perform.¹³ Further, the specification described how implementing one of the claims required “at least three computers configured in a specific manner” as depicted in three flowcharts.¹⁴ The court acknowledged that the embodiment described with respect to those flowcharts was not the only way to implement the claim, but stated:

[I]t is necessary in practicing the claim to in some way imitate the receiving computer’s configuration in order to properly detect whether a harmful virus in an executable file may infect the receiving computer. The coordination between a virus detecting computer, a sending computer, and a receiving computer is something “necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks.”¹⁵

In *AutoForm Engineering GmbH v. Engineering Technology Associates, Inc.*, the patents were directed

¹⁰ See, e.g., *Money Suite Co. v. 21stCentury Ins. and Fin. Servs., Inc.*, No. 1:13-cv-00984-GMS (D. Del.), Mem. at 5-6, Jan. 27, 2015, ECF No. 31 (arguments that certain claim limitations were not found in the prior art sound in Section 102 novelty and are “beside the point for a § 101 inquiry”); *CertusView Techs., LLC v. S&N Locating Servs., LLC*, No. 2:13-cv-00346 (E.D. Va.), Op. and Order at 36, Jan. 21, 2015, ECF No. 250 (“At step one, prior art plays no role in a court’s analysis.”); *Enfish, supra* note 9, at 8 (“The court does not filter out claim elements found in prior art and evaluate the remaining elements for abstractness.”). *But see Ameritox, Ltd. v. Millennium Health, LLC*, No. 3:13-cv-00832-wmc (W.D. Wis.), Op. and Order at 6, Apr. 24, 2015, ECF No. 440 (“[T]here is enough in the combination of the elements in the ‘680 patent to get it over the patent eligibility threshold under current law, particularly in light of the jury upholding the patent on § 102 and § 103 grounds.”). The *Ameritox* court did not specify whether the Sections 102 or 103 grounds related to *Alice* step one or two.

¹¹ *Shortridge v. Found. Constr. Payroll Serv., LLC*, No. 3:14-cv-04850-JCS (N.D. Cal.), Order Granting Defs.’ Mot. for J. on the Pleadings at 17, Apr. 14, 2015, ECF No. 73.

¹² *Symantec, supra* note 9, at 4, 50.

¹³ *Id.* at 42.

¹⁴ *Id.* at 42-45.

¹⁵ *Id.* at 46-47; see also *Helios Software, LLC v. SpectorSoft Corp.*, No. 1:12-cv-00081-LPS (D. Del.), Mem. Op. at 36, Sept. 18, 2014, ECF No. 453 (patents drawn to “remotely monitoring data associated with an Internet session and controlling network access” were not drawn to an abstract idea because the ideas were not fundamental truths or principles that would pre-empt basic tools of the technical work, and defendant made no showing that these were principles fundamental to the ubiquitous use of the Internet or computers generally).

to “computer software that is used to create a tool, and the tool itself, which is then used to form sheet metal into different objects, primarily automobile parts.”¹⁶ The defendants argued that the claims were directed to the abstract idea of “design[ing] . . . sheet metal forming tools.”¹⁷ However, the court found that the patent covered “more than a mere abstract idea,” and pointed to “numerous limitations that narrow the scope of the patent.”¹⁸ Specifically, the court identified the following limitations:

(1) [S]moothing an irregular component edge; (2) filling in a fill surface; (3) forming a smooth component edge; (4) where the fill surface runs into the predefined component geometry by a continuous tangent; (5) arranging sectional profiles along the smooth component edge; (6) avoiding an overlap or intersection condition between sectional profiles; (7) parameterizing the sectional profiles by the means of profile parameters; (8) the profile parameters being scalar values; (9) laterally interconnecting the sectional profiles by a continuous surface to form the geometry of the addendum zone of the tool; and (10) where the addendum zone complements the component geometry in the edge zone and runs into the component and the binder with a continuous tangent.¹⁹

Because the patent claimed more than an abstract idea, the court found unpersuasive the defendant’s argument that it merely required computer implementation.²⁰

B. Claims That Have Been Found Abstract

Parties seeking to invalidate patents under Section 101 routinely argue that claims are abstract for three reasons: the claims cover (1) a mere idea or a fundamental or longstanding practice well known in an industry; (2) activity that could be performed by human hands or mental processes; and/or (3) mathematical algorithms or principles. These categories are not new,²¹ but since *Alice*, certain subcategories have emerged.

1. Fundamental/Longstanding Practices, Concepts or Ideas

Alice did not hold that business method patents are invalid *per se*. However, since *Alice*, numerous claims have been struck down as relating to fundamental practices, concepts or ideas. These cases break down further into at least five further sub-categories, including claims directed to: (1) the formulation, manipulation, or performance of economic relationships and transactions; (2) banking or self-budgeting practices; (3) basic

sales or marketing ideas; (4) organizing or manipulating data or information; and (5) human activities or fundamental human interaction. Furthermore, even claims that appear directed solely to solving a problem that arises in the computer context, if drafted broadly enough, may be found abstract.²² Claims directed to the following categories have included the following abstract ideas.

The formulation, manipulation or performance of economic relationships and transactions:

- “[A] sales transaction”;²³
- “using advertising as an exchange or currency”;²⁴
- creating a contractual relationship or a “transaction performance guaranty”;²⁵
- “anonymous loan shopping”;²⁶
- verifying transaction information;²⁷
- “receiving and tracking referrals from referral sources”;²⁸
- “[U]sing a computer to facilitate negotiations between an airline and its customer that results in a contract for a product upgrade”;²⁹

²² See, e.g., *Intellectual Ventures I, LLC v. Motorola Mobility LLC*, No. 1:11-cv-00908-SLR-MPT (D. Del.), Mem. Op. at 15, Feb. 24, 2015, ECF No. 378 [hereinafter *Motorola Mobility*] (patent with no description of the underlying programming was directed to “the abstract idea of distributing software updates to a computer”); *BASCOM Global Internet Servs., Inc. v. AT&T Mobility LLC*, No. 3:14-cv-03942-M (N.D. Tex.), Mem. Op. and Order at 14, May 15, 2015, ECF No. 38 (claims were directed to the abstract idea of “filtering Internet content”).

²³ *Priceplay.com, Inc. v. AOL Advertising, Inc.*, No.1:14-cv-00092-RGA (D. Del.), Mem. Op. at 5, Mar. 18, 2015, ECF No. 49.

²⁴ *Ultramercial*, 772 F.3d at 715; see also *Loyalty Conversion Sys. Corp. v. Am. Airlines, Inc.*, No. 2:13-cv-00655-WCB (E.D. Tex.), Mem. Op. and Order at 12, Sept. 3, 2014, ECF No. 129 (“exchange of currencies in the form of loyalty award credits of different vendors.”).

²⁵ *buySAFE, Inc. v. Google, Inc.*, 765 F.3d 1350, 1355, 2014 BL 242935, 112 U.S.P.Q.2d 1093 (Fed. Cir. 2014) (88 PTCJ 1180, 9/12/14).

²⁶ *Mortg. Grader, Inc. v. Costco Wholesale Corp.*, No. 8:13-cv-00043-AG-AN (C.D. Cal.), Order Granting in Part Defs.’ Omnibus Mot. for Summ. J. at 9, Jan. 12, 2015, ECF No. 141; see also *Intellectual Ventures I LLC v. Mfrs. and Traders Trust Co.*, No. 1:13-cv-01274 (D. Del.), Mem. Op. at 23, Dec. 18, 2014, ECF No. 27 [hereinafter *Intellectual Ventures*] (“providing a user with aliases to use in conducting transactions”); *Walker Digital, Inc.*, *supra* note 5, at 2 & 10 (patents directed to “controlling the release of confidential or sensitive information of at least one of the parties in establishing anonymous communications” were directed to the “basic concept of controlled exchange of information about people”).

²⁷ *Card Verification Solutions*, *supra* note 3, at 6 (noting this was a “well-established, fundamental concept[]”). The claims survived *Alice* step two. *Id.* at 8-10.

²⁸ *Essociate, Inc. v. Clickbooth.com LLC*, No. 8:13-cv-01886-JVS-DFM (C.D. Cal.), (In Chambers) Order Granting Def.’s Mot. J. on the Pleadings as to Patent Ineligibility at 8, Feb. 11, 2015, ECF No. 51.

