

# Diminishing Uncertainty in Software Patents: After the Supreme Court Denied Certiorari for Synopsys Inc. v. Mentor Graphics Corp.

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# DIMINISHING UNCERTAINTY IN SOFTWARE PATENTS: AFTER THE SUPREME COURT DENIED CERTIORARI FOR SYNOPSIS INC. V. MENTOR GRAPHICS CORP.

*Kayla Hope Barnes\**

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## I. INTRODUCTION

There is currently a gap in United States' patent law that is threatening American innovation. The lack of predictability of the patent eligibility of new computer software has left many to wonder what the future holds for the industry.<sup>1</sup> This idea is illustrated by the Global Intellectual Property Center's most recent patent protection rankings where, for the first time, the Global Intellectual Property Center ranked the United States tenth in patent protection tied with Hungary.<sup>2</sup> To put this in perspective, the Center ranked the United States as the best country for patents in 2016.<sup>3</sup> The 2017 report cites "uncertainty" in the interpretation of "key decisions" as a cause for the drop in ranking.<sup>4</sup> This interpretation issue often centers around the meaning of "abstract concept." Although the patent community has called on the Supreme Court to better define "abstract concept,"<sup>5</sup> the Court has failed to provide any further guidance. This is not due to a lack of opportunity: the Court recently had the option to give further guidance in hearing *Synopsys, Inc. v. Mentor Graphics Corp.*, but it chose to deny the petition for certiorari, to the detriment of certainty within the intellectual property community.<sup>6</sup>

This note will seek to further define the concepts of abstraction and inventive concepts as they apply to computer software patents. It will begin with a discussion of the evolution of the patentability of processes and software in general. This discussion will include a history of the various abstraction tests by combining the history of statutory law, common law, and federal guidance. It will then provide a snapshot of the current state of affairs through a description of the current test established by the Supreme Court's holding in *Alice Corp. v. CLS Bank International*.<sup>7</sup> Next, it will provide a background of the facts and procedural posture of *Synopsys, Inc.*

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<sup>1</sup> See, e.g., Daniel Taylor, Comment, *Down the Rabbit Hole: Who Will Stand Up for Software Patents After Alice?*, 68 ME. L. REV. 217 (2016).

<sup>2</sup> Brief for Amicus Curiae The Intellectual Property Law Association of Chicago in Support of Neither Party at 15-16, *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138 (Fed. Cir. 2016), cert. denied, 138 S. Ct. 71 (2017) (No. 16-1288) [hereinafter Amicus Brief] (citing GLOBAL INTELLECTUAL PROPERTY CENTER, U.S. CHAMBER INTERNATIONAL IP INDEX (2017), <http://www.theglobalipcenter.com/ipindex2017-chart/> (last visited Dec. 10, 2017)).

<sup>3</sup> GLOBAL INTELLECTUAL PROPERTY CENTER, U.S. CHAMBER INTERNATIONAL IP INDEX (2017), [http://www.theglobalipcenter.com/wp-content/uploads/2017\\_Report.pdf](http://www.theglobalipcenter.com/wp-content/uploads/2017_Report.pdf) (last visited Aug. 27, 2018).

<sup>4</sup> Amicus Brief, *supra* note 2, at 16. Since this note's acceptance for publication, the 2018 Global Intellectual Property Center rankings rank the United States as number one for intellectual property; however, the rankings cite uncertainty over patentability for high-tech sectors as remaining a key weakness for the country.

<sup>5</sup> Laura R. Ford, PATENTING THE SOCIAL: ALICE, ABSTRACTION, AND FUNCTIONALISM IN SOFTWARE PATENT CLAIMS, 14 Cardozo Pub. L. Pol'y and Ethics J. 259, 307 (Spring 2016).

<sup>6</sup> 138 S. Ct. 71 (2017).

<sup>7</sup> 134 S. Ct. 2347, 2355-2360 (2014).

*v. Mentor Graphics Corp.*<sup>8</sup> This note will then analyze the current available tests to determine if a process is abstract through applying them to the facts in *Synopsis* along with current accepted patents. It will conclude with a discussion of the need for a new test based on the software's ability to improve a process by making it less cumbersome.

