MULTIPLE INTELLECTUAL PROPERTY DAMAGES COMPLICATIONS AS IN *APPLE V. SAMSUNG*? TRY USING EXCEL

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I. INTRODUCTION

In times past when intellectual property legislation was being developed, the two forms of innovation that fell under purview of patent protection were perceived as distinct entities. Inventions covered by utility patents—such as the telegraph—and designs covered by design patents—such as belt buckles and fabric patterns—were treated as separate things, even though both forms of protection were designated as patents. As a consequence of the separate legislative paths of the applicable laws, allowable damages were also developed separately. For example, in one 1887 case, design patent infringement damages were essentially negligible because the defendant made no profit on carpets incorporating the infringing design.[1] As a result, Congress, concerned about design patents becoming passé in the face of a fifty percent decline in Patent Office receipts,[2] amended the law to establish a minimum damages award of "not less than $250," a figure that stands to this day for design patents.[3]

Recent innovations—both technical and legal—have melded seemingly disparate forms of innovation within single products. An early example combining utility and design patents is discussed in *Catalina Lighting, Inc. v. Lamps Plus, Inc.*[4] More recently, and of far greater importance, is *Apple v. Samsung*,[5] which involved damages claims for three forms of intellectual property—utility patents, design patents, and trade dress in various combinations for twenty-eight Apple smartphone and tablet products. The initial damages award received great attention not

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1. Dobson v. Dornan, 118 U.S. 10, 17 (1886).

2. H.R. Rep No. 49-1966 at 1 (1886), reprinted in 18 Cong. Rec. 834 (1887).

3. 35 U.S.C. § 289(2) (2013); V.L. Otero, *How Much Is Really at Stake? Damages Statutes Collide in Multiple-IP Litigation*, 96 J. PAT. & TRADEMARK OFF. SOC'Y 346, 349–50 (2013).

4. 295 F.3d 1277 (Fed. Cir. 2002) (holding that the accused product infringed both a utility patent and a design patent).

5. Apple Inc. v. Samsung Elecs. Co., Ltd., 2014 U.S. Dist. LEXIS 29721 (N.D. Cal. Mar. 6, 2014).

only for the size of the award, nearly $1 billion,[6] but for the subsequent voidance of more than $450 million of that award by the courts on the belief that the jury erred in the award calculations.[7] The erred calculation issue arose because the damages calculations for each of the three forms of intellectual property were considered distinct, partly overlapping, and partly in conflict. For example, design patent law allows damages to be based on either lost profits, a reasonable royalty, or the infringer's profits, but damages may be based on only one of these theories.[8] Thus, any design patent damages that are awarded by combining any of the three permissible bases for damages would typically constitute an error. In short, double recovery is disallowed. In the case of *Apple*,[9] the jury provided no information on how it calculated the aggregate damages, and thus the courts struck the damages believed to be in error and called for new calculations of damages.[10]

The broader legal problem is the expectation that more cases alleging infringement on multiple intellectual property theories will materialize in the future as a consequence of an increase in complex products that mesh multiple forms of intellectual property protection and corporations' more assertive intellectual property policies. The prospect of ongoing damages calculation errors seems to be magnified as well, contributing to the heightened costs and bottleneck of infringement litigation. Jury errors in calculating damages seem assured when jurists are required to make numerous damages calculations involving a high number of products and multiple forms of intellectual property protection, such as in *Apple*,[11] where jurists had to determine over seventy separate damages calculations across twenty-eight products and three forms of intellectual property.[12] In that case, there were 109 pages of jury instructions, of which approximately fifteen pages addressed damages calculations alone.[13] When the primitive,

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6. Amended Verdict Form, at 15–16, Apple, Inc. v. Samsung Elecs. Co., Ltd., 2014 U.S. Dist. LEXIS 119963, No. 11-CV-01846-LHK (N.D. Cal. Aug. 24, 2012).

7. Order Re: Damages, at 26, Apple, Inc. v. Samsung Elecs. Co., Ltd., 926 F. Supp. 2d 1100 (N.D. Cal. March 1, 2013).

8. *See infra* Section II.B.

9. *See* Apple, Inc. v. Samsung Elecs. Co., Ltd., 2014 U.S. Dist. LEXIS 29721 (N.D. Cal. Mar. 6, 2014).

10. *See* Order Re: Damages, at 26, Apple, Inc. v. Samsung Elecs. Co., Ltd., 926 F. Supp. 2d 1100 (N.D. Cal. March 1, 2013); *see also infra* Section III.C.

11. *See Apple*, 2014 U.S. Dist. LEXIS 29721.

12. *See* Amended Verdict Form, at 12–16, Apple, Inc. v. Samsung Elecs. Co., Ltd., 2014 U.S. Dist. LEXIS 29721, No. 11-CV-01846-LHK (N.D. Cal. Aug. 24, 2012).

13. Final Jury Instructions, Apple, Inc. v. Samsung Elecs. Co., Ltd., 2014 U.S. Dist. LEXIS 29721, No. 11-CV-01846-LHK (N.D. Cal. Aug. 21, 2012).

or even non-existent, technical support allowed to jurors is taken into account—such as the *Apple* award calculations, which consisted of handwritten figures summed, using only paper and a hand calculator,[14] and had figures crossed out in places—it would seem that significant errors are all but impossible to avoid. This sets the stage for future protracted and costly infringement struggles—a most unwelcome development.

Suggestions for improvements include that of one scholar who proposed that jurors be asked to provide an allocation of damages.[15] However, that further burdens jurors who are likely already overtaxed under the current system. Further, such a proposal does nothing to mitigate calculation errors. Rather, it merely gives the court a better understanding of whether errors were made. While this suggestion would be an improvement to the current system, it is not a remedy. In this article, I propose two applications of Excel, the popular spreadsheet program created by Microsoft, which would alleviate many of the problems encountered in *Apple*. The first, an ex post method, uses an analytical approach to determine the apportionment of damages across the three major forms of intellectual property protection. This would help the courts determine more specifically if the damages systems were improperly applied. For example, in a matter of design patent infringement, the program could easily determine if the jury improperly combined any of the total profit, lost profit, or reasonable royalty damages theories in its damages award. The second approach, an ex ante method, would provide a pre-programmed spreadsheet for the jury's use. The spreadsheet, depending on how it is programmed, could alert the jury to the likelihood of an error when an individual damages estimate is entered. Alternatively, the spreadsheet could help prevent the jury from entering damages awards that would violate the court's instructions.

The formulations required to pre-program the spreadsheet are straightforward, allowing for easy comprehension by courts and juries alike. There would be no "black boxes" requiring complete faith in the programmers, nor would unusual skills be required by the courts to develop the spreadsheets. As a further aide, some sample Excel programs are included in the footnotes. I believe adopting these simple approaches by the courts will greatly reduce the errors committed in multiple intellectual property damages trials, while limiting the substantial burden on jurors.

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14. *See* Amended Verdict Form, at 15–16, Apple, Inc. v. Samsung Elecs. Co., Ltd., 2014 U.S. Dist. LEXIS 29721, No. 11-CV-01846-LHK (N.D. Cal. Aug. 24, 2012).

15. Otero, *supra* note 3, at 369.

There are alternate methods of providing technological help to juries calculating complicated damages awards without harming the integrity of the process. For instance, macros could be programmed within Excel, as opposed to the spreadsheet formulations described in this article, or a separate, dedicated program could be created altogether. The purpose of this article is merely to point out that providing such a tool to aid juries in this complicated task is a simple, straightforward, and easy to police project that courts across the country should implement.

Section II of this article sets out the laws for damages compilations across utility and design patents, copyrights, trademarks, and trade dress. Section III then describes the damages computation aspects of *Apple*[16] and subsequent court actions. Section IV provides an exemplary application of Excel using the damages data from *Apple*,[17] thus showing how the suggested approach can determine whether jury awards were calculated properly according to law and the court's instructions and how a jury using such a spreadsheet can be alerted to problems as they calculate damages. Section V provides a brief conclusion, identifying additional Excel applications that might apply in other instances.

II. ALLOWABLE DAMAGES UNDER INTELLECTUAL PROPERTY LEGISLATION

Because this article focuses on damages awards made by juries, no attention is given to allowable actions by the court to enhance awards, such as the granting of treble damages under certain conditions. This article also focuses on current law and interpretation and does not address historical practices.

A. Utility Patents

Damages allowances, as set out in 35 U.S.C. § 284, "shall . . . [be] adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer . . . ."[18]

This section of the U.S. Code is generally interpreted to allow for two forms of damages to be considered, lost profits and reasonable royalties.

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16. *See* Apple Inc. v. Samsung Elecs. Co., Ltd., 2014 U.S. Dist. LEXIS 29721, (N.D. Cal. Mar. 6, 2014).

17. *Id*.

18. 35 U.S.C. § 284 (2013).

Both approaches are intended to "fully compensate" the patentee for lost profits consequent of the infringement.[19]

> [Damages] constitute ["]the difference between his pecuniary condition after the infringement, and what his condition would have been if the infringement had not occurred.["] The question to be asked in determining damages is ["]how much had the patent holder and licensee suffered by the infringement. And that question [is] primarily: had the Infringer not infringed, what would the Patent Holder-Licensee have made?["][20]

The courts have set out a procedure for estimating damages in the *Panduit* factors.[21] As is addressed by these factors, lost profits can be based on lost or diverted sales, market price declines, failures to achieve projected sales and profits, and profits which would have been earned but for the infringement.[22]

A reasonable royalty damages calculation can, under some circumstances, result in a greater amount than that of lost profits. Examples of such an outcome might include a scenario in which no sales had been made at the time of trial, or one in which the patentee licensed, rather than sold, the product or technology in question. The courts have established general procedures for reasonable royalty calculations in the *Georgia-Pacific* factors.[23] Notably, Factor 13 allows for an apportionment of the royalty based on the relationship of the patented invention to the entire product.[24]

It should be further noted that the language of 35 U.S.C. § 284, even in the absence of the word "or," precludes an award of both lost profits and a reasonable royalty.[25] That is, the patentee is to be compensated for losses associated with the infringement, as would occur if a reasonable royalty were added to the lost profit calculation. Any punitive damages are added by the court. "[T]he court may increase the damages up to three times the amount found or assessed."[26] The court may act only if the infringement is

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19. *See id.*

20. Aro Manufacturing Co. v. Convertible Top Replacement Co., 377 U.S. 476, 507 (1964) (citations omitted).

21. Panduit Corporation v. Stahlin Bros. Fibre Works, 575 F.2d 1152, 1156 (6th Cir. 1978).

22. *Id.*

23. Georgia-Pacific Corp. v. U.S. Plywood Corp., 318 F. Supp. 1116, 1119–20 (S.D.N.Y. 1970); *see also* W. Lesser, *The 8% Solution – Or How Good Are the Calculation Economics by the Federal Circuit in Lucent V. Microsoft?*, J. MARSHALL REV. INTELL. PROP. L., 9(4) 797, 830 (2010).

