
Alice Analysis: Practical Guidance From a Decade of Eligibility Cases – Part II

By Reilley P. Keane

It has been about ten years since the landmark Supreme Court decision in *Alice Corp. v. CLS Bank International* (published in 2014), laying out a two-step analysis for determining whether a patent claim recites eligible subject matter.¹

Step one involves examining whether the claim is directed to an abstract idea, defined by the U.S. Patent & Trademark Office (USPTO) by the enumerated groupings of mathematical concepts (i.e., mathematical relationships, formulas, equations, calculations, or the like), certain methods of organizing human activity (i.e., economic practices, commercial/legal interactions, managing personal behavior, or the like), or mental processes (i.e., observations, evaluations, judgements, or the like that may be performed in the human mind).² If the claim is not directed to an abstract idea, the claim recites patent eligible subject matter (though eligibility does not necessarily equate to allowability, and the claim may be rejected by the USPTO nonetheless based on a variety of other qualifications including novelty or non-obviousness).

In the alternative, the step two analysis is performed, which includes determining whether the claim includes elements that amount to significantly more than the abstract idea itself.³ If the claim prevails in reciting significantly more than the abstract idea, it is found eligible; otherwise it is ineligible.

While the *Alice* test (also frequently referred to as the *Alice/Mayo* test, as a nod to the Supreme Court's opinion in *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, from which the judges in *Alice* heavily pulled), provided a basic framework for determining patent eligibility, it remained vague and open to numerous interpretations at each step (i.e., what do we really mean by “directed to,” or “significantly more?”).⁴ Over the past decade, the U.S. Court of Appeals for the Federal Circuit has

issued a myriad of opinions providing context for this test, which have clarified the *Alice* test over time. It is vital that practitioners understand these decisions/developments, and how they may be used to inform strategy for drafting and prosecuting patent applications. Techniques that may have been successful at the dawn of the decade might no longer be successful; likewise, Federal Circuit precedent sheds light on new techniques that may be advantageous.

This article takes a deep dive into eligibility-related caselaw of the last decade, and discusses my personal “Top 10” decisions from the Federal Circuit. More specifically, the list includes, in my opinion, the ten cases that are most useful for practitioners in prosecution strategy, including corresponding details and takeaways from each decision. In particular, practitioners may use these takeaways as a blueprint for structuring specifications and claims during the initial drafting process, and for handling subject matter eligibility rejections during prosecution.

The first five cases were discussed in the first part of this article, which was published in the February issue of the *Intellectual Property & Technology Law Journal*; the next five cases are discussed in this conclusion.

Thales Visionix Inc. v. U.S. (Federal Circuit – March 2017)

Thales appealed a decision from the US Court of Federal Claims, which held that a number of claims in their patent were directed to patent ineligible subject matter. In particular, these claims were directed to a system that tracks an object's motion relative to a moving reference frame – specifically, an “inertial tracking system.”⁵ For example, representative claims 1 and 22 recite:

1. A system for tracking the motion of an object relative to a moving reference frame, comprising:

The author, a shareholder in Banner Witcoff, may be contacted at rkeane@bannerwitcoff.com.

a first inertial sensor mounted on the tracked object;

a second inertial sensor mounted on the moving reference frame; and

an element adapted to receive signals from said first and second inertial sensors and configured to determine an orientation of the object relative to the moving reference frame based on the signals received from the first and second inertial sensors.⁶

22. A method comprising determining an orientation of an object relative to a moving reference frame based on signals from two inertial sensors mounted respectively on the object and on the moving reference frame.⁷

Thales alleged that these claims provide at least three primary advantages over prior art systems, which tracked motion relative to the earth.⁸

First, gravitational effect is directly measured in a moving reference frame, which increases accuracy of the inertial sensor measurements.⁹

Second, no additional hardware is needed to determine orientation of the moving platform.