## II. BACKGROUND

The protection of innovative ideas in the United States is as old as the country itself. The Constitution gives Congress the power “to promote the progress of science and the useful arts, by securing for limited times to Authors and Inventors the exclusive Right to their respective writings and discoveries.”<sup>9</sup> Although the United States has a history of encouraging patents, the overall attitude towards the concept of patents has gone through cycles of being in favor to being under fire as courts have struggled with balancing both the encouragement of innovation and the prevention of monopolies on ideas.<sup>10</sup>

### A. STATUTORY HISTORY

In response to anti-patent attitudes, Congress passed the 1952 Act creating Title 35.<sup>11</sup> This Act is the backdrop for today's patent law.<sup>12</sup> There are three relevant statutes concerning patent eligibility. 35 U.S.C. § 101 allows for any individual who “invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, [to] obtain a patent.”<sup>13</sup> Section 102 sets forth that the invention must be novel.<sup>14</sup> Finally, section 103 establishes that an invention may not be obvious.<sup>15</sup> This section goes further to say an invention is not patentable if a “person having ordinary skill in the art to which the claimed invention pertains” would know the invention to be obvious.<sup>16</sup> It is §103 that provides the backdrop to this idea of abstraction. Although these three statutes provide the backdrop for patent law, they do little in the way of dealing with what

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<sup>8</sup> 814 F.3d 1309 (Fed. Cir. 2016), *overruled on other grounds by* Aqua Prods. V. Matal, 872 F.3d 1290 (2016).

<sup>9</sup> U.S. CONST. art. I, § 8, cl. 8.

<sup>10</sup> DONALD S. CHISUM, CHISUM ON PATENTS OV-9 – OV-15 (Matthew Bender 2018).

<sup>11</sup> *Id.* at OV-12.

<sup>12</sup> *Id.*

<sup>13</sup> 35 U.S.C. § 101 (2017).

<sup>14</sup> 35 U.S.C. § 102 (2017).

<sup>15</sup> 35 U.S.C. § 103 (2017).

<sup>16</sup> *Id.*

exactly is meant for an invention to be nonobvious in the realm of computer processes. For this question to be answered, one must turn to common law.

#### B. COMMON LAW HISTORY

The introduction of computer software processes into patent law brought with it many questions of what software was “obvious” and what software was “novel.” The first major decision dealing with the patentability of computer programming was *Gottschalk v. Benson*.<sup>17</sup> This case centered on the patentability of an algorithm that “convert[ed] binary-coded decimal . . . numerals into pure binary numerals.”<sup>18</sup> The Supreme Court held this patent would preempt an entire mathematical formula, and would patent the algorithm itself.<sup>19</sup> The crucial fact in this decision was that the patent was not unique to any specific machine but the algorithm itself which in an essence made it an abstract idea as it would cover known and unknown uses.<sup>20</sup>

The next case the Supreme Court weighed in on concerning the patent eligibility of a process was *Bilski v. Kappos*.<sup>21</sup> The process at issue in this case showed commodities traders how to hedge against the risk of price changes. The Court ultimately upheld the circuit court’s ruling that the process was not patent eligible because it attempted to patent an abstract idea, but this case is most notable because of the Court’s rejection of the exclusive use of the “machine-or-transformation test” applied by the circuit court.<sup>22</sup> The machine-or-transformation test is a two-step process which addresses patent eligibility. This test determined that a process could be patent eligible if it was “tied to a particular machine or apparatus, or if it transforms a particular article into a different state or thing.”<sup>23</sup> The Supreme Court held this test was not the only way to determine if a process is patent eligible.<sup>24</sup> This represents the first time the Supreme Court addressed the patentability of a process.

The current state of patentability of computer processes results from the Supreme Court’s decision in *Alice Corp. Pty. Ltd. V. CLS Bank Int’l*.<sup>25</sup> The facts in this case are similar to those in *Bilski* as the patent at issue sought to hedge risks. More specifically, the patent sought to “facilitate the exchange of financial obligations between two parties by using a computer system as a third-party intermediary.”<sup>26</sup> This program

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<sup>17</sup> 409 U.S. 63 (1972).

<sup>18</sup> *Id.* at 64.

<sup>19</sup> *Id.* at 72.

<sup>20</sup> *Id.* at 68.

<sup>21</sup> 561 U.S. 593 (2010).

