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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte W. KNOX CAREY, DAVID P. MAHER,
MICHAEL G. MANENTE, JARL NILSSON,
and TALAL G. SHAMOON

Appeal 2017-011682
Application 13/654,349
Technology Center 3600

Before ERIC B. CHEN, NABEEL U. KHAN, and PHILLIP A. BENNETT, *Administrative Patent Judges.*

BENNETT, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant,[1] Intertrust Technologies Corporation, appeals from the Examiner's decision to reject claims 22, 24–32, 38, and 40–52. Final Act. 1. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

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[1] We use the word "Appellant" to refer to "Applicant" as defined in 37 C.F.R. § 1.42(a). Appellant identifies the real party in interest as Intertrust Technologies Corporation. App. Br. 1.

CLAIMED SUBJECT MATTER

The claims are directed to systems and methods for protecting and governing genomic and other information. Claim 22, reproduced below, is illustrative of the claimed subject matter:

> 22. A trusted data analysis platform for performing computations on genomic data comprising:
>
> a processor and a memory containing instructions that when executed by the processor cause a trusted data analysis platform including a plurality of virtual diagnostic tests to perform operations comprising:
>
> receiving, from a requestor system, a request to execute a virtual diagnostic test on the trusted data analysis platform, the virtual diagnostic test comprising a test algorithm for testing genomic data, an input specification governing types and/or characteristics of data input to the virtual diagnostic test, and a set of one or more digital signatures;
>
> identifying, by the trusted data analysis platform, at least one sequence data object based on the request;
>
> verifying an authorization of the virtual diagnostic test to access the at least one sequence data object according to permissions associated with the at least one sequence data object and determining that the at least one sequence data object satisfies the input specification;
>
> authenticating the virtual diagnostic test using at least one digital signature from the set of one or more digital signatures;
>
> executing the test algorithm, by the trusted data analysis platform in a secure execution environment, using the at least one sequence data object, to generate a test algorithm output; and
>
> providing, to the requestor system, the test algorithm output.

App. Br. 25–26 (Claims Appendix).

REJECTION

Claims 22, 24–32, 38, and 40–52 stand rejected under 35 U.S.C. § 101 as being directed to a judicial exception without significantly more. Final Act. 3–6.

ANALYSIS

Legal Standard

In issues involving subject matter eligibility, our inquiry focuses on whether the claims satisfy the two-step test set forth by the Supreme Court in *Alice Corp. v. CLS Bank Int'l*, 573 U.S. 208 (2014). The Supreme Court instructs us to "[f]irst . . . determine whether the claims at issue are directed to [a] . . . patent-ineligible concept[]" (*id.* at 217), and, in this case, the inquiry centers on whether the claims are directed to an abstract idea. If the initial threshold is met, we then move to the second step, in which we "consider the 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 application." *Id.* (*quoting Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66, 79, 78 (2012)). The Supreme Court describes the second step as a search for "an 'inventive concept'—*i.e.*, an element or combination of elements that is 'sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.'" *Alice*, 573 U.S. at 217–18 (quoting *Mayo*, 566 U.S. at 72–73).

The USPTO has published revised guidance on the application of § 101. USPTO's *2019 Revised Patent Subject Matter Eligibility Guidance*, 84 Fed. Reg. 50 (Jan. 7, 2019) ("Guidance"). Under the Guidance, we first look to whether the claim recites:

> (1) any judicial exceptions, including certain groupings of abstract ideas (i.e., mathematical concepts, certain methods of organizing human activity such as a fundamental economic practice, or mental processes) (Guidance, Step 2A, prong 1); and
>
> (2) additional elements that integrate the judicial exception into a practical application (*see* MANUAL OF PATENT EXAMINING PROCEDURE (MPEP) § 2106.05(a)–(c), (e)–(h) (9th Ed., Rev. 08.2017, 2018)) (Guidance, Step 2A, prong 2).

Only if a claim (1) recites a judicial exception and (2) does not integrate that exception into a practical application, do we then look to whether the claim:

> (3) adds a specific limitation beyond the judicial exception that is not "well-understood, routine, conventional" in the field (*see* MPEP § 2106.05(d)); or
>
> (4) simply appends well-understood, routine, conventional activities previously known to the industry, specified at a high level of generality, to the judicial exception.

Guidance (Step 2B).