24. *Georgia-Pacific*, 318 F. Supp. at 1120. ("13. The portion of the realizable profit that should be credited to the invention as distinguished from non-patented elements, the manufacturing process, business risks, or significant features or improvements added by the infringer.").

25. *See* 35 U.S.C. § 284 (2013).

26. *Id.*

willful or in bad faith.[27] The Federal Circuit articulated the willfulness standard in *In re Seagate*.[28]

> *Seagate* established a two-pronged test for establishing the requisite recklessness. Thus, to establish willful infringement, "a patentee must show by clear and convincing evidence that the infringer acted despite an objectively high likelihood that its actions constituted infringement of a valid patent." Once the "threshold objective standard is satisfied, the patentee must also demonstrate that this objectively-defined risk . . . was either known or so obvious that it should have been known to the accused infringer."[29]

Willfulness is a matter of fact to be decided by a jury, while objective willfulness is a question for the court.

In her instructions to the *Apple* jury, Judge Koh specified, "[Y]ou must determine which profits derive from the patented invention that Samsung sells, and not from other features of the infringing products."[30] That is, the jury was instructed to apportion the lost profits according to the infringing product's features derived from the patented invention, despite the fact that the *Panduit* factors[31] do not discuss apportionment when they set out how to compute lost profits.

B. *Design Patents*

In addition to the damages allowances for utility patents under 35 U.S.C. § 284, i.e., lost profits and reasonable royalty, design patent holders have an additional basis for damages, as described in 35 U.S.C. § 289: an infringer is "[l]iable to the owner to the extent of his total profit, but not less than $250 . . . ."[32] Section 289 continues by clarifying that damages can be based on § 284 or § 289, but not both, when it states, "Nothing in this section shall prevent, lessen, or impeach any other remedy which an owner of an infringed patent has under the provisions of this title, but he shall not

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27. Beatrice Foods Co. v. New England Printing and Lithographing Co., 923 F.2d 1576, 1578 (Fed. Cir. 1991). ("Although the statute does not state the basis upon which a district court may increase damages, 'it is well settled that enhancement of damages must be premised on willful infringement or bad faith.'") (quoting Yarway Corp. v. Eur-Control USA, Inc., 775 F.2d 268, 277 (Fed. Cir. 1985).

28. *In re* Seagate Tech., LLC, 497 F.3d 1360, 1371 (Fed. Cir. 2007).

29. Bard Peripheral Vascular, Inc. v. W.L. Gore & Assocs., Inc., 682 F.3d 1003, 1005 (Fed. Cir. 2012) (quoting *In re* Seagate Tech., LLC, 497 F.3d 1360, 1371 (Fed. Cir. 2007)).

30. Final Jury Instructions, at 50, Apple, Inc. v. Samsung Elecs. Co., Ltd., No. 12-CV-00630-LHK.

31. Panduit Corporation v. Stahlin Bros. Fibre Works, 575 F.2d 1152, 1156 (6th Cir. 1978).

32. 35 U.S.C. § 289(2) (2013).

twice recover the profit made from the infringement."[33]   The Supreme Court in *Aro Manufacturing Co. v. Convertible Top Replacement Co.* clarified ambiguous language by stating that an infringer's total profits were no longer allowable for damage calculations for utility patents.[34]

Arguably, the whole of an infringer's profits is a high price to be paid when the infringed design constitutes only a small part of the finished product, as was the case for the smartphones and tablets at issue in *Apple*.[35] That position has merit but two caveats. One is that § 289, unlike § 284, does not allow for the trebling of damages. Therefore, if there are any punitive damages, damages claims in excess of that required to make the patent holder whole must exceed a strict accounting of the value accorded to the complete product from the infringed design. The second point is that the jury may, but is not obliged to, award the total of the profits, rather than selecting some presumable fair or reasonable profits. That choice would be distinct from the formal apportionment process identified under § 284.[36] Notably, in her instructions to the *Apple* jury, Judge Koh makes no mention of a partial profit award.[37]

C. Trademarks and Trade Dress

Trademarks provide a means to "identify and distinguish . . . goods, including a unique product, from those manufactured or sold by others and to indicate the source of the goods, even if that source is unknown."[38] Trademarks can be used to "protect words, names, symbols, sounds, or colors that distinguish [particular] goods and services."[39]   Technically, marks used to distinguish services are known as service marks, but the term trademark, as used here, applies to both.[40]

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33. 35 U.S.C. § 289 (2013); *see also* Braun Inc. v. Dynamics Corp. of America, 975 F.2d 815, 824. (Fed. Cir, Sept. 9, 1992). ("35 U.S.C. § 289 explicitly precludes a patentee from twice recovering the profits made from the infringement." (internal quotations omitted)).

34. 377 U.S. 476, 507 ("But the present statutory rule is that only 'damages' may be recovered. These have been defined by this Court as 'compensation for the pecuniary loss he (the patentee) has suffered from the infringement, without regard to the question whether the defendant has gained or lost by his unlawful acts.'")

35. Apple Inc. v. Samsung Elecs. Co., Ltd., 2014 U.S. Dist. LEXIS 29721, at *1 (N.D. Cal. Mar. 6, 2014).

36. *See supra* Section II.A.

37. Final Jury Instructions at 72, Apple, Inc. v. Samsung Elecs. Co., Ltd., No. 5:11-CV-01846-LHK, at *72 (N.D. Cal. Aug. 21, 2012).

38. 15 U.S.C. § 1127.

39. Glossary,   UNITED   STATES   PATENT   AND   TRADEMARK   OFFICE, http://www.uspto.gov/main/glossary/#trademark (last visited Oct. 31, 2015).

40. Glossary,   UNITED   STATES   PATENT   AND   TRADEMARK   OFFICE, http://www.uspto.gov/main/glossary/#servicemark (last visited Oct. 31, 2015).

Trade dress, as defined by the Patent and Trademark Office:

> [c]onstitutes a 'symbol' or 'device' within the meaning of §2 of the Trademark Act, 15 U.S.C. §1052. Trade dress originally included only the packaging or 'dressing' of a product, but in recent years has been expanded to encompass the design of a product. It is usually defined as the 'total image and overall appearance' of a product, or the totality of the elements, and 'may include features such as size, shape, color or color combinations, texture, graphics.'[41]

Simply stated, trade dress is typically a three dimensional version of a trademark, and much of trademark law equally applies to trade dress. Because trade dress may be used to protect a product shape, there can be some overlap with design patents.

With regards to damages, in instances of a

> [v]iolation of any right of the registrant of a mark registered in the Patent and Trademark Office, a violation under section 1125(a) or (d) of this title, or a willful violation under section 1125(c) of this title, . . . the plaintiff shall be entitled . . . to recover (1) defendant's profits, (2) any damages sustained by the plaintiff, and (3) the costs of the action.[42]

This phrasing suggests that plaintiffs are entitled to awards in excess of defendant's profits. In any case, damages awards continue to be limited by the general prohibition of double recoveries.[43]

Section 1125 is entitled "False Designations of Origin, False Descriptions, and Dilution Forbidden," indicating that § 1117 damages are available when there is some form of 'bad faith' by the infringer involved.[44] Monetary damages for violations of § 1125(c)—dilution, for example—are allowed only when there is a "willful violation."[45] In other cases, only injunctive relief is permitted.[46]

Section 1125(a) applies to instances where "any word, term, name, symbol, or device, or any combination thereof" is "likely to cause confusion, or to cause mistake, or to deceive as to the affiliation, connection, or association of such person with another person, or as to the

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41. USPTO, Trademark Manual of Examining Procedure, § 1202.02 Registration of Trade Dress (October 2014) (citing Wal-Mart Stores, Inc. v. Samara Bros., 529 U.S. 205, 209-210 (2000)).

42. 15 U.S.C. § 1117(a) (2013).

43. Aero Products International, Inc. v. Intex Recreation Corp. 446 F.3d 1000, 1017 (Fed. Cir. 2006) ("Generally, the double recovery of damages is impermissible.") (citing Junker v. Eddings, 396 F.3d 1359 (Fed. Cir. 2005); Bowers v. Baystate Techs., Inc., 320 F.3d 1317 (Fed. Cir. 2003); Catalina Lighting, Inc v. Lamps Plus, Inc., 295 F.3d 1277 (Fed. Cir. 2002); Celeritas Techs., Ltd. v. Rockwell Int'l Corp., 150 F.3d 1354, 1362 (Fed. Cir. 1998); CPG Prods., Corp. v. Pegasus Luggage, Inc., 776 F.2d 1007, 1014 n.4 (Fed. Cir. 1985).

44. 15 U.S.C. § 1125 (2013).

45. 15 U.S.C. § 1125(c) (2013).

46. 15 U.S.C. § 1125(c)(1) (2013).

origin, sponsorship, or approval of his or her goods, services, or commercial activities by another person" or "misrepresents the nature, characteristics, qualities or geographic origin" of a product or service in commercial advertising.[47] Alternatively, under § 1125(c), infringement can be based on a use

> [l]ikely to cause dilution by blurring or dilution by tarnishment of [a] famous mark . . . arising from the similarity between a mark or trade name and a famous mark that impairs the distinctiveness of the famous mark . . . . [A] mark is famous if it is widely recognized by the general consuming public of the United States as a designation of source of the goods or services of the mark's owner.[48]

Section 1125(d), by addressing domain names associated with famous marks, provides protection against cyberpiracy.[49]

Notably, when calculating trademark damages, the burden of proof is heavy on the defendant. The plaintiff must "prove defendant's sales only; defendant must prove all elements of cost or deduction claimed."[50] The court, at its discretion, may establish damages "for any sum above the amount found as actual damages, not exceeding three times such amount."[51] The sum, however, "shall constitute compensation and not a penalty."[52] In her instructions to the *Apple* jury, Judge Koh noted that awarding damages may include actual damages and any of Samsung's profits, but "[y]ou may not, however, include in any award of profits any amount that you took into account in determining actual damages."[53]

D. Copyright

Copyright was not an issue in *Apple*,[54] but one can imagine products that combine patent and copyright principles, such as computer software. For completeness, copyright damages are included in this article as the final of the principal forms of infringeable intellectual property. No attempt is made to evaluate damages allowances for less common forms of intellectual property, such as geographical indications.