<sup>22</sup> *Id.* at 612-613.

<sup>23</sup> *See Kappos*, 561 U.S. at 600 (quoting *In re Bilski*, 545 F.3d 943, at 944 (Fed. Cir. 2008)).

<sup>24</sup> *Id.* at 612-613.

<sup>25</sup> 134 S. Ct. 2347 (2014).

<sup>26</sup> *Id.* at 2352.

calculated if resources existed to pay back a debt.<sup>27</sup> The Court ultimately held such a program was not patent eligible because it was attempting to patent human ingenuity as individuals had been performing these functions for years.<sup>28</sup> *Alice* is also significant because it provides the current test for determining if a concept is patent eligible: Is it a patent ineligible concept? If so, is there some type of inventive concept?<sup>29</sup>

### C. AGENCY INVOLVEMENT

Post-*Alice*, there are many questions regarding what exactly an inventive concept is, and whether or not the current test is even workable. There has yet to be any further Supreme Court guidance on this issue, and Congress has not passed any clarifying legislation. Occasionally, the United States Patent and Trademark Office (USPTO) will release memos on the subject, but these memos are not binding, and so they do little in the way of actually filling gaps in the law. For example, on May 19, 2016, the USPTO released a memo discussing the Federal Court of Appeal's decision in *Enfish LLC v. Microsoft Corp.* The USPTO advocated for a new test to determine if a claim is related to an abstract idea.<sup>30</sup> Although the The first part of the proposed test seeks to "determine if the claim recites a concept that is similar to concepts previously found abstract by the courts."<sup>31</sup> The second part of the test is less a step and more of a conclusion: if one can demonstrate an *improvement* in computer-related technology, this is enough to determine a claim is not related to an abstract idea.<sup>32</sup> Not only does this memo not carry the force of law, it also does not really define what an abstract idea is; at best, it describes abstraction by reference some previous concept found to meet that test, and obliquely offers that improvements in computer related technology will usually qualify.

### D. SYNOPSISYS, INC. V. MENTOR GRAPHICS CORP.

Nowhere is the lack of guidance concerning the patentability of processes more apparent than with the decisions in *Synopsisys, Inc. v. Mentor Graphics Corp.*<sup>33</sup> originating in the Northern District of California. The facts in *Synopsisys* present a unique issue concerning the patent eligibility of a computer program that translates human descriptions of logic boards into hardware components. At issue in *Synopsisys* are three

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<sup>27</sup> Steven Swan, Note, *Plugging the Rabbit Hole: The Supreme Court's Decision in Alice*, 2016 UTAH L. REV. 891 at 892 (2016).

<sup>28</sup> *Alice*, 134 S. Ct. at 2356.

<sup>29</sup> *Synopsisys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1146 (Fed. Cir. 2016).

<sup>30</sup> Memorandum from the United States Patent and Trademark Office, (May 19, 2016).

<sup>31</sup> *Id.* at 2.

<sup>32</sup> *Id.*

<sup>33</sup> 814 F.3d 1309 (Fed. Cir. 2016), *overruled by* Aqua Prods. V. Matal, 872 F.3d 1290 (2016).

different patents, collectively referred to as “the Gregory Patents.”<sup>34</sup> Together these patents describe a type of electronic design automation whereby logic synthesis is performed.<sup>35</sup> These patents are relevant to the process of building circuit boards; they provide for a method that takes human descriptions and translates these descriptions into hardware components of the circuit board.<sup>36</sup> This process, in its most basic form, can be performed by a person in the field, but the Gregory Patents seek to perform this process for complex circuit designs.<sup>37</sup> In other words: the Gregory Patents describe a computer program that takes a simple process and improves it to make it workable in advanced settings which would not be applicable had the program not existed.