²⁹ *Tenon & Groove, LLC v. Plusgrade S.E.C.*, No. 1:12-cv-01118-GMS-SRF (D. Del.), Report and Recommendation at 12, Jan. 6, 2015, ECF No. 67.

¹⁶ No. 2:10-cv-14141-AJT-RSW (E.D. Mich.), Order Den. Def.’s Mot. for Summ. J. [74] and Den. Pl.’s Mot. for Summ. J. [76] at 3, Sept. 5, 2014, ECF No. 109.

¹⁷ *Id.* at 7.

¹⁸ *Id.* at 6-8.

¹⁹ *Id.* at 7; see also *Ameranth, Inc.*, *supra* note 9, at 9-10 (claim contained numerous limitations unrelated to defendants’ asserted formulation of the abstract concept).

²⁰ *Id.* at 7-8.

²¹ See *Bilski v. Kappos*, 561 U.S. 593, 611, 2010 BL 146286, 95 U.S.P.Q.2d 1001 (2010) (80 PTCJ 285, 7/2/10) (holding that risk hedging is a “fundamental economic practice long prevalent in our system of commerce and taught in any introductory finance class”); *Gottschalk v. Benson*, 409 U.S. 63, 67, 175 U.S.P.Q. 673 (1972) (“[W]hile a scientific truth, or the mathematical expression of it, is not a patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be.”).

■ “assigning prices to financial products and services”;³⁰ and

■ “underwriting an insurance policy” and “determining insurability of a vehicle.”³¹

Banking or self-budgeting practices:

■ Banking practices involving “real-time authorization, notification and/or security of financial transactions . . . that enable a cardholder to monitor, in real time, all activity involving his or her card(s) and the corresponding account numbers”;³²

■ “a mortgagee paying down a mortgage early when funds are available and borrowing funds as needed to reduce the overall interest charged by the mortgage”;³³

■ “routinely modifying [financial] transaction amounts and depositing the designated incremental differences into a recipient account”;³⁴ and

■ “allowing users to set self-imposed limits on their spending and receive notifications regarding such limits, i.e., setting up a budget and tracking their spending.”³⁵

Basic sales or marketing ideas:

■ “[U]pselling”;³⁶

■ “interacting with customers to promote marketing and sales”;³⁷

■ “gathering information about one’s intended market and attempting to customize the information then provided”;³⁸

■ “targeted advertising”;³⁹

■ basic sales techniques—here “automating telemarketing calls while allowing a telemarketing agent to personalize the calls to fit the needs of the potential customer and give the impression that the potential cus-

tomers is speaking to a real salesperson, as opposed to listening to a recorded sales presentation”;⁴⁰

■ “providing vehicle sales opportunities based on loan or lease payments”;⁴¹ and

■ “creating a customized sales proposal for a customer.”⁴²

Organizing or manipulating data or information:⁴³

■ Using tables to store information;⁴⁴

■ “1) collecting data, 2) recognizing certain data within the collected data set, and 3) storing that recognized data in a memory”;⁴⁵

■ “maintaining and searching a library of information”;⁴⁶

■ “creating, storing and using relationships between documents”;⁴⁷

■ “cataloging labor data”;⁴⁸

■ “creating computer-readable files to store information”;⁴⁹

■ “maintaining a database and updating users about new information”;⁵⁰

■ “scanning groups of images and organizing them”;⁵¹

■ “concept of secure record access and management”;⁵²

⁴⁰ *KomBea Corp. v. Noguar L.C.*, No. 2:13-cv-00957-TS-DBP (D. Utah), Mem. Decision and Order Granting Pl.’s Mot. for Partial Summ. J. at 2 & 5, Dec. 23, 2014, ECF No. 49.

⁴¹ *AutoAlert, LLC v. Dominion Dealer Solutions, LLC*, No. 8:12-cv-01661-JLS-JPR (C.D. Cal.), Order Granting Autobase’s Mot. for Summ. J. (Doc. 109) at 8, Dec. 23, 2014, ECF No. 140.

⁴² *Clear with Computers, LLC v. Altec Indus.*, No. 6:14-cv-00089-JRG (E.D. Tex.), Order at 6, Mar. 3, 2015, ECF No. 24.

⁴³ *Cf. Card Verification Solutions*, *supra* note 3, at 9 (“[H]ere, the claimed invention goes beyond manipulating, reorganizing, or collecting data by actually adding a new subset of numbers or characters to the data, thereby fundamentally altering the original confidential information.”).

⁴⁴ *Enfish*, *supra* note 9, at 11.

⁴⁵ *Content Extraction and Transmission LLC v. Wells Fargo Bank*, 776 F.3d 1343, 1347, 2014 BL 361098, 113 U.S.P.Q.2d 1354 (Fed. Cir. 2014); *see also Symantec*, *supra* note 9, at 17-18 (claims that covered the steps of collecting, recognizing, and storing data, and communicating a result of the “recognizing” step back to a querying computer were abstract).

⁴⁶ *Cogent Med., Inc. v. Elsevier Inc.*, No. 5:13-cv-04479-RMW (N.D. Cal.), Order Granting Mot. to Dismiss at 6, Sept. 30, 2014, ECF No. 48.

⁴⁷ *Bascom Research, LLC v. LinkedIn, Inc.*, No. 3:12-cv-06293-SI (N.D. Cal.), Order Granting Defs.’ Mots. for Summ. J. at 12, Jan. 2, 2015, ECF No. 131.

⁴⁸ *Shortridge*, *supra* note 11, at 16; *see also Cloud Satchel, LLC v. Amazon.com, Inc.*, No. 1:13-cv-00941-SLR-SRF (D. Del.), Mem. Op. at 13, Dec. 18, 2014, ECF No. 90 (“cataloguing documents to facilitate their retrieval from storage”).

⁴⁹ *CertusView Techs.*, *supra* note 10, at 38.

⁵⁰ *Data Distribution Techs.*, *supra* note 3, at 30.

⁵¹ *Intellectual Ventures*, *supra* note 26, at 20; *see also TLI Commc’ns*, *supra* note 9, at 16 (“taking, organizing, classifying, and storing photographs”).

⁵² *MyMedicalRecords, Inc. v. Walgreen Co.*, No. 2:13-cv-00631-ODW(SHx) (C.D. Cal.), Order Granting Defs.’ Mot. for

³⁰ *Money Suite Co.*, *supra* note 10, at 5.

³¹ *Carfax, Inc. v. Red Mountain Techs.*, No. 1:14-cv-01590-GBL-IDD (E.D. Va.), Mem. Op. and Order at 7, Mar. 30, 2015, ECF No. 88.

³² *Joao Bock Transaction Sys., LLC v. Jack Henry Assocs., Inc.*, No. 1:12-cv-01138-SLR (D. Del.), Mem. Op. at 2, Dec. 15, 2014, ECF No. 238.

³³ *CMG Fin. Servs., Inc. v. Pac. Trust Bank, F.S.B.*, No. 2:11-cv-10344-PSG-MRW (C.D. Cal.), (In Chambers) Order Granting Def.’s Mot. for Summ. J. at 27, Aug. 29, 2014, ECF No. 164.

³⁴ *Every Penny Counts, Inc. v. Wells Fargo Bank, N.A.*, No. 8:11-cv-02826-SDM-TBM (M.D. Fla.), Order at 9, Sept. 11, 2014, ECF No. 125.

³⁵ *Intellectual Ventures*, *supra* note 26, at 11-12.

³⁶ *Tuxis Techs., LLC v. Amazon.com, Inc.*, No. 1:13-cv-01771-RGA (D. Del.), Mem. Op. at 4, Sept. 3, 2014, ECF No. 22.

³⁷ *Open Text S.A. v. Alfresco Software Ltd.*, No. 3:13-cv-04843-JD (N.D. Cal.), Order Granting Mot. to Dismiss at 7, Sept. 19, 2014, ECF No. 204 [hereinafter *Alfresco Software*].

³⁸ *OpenTV, Inc. v. Netflix Inc.*, No. 3:14-cv-01525-RS (N.D. Cal.), Order Granting in Part and Denying in Part Mot. for Summ. J. of Invalidity Under § 101 at 10, Dec. 16, 2014, ECF No. 71

³⁹ *Morsa*, *supra* note 9, at 11.