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47. 15 U.S.C. § 1125(a) (2013).

48. 15 U.S.C. § 1125(c)(1)–(2).

49. *See* 15 U.S.C. § 1125(d).

50. 15 U.S.C. § 1117(a).

51. *Id*.

52. *Id*.

53. Final Jury Instructions, at 95, Apple, Inc. v. Samsung Elecs. Co., Ltd., No. 5:11-CV-01846-LHK, (N.D. Cal. Aug. 21, 2012).

54. Apple Inc. v. Samsung Elecs. Co., Ltd., 2014 U.S. Dist. LEXIS 29721 (N.D. Cal. Mar. 6, 2014) (Final Order).

Damages for copyright infringement follow many of the patterns for patents and trademarks but with a few unique twists. Under 17 USC § 504(b), "[t]he copyright owner is entitled to recover the actual damages suffered by him or her as a result of the infringement, and any profits of the infringer that are attributable to the infringement and are not taken into account in computing the actual damages."[55] The evidentiary burden on the infringer is—similar to that of trademark law—burdensome for the infringer: "In establishing the infringer's profits, the copyright owner is required to present proof only of the infringer's gross revenue, and the infringer is required to prove his or her deductible expenses and the elements of profit attributable to factors other than the copyrighted work."[56]

Distinct from assessing damages for other forms of intellectual property, copyright statutes allow the copyright owner to elect an award of statutory damages instead of actual damages and profits. Statutory damages for an individual work are set between $750 and $30,000 at the court's discretion.[57] Additionally, "[a] plaintiff may receive a single statutory award for all infringements of any one copyrighted work from either (1) any one defendant, where that defendant is separately liable or (2) multiple defendants, where those defendants are jointly and severally liable."[58]

If the court determines the infringement was committed willfully, "the court in its discretion may increase the award of statutory damages to a sum of not more than $150,000."[59] If, however, the infringement was unintended, and the "infringer was not aware and had no reason to believe that his or her acts constituted an infringement of copyright, the court in its discretion may reduce the award of statutory damages to a sum of not less than $200."[60] Employees of nonprofit educational institutions and public broadcasting systems are granted special damages relief.[61] Additional stipulations apply to damages for the improper actions regarding domain names, including knowingly providing false contact information.[62] This article does not consider those forms of infringement.

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55. 17 USC § 504(b) (2013).

56. 17 U.S.C. § 504(b); *see supra* Section II.C.

57. 17 U.S.C. § 504(c)(1).

58. Louis Vuitton Malletier, S.A. v. Akanoc Solutions, Inc. 658 F.3d 936, 947 (9th Cir. 2011); 17 U.S.C. § 504(c)(1).

59. 17 U.S.C. § 504(c)(2).

60. *Id*.

61. *Id*.

62. 17 U.S.C. § 504(c)(3).

E. Combining Damages Remedies

The preceding damages allowances are based on infringement of individual forms of intellectual property. However many cases, such as *Apple*,[63] involve multiple types of infringement of the same product. When considering if and how the damages awards can be summed across multiple forms of intellectual property, it is important to recognize that the damages remedies are intended to compensate the rights holder for losses attributable to the infringement.[64] Any amount above that level would be punitive and must be assessed separately by the court. That is, there is no "double recovery," which occurs when the profits from the sale of an infringing product are recovered more than once.

In *Catalina Lighting*, both a utility and a design patent were infringed.[65] There, the Federal Circuit concluded,

> [The plaintiff] is entitled to damages for each infringement, but once it receives profits under § 289 for each sale, [the plaintiff] is not entitled to a further recovery from the same sale because the award of infringer profits under § 289 also constitutes "damages adequate to compensate for the infringement, but in no event less than a reasonable royalty for the use made of the invention by the infringer . . . ." [T]he recovery of infringer profits resulting from the single act of selling lamps satisfies [the plaintiff's] entitlement under § 289 and more than satisfies its entitlement under § 284.[66]

A slightly different consideration would have applied in *Catalina Lighting* had the jury awarded the design patent damages based on § 284 rather than § 289.[67] In that case, the damages awards were based on lost profits or a reasonable royalty, but not both. It is conceivable that the infringed utility patents and design patents in *Catalina Lighting* conferred distinct values to the product overall, which would allow for an additive lost profits and reasonable royalty damages award.[68] However, when combined, the damages could not exceed the total profit from the product for the infringer, as that would violate the *Catalina Lighting* prohibition against damages exceeding the total profit of an infringing product.[69] In any

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63. Apple Inc. v. Samsung Elecs. Co., Ltd., 2014 U.S. Dist. LEXIS 29721, at *1 (N.D. Cal. Mar. 6, 2014) (Final Order).

64. *See* 35 U.S.C. § 284 (addressing patents); 15 U.S.C. § 1125 (addressing trademark and trade dress); 17 U.S.C. 504(b) (addressing copyright); *see also supra* Section II.

65. Catalina Lighting, Inc. v. Lamps Plus, Inc., 295 F.3d 1277 (Fed. Cir. 2002).

66. *Id.* at 1291–92 (Fed. Cir. 2002) (citing *Contour Chair Lounge Co. v. Tru-Fit Chair, Inc.*, 648 F. Supp. 704 (E.D. Mo. 1986)); *see also* Otero, *supra* note 3, at 358.

67. *See Catalina Lighting*, 295 F.3d at 1291–92.

68. *See Catalina Lighting*, 295 F.3d at 1291–92.

69. *See id.*

case, with combined utility patent and design patent infringement, 35 U.S.C. § 284 and § 289 would be violated if both a total profit and lost profits or reasonable royalty damages awards were granted.[70]

The combination of trade dress and design patent infringement raises more complex issues, as respective damages concepts conflict. Trade dress allows concurrent awarding of damages for total profits and actual damages, so long as there is no "double counting" while design patent damages legislation does not.[71] If the jury were to award all of the defendant's total profits, then that is the maximum award that can be granted, and no additional actual damages award would be allowed.[72] However, because a partial total profit award is permitted, a total profit award would require a component involving design patent infringement and a portion involving trade dress. This is because when infringement has been found, compensation must be granted.[73] Moreover, an actual damages component may also be added if it stems from the trade dress infringement, but the actual damages component may not be added in relation to the design patent infringement if the total damages amount exceeds the total profits.

F. Conclusions

Damages allowances for the major forms of intellectual property share many commonalities. The courts may enhance damages awards under most forms of intellectual property if the infringement is determined to be willful as a matter of fact by a jury and is determined to be objectively willful by the court. The major distinction among applicable damages theories is whether to award damages based on lost profits, a reasonable royalty, or total profits. Within that distinction lies the requirement for juries to apportion damages—whether they be under a lost profits or a reasonable royalty theory—or simply to award up to the infringer's total profit. Whichever applies, a jury retains considerable discretion in determining damages.

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70. *See supra* Section II.C.

71. *See supra* Section II.B.

72. See *supra* Section II.C.

73. 15 U.S.C. 1117(a). ("When a violation of any right of the registrant of a mark registered in the Patent and Trademark Office, a violation under section 1125(a) or (d) of this title, or a willful violation under section 1125(c) of this title, shall have been established in any civil action arising under this chapter, the *plaintiff shall be entitled*, subject to the provisions of sections 1111 and 1114 of this title, and subject to the principles of equity, to recover (1) defendant's profits, (2) any damages sustained by the plaintiff, and (3) the costs of the action.") (emphasis added).

Of particular relevance to damages calculations in multi-form intellectual property cases is the option of the jury to select one single form of damages from the several options available.[74] The use of that option led to great problems in *Apple*,[75] and for the legal system in general. For cases of simultaneous utility patent and design patent infringement, a single total profits-based award is sufficient to compensate for the infringement of both forms of patents. However, if the award granted is for lost profits and/or a reasonable royalty, then the award amount could be a combination of separate damages for utility and design patent infringement.

For simultaneous design patent and trade dress infringement, the potential forms of damages awards are even greater. A total profit award could be a combination of separate awards for design patents and trade dress, up to the maximum set by the infringer's total profit. Any lost profits award would legally be associated with the trade dress damages, so long as the damages are not also included in the total profits award. The lost profit award would also be associated with the trade dress damages so long as the sum does not exceed the total profits. Alternatively, the total profits award could apply only to the design patent infringement or the trade dress infringement, with the damages award for the remaining count of infringement included in any actual damages award under the maximum set by the infringer's total profit. It is easy to appreciate why juries can err.

III. APPLE V. SAMSUNG

In 2007, Apple introduced the first smartphone, the iPhone, and became an "instant success" by selling more than 108 million units by the spring of 2011. The iPhone was preceded to market by the iPod in 2001 and followed, in 2010, by the iPad.[76] Following Samsung's entry into these markets was a series of infringement suits and counter-suits, trials, retrials, and appeals. This article, which addresses the management of jury damages estimates, focuses on federal intellectual property claims only (i.e., claims based on California statutes are excluded).[77]

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74. *See supra* Section II.F.