The Northern District of California held that this program was not patent eligible because “each of the steps ... can be performed by a skilled designer either mentally or with pencil and paper.”<sup>38</sup> This Northern District Court also cited the fact the inventors created this process without the use of a computer as a reason to deny the patents.<sup>39</sup>

In its holding, the Northern District Court cites unusual reasons for denying the patents. One such reason for denying the patent was that the methods did not entail anything physical;<sup>40</sup> however, there is no precedent stating for a method to be patent-eligible that it has to involve some physical element. If this were the case, no type of software could ever be patented as software is inherently nonphysical. The Northern District Court instead equates the lack of a *physical* element with the conclusion that what remains is a *mental* process, and reasons that mental processes are patent ineligible since they are abstract ideas.<sup>41</sup>

The Northern District Court completely discounted the fact that a human would *never* attempt the process described by the Gregory Patents:

“The fact that previously a designer would not have followed the exact same thought process does not change the analysis. A method primarily designed for use by a computer is, almost by definition, going to differ from the manner in which a natural person thinks through a problem.”<sup>42</sup>

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<sup>34</sup> *Id.* at 1312.

<sup>35</sup> *Id.*

<sup>36</sup> *Id.*

<sup>37</sup> *Id.* at 1318.

<sup>38</sup> *Synopsys, Inc. v. Mentor Graphics Corp.*, 78 F. Supp. 3d 958, 961 (N.D. Cal. 2015).

<sup>39</sup> *Id.*

<sup>40</sup> *Id.* at 963.

<sup>41</sup> *Id.* (citing *CyberSource Corp. v. Retail Decisions, Inc.*, 654 F.3d 1366, 1371 (2011)).

<sup>42</sup> *Id.* at 966.

The Federal Circuit Court of Appeals affirmed this decision through the use of the test proposed in *Alice*.<sup>43</sup> The Federal Circuit held that the Gregory Patents did in fact represent an abstract idea, but concluded the methods were not an inventive concept.<sup>44</sup> The court claimed that just because an idea might be novel does not guarantee it is not still abstract.<sup>45</sup> The process set forth by the Gregory Patents was not an “inventive concept,” even though the court recognized the lack of definition for the term “inventive concept.”<sup>46</sup> The unclear reasoning in *Synopsys* illustrates the need for further guidance as to what constitutes an inventive concept.

Unfortunately, the Supreme Court decided not to weigh in on *Synopsys*.<sup>47</sup> This means that the question of what exactly qualifies as an inventive concept remains an unresolved issue.

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<sup>43</sup> *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1146–52. (Fed. Cir. 2016) *overruled on other grounds by* *Aqua Prods. V. Matal*, 872 F.3d 1290 (2016).

<sup>44</sup> *Id.* at 1152.

<sup>45</sup> *Id.* at 1151 (“A new abstract idea is still an abstract idea. The search for a § 101 inventive concept is thus distinct from demonstrating § 102 novelty.”).

<sup>46</sup> *Id.*

<sup>47</sup> *Synopsys, Inc. v. Mentor Graphics Corp.*, 138 S. Ct. 71 (2017).

## III. ANALYSIS

## A. INAPPLICABILITY OF CURRENT ALICE TEST

1. *Analysis of Synopsis using the Alice test.*

The holdings in *Synopsis* provide evidence proving the Alice test is hostile towards software patents. In fact, after Alice, over 80% of all software patents have been denied.<sup>48</sup> The sweeping definition of what is considered an abstract concept, coupled with the lack of a definition for an inventive concept, are likely causes for this patent hostility.

*a. Patent ineligible concept.* To ensure the *Alice* test was not misapplied, this note will reexamine the test through the facts of *Synopsis* since the Supreme Court has declined the opportunity to do so. The first step in analyzing the Gregory Patents is to determine if they represent a patent-ineligible concept.<sup>49</sup> The Supreme Court held a concept is patent ineligible if it seeks to patent “[l]aws of nature, natural phenomena, [or] abstract ideas.”<sup>50</sup>

Translating one computing language into another would not fall under the categories of laws of nature or natural phenomena, so patent ineligibility would hinge on if it was an abstract idea. As previously established, there is no set definition for determining what is abstraction.<sup>51</sup>

This lack of definition has not prevented the Ninth Circuit from nonetheless determining a concept is abstract by comparing it to other concepts that have previously been held to be abstract in *Enfish*.<sup>52</sup> Although the *Enfish* decision came two years after *Synopsis*, it does little to define abstraction, essentially saying only that one should compare the concept at issue to precedent.<sup>53</sup> This is easier said than done, because each patent is inherently unique and therefore distinguishable. The purpose of patents is to protect new ideas, so it is inefficient to base a definition of a term regarding these ideas, which are by their nature different from one another, on what this term meant for another idea.