- “organizing data through mathematical correlations” or “information in its non-tangible form”;⁵³ and
- “well-known post office function[s].”⁵⁴

Human activity or fundamental human interaction:

- “[M]anaging/playing the game of Bingo”;⁵⁵
- “an auction”;⁵⁶
- meal planning, or “selecting meals for the day, according to one’s particular dietary goals and food preferences”;⁵⁷
- “determining a nutritional diet for a dog or cat based on naturally occurring relationships”;⁵⁸
- “prescribing medication for a patient”;⁵⁹
- “instruction, evaluation, and review”;⁶⁰
- “testing operators of any kind of moving equipment for any kind of physical or mental impairment”;⁶¹
- “concept of a decision”—i.e., receiving a request and determining whether that request requires a user prompt;⁶²
- “translation”;⁶³

J. on the Pleadings of Invalidity of U.S. Patent No. 8,301,466 [90] at 6, Dec. 23, 2014, ECF No. 104.

⁵³ *Digitech Image Techs., LLC v. Elecs. for Imaging, Inc.*, 758 F.3d 1344, 1348-49, 2014 BL 193384, 111 U.S.P.Q.2d 1717 (Fed. Cir. 2014) (88 PTCJ 748, 7/18/14)

⁵⁴ *Symantec*, *supra* note 9, at 32-38 (steps included “providing to a post office a set of business rules derived from business communication policies,” “receiving messages at the post office,” “applying the business rules to the attributes of the message,” and delivering the message).

⁵⁵ *Planet Bingo, LLC v. VKGS LLC*, 576 F. App’x 1005, 1006-07, 2014 BL 235907 (Fed. Cir. 2014) (88 PTCJ 1112, 8/29/14).

⁵⁶ *Advanced Auctions*, *supra* note 9, at 5.

⁵⁷ *DietGoal Innovations LLC v. Bravo Media LLC*, No. 1:13-cv-08391-PAE (S.D.N.Y.), Op and Order at 18, July 8, 2014, ECF No. 148 [hereinafter *DietGoal*].

⁵⁸ *Hemopet v. Hill’s Pet Nutrition, Inc.*, No. 8:12-cv-01908-JLS-JPR (C.D. Cal.), Order Granting Def.’s Mot. for Summ. J. (Doc. 93) at 11, Nov. 24, 2014, ECF No. 119.

⁵⁹ *Prescriber, LLC v. AO Capital Partners LLC*, No. 6:14-cv-00440-KNM (E.D. Tex.), Order at 8, Mar. 31, 2015, ECF No. 125. The court determined that claim construction was required before analyzing the claims at *Alice* step two. *Id.* at 8 & 11.

⁶⁰ *IpLearn, LLC v. K12 Inc.*, No. 1:11-cv-01026-RGA (D. Del.), Mem. Op. at 11, Dec. 17, 2014, ECF No. 299.

⁶¹ *Vehicle Intelligence and Safety LLC v. Mercedes-Benz USA, LLC*, No. 1:13-cv-04417 (N.D. Ill.), Op. and Order at 6, Jan. 29, 2015, ECF No. 102.

⁶² *Comcast IP Holdings I, LLC v. Sprint Commc’ns Co. L.P.*, No. 1:12-cv-00205-RGA (D. Del.), Mem. Op. at 6, July 16, 2014, ECF No. 291; *see also Jericho Sys. Corp. v. Axiomatics, Inc.*, No. 3:14-cv-02281-K (N.D. Tex.) Mem. Op. and Order at 8, May 7, 2015, ECF No. 76 (“[P]eople who meet certain requirements are allowed to do certain things.”).

⁶³ *Messaging Gateway Solutions, LLC v. Amdocs, Inc.*, No. 1:14-cv-00732-RGA (D. Del.), Mem. Op. at 7, Apr. 15, 2015, ECF No. 32. The claim satisfied step two. *Id.* at 7-11; *see also Triplay, Inc. v. WhatsApp Inc.*, No. 1:13-cv-01703-LPS (D. Del.), Report and Recommendation at 20, Apr. 28, 2015, ECF No. 52 (“[T]he ‘majority of the limitations’ of the claims . . . describe only an abstract idea: the idea of converting and for-

warding messages, so that the messages are sent in a format and layout in which they can be received by a recipient.”).

warding messages, so that the messages are sent in a format and layout in which they can be received by a recipient.”).

⁶⁴ *Eclipse IP LLC v. McKinley Equip. Corp.*, No. 8:14-cv-00742-GW-AJW (C.D. Cal.), Ruling on Mot. to Dismiss for Lack of Patentable Subject Matter (35 U.S.C. § 101) at 10, Sept. 4, 2014, ECF No. 26; *see also id.* at 13 (“asking someone to do a task, getting an affirmative response, and then waiting until the task is done”); *id.* at 16 (“asking people, based on their location, to go places”).

⁶⁵ *Wolf v. Capstone Photography, Inc.*, No. 2:13-cv-09573-CAS-PJW (C.D. Cal.), (In Chambers) Defs.’ Mot. for J. on the Pleadings at 17, Oct. 28, 2014, ECF No. 49; *see also id.* at 24 (the idea of “distributing free or reduced-price digital event photographs with embedded advertisements” is abstract).

⁶⁶ *Enpat*, *supra* note 9, at 5; *see also Open Text S.A. v. Box, Inc.*, No. 3:13-cv-04910-JD (N.D. Cal.), Order Granting Rule 12(c) Mot. for J. of Invalidity of Groupware Patents at 1, Jan. 20, 2015, ECF No. 454 [hereinafter *Open Text*].

2. Claims Capable of Being Performed by Human Hand or Mental Processes

⁶⁷ *Hewlett Packard Co. v. ServiceNow, Inc.*, No. 5:14-cv-00570-BLF (N.D. Cal.), Order Granting Def.’s Mot. for Summ. J. of Invalidity at 6-7, Mar. 10, 2015, ECF No. 101.

⁶⁸ *Wireless Media Innovations, LLC v. Maher Terminals, LLC*, No. 2:14-cv-07004-JLL-JAD (D.N.J.), Op. at 15, Apr. 20, 2015, ECF No. 36.

⁶⁹ *See Bancorp Servs., L.L.C. v. Sun Life Assur. Co. of Can. (U.S.)*, 687 F.3d 1266, 1278, 2012 BL 186164, 103 U.S.P.Q.2d 1425 (Fed. Cir. 2012)(84 PTCJ 551, 8/3/12) (“[T]o salvage an otherwise patent-ineligible process, the computer must be integral to the claimed invention, facilitating the process in a way that a person making calculations or computations could not.”); *Tuxis Techs.*, *supra* note 36, at 8 (“[A] computer is not an integral part of the claim here. A human being can generate an upsell recommendation ‘during the course of the user initiated communication,’ although perhaps not with the efficiency or speed of a computer.”). Nor is it sufficient for a patent to “monopoliz[e] computerized implementations while allowing the public to practice the idea ‘by hand’” *Money Suite Co.*, *supra* note 10, at 9.

⁷⁰ *DietGoal*, *supra* note 57, at 17 n.6 (citing *CyberSource Corp. v. Retail Decisions Inc.*, 654 F.3d 1366, 1371, 2011 BL

fies “mental processes” as its own distinct category of unpatentable subject matter.⁷¹

Although at least one court has cautioned that “automation of manual tasks is not necessarily abstract,”⁷² numerous district courts have used this analysis to support their decisions that a patent’s claims are abstract, both at step one and step two. These claims typically have been directed to financial transactions, data organization and human activity or interaction.