75. Apple Inc. v. Samsung Elecs. Co., Ltd., 2014 U.S. Dist. LEXIS 29721 (N.D. Cal. Mar. 6, 2014) (Final Order).

76. Apple Inc. v. Samsung Elecs. Co., Ltd., No. CV 11-1846, at *4 (N.D. Cal. Apr. 15, 2011).

77. Apple Inc. v. Samsung Elecs. Co., Ltd., 2014 U.S. Dist. LEXIS 29721 (N.D. Cal. Mar. 6, 2014).

A. *Apple's Infringement Suits*

In April 2011, Apple sued Samsung on charges of infringement of multiple forms of intellectual property, including seven utility patents, three design patents, seven trademarks, and three forms of trade dress.[78] Further, Apple contended the infringements were willful,[79] where such allegations were permitted, and sought treble damages.[80] Apple also sought injunctive relief to prevent further infringement.[81] Fifteen Samsung products were alleged to have to infringe some form of Apple's proffered intellectual property—fourteen smartphones and one tablet[82]—but not all of the identified Samsung products were found to infringe, as alleged by Apple.[83]

Apple's central theme of its case was that its significant goodwill with consumers was based on its reputation for innovation and Samsung's copying of Apple's intellectual property diminished that goodwill by deceiving and causing confusion among consumers, such as whether an agreement existed between Apple and Samsung.[84]

Noting that the earlier suit had not halted Samsung's "flood[ing] the market with copycat products, including at least 18 new infringing products released over the last eight months," Apple filed a second infringement suit on February 8, 2012.[85] This case alleged infringement of eight additional utility patents, four of which had been granted since the initial suit was filed.[86]

As with the first suit, Apple claimed Samsung had direct or indirect knowledge of the existence of the patents, and thus Apple sought treble damages under the allegation that the infringement was willful.[87] Apple additionally sought both a temporary and a permanent injunction.[88]

On May 7, 2012, Apple significantly reduced the scope of products to be adjudicated in the initial trial, after the scope of products had been

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78. *Apple*, CV 11-1846, at *7–25.
79. *Id.* at *26–30, *32.
80. *See supra* Section II.
81. *Apple*, CV 11-1846 at *36.
82. *Id.* at *16–17.
83. *See infra* Section III.B.
84. *Apple*, CV 11-1846 at *25, *26, *29.
85. Apple Inc. v. Samsung Elecs. Co., Ltd., No. CV 12-00630-LHK, at *2 (N.D. Cal. Feb. 8, 2012).
86. *Id.* at *4–5.
87. *Id.* at *6–12.
88. *Id.* at *12.

previously narrowed on April 30, 2012.[89] These amendments were made to "preserve [the scheduled] July 30 trial date."[90] The scope of the case was narrowed to four utility patents, five design patents, and a variety of registered and unregistered trade dress designations.[91] No trademark registrations were included in the truncated list.[92] One of the design patents (D617,334) and one utility patent (7,663,607) was subsequently dropped from the case.[93] The final list is shown in Table 1.[94] There were no comparable changes in the devices identified as being affected.

Table 1: Apple's amended identification of infringed intellectual property

Form of IP	Identifying No.	Function
Utility Patent	7,469,381 ('381 patent) claim 19	'bounce-back-effect'
	7,844,915 ('915 patent) claim 8	'pinch-to-zoom'
	7,633,607 ('607 patent) claim 8	multipoint touchscreen
	7,864,163 ('163 patent) claim 50	'double tap to zoom'
Design Patents	D618,677 (D677 patent)	outer iPhone design
	D593,087 (D087 patent)	outer iPhone design
	D604,305 (D305 patent)	graphical user interface
	D504,889 (D889 patent)	outer tablet design
Trade Dress	3,470,983 ('983 registration)	registered
	Unregistered Dress	unregistered

The damages suits continued with a motion by Apple for a preliminary injunction for the sales of the Samsung Galaxy Nexus smartphone, which allegedly infringed multiple Apple patents, although the suits focused on a single patent covering "unified search."[95] These and other subsequent

89. APPLE'S STATEMENT IDENTIFYING THE CLAIMS IT WILL ASSERT AT TRIAL, at *2, Apple, Inc. v. Samsung Elecs. Co., Ltd., 11-CV-01864-LHK (N.D. Cal. May 7, 2012) (citing JOINT CASE MANAGEMENT CONFERENCE STATEMENT, at *2, Apple, Inc. v. Samsung Elecs. Co., Ltd., 11-CV-01864-LHK (N.D. Cal. Apr. 30, 2012)).

90. *Id*. at 1

91. *Id*. at 2.

92. *Id*.

93. Amended Verdict Form, at 15–16; Apple, Inc. v. Samsung Elecs. Co., Ltd., 2014 U.S. Dist. LEXIS 29721, No. 11-CV-01846-LHK at 2–4, 6–8 (N.D. Cal. Aug. 24, 2012).

94. APPLE'S STATEMENT IDENTIFYING THE CLAIMS IT WILL ASSERT AT TRIAL, at 1, Apple, Inc. v. Samsung Elecs. Co., Ltd., No. 11-CV-01864-LHK at 2 (N.D. Cal. May 7, 2012).

95. *See* Apple, Inc. v. Samsung Elecs. Co., Ltd. 2012 U.S. Dist. LEXIS 92314 (N.D. Cal., July 3, 2012) (denying a motion to stay and suspend the preliminary injunction); Apple Inc. v. Samsung Elecs. Co., Ltd., 877 F.3d 838 (N.D. Cal., June 29, 2012) (granting a preliminary injunction); and Apple Inc. v. Samsung Elecs. Co., 695 F.3d 1370 (Fed. Cir., Oct. 11, 2012) (reversing and remanding the temporary injunction that was issued July 3, 2012).

stages, however, exceed the scope of this article, which is focused on the initial jury damages allocations.

B. Damages Estimates and Jury Award

Terry Musika, Apple's damages expert, estimated Apple's damages on the assumption that all contested intellectual property was valid and infringed.[96] His overall damages estimate was between $ 2.5 billion—Samsung's Profits and Reasonable Royalty—and $ 2.74 billion—which included Apple's lost profits, Samsung's profits and a reasonable royalty.[97] To reach that damages estimate, a staff of twenty people worked one and one half to two years at a total cost to Apple of $1.75 million.[98] For the purposes of the discussion on the calculation of damages presented in this article, Samsung's counterclaims for damages are not of issue, nor are the methods used by Musika. The methods and counterclaims were accepted at face value by the court and were used as inputs used by the jury in establishing damages.

Musika's damages estimates based on Apple's lost profits, Samsung's profits, and a reasonable royalty by product are presented in Table 2.[99]

96. Transcript of Oral Argument at 2032, Apple Inc. v. Samsung Elecs. Co. Ltd., No. 11-CV-01846-LHK (N.D. Cal. Aug. 13, 2012).

97. *Id*. at 2038.

98. *Id*. at 2051–52.

99. Apple's Proposed Redactions to Trial Exhibit PX25A1 Pursuant to the Court's Order Granting-in-Part and Denying-in-Part Motions to Seal at 4, Apple, Inc. v. Samsung Elecs. Co., Ltd., No. 11-CV-01846-LHK (N.D. Cal. Dec. 13, 2012).

Table 2: Apple's estimates of Samsung's profits, lost profits, and reasonable royalty

Product	Apple's Lost Profits	Samsung's Profits	Reasonable Royalty	Total
Captivate	$ 204,416,141.00	$ 80,875,138.00		$ 285,291,279.00
Continuum	$ 6,968,546.00	$ 38,394,243.00		$ 45,362,789.00
Druid Charge	$ 37,618,271.00	$ 106,195,729.00		$ 143,814,000.00
Epic 4G	$ 31,188,624.00	$ 306,955,837.00		$ 338,144,479.00
Exhibit			$ 2,163,641.00	$ 2,163,641.00
Fascinate	$ 47,703,423.00	$ 239,589,391.00		$ 287,292,814.00
Galaxy Ace				
Galaxy Prevail	$ 8,573,370.00	$ 142,893,684.00		$ 151,567,054.00
Galaxy (i9000)				
Galaxy S 4G	$ 13,856,419.00	$ 148,720,623.00		$ 162,577,042.00
Galaxy S II				
AT&T		$ 101,235,891.00		$ 101,235,891.00
Epic 4G Touch		$ 250,817,469.00		$ 250,817,469.00
(i9100)				
Skyrocket		$ 80,683,895.00		$ 80,683,895.00
(T-Mobile)		$ 209,479,270.00		$ 209,479,270.00
Galaxy S				
Showcase (i500)	$ 850,630.00	$ 52,878,789.00		$ 53,729,270.00
Galaxy Tab	$ 19,758,093.00		$ 2,985,072.00	$ 22,743,164.00
Galaxy Tab				
10.1 (4g LTE)		$ 23,157,629.00		$ 23,157,629.00
10.1 (WiFi)	$ 624,391.00	$ 34,468,520.00		$ 35,072,911.00
Gem	$ 4,772,044.00	$ 9,812,539.00		$ 14,584,583.00
Indulge	$ 3,997,563.00	$ 37,990,715.00		$ 41,988,278.00
Infuse 4G	$ 44,404,466.00	$ 91,228,491.00		$ 135,632,957.00
Intercept	$ 11,103,621.00		$ 4,296,259.00	$ 15,399,880.00
Mesmerize	$ 9,667,529.00	$ 108,640,214.00		$ 118,307,740.00
Nexus S 4G	$ 9,126,938.00		$ 3,463,885.00	$ 12,590,824.00
Replenish	$ 7,266,720.00		$ 6,547,080.00	$ 13,813,800.00
Transform	$ 7,846,846.00		$ 1,788,970.00	$ 9,635,816.00
Vibrant	$ 19,054,281.00	$ 176,549,189.00		$ 195,603,469.00
TOTAL	**$ 488,777,933.00**	**$ 2,240,567,255.00**	**$ 21,244,907.00**	**$ 2,750,590,095.00**

Apple's lost profits, Samsung's profits, and a reasonable royalty by product are found in Table 3.[100]

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100. *Id*. at 5.

Table 3: Apple's Estimates of Samsung's profits and reasonable royalties

Product	Samsung's Profits	Reasonable Royalty	Total
Captivate	$ 202,100,404.00		$ 202,100,404.00
Continuum	$ 40,997,793.00		$ 40,997,793.00
Druid Charge	$ 126,682,172.00		$ 126,682,172.00
Epic 4G	$ 325,452,234.00		$ 325,452,234.00
Exhibit		$ 2,163,641.00	$ 2,163,641.00
Fascinate	$ 267,735,061.00		$ 267,735,061.00
Galaxy Prevail	$ 144,668,457.00		$ 144,668,457.00
Galaxy (i9000)			
Galaxy S 4G	$ 155,204,780.00		$ 155,204,780.00
Galaxy S II			
AT&T	$ 101,235,891.00		$ 101,235,891.00
Epic 4G Touch	$ 250,817,469.00		$ 250,817,469.00
(i9100)			
Skyrocket	$ 80,683,895.00		$ 80,683,895.00
(T-Mobile)	$ 209,479,270.00		$ 209,479,270.00
Galaxy S			
Showcase (i500)	$ 53,518,267.00		$ 53,518,267.00
Galaxy Tab		$ 3,933,382.00	$ 3,933,382.00
Galaxy Tab			
10.1 (4g LTE)	$ 23,157,629.00		$ 23,157,629.00
10.1 (WiFi)	$ 34,504,887.00		$ 34,504,887.00
Gem	$ 10,188,963.00		$ 10,188,963.00
Indulge	$ 40,027,960.00		$ 40,027,960.00
Infuse 4G	$ 111,982,436.00		$ 111,982,436.00
Intercept		$ 4,484,025.00	$ 4,484,025.00
Mesmerize	$ 114,099,746.00		$ 114,099,746.00
Nexus S 4G		$ 3,656,594.00	$ 3,656,594.00
Replenish		$ 6,700,512.00	$ 6,700,512.00
Transform		$ 1,960,120.00	$ 1,960,120.00
Vibrant	$ 188,565,314.00		$ 188,565,314.00
Total	**$ 2,481,102,629.00**	**$ 22,844,274.00**	**$ 2,503,946,903.00**

Notably, only the Galaxy Ace (i9000), the S II (i9100), and the Intercept were claimed not to have caused damages at all, while six other products infringed utility patents only. Further, five products were found to have infringed all three forms of intellectual property. These distinctions are relevant for the method shown to allocate damages ex post across the three forms of property.[101]

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101. *See infra* Section IV.B.