*Synopsis* argued the Gregory Patents were not abstract because they describe “concrete steps in a computerized process for creating a netlist of hardware elements.”<sup>54</sup> Meanwhile, the defendant, Mentor Graphics, argued the Gregory

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<sup>48</sup> Taylor, *supra* note 1 at 247.

<sup>49</sup> *Alice Corp. v. CLS Bank Int’l*, 134 S.Ct. 2347, 2355 (2014).

<sup>50</sup> *Id.* at 2354.

<sup>51</sup> *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1134 (Fed. Cir. 2016).

<sup>52</sup> *Id.*

<sup>53</sup> *Id.*

<sup>54</sup> *Synopsis, Inc. v. Mentor Graphics Corp.*, 78 F. Supp. 3d 458 (N.D. Cal. 2015).

Patents attempt to patent an abstract idea because they lack any physical element.<sup>55</sup> For the sake of argument, this note will analyze the Gregory Patents as if they represent an abstract concept. This does *not* mean that the patents are automatically ineligible, since the patents still have a chance for redemption with the second part of the test: determining its status as an inventive concept.

*b. Inventive Concept.* The second part of the *Alice* test examines if the idea “contains an ‘inventive concept’ sufficient to ‘transform’ the claimed abstract idea into a patent-eligible application.”<sup>56</sup> There is no actual definition for what should be considered an inventive concept or at what level an abstract idea can be considered to have been sufficiently transformed. Courts have only attempted to define inventive concepts by saying what they are not. For example, in *Mayo Collaborative Services v. Prometheus Labs., Inc.*, the Supreme Court held that “appending conventional steps, specified at a high level of generality” to an already known method does not make those steps patentable.<sup>57</sup> Neither is adding the application of a computer to an abstract idea.<sup>58</sup> The closest the Supreme Court has come to providing a definition of this term comes at the end of the *Alice* decision, when it held “[b]ecause ... [the] claims add nothing of substance to the underlying abstract idea, they too are patent ineligible.”<sup>59</sup> From this, one could assume for a concept to be inventive it must add something of substance to an abstract idea.

The Gregory Patents could easily be considered to add something of substance to the process of logic circuits’ descriptions because they remove the need for the user to input hardware units when translating hardware descriptive languages. This process greatly increases the efficiency at which these languages can be converted allowing for individuals to build increasingly complex circuit boards. This presents a substantial change that is *not* synonymous with just adding a computer to the process because the computer is doing something different than a human would. Because the methods are *different* between a computer and a human, the Gregory Patents do not preempt any sort of human translation of circuit board descriptions.

The Northern District Court of California notably cited only testimonial evidence to show the Gregory Patents simply used a computer to apply a preexisting method.<sup>60</sup> The district court cites a deposition in which one of the patent’s creators said that he was responsible for trying to take a manual process and figure out how a computer could do it.<sup>61</sup> The patent, on the other hand, describes a new process that allows users to use hardware description language on more complex circuit elements without

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<sup>55</sup> *Id.*

<sup>56</sup> *Alice Corp. v. CLS Bank Int’l.*, 134 S. Ct. 2347, 2357 (2014).

<sup>57</sup> 132 S. Ct. 1289, 1292 (2012).

<sup>58</sup> *Id.* at 1301.

<sup>59</sup> *Alice*, 134 S. Ct. at 2351.

<sup>60</sup> *Synopsys, Inc. v. Mentor Graphics Corp.*, 78 F. Supp. 3d 958, 966 (N.D. Cal. 2015).

<sup>61</sup> *Id.*

having to specifically describe the circuit element using an equation.<sup>62</sup> Though a human could *theoretically* do this process, few individuals would actually *attempt* this extremely challenging process because of the knowledge required and the immense amount of time it would take.<sup>63</sup> Although the district court ultimately determined the Gregory Patents did not represent inventive concepts, one can see how difficult it is to reach this conclusion with the current lack of defined terms.

This lack of clearly defined terms has led to some concepts to be patent eligible while similar concepts have been held to be patent ineligible. Using the logic set forth in *Alice* and the district court's decision in *Synopsys*, one of the acclaimed patents of 2015 would likely not pass muster.