Claims Directed to Financial Transactions

In *Joao Bock Transaction Sys., LLC v. Jack Henry Assocs., Inc.*, the court invalidated a patent “directed to an apparatus and a method for the real-time authorization, notification and/or security of financial transactions involving credit cards, charge cards, debit cards, and/or currency or ‘smart’ cards that enable a cardholder to monitor, in real-time, all activity involving his or her card(s) and the corresponding account numbers.”⁷³ At *Alice* step one, the court found that the claims were directed to an abstract idea.⁷⁴ Though the court did not articulate the abstract idea the patent embodied, the court supported its conclusion by referencing a claim-by-claim comparison that the defendant had provided, illustrating that each step could be performed by human hand or the human mind, without a computer.⁷⁵

And in *Mortgage Grader, Inc. v. Costco Wholesale Corp.*, the patents were directed to “computer implemented systems and methods for online mortgage shopping.”⁷⁶ In particular, the court determined that “the claims [were] directed to the idea of allowing users to assess their borrowing ability without revealing

their identities to the lenders until they wish to do so.”⁷⁷ At *Alice* step one, the court found that the claim was abstract because “none of Plaintiff’s arguments show that claim 6 is drawn to something that could not be done by a person.”⁷⁸ Similarly, at *Alice* step two, some of the claims did not even require the use of a computer, and those that did covered things that could be done by a human.⁷⁹ For example, “[t]he ‘interface that allows the lenders to securely upload at least some of the loan package data [specifying the loan type, rate, and required borrower credit grading] . . . could be hand delivery of that information on a sheet of paper.”⁸⁰

Claims Directed to Data Organization

In *Data Distribution Techs., LLC v. BRER Affiliates, Inc.*, the patent related to “[a] remotely updateable database system” that provided “real estate agents access to real estate information.”⁸¹ At *Alice* step one, the court determined that the patent was “directed to . . . the abstract idea of maintaining a database and updating users about new information.”⁸² Supporting its conclusion, the court stated: “The computer implementation described in the ‘908 Patent is more efficient than a realtor working with paper records of client preferences and calling or mailing clients to notify them of new properties, but ‘though the tool has changed, the activity is the same.’ ”⁸³

And in *Cogent Medicine, Inc. v. Elsevier Inc.*, the patent related to “a database of medical resources that is searchable via a library interface.”⁸⁴ At *Alice* step one, the court found that the patent claimed “the abstract idea of maintaining and searching a library of information.”⁸⁵ The court noted that “[t]his idea is little different than the basic concept of organizing a physical library so that an individual can search for information by going to the relevant portion of the library and picking a book. Should someone want preselected books, she can ask a librarian.”⁸⁶ Further, at *Alice* step two,

211283, 99 U.S.P.Q.2d 1690 (Fed. Cir. 2011) (82 PTCJ 528, 8/19/11) (invalidating patent on ground that it claimed an “unpatentable mental process—a subcategory of unpatentable abstract ideas”); see also *CMG*, *supra* note 33, at 10 (plaintiff failed to raise an issue of disputed material facts on the basis of whether the claimed methods could be completed on a piece of paper because this issue is “insignificantly probative to a collateral issue or . . . entirely irrelevant to our § 101 analysis” (citing *CyberSource*, 654 F.3d at 1369)).

⁷¹ *DietGoal*, *supra* note 57, at 17 n.6 (comparing *Gottschalk*, 409 U.S. at 67 (“Phenomena of nature, though just discovered, mental processes, and abstract intellectual concepts are not patentable . . .”), and *Mayo*, 132 S. Ct. at 1293 (same), with *Diamond v. Diehr*, 450 U.S. 175, 185, 209 U.S.P.Q. 1 (1981) (“Excluded from such patent protection are laws of nature, natural phenomena, and abstract ideas.”), and *Bilski*, 561 U.S. at 601-02 (same)); see also *Amdocs (Isr.) Ltd. v. Openet Telecom, Inc.*, No. 1:10-cv-00910-LMB-TRJ (E.D. Va.), Mem. Op. at 16, Oct. 24, 2014, ECF No. 301 (performance by a human may be sufficient to find that an idea is abstract); *Card Verification Solutions*, *supra* note 3, at 8 (“The question whether a pseudorandom number and character generator can be devised that relies on an algorithm that can be performed by a human with nothing more than pen and paper poses a factual question inappropriate at the motion to dismiss stage. . . . Card Verification has plausibly alleged a method that does not comprise a ‘mental process.’”).

⁷² *Ameranth*, *supra* note 9, at 11 (referencing Eli Whitney’s cotton gin).

⁷³ *Joao Bock*, *supra* note 33, at 2.

⁷⁴ *Id.* at 14.

⁷⁵ *Id.* at 12-13; see also *Symantec*, *supra* note 9, at 19 (chart comparing claim limitations to routine steps performed by human beings showing the steps were not necessarily rooted in computer technology); cf. *IpLearn*, *supra* note 60, at 13 (at step two, walking through a hypothetical showing how the claimed steps could be performed without any machine).

⁷⁶ *Mortg. Grader*, *supra* note 26, at 2.

⁷⁷ *Id.* at 9.

⁷⁸ *Id.* at 10.

⁷⁹ *Id.* at 10-11.

⁸⁰ *Id.* at 11; see also *id.* (“The ‘second interface that prompts a borrower to enter personal loan evaluation information’ with the ‘borrower grading module’ . . . could be the human broker taking the information by hand and calculating the credit grading by hand or by looking at a table. The borrower and broker could discuss the cost of the available loans and the borrower could decide to selectively expose its information to a lender of interest.”); *AutoAlert*, *supra* note 41, at 2 & 11 (claims directed to a “[s]ystem and method for assessing and managing financial transactions” were abstract because computerizing a process salespersons have done and “repeating it *ad infinitum*” does not make the claim patent eligible); *Loyalty Conversion*, *supra* note 24, at 8 & 21 (computer-driven method for converting vendor’s loyalty credits into loyalty award credits of another vendor were abstract because all the functions were “readily within the capacity of a human to perform without computer aid”).

⁸¹ *Data Distribution Techs.*, *supra* note 3, at 3-4.

⁸² *Id.* at 30. However, the court also determined it could not conduct *Alice* step two without claim construction. *Id.* at 33.

⁸³ *Id.* at 33; see also *TLI Commc’ns*, *supra* note 9, at 17 (because taking, organizing, classifying, and storing photographs is a common practice and people have done this “for more than a century without the aid of computers,” the method could be “performed by human thought alone”).

⁸⁴ *Cogent Med.*, *supra* note 46, at 2.

⁸⁵ *Id.* at 6.

⁸⁶ *Id.*

the court found that the method steps assumed, but did not claim, the existence of a computer, but that “the computer does no more than automate what ‘can be done mentally.’”⁸⁷

Claims Directed to Human Activity or Interaction

In *DietGoal Innovation LLC v. Bravo Media LLC*, the court invalidated a patent that claimed a “system and method for computerized visual behavior analysis, training, and planning,” for the purpose of modifying diet behavior.⁸⁸ At *Alice* step one, the court determined that the patent claims recited “nothing more than the abstract concept of selecting meals for the day, according to one’s particular dietary goals and food preferences.”⁸⁹ According to the court, not only is meal planning a “long prevalent practice,” but also “the claims . . . recite steps that, although computer-implemented . . . , could ‘be performed in the human mind, or by a human using pen and paper.’”⁹⁰

In *Comcast IP Holdings I, LLC v. Sprint Commc’ns Co. L.P.*, the patent claimed:

A telephony network optimization method, comprising: receiving a request from an application to provide to the application service on a telephony network; and determining whether a telephony parameter associated with the request requires acceptance of a user prompt to provide to the application access to the telephony network.⁹¹

At *Alice* step one, the court determined that the claim was directed to abstract subject matter because it embodied “the very concept of a decision” and “[a] decision may be performed, and generally is performed, entirely in the human mind.”⁹² Similarly, at *Alice* step two, the court noted that “even if the patent requires ‘some physical steps . . . (e.g., entering a query via a keyboard, clicking a mouse),’ that alone will also not confer patentability. Here, a computer is not an integral part of the claim. A person can easily perform the claimed steps.”⁹³

⁸⁷ *Id.* at 9; see also *Bascom*, *supra* note 47, at 2 & 13 (claims directed to “publishing, distributing, relating and searching document objects on computer networks” were abstract because the concept could also be performed mentally).

⁸⁸ *DietGoal*, *supra* note 57, at 2.

⁸⁹ *Id.* at 18.

⁹⁰ *Id.* (citation omitted).

⁹¹ *Comcast*, *supra* note 62, at 4.

⁹² *Id.* at 6.