The jury decided on whether the various products infringed the multiple forms of intellectual property, as shown in Table 4.[102] Table 4 indicates the findings as related to Samsung Electronics, the principal defendant. These findings of willfulness differed slightly with respect to Samsung's co-defendants, but such differences are irrelevant for the purposes of this article. A blank cell indicates no finding of infringement with respect to a particular product and a particular piece of intellectual property. Accordingly, a blank cell could mean one of two things—either the jury found that product not to infringe that particular piece of Apple's intellectual property, or Apple did not allege that particular product infringed that particular piece of intellectual property.

Table 4: Jury's identification of infringed properties

Product	'381 Patent	'915 Patent	'163 Patent	D677 Patent	D087 Patent	D305 Patent	D889 Patent	Regulated Trade Dress	Unregulated Trade Dress
Captivate	Willful	Willful				Willful			
Continuum	Willful	Willful				Willful			
Druid Charge	Willful	Willful	Willfull			Willful			
Epic 4G	Willful	Willful	Willfull			Willful			
Exhibit	Willful	Willful	Willfull						
Fascinate	Willful	Willful	Willfull	Willful		Willful		Willful	Willful
Galaxy Ace	Willful		Willfull						
Galaxy Prevail	Willful	Willful	Willfull						
Galaxy (i9000)	Willful	Willful	Willfull	Willful		Willful			Willful
Galaxy S 4G	Willful	Willful	Willfull	Willful	Non-willful	Willful		Willful	Willful
Galaxy S II									
AT&T	Willful	Willful	Willfull	Willful					
Epic 4G Touch				Willful					
(i9100)	Willful	Willful	Willfull	Willful	Non-willful			Willful	
Skyrocket				Willful					
(T-Mobile)		Willful	Willfull	Willful					
Galaxy S									
Showcase (i500)				Willful		Willful		Willful	Willful
Galaxy Tab	Willful	Willful	Willfull						
Galaxy Tab									
10.1 (4G LTE)									
10.1 (WiFi)	Willful	Willful	Willfull						
Gem	Willful	Willful				Willful			
Indulge	Willful	Willful				Willful			
Infuse 4G	Willful	Willful	Willfull	Willful		Willful			
Intercept									
Mesmerize	Willful	Willful	Willfull	Willful		Willful		Willful	Willful
Nexus S 4G	Willful	Willful							
Replenish	Willful		Willfull						
Transform		Willful							
Vibrant	Willful	Willful		Willful	Non-willful	Willful		Willful	Willful

As can readily be appreciated, this table of infringed intellectual property and products would present a significant challenge to any jury requested to establish damages estimates. Regardless of difficulty, the jury

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102. *See* Amended Verdict Form, at *2–4, *6–7, *9, *11–12, *15–16, Apple, Inc. v. Samsung Elecs. Co., Ltd., 11-CV-01846-LHK (N.D. Cal. Aug. 24, 2012).

here returned a total damages judgment of $1.05 billion, allocated across Samsung products as presented in Table 5.[103]

Table 5: Jury damages awards by product

Product	Damage Amount
Captivate	$ 80,840,162.00
Continuum	$ 16,399,117.00
Druid Charge	$ 50,672,869.00
Epic 4G	$ 130,180,894.00
Exhibit	$ 1,081,820.00
Fascinate	$ 143,539,179.00
Galaxy Ace	$ -
Galaxy Prevail	$ 57,867,383.00
Galaxy (i9000)	$ -
Galaxy S 4G	$ 73,344,668.00
Galaxy S II	
AT&T	$ 40,494,356.00
Epic 4G Touch	$ 100,326,988.00
(i9100)	$ -
Skyrocket	$ 32,273,558.00
(T-Mobile)	$ 83,791,708.00
Galaxy S	
Showcase (i500)	$ 22,002,146.00
Galaxy Tab	$ 1,966,691.00
Galaxy Tab	
10.1 (4G LTE)	$ -
10.1 (WiFi)	$ 833,076.00
Gem	$ 4,075,585.00
Indulge	$ 16,011,184.00
Infuse 4G	$ 44,792,974.00
Intercept	$ -
Mesmerize	$ 53,123,612.00
Nexus S 4G	$ 1,828,297.00
Replenish	$ 3,350,256.00
Transform	$ 953,060.00
Vibrant	$ 89,673,957.00

The jury provided no itemized breakdown of the awards by product or by the corresponding form of infringed intellectual property, which, as discussed below, greatly complicated the determination of whether the awards were proper under each distinct form of intellectual property that Samsung was found to have infringed.

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103. *Id.* at 15–16.

C. Issues Arising Regarding the Jury Damages Awards

In response to the award, Apple sought damages increases, which do not concern us here,[104] and Samsung sought significant damages reductions.[105] The district court, after considering Samsung's arguments, reduced the award by $450,514,650, and ordered a new damages trial for fourteen of Samsung's products.[106] Of the gross amount, $9,180,124 was attributed to an excessively long damages period, due to Apple's inability to sufficiently document the date when Samsung was notified of the infringement of several patents.[107]   However, that particular finding is irrelevant for the purposes of this discussion; what is relevant is the request for a retrial of damages for the following eight products: Gem, Indulge, Infuse 4G, Galaxy S II AT&T, Captivate, Continuum, Droid Charge, and Epic 4G. All eight products were found by the jury on initial trial to have infringed the '381 patent.[108]

The initial difficulty of awarding patent infringement damages for these eight products relates to the time periods involved. Two periods particularly are of interest, one commencing August 4, 2010 when Samsung was notified of the infringement of the '381 patent. Subsequently, April 15, 2011, the date of the original complaint and when Samsung was notified of the infringement of the '915 patent, the D'677 design patent and the registered trade dress, marks the start of the second period. The legal complication arises because the jury awarded damages based on total profits commencing in 2010. However, because only patent infringement was notified from 2010-2011 only reasonable royalties or Apple's lost profits could be allowed as damages. The awarding of Samsung's profits over the entire period commencing August 4, 2010 was therefore "based on an impermissible legal theory."[109] A third date, June 16, 2011, when Samsung was notified of infringement of the D'889, D'087 and D'305 design patents is also relevant for damages amounts but does not involve an impermissible legal theory. Because Apple's damages assessments were for the entire period commencing on August 4, 2010, the

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104. *See, e.g.,* APPLE INC.'S MOTION FOR JUDGMENT AS A MATTER OF LAW, Apple, Inc. v. Samsung Elecs. Co., Ltd., No. 11-CV-01846-LHK (N.D. Cal. Nov. 25, 2012), ECF No. 2002.

105. *See, e.g.,* SAMSUNG'S MOTION FOR JUDGMENT AS A MATTER OF LAW, Apple, Inc. v. Samsung Elecs. Co., Ltd., No. 11-CV-01846-LHK (N.D. Cal. Dec. 6, 2012), ECF 2013.

106. ORDER RE: DAMAGES at 26, Apple, Inc. v. Samsung Elecs. Co., Ltd., No. 11-CV-01846-LHK (N.D. Cal. March 1, 2013), ECF No. 2271.

107. *Id.* at 19–20, 25–26.

108. *Id.* at 19–20, 22; *see* also *supra* Table 1.

109. *Id at 22.*

court was unable to deduce the proper amount of damages for sub-periods, notably that beginning April 15, 2011, making a damages retrial the only immediately allowable remedy for 14 products found to have infringed more of Apple's intellectual property than the '381 patent.[110]

At interest is here how the court determined the jury awards were based on an incorrect legal theory. The court repeated the figures[111] of Samsung's expert Michael Wagner, which are presented in Table 6.[112]

Table 6: Deciphering basis of jury damages awards by product

Product	Samsung's Profits	40% Samsung's Profits	Jury Award
Captivate	$ 202,100,404	$ 80,840,162	$ 80,840,162
Continuum	$ 40,997,793	$ 16,399,117	$ 16,399,117
Droid Charge	$ 126,682,172	$ 50,672,869	$ 50,672,869
Epic 4G	$ 325,452,234	$ 130,180,894	$ 130,180,894
Galaxy S II 2			
AT&T	$ 101,235,891	$ 40,494,356	$ 40,494,356
Gem	$ 10,188,963	$ 4,075,585	$ 4,075,585
Indulge	$ 40,027,960	$ 16,011,184	$ 16,011,184
Infuse 4G	$ 111,982,436	$ 44,792,974	$ 44,792,974

The court noted that courts are required to give great deference to jury awards.[113] An exception, however, applies when "it is readily apparent from the numbers that the jury applied an impermissible legal theory in arriving at its award."[114]

While the damages amounts for these eight products, corresponding to forty percent of the damages figures supplied by Apple, hardly seems coincidental, the conclusion reached by the court, which subsequently

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110. *Id*. at 26; *see* also Transcript of Oral Argument, at 18, 21, Apple Inc. v. Samsung Elecs. Co. Ltd., No. 11-CV-01846-LHK (N.D. Cal. Aug. 13, 2012).

111. *Id*. at 9–10.

112. Declaration of Michael J. Wagner at 3, Apple, Inc. v. Samsung Elecs. Co., Ltd., No. 5:11-cv-01846 (N.D. Cal. Dec. 6, 2012). For brevity, only the figures for the eight Samsung products to be retried for damages are reported.

113. *See, e.g.,* Los Angeles Mem'l Coliseum Comm'n v. NFL, 791 F.2d 1356 (9th Cir. 1985); Yeti by Molly Ltd. V. Deckers Outdoor Corp., 256 F.3d 1101 (9th Cir. 2001); Revolution Eyewear, Inc. v. Aspex Eyewear, Inc., 563 F.3d 1358 (Fed. Cir. 2009).