## 2. Analysis of fact checking patent with *Alice* test

IPWatchdog ranked Patent 8972321 as the seventh best patent of 2015.<sup>64</sup> Held by IBM, Patent 8972321 describes a method for fact checking statements.<sup>65</sup> Inventors created the patent in response to statements made by political candidates.<sup>66</sup> The method it describes analyzes the truth of a statement by first breaking it down into different parts (independent and dependent clauses). The system then uses these parts to create questions and answers.<sup>67</sup> So if the sentence was "Bill has a red ball," the program would divide the sentence into questions and answers: What has a red ball? – Bill.<sup>68</sup> Once it has these questions and answers, the computer runs the questions through search engines, compares the results to the answers, and uses the comparison to calculate a truthfulness percentage.<sup>69</sup>

If one tests the patentability of this concept using the *Alice* test, the seventh-best patent of 2015 surely fails. First, one must determine if the claim attempts to patent an illegible concept.<sup>70</sup> Fact checking is neither a law of nature nor natural phenomena, so for it to be patent ineligible it would have to be an abstract idea. Using the logic used in *Synopsys*, the question to determine if a concept is abstract would then be to ask whether it is some tangible concept. The truth is not something

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<sup>62</sup> U.S. Patent No. 5,530,841 (filed June 6, 1995).

<sup>63</sup> *Id.*

<sup>64</sup> IPWatchdog, THE TOP 10 PATENTS ISSUED IN 2015, (Dec. 28, 2015), <http://www.ipwatchdog.com/2015/12/28/top-10-patents-issued-2015/id=64025/>.

<sup>65</sup> U.S. Patent No. 8972321 (filed Sept. 28, 2011) [hereinafter Fact Checker Patent].

<sup>66</sup> IPWatchdog, *supra* note 64.

<sup>67</sup> Fact Checker Patent, *supra* note 65.

<sup>68</sup> *Id.*

<sup>69</sup> *Id.*

<sup>70</sup> *See Alice Corp. v. CLS Bank Int'l.*, 134 S. Ct. 2347 (2014).

a person could physically touch, so the claim would move to the next step of the test, which is determining whether the claim is inventive.<sup>71</sup>

The Northern District Court of California held a claim was not inventive if it took a method previously known and applied it using a computer.<sup>72</sup> The fact-checking patents clearly take a previously used method and apply it to a computer. People use search engines to check the accuracy of another's statements on a daily basis. The patent itself even acknowledges that individuals can perform this type of fact checking.<sup>73</sup> For these reasons, a court would likely find the fact checking patent is not inventive which would cause the claim to be patent-ineligible. IBM's fact-checking patent states that this method provides a service that once required 80 people to perform;<sup>74</sup> however, according to the district court's holding in *Synopsis*, this argument should be considered irrelevant in the analysis of a claim's inventiveness.<sup>75</sup> Following precedent, a court would also likely hold that it does not matter that the method used in the fact-checking patents might differ a little from what a human would employ because a human would obviously perform a task in a different way than a computer would.<sup>76</sup>

It is clear from this analysis that, if challenged, the venerated fact-checking patent would likely not pass the *Alice* test. So the question is why was it granted a patent in the first place? Why was a method that eight-year-olds perform granted a patent while the courts stripped the patent away from a method that can only be used in the theoretical sense by individuals with immense knowledge of the subject? The *Alice* test has left a clear and apparent inconsistency that must be filled, or inventors will no longer be incentivized to create any new computer software for fear of a lack of adequate protection.

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<sup>71</sup> *Id.* at 2357.

<sup>72</sup> *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 132 S. Ct. 1289,1301(2012) (citing *Gottschalk v. Benson*, 409 U.S. 63, 71 (1972)).

<sup>73</sup> Fact Checker Patent, *supra* note 65.

<sup>74</sup> *Id.*

<sup>75</sup> *Alice*, 134 S. Ct. at 2351 (2014).