⁹³ *Id.* at 10 (citation omitted); see also *Planet Bingo*, 576 F. App’x at 1006 & 1008 (claims directed to computer management of bingo games were abstract because they were “similar to the kind of ‘organizing human activity’ at issue in *Alice*”); *Wireless Media Innovations*, *supra* note 68, at 16; *Clear with Computers*, *supra* note 42, at 7 (“The claims essentially propose that, instead of a human salesman asking customers about their preferences and then creating a brochure from a binder of product pictures and text and using a rolodex to store customer information, a generic computer can perform those functions.”); *Eclipse*, *supra* note 64, at 9 & 10 (claims directed to a computer-based notification system were directed to an abstract idea because all of the recited steps could be performed by a person talking on the phone); *Synopsys, Inc. v. Mentor Graphics Corp.*, No. 3:12-cv-06467-MMC (N.D. Cal.), Order on Mots. for Summ. J. at 6, Jan. 20, 2015, ECF No. 442 (claims were drawn to the mental process of inference because they described “various algorithms for determining the hardware components and layout of an [integrated circuit design] from a user’s description of what the user needs the chip to do”); *Walker Digital*, *supra* note 5, at 10 (claim steps directed

3. Mathematical Principles

The Supreme Court has long been skeptical of mathematical principles or algorithms claimed in patented inventions.⁹⁴ In *Digitech Image Techs., LLC v. Elecs. For Imaging, Inc.*, the Federal Circuit affirmed a district court’s determination that claims directed to a “device profile and a method for creating a device profile within a digital image processing system” were invalid.⁹⁵ The plaintiff argued that the claims were patent eligible because they described a process that was tied to a digital image processor, which was “integral to the transformation of a digital image.”⁹⁶ The court disagreed, stating that “[t]he method in the [patent] claims an abstract idea because it describes a process of organizing information through mathematical correlations and is not tied to a specific structure or machine.”⁹⁷

And in *AutoAlert, LLC v. Dominion Dealer Solutions, LLC*, all five asserted patents described a “[s]ystem and method for assessing and managing financial transactions.”⁹⁸ The representative claims consisted of essentially three processes: (1) gathering data; (2) performing calculations on that data; and (3) sending messages to the user.⁹⁹ The court concluded the patents were directed to the abstract idea of “determining when a favorable vehicle sales opportunity exists by performing calculations on potential loan or lease payments.”¹⁰⁰ Citing *Digitech*, the court noted that claims that employ mathematical algorithms without additional limitations are not patent eligible.¹⁰¹

II. *Alice* Step Two: The Search for ‘Something More’

Alice sketched an outline of what is and is not sufficient to transform patent claims directed to an abstract idea into a patent eligible application. For example, the Court noted that the claims in *Diamond v. Diehr* were patent eligible because they improved an existing technological process.¹⁰² Similarly, courts have followed pre-*Alice* cases teaching that if a claim relies on a computer as its limitation, it must be integral to the claimed invention and “facilitat[e] the process in a way that a

to the controlled exchange of information about people could be performed by human beings interacting with one another).

⁹⁴ See *Gottschalk*, 409 U.S. at 67 (“[W]hile a scientific truth, or the mathematical expression of it, is not a patentable invention, a novel and useful structure created with the aid of knowledge of scientific truth may be.” (quoting *Mackay Co. v. Radio Corp.*, 306 U.S. 86, 94 (1939)).

⁹⁵ 758 F.3d at 1347.

⁹⁶ *Id.* at 1350.

⁹⁷ *Id.* The court found the claims so broad that it did not need to “decide whether tying the method to an image processor would lead us to conclude that the claims are directed to patent eligible subject matter . . .” *Id.* at 1351.

⁹⁸ *AutoAlert*, *supra* note 41, at 2.

⁹⁹ *Id.* at 7.

¹⁰⁰ *Id.*

¹⁰¹ *Id.*; see also *Symantec*, *supra* note 9, at 22 (“hashing” functionality is one of many mathematical algorithms that could be used to implement the claim limitation and is abstract); *CMG*, *supra* note 33, at 27 (claim elements that added only an undisclosed mathematical formula cannot be patented).

¹⁰² *Alice*, 134 S. Ct. at 2358 (citing *Diehr*, 450 U.S. at 178-79).

person making calculations or computations could not.”¹⁰³

But the *Alice* Court confirmed that simply adding “‘conventional steps, specified at a high level of generality,’ [is] not ‘enough’ to supply an ‘inventive concept.’”¹⁰⁴ Nor is limiting the use of the idea to a particular technological environment.¹⁰⁵ Further, recitation of generic computer hardware is insufficient. For example, the *Alice* Court rejected the plaintiff’s characterization of a “communications controller” and a “data storage unit” as “specific hardware” configured to perform “specific computerized functions” because nearly every computer includes such hardware that can perform these functions.¹⁰⁶

A. Claims That Have Survived *Alice* Step Two

Following *Alice*’s framework, courts have found that claims directed to improving a technological field or the computer itself have survived *Alice* step two. Further, if the abstract idea is tied to a specific machine performing a specific function, that might make it easier to overcome a Section 101 challenge. Such limitations prevent patent claims from pre-empting other applications of the underlying idea.

1. Improvements to the Functioning of the Computer Itself or a Technological Field

Arguably, the Federal Circuit’s most significant ruling interpreting *Alice* is *DDR Holdings, LLC v. Hotels.com, L.P.*, which held that if claims are directed to a business challenge particular to the Internet and/or are necessarily rooted in computer technology, they might survive the *Alice* two-step analysis.¹⁰⁷ There, the pat-

ents were directed to “generating a composite web page that combines certain visual elements of a ‘host’ website with content of a third-party merchant.”¹⁰⁸ Effectively, the claimed invention allowed a host website to retain visitors when they clicked on a merchant’s advertisement rather than being taken to that merchant’s website.¹⁰⁹ The court found the claims patent eligible under Section 101, in part, because the claims recited “a specific way to automate the creation of a composite web page by an ‘outsourcer provider’ that incorporates elements from multiple sources in order to solve a problem faced by websites on the Internet.”¹¹⁰ The court stated that “[a]lthough the claims address a business challenge (retaining website visitors), it is a challenge particular to the Internet.”¹¹¹ The court acknowledged that the “store within a store” concept was well known by the relevant time frame; however, “that practice did not have to account for the ephemeral nature of an Internet ‘location’ or the near-instantaneous transport between these locations made possible by standard Internet communication protocols, which introduces a problem that does not arise in the ‘brick and mortar’ context.”¹¹² Importantly, the court noted:

It is also clear that the claims at issue do not attempt to pre-empt every application of the idea of increasing sales by making two web pages look the same, or of any other variant suggested by NLG. Rather, they recite a specific way to automate the creation of a composite web page by an “outsourcer provider” that incorporates elements from multiple sources in order to solve a problem faced by websites on the Internet.¹¹³

Since *DDR Holdings*, several courts have found claims patent eligible where they appeared directed to solving a problem particular to computers or the Internet. In *Modern Telecom Systems LLC v. Juno Online Services, Inc.*, the patents were directed to, respectively:

¹⁰⁸ *DDR Holdings*, 773 F.3d at 1248. The court observed that: “On a fundamental level, the creation of new compositions and products based on combining elements from different sources has long been a basis for patentable inventions.” *Id.* at 1257 n.5.

¹⁰⁹ *Id.* at 1248.

¹¹⁰ *Id.* at 1259.

¹¹¹ *Id.* at 1257.

¹¹² *Id.* at 1258. The court also cautioned that “not all claims purporting to address Internet-centric challenges are eligible for patent.” *Id.*; see, e.g., *Bascom*, *supra* note 47, at 18 (plaintiff’s expert failed to “show that the patents improve the functioning of any computer”; patents directed to methods for publishing, distributing, relating, and searching document objects on computer networks required nothing more than “generic and conventional computer structures and unspecified software programming”); *Cloud Satchel*, *supra* note 48, at 17 (“The court also recognizes that the application of document cataloging in the realm of portable computing usefully addressed the problem of limited memory space in portable computers. The fact that an abstract idea may be usefully applied, however, is not enough to ‘transform an unpatentable principle into a patentable process.’”); *id.* at 17-18 (“Plaintiff’s argument that the claims ‘improve the functioning of the computer’ also falls short, as the patents do not claim an improvement to the computer, but rather describe how to apply the abstract idea of cataloging to pre-existing, conventional computers.”).

¹¹³ *DDR Holdings*, 773 F.3d at 1259; see also *Messaging Gateway Solutions*, *supra* note 63, at 10 (claims were not invalid because they specified “how an interaction between a mobile phone and a computer is manipulated in order to achieve a desired result which overrides conventional practice”).

¹⁰³ *AutoAlert*, *supra* note 41, at 11 (citing *Bancorp*, 687 F.3d at 1278); compare *Helios Software*, *supra* note 15, at 33, 36-37 (in patents directed to remotely monitoring data associated with an Internet session where patents claimed exchanging data over different Internet sessions to capture the content of an ongoing Internet communication session, machine-or-transformation test satisfied because computer played a significant part in permitting the claimed method to be performed), with *Comcast*, *supra* note 62, at 10 (“Here, a computer is not an integral part of the claim. A person can easily perform the claimed steps.”).