114. Order Re: Damages at 8, Apple, Inc. v. Samsung Elecs. Co., Ltd., No. 5:11-cv-01846 (N.D. Cal. March 1, 2013), Doc. 2271 (citing *In re* First Alliance Mortgage Co., 471 F.3d 977, 1001–02 (9th Cir. 2006). ("This, however, appears to be the rare case in which it is sufficiently certain that the jury award was not based on proper consideration of the evidence . . . . That they did this is beyond doubt: their verdict represents the average of the two figures *to the dollar*.") (emphasis in original)).

ordered a new damages trial, is supposition. The court did not know how the jury actually determined the damages it awarded. Although a subsequent Bloomberg News interview with the jury foreman reported some insight into the jury's deliberations, such as calculating a reasonable royalty and halving it,[115] those statements are neither legally acceptable nor sufficiently complete to determine how the jury actually decided the damages. The eight products represent relatively straightforward analysis because only a single form of damages was proposed—Samsung's profits.

Compare this to a more complex situation where two forms of damages are asserted with respect to different types of intellectual property, such as the Infuse 4G in the present case, where both Apple's lost profits and Samsung's total profits were claimed.[116] This is no random example, but rather the basis for a challenge by Samsung asserting "double counting" following the subsequent damages trial.[117] The outcome of that challenge is not relevant here, but the scenario raises the following issue: How should a jury properly decipher the composition of a multi-infringement award?

Otero identified four related issues that arise when courts need to parse multi-intellectual property damages awards:[118]

1. In a scenario where one of the products infringes utility patents, design patents, and trade dress, and "[i]f all the infringement was willful, how does the court determine what part of the award may be trebled?"[119]

2. If, under #1, only trade dress infringement was found to be non-willful, "[h]ow can the court tell if the jury improperly awarded money damages for trade dress dilution, and how can the court tell what part of the remaining award may be trebled?"[120]

3. If one of the products was found to have infringed only a utility patent, "[h]ow can a court tell if the jury improperly awarded money damages based on infringer's profits (which are only permissible for design patent infringement[])?"[121]

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115. *Apple Jury Foreman: Here's How We Reached a Verdict*, BLOOMBERG NEWS, Jan. 19, 2015, http://www.bloomberg.com/video/apple-jury-foreman-here-s-how-we-reached-a-verdict-RqtqHC25QbOBFg7xrWa5Wg.html; *see also* Otero, *supra* note 3, at 361, 363.

116. *See supra* Section III.B.

117. Transcript of Proceedings Before the Honorable Lucy H. Koh at 66-68, Apple, Inc. v. Samsung Elecs. Co., Ltd., No. 5:11-cv-01846 (N.D. Cal. Feb. 7, 2014), LEXIS 17204.

118. Otero, *supra* note 3, at 358.

119. *Id*.

120. *Id*.

121. *Id*.

4. If, under #1, the court subsequently overturns the infringement finding for one form of intellectual property, "[w]hat portion of the damages should be overturned?"[122]

D. Conclusions

Following several rounds of claiming infringement, expanding the product list, and subsequently reducing the product list, Apple sued Samsung for infringing its intellectual property embodied in twenty-eight of Samsung's products.[123] Apple alleged that five products infringed all three proffered forms of intellectual property, while the bulk of the products were accused of infringing only two forms of intellectual property, most commonly utility and design patents.[124] Apple's damages estimates, totaling a maximum of $2.75 billion, were also in two forms— one for total profits and a reasonable royalty components only and a second that added lost profits.[125]

Objections arose soon after the jury filed its $1.05 billion award, based on improper dates for the utility patent infringement.[126] Because the court was unable to determine what portion of the multiple-property joint awards were attributable to the utility patent infringement alone, the court nullified a portion of the initial award and mandated a new damages trial. The inability of the jury to identify the components of a multiple form infringement case led to broader questions about avoiding similar problems in the future. The method proposed below is intended at least to partially remedy that problem in future cases.

IV. APPLYING EXCEL TO THE MULTI-INTELLECTUAL PROPERTY INFRINGEMENT CONUNDRUM

This section details methods of utilizing an Excel spreadsheet program to address the issues presented by cases involving multi-intellectual property infringement damages. The section begins by discussing measures that can be taken to assist jurors in avoiding erroneous awards, and subsequently details a post-award means of allocating single-value

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122. *Id*.

123. Apple's Proposed Redactions to Trial Exhibit PX25A1 Pursuant to the Court's Order Granting-In-Part and Denying-In-Part Motions to Seal, at 3, Apple Inc. v. Samsung Elecs. Co. Ltd., No. 5:11-cv-01846-LHK (N. D. Cal. August 13, 2012).

124. *Id*.

125. *Id*. at 4–5.

126. *See supra* Section III.C.

damages across various forms of intellectual property. Sample Excel equations that implement the proposed approaches are included in the footnotes. The programming itself is straightforward and can be managed by anyone with even moderate ability with the Excel program.

A. Using Excel to Assist Jurors in Avoiding Damages Allocation Errors

It is often said that an ounce of prevention is worth a pound of cure, and so it is with jury-awarded damages in complex intellectual property cases. The difficulty of the task, along with long and convoluted damages instructions—such as the fifteen pages of jury damages instructions in *Apple*—make it a near certainty that errors will occur.[127] Providing only paper damages forms to juries, such as that used by the *Apple* jury,[128] misses an opportunity to prevent errors by the jury, rather than merely relying on the jurors to fully recall and correctly apply the judge's instructions.

The concept of utilizing an Excel application to assist in error avoidance is a simple one. The jurors can be provided with a computer programmed with an Excel spreadsheet (or some similarly capable application) showing the pertinent products in the left-most column and column titles indicating applicable infringement decisions and damages awards. The initial columns relating to infringement decisions for *Apple*[129] might look like the following mock-up in Spreadsheet 1.

Spreadsheet 1: Inserted jury decisions on infringement and willfulness in a spreadsheet

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	In each cell, enter '1' if yes (*i.e.*, infringed or willful) or enter '0' if no. (*i.e.*, not infringed or not willful.																		
2																			
3	Product	'381 Patent		'915 Patent		'163 Patent		D677 Patent		D087 Patent		D305 Patent		D889 Patent		Regulated		Unregulated	
4		Infringed?	Willful?	Infringed?	Willful?	Infringed?	Willful?	Infringed?	Willful?	Infringed?	Willful?	Infringed?	Willful?	Infringed?	Willful?	Infringed?	Willful?	Infringed?	Willful?
5	Captivate	1	1	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0
6	Continuum	1	1	1	1	0	0	0	0	0	0	1	1	0	0	0	0	0	0
7	Droid Charge	1	1	1	1	1	0	0	0	0	0	1	1	0	0	0	0	0	0
8	Fascinate	1	1	1	1	1	1	1	1	0	0	1	1	0	0	1	0	1	0

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127. *See* Final Jury Instructions, Apple, Inc. v. Samsung Elecs. Co., Ltd., No. 5:11-CV-01846-LHK, Doc. 1893 (N.D. Cal. Aug. 21, 2012); *see supra* Section III.C.

128. *See* Amended Verdict Form, at 26, Apple, Inc. v. Samsung Elecs. Co., Ltd., 11-CV-01846-LHK (N.D. Cal. Aug. 24, 2012).

129. *Id*. at 2–4, 6–7, 9–12, 14; *see supra* Section III.B.

The use of an Excel program as shown here utilizes information already decided by the jury, so nothing new is added. However, the spreadsheet provides an error-avoidance component that is otherwise lacking. To explain this, consider the initial rows and columns in Excel Spreadsheet 1 as they would appear initially to the jury are shown in Spreadsheet 2:

Spreadsheet 2: Partial blank spreadsheet as presented to the jury

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S
1	In each cell, enter '1' if yes (*i.e.*, infringed or willful) or enter '0' if no. (*i.e.*, not infringed or not willful.)																		
2																			
3	**Product**	'381 Patent		'915 Patent		'163 Patent		D677 Patent		D087 Patent		D305 Patent		D889 Patent		Regulated		Unregulated	
4		Infringed?	Willful?	Infringed?	Willful?	Infringed?	Willful?	Infringed?	Willful?	Infringed?	Willful?	Infringed?	Willful?	Infringed?	Willful?	Infringed?	Willful?	Infringed?	Willful?
5	Captivate																		
6	Continuum																		
7	Droid Charge																		
8	Fascinate																		

Here, all decision cells are initially red, as shown in Spreadsheet 2. The spreadsheet is pre-programmed to replace the red background of a particular cell with a clear background once the jury has input a decision for product and alleged infringement corresponding to that cell. The jury is thus visually prompted by any remaining red cells and alerted of any decision that has been overlooked.[130] An additional failsafe may be utilized such that each decision cell will accept only an appropriate response (*i.e.*, a "1" or "0").

The particular benefit of entering these decisions into a spreadsheet is more evident when jurors are asked to enter damages estimates. In practice, these estimates could be completed on a continuation of the same spreadsheet. For ease of comprehension, the first column of the example, which provides the product names, is repeated in Spreadsheet 3.

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130. Excel's Conditional Formatting tool can be utilized to redden the background of any blank cell, and Excel's Data Validation function can be used to create a drop-down menu in each decision cell, thus providing the only possible answers (*i.e.*, "Yes" or "No") for each question of infringement and willfulness.

Spreadsheet 3: Extended spreadsheet for entering damages award values

	A	T	U	V	W	X
1	In each cell, enter '1' if yes (*i.e.*, infringed or willful) or enter '0' if no. (*i.e.*, not infringed or not					
2						
3	Product	Total Profits	Lost Profits	Reasonable Royalty	Allocate	Total
4						
5	Captivate					
6	Continuum					
7	Droid Charge					
8	Fascinate					

Headings entitled "Total Profits," "Lost Profits," and "Reasonable Royalty" are placed across the top of the table. Suppose the jury found that the Captivate product infringed all utility patents and design patents. In that case, cells B5, D5, F5, H5, J5, L5, and N5[131] would each contain a "1" to indicate as much. For those forms of infringement, the jury should enter a total profit value only assuming that total profits exceed lost profits or reasonable royalty, and recalling that lost profits is the maximum award that can be made.[132] Pre-programming the Excel spreadsheet with the equation in the footnote 134 will lead to a message saying, "Enter Total Profits Only" in cell T5.[133] Suppose that the jury found that the Fascinate product, displayed in row 8 of the example spreadsheets, infringed all three forms of intellectual property. The jury would again be prompted with an "Enter Total Profits Only," this time in cell T8.[134] These instructions clearly implement the court's interpretation of how damages should be awarded in multiple intellectual property damages cases; thus, the command formulation could be changed according to the court's interpretation and jury instructions. The Excel commands are sufficiently

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131. Excel identifies cells by the column letter and row number.