Third, installation of the system is simplified.¹⁰

Nonetheless, the Claims Court found the claims directed to an abstract idea – in particular, “using laws of nature governing motion to track two objects,” and found that the claims provided no inventive concept beyond this abstract idea.¹¹

In conducting its analysis at step one of the *Alice* test, the Federal Circuit found that the claims were not merely directed to this abstract idea. Rather, they found that the claims “use inertial sensors in a non-conventional manner to reduce errors in measuring the relative position and orientation of a moving object on a moving reference frame.”¹² In particular, in addressing the Claims Court’s finding that the claims were directed to mathematical equations, the Federal Circuit noted that these mathematical equations “are a consequence of the arrangement of the sensors and the unconventional choice of reference frame in order to calculate position and orientation.”¹³ Rather than claiming, or otherwise being directed to, such mathematical equations, the claims protect application of physics to an unconventional sensor configuration.¹⁴ In

doing so, the Federal Circuit re-iterated their message from *Rapid Litigation* – “it is not enough to merely identify a patent ineligible concept underlying the claim; we must determine whether that patent-ineligible concept is what the claim is ‘directed to.’”¹⁵ Accordingly, the Federal Circuit reversed the Claims Court’s determination, finding the claims patent eligible.¹⁶

This decision provides insight in how claims with underlying mathematic concepts may be drafted to avoid eligibility challenges, and/or argue against eligibility rejections in prosecution. In particular, practitioners should be careful to avoid reciting any such underlying mathematical concepts in the claims themselves. Rather, the claims should include any particular arrangement of features that demonstrates a technical improvement over any prior art solutions. From a prosecution perspective, it is important to note the Federal Circuit’s assertion, “that a mathematical equation is required to complete the claimed method and system does not doom the claims to abstraction.”¹⁷

***Finjan, Inc. v. Blue Coat Systems, Inc.* (Federal Circuit – January 2018)**

Blue Coat appealed a decision of the US District Court for the Northern District of California, which found the claims of Finjan’s patent to be eligible. In particular, these claims were directed to identifying and protecting against malware, specifically by “attaching a security profile to a downloadable.”¹⁸ For example, representative claim 1 of Finjan’s patent recited:

A method comprising:

receiving by an inspector a Downloadable;

generating by the inspector a first Downloadable security profile that identifies suspicious code in the received Downloadable; and

linking by the inspector the first Downloadable security profile to the Downloadable before a web server makes the Downloadable available to web clients.¹⁹

Beginning at step one of the *Alice* test, the Federal Circuit noted that although virus scanning is well

known as an abstract idea, the claims at issue recite a good deal more than any such abstract idea.²⁰ Specifically, the Federal Circuit found that the use of the claimed security profile for virus detection is distinguished from traditional code matching virus scans, which would be limited to detecting previously identified viruses through code comparison, and thus constituted an improvement in computer functionality.²¹ For example, the use of the claimed security profile would provide more granular information that would allow for the detection of viruses that would otherwise not be detected using prior art methods.

The Federal Circuit acknowledged that, based on their own precedent, “software-based innovations can make ‘non-abstract improvements to computer technology.’”²² Given that the claimed features enabled a tailored virus detection approach that enabled new functions for a computer security system, the Federal Circuit affirmed that the claims were directed to such a non-abstract improvement, rather than the general abstract idea of “computer security.”²³

Blue Coat further argued that even assuming the claims are directed to a new idea at step one of the *Alice* test, the claims are nevertheless abstract “because they do not sufficiently describe how to implement that idea.”²⁴ In particular they relied on holdings in *Apple, Inc. v. Ameranth, Inc.*, and *Affinity Labs of Tex., LLC v. DIRECTV, LLC*, which note that “a result, even an innovative result, is not itself patentable.”²⁵ Acknowledging this principle, the Federal Circuit noted that, rather than reciting a mere result, Finjan’s claims recited specific steps that accomplish a desired result – in particular “generating a security profile that identifies suspicious code and linking it to a downloadable.”²⁶ Accordingly, the Federal Circuit further confirmed their decision that the claims were patent eligible, without a need to proceed to step two of the *Alice* test.