¹⁰⁴ 134 S. Ct. at 2357 (citing *Mayo*, 132 S. Ct. at 1300, 1297, 1294).

¹⁰⁵ 134 S. Ct. at 2357 (citing *Bilski*, 561 U.S. at 610-11).

¹⁰⁶ 134 S. Ct. at 2360; see also *Carfax*, *supra* note 31, at 11-12 (“physical memory of a data processing system” was generic); *Every Penny Counts*, *supra* note 34, at 10 n.7 (“The claims offer no description of the computer [claimed], and the specification offers no description beyond the generic, undefined name ‘clearinghouse central computer’ or, sometimes, ‘central computer.’”); see also *id.* at 11 (a “data store,” “information processor” and a “communicator” are components fundamental to every computer).

¹⁰⁷ 773 F.3d at 1257; compare *OpenTV*, *supra* note 38, at 7 (“At least at this juncture, the patent appears to be directed at providing a technological solution to a problem that arises in the computer/interactive television context.”), with *Clear with Computers*, *supra* note 42, at 8-9 (claims that merely used computer components configured to perform conventional steps that could be performed by a human were not rooted in computer technology), and *Triplay*, *supra* note 63, at 25 (“Yet although the realm of electronic communications provides the setting in which the claims are introduced, the clear majority of the claim language that is at issue here is not ‘necessarily rooted in computer technology[,]’ nor in the technology of electronic communications devices.”).

(1) “a method of communicating certain descriptors, signals, data, etc. between two devices . . . over a data communication channel”; (2) “using specific formulas to calculate modem power levels in signals transmitted over a data communication channel”; (3) “a method of reducing startup latency between two devices configured to communicate with each other over a data communication channel”; and (4) “a method for error correction in data communication channel impairment.”¹¹⁴ The court did not decide whether these were directed to an abstract idea because the defendants failed to establish that the patents lacked an inventive concept at step two.¹¹⁵ Specifically, the defendants “failed to demonstrate that the specific steps recited in the patents preempt[ed] all inventions concerning communicating between two modems.”¹¹⁶ Further, according to the court, like the claims in *DDR Holdings*, the claims described a solution “necessarily rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks.”¹¹⁷

In *Card Verification Solutions, LLC v. Citigroup Inc.*, the patents were directed to “an invention for providing verification information for a transaction securely. Specifically, the . . . Patent disclose[d] methods for passing confidential information over an unsecured network with reduced risk of it being captured by an untrusted party.”¹¹⁸ The defendant argued that the claims were a mental process that could be performed by a human and that the entire process could be performed with pen and paper.¹¹⁹ Though the court found the claims abstract at *Alice* step one, at step two, the court noted that the claims’ diagrams demonstrated the incorporation of a computer and pseudorandom tag generating software.¹²⁰ Because of this, the court found that the claims might pass the transformation prong of the machine-or-transformation test, stating:

[T]he claims may be sufficiently limited by the plausible transformation that occurs when the randomly-generated tag is added to the piece of confidential information. Typically, transforming data from one form to another does not qualify as the kind of transformation regarded as an important indicator of patent eligibility. . . . But here, the claimed invention goes beyond manipulating, reorganizing, or collecting data by actually adding a new subset of numbers or characters to the data, thereby fundamentally altering the original confidential information.¹²¹

Therefore, according to the district court, the patent used “a system for modifying data that may have a concrete effect in the field of electronic communications.”¹²²

¹¹⁴ *Modern Telecom*, *supra* note 7, at 12.

¹¹⁵ *Id.* at 13.

¹¹⁶ *Id.*

¹¹⁷ *Id.* The procedural posture of the defendants’ motion was relevant, and the court left open the possibility of a future challenge to the patents’ eligibility under Section 101 upon a more complete record. *Id.* at 14.

¹¹⁸ *Card Verification Solutions*, *supra* note 3, at 1-2.

¹¹⁹ *Id.* at 7-8.

¹²⁰ *Id.* at 8.

¹²¹ *Id.* at 9.

¹²² *Id.* at 10; *see also Motorola Mobility*, *supra* note 22, at 22 (claims were necessarily rooted in computer technology because the invention specified “how interactions with the [network] are manipulated to yield a desired result by reallocating bandwidth based on the contents of packet headers” (internal quotation marks omitted)); *Intellectual Ventures*, *su-*

2. Use of a Specific Machine to Perform a Specific Function

*Fairfield Indus., Inc. v. Wireless Seismic, Inc.*¹²³ suggests that claims may have a greater chance of surviving the *Alice* two-step analysis when the machine involved is a non-generic machine with a specific purpose. Here:

The patent at issue is incorporated into a seismic sensor array, which is used to produce detailed images of the rock types beneath the earth’s surface. These arrays consist of a grid of seismic acquisition units placed over a large area, with units spaced at intervals of 25 to 200 meters. Each of the units obtains data from the earth below its placement, and this data is ultimately transmitted to a central control station.¹²⁴

The plaintiff argued that step two was satisfied because “the use of a string of acquisition units and different transmission parameters to effectively transmit the data in a relay is transformative.”¹²⁵ The plaintiff also argued that the claims were tied to particular machines—“seismic data acquisition units and concentrator units.”¹²⁶ The court was persuaded that these elements added an inventive concept: “Although the claim rests upon the idea of a relay system, the claim builds upon this concept by adding nonconventional elements, such as the assignment of different transmission parameters to avoid jumbled communication. These additional elements narrow the scope of the claim, and minimize the risk of preemption.”¹²⁷ The court further found that “the claim’s close connection to a specific machine, the seismic acquisition unit, further supports a finding of patent-eligibility. The relevance of this connection stems from the machine-or-transformation test.”¹²⁸ The court specifically noted that seismic acquisition units are less generic and conventional than general computers or the Internet.¹²⁹

B. Claims That Have Failed *Alice* Step Two

As *Alice* made clear, recitation of a general purpose computer and/or the Internet is insufficient to add “something more” to claims otherwise directed to abstract subject matter.¹³⁰ Thus, claims that recite generic computer hardware or software have not been found to

pra note 26, at 16 & 18-19 (patent directed to “selectively tailoring information delivered to an internet user depending upon the particular needs of the user” satisfied step two because the “patent describes an idea and solution for customized web page content” which was necessarily rooted in computer technology and did not pre-empt all applications of providing customized web pages).

¹²³ *Fairfield Indus., Inc. v. Wireless Seismic, Inc.*, No. 4:14-cv-02972 (S.D. Tex.), Mem. and Order, Dec. 23, 2014, ECF No. 100.

¹²⁴ *Id.* at 2.

¹²⁵ *Id.* at 9.

¹²⁶ *Id.*

¹²⁷ *Id.* at 10.

¹²⁸ *Id.*

¹²⁹ *Id.* at 12.

¹³⁰ *See Alice*, 134 S. Ct. at 2357; *OpenTV*, *supra* note 38, at 12 (“[M]ere use of general purpose computers and/or the internet does not suffice.”); *see, e.g., TLI Commc’ns*, *supra* note 9, at 22 (the fact that a server could “carry out automatic archiving” and “analyze classification information” did not transform a generic computer into an “intelligent server” because the server performed routine and conventional computer functions); *IpLearn*, *supra* note 60, at 14 & 14 n.10

provide the required “something more.”¹³¹ Similarly, improving a technological field does not include using a generic computer to do more efficiently what could otherwise be done by hand.¹³² Further, where nothing in the claims or specification provides any detail about how the computer functions are performed, courts may presume those functions can be performed by any generic computer with conventional programming.¹³³

(claims’ recitation of only computers, networks, the Internet, and an undescribed computer program code was generic).