132. 35 U.S.C. § 284 (2012) ("[U]pon finding for the claimant the court shall award the claimant damages . . . ."); *see supra* Section II.A and B.

133. *See supra* Spreadsheet 2; *supra* Section II.E.

134. Excel program steps for delivering this message for the Captivate product, which is located in row 5 of the example spreadsheets, is: =IF(P5=1, "Enter Total Profits Only", IF(R5=1, "Enter Total Profits Only", IF(H5=1, "Enter Total Profits Only", IF(J5=1, "Enter Total Profits Only", IF(L5=1, "Enter Total Profits Only", IF(N5=1, "Enter Total Profits Only", IF(B5=1, "Enter Lost Profits or Reasonable Royalty Only", IF(D5=1, "Enter Lost Profits or Reasonable Royalty Only", IF(F5=1,"Enter Lost Profits or Reasonable Royalty Only", "")))))))))). The IF is a logical command which if true returns the message in brackets and if false proceeds to the second IF statement, etc. If none of the statements is true than there is no printed response (indicated by "" in Excel code). Excel equations begin with an "=".

comprehensible, such that even those unfamiliar with the coding language can readily interpret the meaning.

For products in which only utility patents were infringed, such as the Galaxy Prevail, the spreadsheet would return the message "Enter Lost Profits or Reasonable Royalty Only".[135] The sheet would then automatically sum the rows and columns, giving the jury an error-free running tabulation—an improvement over the hand-computed *Apple* damages award form.[136]

The willfulness columns, C5, E5, etc. in the spreadsheet, are for the court's use, not the jury, for assistance in determining if treble damages are to be applied.[137] To prevent unnecessary confusion, it may be beneficial to hide these columns from view while the jury is deliberating.

B. *Using Excel to Allocate Single-Valued Damages Awards Across Forms of Intellectual Property*

The preceding applications of Excel would help avoid simple, but significant, errors being committed by jurists. However, this is just an initial step at solving the larger problem discussed herein, because it does not assist the court in unraveling which portion of a total award was granted for the infringement of a particular intellectual property with respect to a given product. To help remedy this scenario, the use of Excel routines is proposed as a means of allocating award amounts across multiple types of intellectual property.

The approach operates on the assumption that the jury utilizes the plaintiff's damages estimates as the source and upper bound of their own awards. That is, while jury damages instructions describe the underlying legal theories for how damages calculations can be made,[138] it is assumed to be well beyond the competence of a jury to calculate independent damages estimates. Legally, the courts have determined that when the basis for a jury's award is unclear, as with *Apple*,[139] it is permissible to "work [] the

135. *See supra* Section II.A, B, C and E.

136. *See* Order Re: Damages at 26 Apple, Inc. v. Samsung Elecs. Co., Ltd., 926 F. Supp. 2d 1100 (N.D. Cal. March 1, 2013); The relevant Excel command is SUM([beginning cell number]:[ending cell number]). Thus for each product beginning with Captivate using the row and column numbers from Spreadsheet 3, the Excel command SUM(T5:W5) would be placed in cell X3. For the grand total across rows the command would be placed in cell Y34 and use the form SUM(Y5:Y33).

137. *See supra* Section II.

138. *See* Final Jury Instructions, Apple, Inc. v. Samsung Elecs. Co., Ltd., No. 5:11-CV-01846-LHK (N.D. Cal. Aug. 21, 2012).

139. *See* Apple Inc. v. Samsung Elecs. Co. Ltd., 2014 U.S. Dist. LEXIS 29721, at *1 (N.D. Cal. Mar. 6, 2014).

math backwards."[140]   The use of Excel's equation solving capacity can accomplish this task.

As an initial example, consider the calculation that identified the jury's damages award for a number of products as forty percent of Samsung's profits. In the case of Captivate, that amounted to a jury award of $80,840,162 based on the plaintiff's estimate of Samsung's total profits of $202,100,404.[141]   This calculation can be solved using Excel's Goal Seeker routine[142] by defining the problem as the equation $Y = 202,100,404x - 80,840,162$. The routine returns the value of 40% in agreement with the prior result.[143]

A similar technique can be used to evaluate several other aspects of a damages award. One is the allocation of damages from estimates of lost profits or a reasonable royalty, but not both. In *Apple*,[144] the plaintiff did not provide estimates of both forms of damages, so it is not possible to show an example from that case. The same form of analysis used above also provides damages estimates, but substituting the defendant's estimates for the plaintiff's damages estimates can be applied to gauge whether the jury used the defendant's estimates as a basis for the damages award.

The preceding examples are the simplest ones, both analytically and conceptually. More complex is that Captivate was found to infringe a design patent in addition to two utility patents,[145] which means the jury could have awarded some or all of Samsung's profits or Apple's lost profits, but not both.[146]   Applying the Excel approach shows that it is

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140. Telcordia Techs., Inc. v. Cisco Sys. Inc., 612 F.3d 1365 (Fed. Cir. 2010); Lucent Techs., Inc. v. Gateway, Inc., 580 F.3d 1301, 1336 (Fed. Cir. 2009); *In re* First Alliance Mort. Co., 471 F.3d 977, 1002–03 (9th Cir. 2006).

141. *See supra* Section III.C.

142. Goal Seeker is an inbuilt Excel function available under the Data tab and What-if-Analysis sub-tab.   Online instructions are available at http://chandoo.org/wp/2013/09/19/how-to-solve-an-equation-in-excel/.

143. Excel programming is as follows: the values for X are placed in cell A1 and Y in A2. In Excel format Y would be inputted as =2021004.04*A1-80840162 (Excel formulas begin with an '='). In Goal Seeker the 'Set cell' is the one with the equation, in our example A2 and the variable cell, X, the 'changing cell' or A1. The changing cell needs a start value—many like 10 will suffice—which must be inputted in cell A1 on the spreadsheet. Finally, the 'To value' value must be indicated in Goal Seeker. Here because we have subtracted the amount of the award the value is 0, which is inserted. Pressing 'OK' returns the value (of X) as 40, or 40% of Samsung's profits, as indicated. Note that the profit value was inputted as 2,021,004.04, and not the reported figure of 202,100,404. All we have done is divide the input value by 100 so the result is in the form of a percent. Using the 202100404 figure gives a value of .4, which multiplied by 100 to convert to a percentage yields the same 40% figure.

144. *See Apple*, 2014 U.S. Dist. LEXIS 29721, at *1.

145. *See supra* Table 6.

146. *See supra* Section II (lacking an estimate for reasonable royalty damages).

indeed possible to "work the math backwards" using the plaintiff's estimates of both Samsung's total profits and Apple's lost profits to determine which was used.[147] In the case of Captivate, the equation of interest is: $202,416,141x + 80,875,138y = 80,840,162$, where x is the share awarded of Samsung's profits, y is Apple's lost profits, and $80,840,162$ is the resulting jury award. Based on the preceding example, it is expected that x will be equal to approximately forty percent y will equal zero. Any slight differential can be attributed to the reporting of Samsung's profits and Apple's lost profits ($204,416,141), which differ slightly from the $202,100,404 value used in the example above.[148]

The Excel Goal Seeker routine used above[149] will not work here, because it is limited to a single variable (X or Y—not X and Y). Excel has another routine, Solver,[150] which is capable of handling multiple variables, as in this example. Solving for two-variables requires at least two equations. Since there is only one equation here, the equations need to be rearranged as

$$204,416,141x = 80,840,162$$

and

$$204,416,141x + 80,875,138y = 80,840,162$$

where x is the share awarded of Apple's lost profits and y the share of Samsung's profits from Table 2 *supra*. The $80,840,162$ figure represents the jury damages award for Captivate.[151] The pair of equations therefore represent the legal theory that the damages award is either a share of Apple's lost profits or the sum of shares of Apple's lost profits and Samsung's profits. Variables x and y can be any positive value, including zero.

Running these equations through Solver[152] returns a result of 39.55%. This result is close to the expected value of 40% but is not exact because

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147. *See supra* Section III.C.

148. *Compare supra* Table 2 *and* Table 3.

149. *See supra* Section IV.A.

150. *Solver*, EXCEL EASY, http://www.excel-easy.com/data-analysis/solver.html (defining Solver as an add-on function that may be downloaded at no cost, with instructions found on the Excel Easy website).

151. S*ee supra* Table 5.

152. *Solving Equations Using Excel*, EXCEL SPREADSHEETS APPLICATION AND TIPS, http://www.howtoexcel.info/excelsolver.htm (last visited October 1, 2015)
Beginning with a blank spreadsheet, the steps for using Solver are as follows:

- In A1 enter =204416141*C1 (Excel formulas begin with an =; otherwise they are treated like text or a constant value.
- In A2 enter =204416141*C1+80875138*C2
- In B1 and B2 enter the value 80840162

the figure of Samsung's profits differs slightly.[153] If one believes that juries use integer and not fractional awards, then this result suggests that the jury evaluated the Apple damages estimates by including only a value for Samsung's profits.[154]

Of course it is possible that the jury made the award based on Apple's lost profits rather than Samsung's profits.[155] To test that supposition one can use the following equations:

$$80{,}875{,}138y = 80{,}840{,}162,$$

and

$$204{,}416{,}141x + 80{,}875{,}138y = 80{,}840{,}162.$$

When running through Solver, no feasible solution is identified, which strongly suggests that the jury based its award on Samsung's total profits and not Apple's lost profits.

An even more complex case occurs when all three forms of intellectual property are infringed, as with Fascinate, Galaxy S 4G, Mesmerize, and Vibrant.[156] With the three forms of intellectual property infringed, there are three possible components of awards: total profits only, lost profits and a reasonable royalties only, or both. The 'both' category can be partitioned into (1) total profits for the trade dress infringement with lost profits/reasonable royalty applying to design and utility patents or (2) total profits for the design patent infringement and lost profits/reasonable royalty applying to trade dress and utility patents.[157] One can examine whether the Excel routines described above are able to allocate the damages award to particular forms of intellectual property. The task is encumbered in the *Apple* example because Apple provided two sets of damages estimates for the four products—one with total profits and lost profits and a second including only total profits.[158] Because these four

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- Open Solver from the Data tab
- Clear the 'Set Objective' line
- Leave 'Equal To' with 'Max' highlighted
- In the 'By Changing Cells' line highlight cells C1 and C2, which will appear as *$C$1:$C$2*
- In 'Subject to the Constraints' box check add and drag in A1 and A2
- In the center select '='
- Now drag in B1 and B2. The box should now look like: $A$1:$A$2=$B$1:$B$2
- Click OK and Solve. The answer (.3955 or 39.55% in this example) will appear in cell C1.