Two primary takeaways from this case are the importance of claiming a technical improvement to any prior art solutions, and ensuring that any such improvement is claimed using a specific sequence of steps that achieve the relevant improvement (i.e., rather than claiming a result itself – which will almost certainly be flagged as ineligible). Although this case may be widely applicable to software inventions, it may be particularly useful/persuasive

in the context of cybersecurity given the subject matter of Finjan’s claims.

Berkheimer v. HP Inc. (Federal Circuit - February 2018)

Unlike the majority of cases discussed herein, the claims at issue in *Berkheimer* were found ineligible. Nonetheless, this decision provides valuable insight for practitioners regarding interpretation of the *Alice* test. At issue are the claims of *Berkheimer*’s patent, which the U.S. District Court for the Northern District of Illinois found to be ineligible. In particular, the claims were related to processing/archiving digital asset management system files, including improving operating efficiency thereof by reducing redundant storage, and enabling a “one-to-many editing process,” where changes to one object carry over to any other archived documents including the same object.²⁷ For example, representative claim 1 recites:

A method of archiving an item in a computer processing system comprising:

presenting the item to a parser;

parsing the item into a plurality of multi-part object structures wherein portions of the structures have searchable information tags associated therewith;

evaluating the object structures in accordance with object structures previously stored in an archive;

presenting an evaluated object structure for manual reconciliation at least where there is a predetermined variance between the object and at least one of a predetermined standard and a user defined rule.²⁸

At step one of the *Alice* test, the Federal Circuit found that the claims at issue were directed to the abstract ideas of parsing, comparing, storing, and/or editing data.²⁹ In doing so, they rejected Mr. *Berkheimer*’s arguments that the “parsing” feature rooted the claims in technology and provided for transformation of the claimed data structure.³⁰ For example, the Federal Circuit noted both that “[l]imiting the invention to a technological environment

does ‘not make an abstract concept any less abstract under step one,’” and that the data transformation “does not demonstrate non-abstractness without evidence that this transformation improves computer functionality in some way.”³¹ Accordingly, because the claims were found directed to an abstract idea, the Federal Circuit proceeded to step two of the *Alice* test.

At step two, the Federal Circuit acknowledged that the analysis includes consideration of elements of each claim both individually and “as an ordered combination” to determine whether the additional elements “transform the nature of the claim,” into a patent eligible invention, and that this step is satisfied where the claim limitations “involve more than performance of ‘well understood, routine, [and] conventional activities previously known to the industry.’”³² In addressing the district court’s analysis, the Federal Circuit indicated that while patent eligibility is ultimately a question of law, there was error in the conclusion that there were no underlying factual questions in the eligibility analysis.³³ For example, the Federal Circuit indicated that:

Whether something is well-understood, routine, and conventional to a skilled artisan at the time of the patent is a factual determination. Whether a particular technology is well-understood, routine, and conventional goes beyond what was simply known in the prior art. The mere fact that something is disclosed in a piece of prior art, for example, does not mean it was well-understood, routine, and conventional.³⁴

They further acknowledge this factual dispute may depend on improvements recited in the specification, and thus the asserted claims must be analyzed to identify whether such improvements are captured.³⁵ In its analysis, the Federal Circuit concluded that claim 1 did not recite any of the allegedly unconventional activities described in Berkheimer’s specification, such as eliminating redundancy of stored object structures or affecting a “one-to-many” change across linked documents.³⁶ As a result, the Federal Circuit found this claim (along with claims 2, 3, and 9) to recite patent ineligible subject matter.³⁷ In contrast, the Federal Circuit also found that several other claims (claims 4-7) did recite certain features that may provide

benefits and improvements to computer functionality, and thus there was a genuine issue of material fact on whether the claims were eligible.³⁸ Accordingly, the case was remanded for further consideration on these claims.³⁹

Berkheimer provides one of the first analyses by the Federal Circuit of whether something is well understood, routine, and conventional under step two of the *Alice* test, and emphasizes that this is a factual determination. As is evidenced in the discrepancy between how claims 1-3 and 9 were treated in comparison to claims 4-7, it is of paramount importance to include any unconventional features, linked to technical improvements in the specification, in the claims. Such inclusion (or lack thereof) may shift the needle towards or away from a determination of patent eligibility.