¹³¹ See, e.g., *Content Extraction*, 776 F.3d at 1348-49 (steps of “extracting and detecting specific data fields, repeating some steps, and storing data as images or text” merely describe “generic optical character recognition technology”); *Motorola Mobility*, *supra* note 22, at 17 (“specific hardware elements such as a ‘remote computer system,’ ‘user station,’ and ‘communications network,’” were generic); *TLI Commc’ns*, *supra* note 9, at 28 (disclosure of a “server” and a “telephone unit” did not confer patentability because “disclosure of structure and concrete components is insufficient when those disclosures are generic and do not operate as meaningful limitations on the boundaries of the patent”); *Vehicle Intelligence*, *supra* note 61, at 10-12 (components of the “expert system” such as “a time-sharing allocation of at least one processor” covered generic hardware and software); *CertusView Techs.*, *supra* note 10, at 42 & 44 (recitation of a “communication interface,” “display device,” “memory to store processor executable instructions” and a “processing unit” were generic computer components); *Open Text*, *supra* note 66, at 8-9 (a “server,” a “workgroup creator,” “security controls” and a “web browser” were not used in any non-routine and unconventional way); *Cloud Satchel*, *supra* note 48, at 16 (recitation of specific hardware elements such as a “processor,” a “solid state memory” and a “transceiver” did not confer sufficient specificity); *Intellectual Ventures*, *supra* note 26, at 14 (computer and components (central processor) described in the specification and the database were generic); *Wolf*, *supra* note 65, at 21 (“[T]he dependent claims recite generic technological categories such as a ‘computer network server,’ a ‘web-site server,’ and a ‘digital camera.’”); *Walker Digital*, *supra* note 5, at 22 (claim applied the method “by way of a generic computer with standard computer components including a ‘memory,’ a ‘processor,’ and ‘a communication port.’ None of these components converts a general computer into a specialized computer.”); *DietGoal*, *supra* note 57, at 27 (computer components such as a user interface, database or visual display were generic).

¹³² See *SiRF Tech., Inc. v. Int’l Trade Comm’n*, 601 F.3d 1319, 1333, 94 U.S.P.Q.2d 1607 (Fed. Cir. 2010) (79 PTCJ 755, 4/16/10); *Money Suite Co.*, *supra* note 10, at 11 (“Using computers to apply commonplace ideas—such as generating price quotes—is not a patentable invention, even if the computer is able to handle volumes and complexity at levels impossible for humans.”).

¹³³ See, e.g., *Triplay*, *supra* note 63, at 31 (“Claim 12 does not purport to limit itself to a specific way of converting a message from one layout to another—it simply covers the act of ‘converting’ messages, based on certain criteria relating to communication or display capabilities of the originating or destination devices or on the relevant communication media.”); *Hewlett Packard*, *supra* note 67, at 11 (“Clearly, unspecified data structures are generic computing components unless defined by further details.”); *TLI Commc’ns*, *supra* note 9, at 34 (the “means for allocating” limitation was “insufficient to qualify as an inventive concept because the []295 patent is silent as to how the ‘means for allocating’ is carried out”); *Vehicle Intelligence*, *supra* note 61, at 12-15 (limitations that did not provide sufficient detail about how certain processes were to be carried out did not meaningfully limit the claim); *E. Coast Sheet Metal*, *supra* note 133, at 24 (“Because EastCoast does not identify any way in which computer-generated architectural blueprints are superior to hand-drawn blueprints, the

Even where claims include machines that are not computers, if the court finds those machines to be generic, that may be insufficient to narrow a claim’s scope.¹³⁴ And courts have rejected arguments that claims include “real-world steps” if those steps do not narrow the scope of the claims.¹³⁵

Two categories of cases warrant specific attention, though these categories may overlap. First, claim limitations that are well-understood or conventional in a specific field have been found not sufficiently narrow abstract claims. Similarly, claims that recite conventional computer functions that could be carried out by any generic computer have also been found to fail.

1. Adding a Specific Limitation That Is Well-Understood, Routine and Conventional in the Field¹³⁶

In *CMG Financial Services, Inc. v. Pacific Trust Bank, F.S.B.*, the court found a patent that allowed a mortgagee to pay down a mortgage early and to borrow funds as needed to reduce the overall interest was directed to an abstract idea. At *Alice* step two, the plain-

court can only conclude that the advantage of the claimed invention is increased speed resulting from the normal operation of a generic computer.”); *Loyalty Conversion*, *supra* note 24, at 13-14 (the dependent claims were “mainly functional in nature, and nothing in the claims or the specification reveals how any of the functions are performed or suggests why any of those functions are not within the routine capacity of a generic computer with conventional programming”). *But see Synopsys*, *supra* note 93, at 9 & 9 n.6 (the patents’ disclosure of “64 columns of drawings, explanation, and examples and approximately 200 pages of computer code for a program implementing the claimed invention,” did not save the claims from being found “well-understood, routine, conventional activity, previously engaged in by those in the field”).

¹³⁴ See, e.g., *Triplay*, *supra* note 63, at 29 (the fact that messages must be electronic messages that are sent and received by electronic “communication devices” did not sufficiently limit the scope of the claim); *TLI Commc’ns*, *supra* note 9, at 26 (the claimed telephone unit and server, and the fact that the computer could receive data from the telephone unit did not constitute an inventive concept because both operated in a “conventional and generic manner”); *Wolf*, *supra* note 65, at 21 (“The most specific piece of technology recited by the claims is still generic: a ‘component worn by the sporting event participant . . . [that] trigger[s] a camera to take a photograph’ by interfacing with ‘a sensor’ and can include ‘a passive component,’ a ‘bar code,’ an ‘inductive circuit,’ or an ‘active component.’ . . . [T]hese recitations of generic technology are insufficient to confer patent eligibility.”).

¹³⁵ See, e.g., *CertusView Techs.*, *supra* note 10, at 57-58 (citing *DietGoal Innovations LLC v. Taco Mayo Franchise Sys., Inc.*, No. 5:13-cv-00372-F (W.D. Okla.), Order, Dec. 3, 2014, ECF No. 141).

¹³⁶ Sometimes, courts refer to this as adding pre- or post-solution activity to an abstract claim. See, e.g., *Ultramercial*, 772 F.3d at 716 (“[T]hat the system is active, rather than passive, and restricts public access also represents only insignificant ‘[pre]-solution activity,’ which is also not sufficient to transform an otherwise patent-ineligible abstract idea into patent-eligible subject matter.”); *DietGoal*, *supra* note 57, at 25-26 (“The addition of a computer to perform calculations, retrieve data, and visually display images is nothing more than ‘post-solution activity’ that cannot render the process patentable.”); *Hemopet*, *supra* note 58, at 15 (the step directing the practitioner to create, develop or formulate a nutritional diet for a cat or dog based on previous electronic data collection and analysis is insignificant post-solution activity).

tiff argued that the patent improved the technological field because:

[T]he claimed methods and systems provide for constantly monitoring the balances in the different parts of the integrated account and readjusting such balances according to an algorithm through specifically calculated transfers of funds between the two parts of the integrated account, thereby solving practical problems by preventing failed transactions and unnecessary interest expenses.¹³⁷

The court disagreed, finding that the patent merely claimed the “deposit, transfer, and withdrawal of funds to make account balance adjustments, the computation of interest, and calculation of interest savings.”¹³⁸ According to the court, these are routine, conventional banking activities well known in the industry.¹³⁹

In *Tuxis Technologies, LLC v. Amazon.com, Inc.*, the court found that a patent directed to methods of upselling was abstract at *Alice* step one.¹⁴⁰ At step two, addressing pre-emption concerns, the plaintiff highlighted 12 large classes of previously known upselling techniques that were excluded by the claims’ limitations and therefore available to the public.¹⁴¹ Upon closer examination, however, the court found that these limitations were insufficient because the claim permitted the general concept of upselling to be patented, while reserving for the public only six narrow methods of upselling.¹⁴² The claim itself required “nothing more than suggesting an additional good or service, in real time over an electronic communications device, based on certain information obtained about the customer and the initial purchase [and s]hrewd sales representatives have long made their living off of this basic practice.”¹⁴³

2. Adding a Generic Computer Operating in a Conventional Manner

In *Ultramercial, Inc. v. Hulu, LLC*, after finding the patent claims directed to the abstract idea that one can use an advertisement as exchange or currency, at *Alice* step two, the court found the limitations insufficient to transform the abstract idea. Most of the claim elements comprised “the abstract concept of offering media con-

tent in exchange for viewing an advertisement.”¹⁴⁴ The court found that adding such steps as “updating an activity log, requiring a request from the consumer to view the ad, restrictions on public access, and use of the Internet,” merely instructed “the practitioner to implement the abstract idea with routine, conventional activity.”¹⁴⁵ The court further found that the claims failed the machine-or-transformation test because the claims were not “tied to any particular novel machine or apparatus, only a general purpose computer . . . [and] the Internet is not sufficient to save the patent under the machine prong of the machine-or-transformation test.”¹⁴⁶

In *Planet Bingo, LLC v. VKGS LLC*, the Federal Circuit held that the claims failed *Alice* step one because they were directed to the abstract concept of managing the game of bingo.¹⁴⁷ At step two, the court noted that the claims required “‘a computer with a central processing unit,’ ‘a memory,’ ‘an input and output terminal,’ ‘a printer,’ in some cases ‘a video screen,’ and ‘a program . . . enabling’ the steps of managing a game of bingo.”¹⁴⁸ The court found these limitations to be nothing more than “generic computer implementation of the covered abstract idea.”¹⁴⁹ Further, the fact that the invention included “complex computer code with three distinct subparts” was insufficient to add an inventive concept, because the “accounting program,” “ticket program” and “verification program” identified in plaintiff’s motion briefs did not appear in the patent claims.¹⁵⁰ Instead, the claims only recited “the generic functions of storing, retrieving and verifying a chosen set of bingo numbers against a winning set of bingo numbers.”¹⁵¹ Accordingly, the claims were invalid.