<sup>76</sup> *Id.*

## A. ANALYSIS OF PROPOSED REPLACEMENT TESTS

1. *Quantifiable improvement proposal*

Many possible solutions exist to fix the issues with the current test. One such suggestion is to create a test based on “quantifiable improvement to the examples.”<sup>77</sup> This approach would require patent applicants to show some type of quantifiable improvement to the abstract idea involved with the patent.<sup>78</sup> In practice, this would look very similar to the fact-checking patent whereby IBM noted the method does the work of 80 people.<sup>79</sup>

This solution has its own issues. In his Utah Law Review note, Steven Swan acknowledges this method does little to help patent holders like *Synopsys* who have already filed their patents without this language.<sup>80</sup> The lack of protection for the earliest software patents represents a major issue as these early patents provide the foundation for software as society knows it today. To say that an abstract concept is only inventive if it can show some quantifiable level of improvement would open the door to patent trolls to challenge early patents simply on the grounds that this type of language is not explicit in the patent.

Swan’s method would also likely open the flood gate to patents as it would allow almost any software to be patented. Computers inherently perform functions faster than the average human, so presumably any function performed by a human’s brain could be patented if it was put into software form, because one could quantify how much more efficient the process would be performed by a computer than by an individual. With this test, the patent at issue in *Bilski* could be considered inventive because a computer can calculate how to hedge an investor’s risk quicker than a person can.<sup>81</sup>

2. *Allowing some intangibles to fall outside of the abstract concept definition*

There is also a push to provide a better definition of what amounts to an abstract concept. Currently, a split exists a between whether an abstract concept should mean “anything intangible” or whether abstract concept should *not* include intangible items that have a set definition.<sup>82</sup> The latter would exclude intangible items which are

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<sup>77</sup> Swan, *supra* note 27, at 912.

<sup>78</sup> *Id.*

<sup>79</sup> Fact Checker Patent, *supra* note 65.

<sup>80</sup> Swan, *supra* note 27, at 912.

<sup>81</sup> *Gottschalk v. Benson*, 409 U.S. 63, 68 (1972).

<sup>82</sup> See Amicus Brief, *supra* note 2, at 17–18.

defined by concrete steps (such as the Gregory Patents) from the definition of an abstract concept.<sup>83</sup>

The easier alternative is clearly to consider anything intangible to be abstract. This would eliminate the responsibility of judges and the USPTO to decide what steps in a method are properly defined. While some fear that holding all intangible concepts to be abstract would completely prevent any type of software from being patentable, the subsequent “inventiveness” inquiry would still provide an effective path to eligibility.

*3. Allowing patents for intangibles that solve problems specifically arising in the realm of computer networks*

Another possible solution was proposed by the Federal Circuit Court of Appeals in *DDR Holdings, LLC v. Hotels.com, L.P.*<sup>84</sup> The patent at issue sought to solve an issue in the ecommerce field.<sup>85</sup> When website patrons clicked on advertisements, they were transported to another site. This caused a disruption in website traffic on the original page. The patent fixed this issue by taking patrons to a hybrid site when they click on an advertisement that has components of the original site and the advertised site.

The court distinguished this patent from ineligible concepts like the one in *Alice* by noting that this patent exists “to overcome a problem specifically arising in the realm of computer networks.”<sup>86</sup> The court held this was important because the patent did not prevent other applications of the concept of stores within stores such as kiosks.<sup>87</sup> *DDR Holdings* is notably the only post-*Alice* case to hold a computer software to pass the inventive concept test. The Federal Circuit used the problem solving approach within the *Alice* framework to help define an inventive concept.<sup>88</sup> In fact, the Federal Circuit cautioned that “not all claims purporting to address Internet-centric challenges are eligible for patent.”<sup>89</sup> The court held this approach should not be taken as a standing rule because it would open the door to claim that any problem solved by some internet-based program was patent eligible.<sup>90</sup>

It is possible that a rule similar to the one alluded to in *DDR Holdings* could be useful in defining inventive concepts. Although the court was fearful that patent applicants would simply add an internet dimension to make *all* ideas patentable, this

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<sup>83</sup> *Id.*

<sup>84</sup> 773 F.3d 1245 (Fed. Cir. 2014)

<sup>85</sup> *Id.* at 1261-62.

<sup>86</sup> *Id.* at 1257.

<sup>87</sup> *Id.* at 1258.

<sup>88</sup> *Id.* at 1256-59.

<sup>89</sup> *Id.* at 1258.

<sup>90</sup> *Id.*

concern does not follow from the facts in *DDR Holdings*. The patent at issue in *DDR Holdings* focused on an issue that was only present in the realm of the Internet.<sup>91</sup> From this set of facts, one could glean an appropriate definition of an “inventive concept”: i.e., a concept which solved a problem unique to the applicable industry.