153. *Compare* Table 4 *with* Table 5, *supra* Section III.B.
154. *See supra* Section III.B.
155. *See supra* Table 4 (not providing reasonable royalty estimate).
156. *See supra* Section III.B, at Table 6.
157. *See supra* Section II.
158. *See supra* Section III.B, at Tables 2, 3.

products provide no reasonable royalty loss estimates, only total profits and lost profits will be used in the example.

Applying the Excel Goal Seeker method presented above to the scenario of Samsung's total profits only[159] for Fascinate yields a non-integer answer, which is unlikely. Analyzed again, using Apple's lost profits, as well as Samsung's total profits,[160] and solving using the Excel Solver approach described directly above also yields a non-integer answer. The results for the remaining triple-property infringement products—Galaxy S 4G, Mesmerize, and Vibrant—are similar.

These results raise questions regarding a damages calculation error by the jury. It is possible the jury could make non-integer awards using the plaintiff's estimates, or generate its damages estimates independent of the plaintiff's estimates.[161] The court would need to consider these likelihoods before deciding on the need for a new damages trial. However, the four damages awards are very close to, within several thousand dollars, of fifty percent (between .49 and .51) of the total profit estimates from Table 3.[162] Perhaps there is a little "funny math" on the part of the jury, in order to award damages of around half of Samsung's total profits for the infringing products. For the award allocation for Captivate, the jury may have decided to award exactly forty percent of Samsung's total profits.[163] Can an Excel application assist in this instance and save the court from a new damages trial?

C. Combining the Error-Avoiding and Parsing Functions of Excel

The preceding approaches can help juries avoid some damages award errors, as well as assist the court in determining what portions of an award are associated with what infringement. However, other issues arose in *Apple*,[164] which have not yet been considered in this article. Here, we examine how combining the two Excel-based approaches described above[165] provides additional assistance to the courts in avoiding jury damages allocation errors or proceeding when errors have been made.

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159. *See supra* Section III.B, at Table 3.

160. *See supra* Section III.B, at Table 2.

161. *See* Final Jury Instructions, Apple, Inc. v. Samsung Elecs. Co., Ltd., No. 5:11-CV-01846-LHK (N.D. Cal. Aug. 21, 2012).

162. *See supra* Section III.C.

163. *See supra* Section IV.C..

164. Apple Inc. v. Samsung Elecs. Co. Ltd., 2014 U.S. Dist. LEXIS 29721, at *1 (N.D. Cal. Mar. 6, 2014).

165. *See supra* Sections IV.A, IV.B.

Suppose the court wishes to treble damages for trademark or trade dress infringement when the damages award is based on the infringer's total profits. For a product also infringing a design patent, only the trademark or trade dress component may be enhanced by the court,[166] but the issue arises if the portion of the award granted by the jury that is properly allocable to the trademark or trade dress infringement is unknown. Additionally, if one portion of a joint infringement award is invalidated, can the court determine the amount of the remaining, valid award?[167]

It should be noted that these matters cannot be answered without additional information from the jury, particularly in determining the portion of the award associated with certain forms of product infringement. Otero's approach for responding to this information gap is to ask jurors for an "allocation of damages,"[168] but that is a major addition to an already large task. By using Excel, these questions can be tailored to provide the needed information while minimizing the burden on jurors.

Consider, for example, when a product infringes both trade dress and design patent protection, and the award is determined to be a portion of the infringer's total profits. It is inconsequential whether a utility patent has been infringed as well, as that does not change the calculus for the court because the lost profit or reasonable royalty award for utility patent infringement is subsumed in the total profit award for design patent infringement.[169] There should be a separate award for trade dress and design patent infringement,[170] but because the court receives only a composite damages figure, it would not know either of those values. When such cases can be identified ex ante, the Excel spreadsheet used by the jury could be pre-programmed to ask for additional information, such as the percentage of the award to be allocated to each form of intellectual property.[171] The concept is to minimize the burden on jurors by asking apportionment questions only when a specific need can be anticipated by the courts. Should one of the infringement convictions be overturned

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166. *See supra* Sections II.B, II.C.

167. *See supra* Section III.C.

168. Otero, *supra* note 3, at 369.

169. *See supra* Section II.E.

170. *See id*.

171. Take the example of Fascinate from Spreadsheet 1 which was found to have its trade dress and design patents infringed. In column X from Spreadsheet 3 one would enter the logical formula =IF(H8+J8+L8+N8<1, TRUE,IF(P8+R8<1,"","%damages for Trade Dress in cell Z?")). If one or more design patents have been found infringed (a 1 in one or more of cells H8+J8+L8+N8 AND in one or both cells P8 and R8 the jury will see the message "%damages for Trade Dress in cell Z?". Otherwise the Z7 cell will be blank.

subsequently, the jury-provided allocation figures could be used by the court to adjust the damages values without resorting to retrial.

A skilled programmer may identify other cases in which a spreadsheet designed for a particular case can be used to minimize the instances in which damages need to be retried. There are, however, instances in which no amount of Excel creativity can avert the need for a new damages trial. Examples include when there has been utility and design patent infringement with a damages award based on total profits. If the design patent infringement is subsequently overturned, there must be a new damages trial to determine the lost profits or reasonable royalty award for the utility patent infringement.

D. Conclusions

Excel, or another similarly capable program, can facilitate the jury damages reporting process in several ways. First, with straightforward programming, it can identify pending errors during the inputting process. In some instances, the errors can be simple to identify, such as awarding infringer's profits for trade dress infringement when the infringement was not found to be willful. In other instances, the determination can be more complex, such as determining whether the jury awarded both total profits and lost profits or a reasonable royalty when both design patents and utility patents were found to have been infringed. Presumably, the jurors would be able to make the appropriate corrections prior to reaching their final decisions.

Second, once the damages estimates have been submitted, programming can assist the court in determining how the jury utilized the plaintiff's, or the defendant's, damages estimates in calculating the damages awards. This information can assist to the court in determining whether the jury committed legal errors in its damages determination process. This second application is based on the assumption that juries are not generating their own damages estimates, but instead utilizing the plaintiff's or the defendant's estimates. Additionally, this approach assumes the jury awards integer percentages of the plaintiff's damages estimates. Because this approach is limited to instances in which the jury follows either the plaintiff's or the defendant's proposed damages estimates, the court would need to determine if these estimates are appropriate in a particular case.

Finally, Excel programming can determine when the jury needs to be asked for additional information regarding its methodology in calculating particular damages awards. To minimize the additional burden on jurors,

these questions can be posed only under specific circumstances. Often, these will occur when a composite total profit award is made for combined trade dress and design patent infringement, where the court may need to know subsequently know which portion of the total award was intended for each form of infringement. The expectation is that it will be less burdensome for the jury to specify the allocations at the time the award is being considered, rather than at some later date.

Otero identified four issues which can arise regarding multi-form intellectual property damages awards, which if not resolved, otherwise leads to the need for a new damages trial.[172] The Excel applications proposed here would, in most cases, resolve all four—a major benefit to the courts, as well as the parties. No amount of technological assistance, however, will assist the court in assessing jury damages awards if the problem is based on an incorrect damages period used by the plaintiff in its damages estimates, which was another source of problems in *Apple* and led to a new damages trial.[173]

V. CONCLUSIONS

Technology and product design advances, along with changing attitudes to intellectual property, have created a dilemma for multiple intellectual property awards. Juries are burdened and make mistakes, which leads to vacated damages awards and further damages trials. The number of such cases seems likely to increase in the future, while the likelihood that damages statutes will be reconciled across the various forms of intellectual property seems remote. Lawmakers frequently add components to laws in response to evolving issues, but seldom do they consider reconciling the additions with existing law.

Technology, such as Microsoft's popular Excel spreadsheet program, can mitigate the complex legal issues that arise when a jury attempts to calculate damages involving the infringement of multiple forms of intellectual property by multiple infringing products. A common tool such as a spreadsheet, properly programmed for jury use, can prompt the jury to base their damages calculations on the correct legal theories. Moreover, a program like the one discussed in this article can be programmed to ask the jury for specific additional information while it is deliberating on the damages award. One example of such a scenario occurs when total profits

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172. *See supra* Section III.C.

173. Order Re: Damages at *24–26, Apple, Inc. v. Samsung Elecs. Co., Ltd., 926 F. Supp. 2d 1100 (N.D. Cal. March 1, 2013).

are awarded as compensation for both design patent and trade dress infringement; here, the jury could be asked to apportion the damages award to the two forms of property while it is actually contemplating the damages award.

The Excel programming required to accomplish these tasks is straightforward, and well within the scope of those with even a moderate command of Excel. Those with very limited understanding of the coding may still readily decipher the code, so as to understand the direction and controls that are being applied to jury inputs. Ex post, the court can use the analytic capabilities available in Excel to parse the aggregate damages award for a product, allocating portions to the several forms of intellectual property. Those steps, while somewhat more involved than the preceding steps, are still within the scope of a moderately-skilled Excel user.

Only the more general approaches in applying Excel to damages award trials are explored in this article. The court may wish to add additional approaches based on the specifics of a particular case, including:

As monetary damages for design patent infringement are allowed only if infringed willfully,[174] the Excel sheets could be directed to determine if the jury had previously determined and recorded that the act was willful. If the jury did not previously do so, a warning would follow.

Analytical programs could be designed both to test whether lost profits and reasonable royalty estimates have been improperly summed under utility and design patent infringement and to ask the jury to specify the allocation of damages to the two types of patents to ensure that the resultant damages award is proper for the infringement of each type of intellectual property.[175]

Because an infringer's total profit is the maximum damages award that can be granted by a jury,[176] a spreadsheet could be programmed to compare the jury's damages award to the plaintiff's estimates of its lost profits adjusted by the defendant's claims of expenses accepted by the court. If the jury award were to exceed this estimated total, a warning could be issued to the jury and/or court.

174. *See supra* Section II.B.
175. *See supra* Section II.A, II.B.
176. *See supra* Section II.E.