Like *Planet Bingo*, many cases have found at *Alice* step two that limitations relating to electronic book-keeping and organizing, storing, or manipulating data or documents are conventional computer tasks that can be performed on any generic computer.¹⁵²

¹³⁷ *CMG*, *supra* note 33, at 28.

¹³⁸ *Id.*

¹³⁹ *Id.*

¹⁴⁰ *Tuxis Techs.*, *supra* note 36, at 4.

¹⁴¹ *Id.* at 6-7.

¹⁴² *Id.* at 7.

¹⁴³ *Id.* at 7-8; *see also Priceplay.com*, *supra* note 23, at 7 (limitations that added “an auction and a competitive activity to a sales transaction is nothing more than the addition of ‘well-understood, routine, conventional activity’”); *Vehicle Intelligence*, *supra* note 61, at 15 (the claim did not “require that the various ‘[equipment] modules’ be ‘utilized’ in any particular way and, basing impairment determinations on information about the operation of equipment is a conventional step of impairment testing”); *Money Suite Co.*, *supra* note 10, at 7 (finding that the use of “front end network gateways to allow users to interface with remote servers in order to generate a price quote for financial products” had been used in the industry for many years); *Morsa*, *supra* note 9, at 11 & 14-15 (claims directed to targeted advertising failed step two because the limitations were “conventional steps, specified at a high level of generality”); *Hemopet*, *supra* note 58, at 6 & 14 (claims directed to “analyzing and determining a nutritional diet for dogs” failed step two because the computers involved performed basic functions of a computer, which functions were “previously engaged in by those in the field”).

¹⁴⁴ *Ultramercial*, 772 F.3d at 715-16.

¹⁴⁵ *Id.*

¹⁴⁶ *Id.* at 716.

¹⁴⁷ *Planet Bingo*, 576 F. App’x at 1006.

¹⁴⁸ *Id.* at 1008.

¹⁴⁹ *Id.*

¹⁵⁰ *Id.* at 1008-09.

¹⁵¹ *Id.* at 1009; *see also Money Suite Co.*, *supra* note 10, at 9-10 (“[t]he availability of other possible computer-implemented methods . . . does not assuage fears of blocking further innovation” because use of a front-end network gateway was not sufficiently limited).

¹⁵² *See, e.g., Shortridge*, *supra* note 11, at 19; *Clear with Computers*, *supra* note 42, at 8; *Essociate*, *supra* note 28, at 11; *TLI Commc’ns*, *supra* note 9, at 23-25; *CertusView Techs.*, *supra* note 10, at 57; *Tenon & Groove*, *supra* note 29, at 15; *Bascom*, *supra* note 47, at 18; *MyMedicalRecords*, *supra* note 52, at 7; *Cloud Satchel*, *supra* note 48, at 17; *Intellectual Ventures*, *supra* note 26, at 12; *Joao Bock*, *supra* note 32, at 15; *Enfish*, *supra* note 9, at 13 & 16; *Loyalty Conversion*, *supra* note 24, at 20; *DietGoal*, *supra* note 57, at 24; *see also Enfish*, *supra* note 9, at 14-18 (recitation of rows and columns, using labels to locate information, creating columns from information stored in rows, using a single row to define the type of information contained in each column, and storing and accessing data are conventional to the purpose of tables); *id.* at 18 (“[e]xtract[ing] key phrases or words from the applicable cells in the logical table [and] [s]tor[ing] the extracted key phrases or words in an index, which is itself stored in the logical table [and] [i]nclud[ing], in text cells of the logical table, pointers to the corresponding entries in the index, and includ[ing], in the index, pointers to the text cells” are conventional to indexing).

3. Arguments That Link the Use of an Abstract Idea to a Particular Technological Environment/Field of Use

Finally, litigants trying to save a patent from a Section 101 challenge must walk a careful line between arguments that a claim is directed to improving the computer itself or a specific technological field, and arguments that merely limit an otherwise abstract idea to a particular technological environment or field of use. Claims directed to a technological field drafted at a high level of generality have not been successful. For example, courts have found arguments that claims have computer-based limitations are often merely arguments that the claim is limited to a particular technological field.¹⁵³ Arguments that claims generally involve the Internet or online activity have also failed.¹⁵⁴ Similarly, courts have been unpersuaded by arguments that oth-

¹⁵³ See, e.g., *Content Extraction*, 776 F.3d at 1348 (“At most, CET’s claims attempt to limit the abstract idea of recognizing and storing information from hard copy documents using a scanner and a computer to a particular technological environment.”); *Motorola Mobility*, *supra* note 22, at 18 (“[L]imiting the invention to the field of computerized software updates does not make the concept patentable.”); *Bascom*, *supra* note 47, at 19 (plaintiff’s argument that computer-based limitations exist merely limited the use to a particular technological environment); *Cogent Med.*, *supra* note 46, at 10 (“[N]one of the hardware recited by the system [or computer component] claims offers a meaningful limitation beyond generally linking the use of the [method] to a particular technological environment, that is, implementation via computers.”); *Alfresco Software*, *supra* note 37, at 8 (argument that the asserted claims “contain limitations tying them to specific ways of using computers” only limited the use of the abstract idea to a particular technological environment).

¹⁵⁴ See, e.g., *Ultramercial*, 772 F.3d at 716 (“Narrowing the abstract idea of using advertising as a currency to the Internet

erwise abstract claims are limited by their applications to fields such as real estate,¹⁵⁵ telephony,¹⁵⁶ sporting events,¹⁵⁷ excavation activities,¹⁵⁸ IT help desks,¹⁵⁹ airlines,¹⁶⁰ “SPAM email”¹⁶¹ and diet preparation.¹⁶²

III. Conclusion

A review of these cases shows that how a court will decide the eligibility of a patent under Section 101 will often depend on how easily an abstract concept can be articulated and how specific other limitations of the claims are. Further, as the effects of *Alice* become clearer, patent drafters will likely adjust their practices to avoid some of the pitfalls these cases describe.

Over time, the number of patents that fall under a Section 101 challenge in litigation may diminish. For now, the full effect of *Alice* continues to unfold.

is an ‘attempt[] to limit the use’ of the abstract idea ‘to a particular technological environment,’ which is insufficient to save a claim.”); *buySAFE*, 765 F.3d at 1355 (argument that third party guarantee of a sales transaction patent adds an inventive concept because the transactions being guaranteed are themselves online transactions is an “‘attempt[] to limit the use’ of the abstract guarantee idea ‘to a particular technological environment’ ”); *Priceplay.com*, *supra* note 23, at 8 (“[t]he fact that the claims require the communication to be over the Internet” only limits the use of the idea to a particular technological environment).

¹⁵⁵ See *Data Distribution Techs.*, *supra* note 3, at 3 & 37.

¹⁵⁶ See *Comcast*, *supra* note 62, at 6 & 8.

¹⁵⁷ *Wolf*, *supra* note 65, at 25.

¹⁵⁸ *CertusView Techs.*, *supra* note 10, at 39-40.

¹⁵⁹ *Hewlett Packard*, *supra* note 67, at 9.

¹⁶⁰ *Tenon & Groove*, *supra* note 29, at 13-14.

¹⁶¹ *Symantec*, *supra* note 9, at 23.

¹⁶² See *Hemopet*, *supra* note 58, at 15.