SRI International, Inc. v. Cisco Systems, Inc. (Federal Circuit – March 2019)

Cisco appealed a decision from the US District Court for the District of Delaware, which denied their motion for summary judgement of patent ineligibility. In particular, at the time of the invention, it was difficult to detect attacks by looking at only a single monitor location within a network, as a corresponding number of login attempts may be below whatever threshold is set and used to trigger suspicious activity alerts, and the claims at issue sought to provide a solution to this problem.⁴⁰ For example, representative claim 1 recites:

A computer-automated method of hierarchical event monitoring and analysis within an enterprise network comprising:

deploying a plurality of network monitors in the enterprise network;

detecting, by the network monitors, suspicious network activity based on analysis of network traffic data selected from one or more of the following categories: {network packet data transfer commands, network packet data transfer errors, network packet data volume, network connection requests, network connection denials, error codes included in a network packet, network connection acknowledgements, and network

packets indicative of well-known network-service protocols});

generating, by the monitors, reports of said suspicious activity; and

automatically receiving and integrating the reports of suspicious activity, by one or more hierarchical monitors.⁴¹

In its analysis, the Federal Circuit resolved the question of patent eligibility using step one of the *Alice* test.⁴² Specifically, they found that the “claims are more complex than merely reciting the performance of a known business practice on the Internet and are better understood as being necessarily rooted in computer technology in order to solve a specific problem in the realm of computer networks.”⁴³ The Federal Circuit further found that the “claims are directed to using a specific technique – using a plurality of network monitors that each analyze specific types of data on the network and integrating reports from the monitors – to solve a technological problem arising in computer networks: identifying hackers or potential intruders into the network.”⁴⁴ Both the technical problem and the claimed solution are described in the specification.

In arguing against eligibility, Cisco provided three primary rationales. First, Cisco alleged that the asserted claims were simply directed to generic steps associated with collecting and analyzing data.⁴⁵ The Federal Circuit disagreed, finding that the claims “prevent the normal, expected operation of a conventional computer network,” and similar to the claims found eligible in *DDR Holdings*, override any routine and conventional sequence of events by “detecting suspicious network activity, generating reports of suspicious activity, and receiving and integrating the reports using one or more hierarchical monitors.”⁴⁶

Second, Cisco argued that the claimed invention did not involve an improvement to computer functionality itself.⁴⁷ The Federal Circuit found, however, that rather than being directed to the use of a computer as a tool (i.e., automating a conventional idea on a computer), the representative claim recites a specific technique that improves computer network security, and thus improves technical functioning of the computer and corresponding networks.⁴⁸

Finally, Cisco alleged that the claimed features were so general that they could be performed in the human mind. Once again, the Federal Circuit disagreed, noting that “the human mind is not equipped to detect suspicious activity by using network monitors and analyzing network packets.”⁴⁹ Accordingly, the Federal Circuit found that the claims were not directed to an abstract idea, and thus no further analysis was needed at step two of the *Alice* test to find the claims patent eligible.⁵⁰

Similar to many of its predecessor cases, SRI emphasizes the importance of highlighting both a technical problem and solution in the claims – in particular, demonstrating an improvement to the functioning of a computer itself, rather than simply automating an otherwise conventional idea on a computer. Analyzing data is a concept frequently found to be patent ineligible, and thus SRI provides a roadmap for drafting and/or amending claims in this space that recite patent eligible subject matter. Notably, the Federal Circuit’s decision in this case contrasts with their decision in *Electric Power Group* (discussed above), in which the claims are directed to similar subject matter, yet the claims were found to be patent ineligible.⁵¹

Accordingly, the claims of both cases may be used to define an eligibility spectrum to inform the claim drafting process.