Under this rule, the Gregory Patents would have been upheld. This is because there was an obvious issue in the world of circuit board design whereby individuals were unable to create complex circuits because it was too cumbersome to translate one design language into another if the hardware needed involved complex elements such as switchboards.<sup>92</sup> The industry problem at issue would be the inability to create complex design features and the solution would be the advent of a translation method for complex design without the use of a human.

This rule would also allow for the patent eligibility of the fact-checking patent. The industry problem would be the need for instantaneous checking of statements (this patent was applied for during the height of the 2016 presidential election).<sup>93</sup> The solution to this problem is the use of computer systems to automate the process of fact-checking, thereby solving the issue of the need for quick confirmation of statements.

The problem-based approach has received some traction recently. For example, the District Court of Rhode Island recently upheld a patent which eliminates the need for business patrons to present two different cards, one to pay and one to receive rewards benefits.<sup>94</sup> It does this by “encod[ing] the data stream with sentinels.”<sup>95</sup> In holding that this concept was patent-eligible, the Rhode Island District Court cites that the “patent overcomes unique technological challenges.”<sup>96</sup> The Court then distinguishes this patent from other failed patents by stating that this patent does not broadly state that the use of the Internet solves the issue and makes the concept inventive.<sup>97</sup>

Similarly, the District Court of Massachusetts also upheld the use of some problem solving approach in evaluating patents.<sup>98</sup> The patent at issue in *Sophos* sought to solve the problem of the uncertainty of the delivery of electronic messages.<sup>99</sup> This was accomplished by establishing a server between the sender and the recipient.<sup>100</sup>

<sup>91</sup> *Id.* at 1257.

<sup>92</sup> *Alice Corp. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2358 (2014).

<sup>93</sup> *Fact Checker Patent*, *supra* note 65.

<sup>94</sup> *SCVNGR, Inc. v. DailyGobble, Inc.*, 238 F. Supp. 3d 263, 270 (D.R.I. 2017).

<sup>95</sup> *Id.* at 264.

<sup>96</sup> *Id.* at 269.

<sup>97</sup> *Id.*

<sup>98</sup> *Sophos Inc. v. RPOST Holdings*, 2016 U.S. Dist. LEXIS 72699 (2016).

<sup>99</sup> *Id.* at 36–37.

<sup>100</sup> *Id.* at 37.

The Court held this was enough to pass the muster of the inventive concept element of the *Alice* test.<sup>101</sup>

Although the test in *DDR Holdings* appears to be gaining traction, there is a potential hole. Under this rule, it is possible for a court to deny patents, such as the Gregory Patents, that provide solutions for problems in a way theoretically achievable by hand, even if no one would actually attempt to do so.

#### 4. *Problem solving approach with workability exception*

To fill this hole, it would be beneficial to have an exception for patents which, on their face, add the use of a computer to solve an issue based on a previously manual formula which adds something to the method to make it adaptable to a computer system.

Admittedly, some will argue that this sort of exception will be the beginning of a slippery slope whereby individuals will eventually be able to patent laws of nature if a computer is able to perform it faster than a human can. But, in reality, this carve out is fairly limited, because it would only apply to methods and processes that are too cumbersome for a human to even attempt in the first place.

The limited nature of this exception is demonstrated by applying the rule to the patent in *Alice*. The patent at issue in *Alice* used a computer to hedge risks by establishing appropriate third parties. This patent would not fall into the exception for cumbersomeness because humans often perform this exact function, using third parties to hedge risks. The patent at issue in *Alice* is distinguishable from the Gregory Patents because, although the process in the Gregory Patents was theoretically implementable, no one would actually attempt to use it; by comparison, the process in the *Alice* patent is commonplace.

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<sup>101</sup> *Id.*

#### IV. CONCLUSION

Patent law exists to encourage human innovation. An individual is not incentivized to think outside of the box unless he knows that his idea will be protected. With growing use of technology comes a growing section of the population with ideas connected directly to the advancement of technology. Some of these ideas will build upon preexisting methods, but to say that these ideas are wholly patent-ineligible unnecessarily stops progress. The carve out proposed in this note is fundamentally necessary so that the United States does not fall further behind as a producer in the world's technology marketplace.

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