Bozeman Financial LLC v. Federal Reserve Bank of Atlanta (Federal Circuit - April 2020)

Bozeman Financial appealed a decision from the Patent Trial and Appeal Board, which held all claims of the asserted patents were patent ineligible. In particular, the claims were directed to “methods for authorizing and clearing financial transactions to detect and prevent fraud.”⁵² For example, representative claim 1 recites:

A computer implemented method for detecting fraud in financial transactions during a payment clearing process, said method comprising:

receiving through one of a payer bank and a third party, a first record of an electronic financial transaction from at least one of the following group: a payer, a point-of-sale

terminal, an online account and a portable electronic device;

storing in a database accessible by each party to said payment clearing process of said electronic financial transaction, said first record of said electronic financial transaction, said first record comprising more than one parameter;

receiving at said database at least a second record of said electronic financial transaction from one or more of a payee bank and any other party to said payment clearing process as said transaction moves along said payment clearing process, wherein said second record comprises at least one parameter which is the same as said more than one parameter of said first record;

each of said first and second records received at said database comprise at least two of the same said more than one parameters;

determining by a computer when there is a match between at least two of said parameters of said second record of said first financial transaction received at said database and the same parameters of said first record of said financial transaction stored in said database, and wherein any party to said payment clearing process is capable of verifying said parameters at each point along said financial transaction payment clearing process;

sending a notification to said payee bank participant with authorization to process said electronic financial transaction when said parameters match; and

sending a notification to said payee bank participant to not process said electronic financial transaction when said parameters do not match.⁵³

The Board found the claims were directed to the abstract idea of “collecting, displaying, and analyzing information to reconcile check information against a ledger,” and furthermore that the claims did not include an inventive concept to render them eligible.⁵⁴

In their step one analysis, the Federal Circuit found that the claims were similar to methods found to be directed to abstract ideas, such as “processing an application for a financial purpose,” and “crediting a merchant’s account as early as possible.”⁵⁵ Bozeman argued that the claims recited tangible steps (i.e., a physical process of handling/processing checks), and thus could not be classified as an abstract idea.⁵⁶ The Federal Circuit rejected this argument, however, finding that although physical documents may be involved in the claimed method, the claims were nevertheless directed to the abstract idea of “collecting and analyzing information for financial transaction fraud or error detection.”⁵⁷

At step two, the Federal Circuit explained that methods for preventing check fraud and verifying transactions were both well known, and that the claimed technical components were conventional in nature.⁵⁸ As a result, the Federal Circuit found that nothing in the claims would render the claims patent eligible.⁵⁹

Bozeman presented two primary arguments for eligibility.⁶⁰

First, they asserted that the particular ordered combination of claimed elements was not routine or conventional.⁶¹ The Federal Circuit disagreed, however, finding that Bozeman failed to indicate what about the specified order of elements provided the inventive concept, or provide any evidence against their finding the claims merely recited a logical sequence of steps.⁶²

Second, Bozeman argued that by transforming paper checks into financial data, the claims met the machine or transformation test.⁶³ The Federal Circuit noted, however, that although this test may be relevant to the analysis at *Alice* step two, simply passing the test is insufficient to satisfy this step.⁶⁴ Further, they disagreed that the use of a digital image scanner to create a digital electronic record of a check even satisfied the machine or transformation test.⁶⁵ As a result, the Federal Circuit affirmed the Board’s finding of ineligibility.⁶⁶

Most notably, this case highlights the importance of describing specifically why the particular ordered combination of claimed elements provides a technical solution. In particular, it may also be advantageous to provide support for why the proposed ordered combination would not comprise a logical sequence of steps that could be classified as routine

or conventional. Additionally, because the inclusion of tangible steps (such as the physical handling of checks) is not, in itself, sufficient to render a claim eligible, practitioners should not merely rely on such steps/features – rather, as noted above they should focus on claiming a technical solution, including support for how the claimed features, when considered as an ordered combination, achieve the given solution.

CONCLUSION

In conclusion, although interpreting the *Alice* test was, itself, a somewhat abstract analysis, the Federal Circuit precedent over the past decade has provided valuable insight that should be considered. These cases, and the corresponding takeaways, may be implemented by practitioners to bolster their claims against eligibility challenges – both during the initial drafting phase, and throughout prosecution. While the cases discussed in this article are landmark decisions on subject matter eligibility, there are a plethora of additional decisions that may shed light on *Alice* interpretation.

In addition to utilizing the takeaways provided herein, practitioners should regularly review updated caselaw and USPTO guidance – as can be seen from the cases above, satisfying the *Alice* test has proven to be a moving target over the last decade, and thus understanding the current interpretation is vital for practitioners. While the above cases provide a snapshot of this interpretation on this anniversary of *Alice*, the jury's still out on where the dust will settle after another decade. Here's to another ten years!

Notes

1. See *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. CT. 2347 (2014); see also *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 132 S. CT. 1289 (2012).
2. See *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. CT. 2347 (2014); see also MPEP 2106.04(a).
3. See *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. CT. 2347 (2014); see also *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 132 S. CT. 1289 (2012).
4. See *Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 134 S. CT. 2347 (2014); see also *Mayo Collaborative Services v. Prometheus Laboratories, Inc.*, 132 S. CT. 1289 (2012).
5. See *Thales Visionix Inc. v. U.S.*, 850 F.3d 1343, 1344-1346 (Fed. Cir. 2017).
6. See *id.*
7. See *id.*
8. See *id.*
9. See *id.*
10. See *id.*
11. See *id.*
12. See *id.* at 1349.
13. See *id.* at 1346-1349.
14. See *id.*
15. See *id.*; see also *Rapid Litigation Management Ltd. v. Cellzdirect, Inc.*, 827 F.3d 1042 (Fed. Cir. 2016).
16. See *Thales Visionix Inc. v. US*, 850 F.3d 1343, 1349 (Fed. Cir. 2017).
17. See *id.*
18. See *Finjan, Inc. v. Blue Coat Systems, Inc.*, 879 F.3d 1299, 1302-1303 (Fed. Cir. 2018).
19. See *id.* at 1299-1313.
20. See *id.* at 1303-1306.
21. See *id.*
22. See *id.*
23. See *id.*
24. See *id.*
25. See *id.*; see also *Apple, Inc. v. Ameranth, Inc.*, 842 F. 3d 1229 (Fed. Cir. 2016); see also *Affinity Labs of Texas, LLC v. DirecTV, LLC* (Fed. Cir. 2016).
26. See *Finjan, Inc. v. Blue Coat Systems, Inc.*, 879 F.3d 1299, 1303-1306 (Fed. Cir. 2018).
27. See *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1362-1363 (Fed. Cir. 2018).
28. See *id.*
29. See *id.* at 1364-1370.
30. See *id.*
31. See *id.*
32. See *id.*
33. See *id.*
34. See *id.*
35. See *id.*
36. See *id.*
37. See *id.*
38. See *id.*
39. See *id.* at 1370-1371.
40. See *SRI International, Inc. v. Cisco Systems, Inc.*, 930 F. 3d 1295, 1299-1301 (Fed. Cir. 2019).
41. See *id.* at 1299-1313.
42. See *id.* at 1302-1304.
43. See *id.*
44. See *id.*
45. See *id.*
46. See *id.*
47. See *id.*
48. See *id.*
49. See *id.*
50. See *id.*
51. See *Electric Power Group, LLC v. Alstom S.A.*, 830 F.3d 1350 (Fed. Cir. 2016).

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52. See *Bozeman Financial LLC v. Federal Reserve Bank of Atlanta*, 955 F.3d 971, 976-981 (Fed. Cir. 2020).
53. See *id.* at 971-981.
54. See *id.* at 976-981.
55. See *id.* at 978-980.
56. See *id.*
57. See *id.*
58. See *id.*
59. See *id.*
60. See *id.*
61. See *id.*
62. See *id.*
63. See *id.*
64. See *id.*
65. See *id.*
66. See *id.*

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