Examiner's Findings and Conclusion

In the first step of the *Alice* inquiry, the Examiner determines "the claims are directed to an abstract idea because an abstract idea is recited in the claims." Final Act. 3. The Examiner further finds the "receiving," "identifying," "verifying," and "performing" steps in claim 22 recite an abstract idea, reasoning that "[p]erforming computations on genomic data is an abstract because it is analogous to the court-defined abstract idea in *SmartGene* [*Inc. v. Advanced Biological Labs., SA*, 555 F. App'x 950 (Fed. Cir. 2014)]." Final Act. 3–4.

In the second step of the *Alice* inquiry, the Examiner determines the claims do not amount to significantly more than the abstract idea because:

> When viewed as a whole, the claims do not include additional limitations that are sufficient to amount to significantly more than the judicial exception because the claims recite processes that are routine and well-understood in the art of healthcare communication systems and simply implement the process or processes on a computer(s), which is not enough to qualify as "significantly more" as described herein. Specifically, the applicant is taking the well-understood process of performing computations on genomic data, which does not qualify as significantly more. The claims do not include additional limitations that are sufficient to amount to significantly more than the judicial exception because the additional limitations of receiving and providing data to a requestor system merely represent insignificant, conventional extra-solution activities well-understood in the industry of healthcare communication systems.

Final Act. 4. The Examiner further determines that additional elements recited in the claims amount to no more than generic computer structures for performing generic computer operations and functions well-understood, routine, and conventional in the industry. Final Act. 5.

Appellant's Contentions

Appellant presents several arguments in favor of eligibility. First, Appellant argues the claims are not directed to an abstract idea because "the pending claims are factually and legally distinct from those of *SmartGene*." App. Br. 10. More specifically, Appellant contends "*SmartGene* concerned factually dissimilar subject matter, 'selection of a therapeutic treatment regimen' versus a 'trusted data analysis platform.'" App. Br. 11. Appellant further argues the claims in *SmartGene* differ from the pending claims in that the *SmartGene* claims sought to claim a result without reciting detail

about how the result is accomplished. *Id.* Appellant asserts that in contrast to the claims in *SmartGene*, the "independent claims recite a 'trusted data analysis platform' and two particular data structures, a 'virtual diagnostic test' and a 'sequence data object.'" App. Br. 12.

Appellant also argues the claims pass muster under *Alice* step 2 because the claims improve a computer-related technology. App. Br. 13. More specifically, Appellants assert that the claims "encompass a specific 'trusted data analysis platform'" and that this platform "is designed to allow programs, rather than human analysts, access to genetic data." *Id.* Appellants argue that using the claimed invention, "a patient's genome is sequenced once and then securely stored, rather than sequenced for every genomic test." *Id.* (citing Spec. ¶¶ 43–45, Figs. 1A-1C). Appellants also argue the claims address additional technical issues relating to data access and error detection "by packaging the programs into virtual diagnostic tests together with digital signatures and input specifications." App. Br. 14.

Guidance, Step 2A, Prong One [2]
The Judicial Exception

Applying the Guidance, we are persuaded of Examiner error. The Guidance instructs us first to determine whether any judicial exception to patent eligibility is recited in the claim. The guidance identifies three judicially-excepted groupings: (1) mathematical concepts, (2) certain methods of organizing human activity such as fundamental economic practices, fundamental economic principles or practices, commercial or legal

[2] Throughout this opinion, we give the claim limitations the broadest reasonable interpretation consistent with the Specification. *See In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

interactions, and managing personal behavior or relationships or interactions between people, and (3) mental processes. We conclude that claim 22 does not recite any of these three groupings.

The preamble of claim 22 recites "[a] trusted data analysis platform for performing computations on genomic data comprising." The subject matter encompassed by the preamble plainly does not include a mathematical concept or mental process. Nor does it recite any fundamental economic practice or other method of organizing human activity. Rather, we view the recited "trusted data analysis platform" as a collection of computer systems which are used in analyzing genomic data. This type of functionality does not manage interactions between people, nor does it have a primarily economic purpose. Instead, the trusted data analysis platform focuses on analyzing genomic data in a secure and reliable way. Accordingly, the preamble of claim 1 does not recite an abstract idea within the grouping identified in the Guidance.

The body of the claim recites additional limitations that specify the structural components of the trusted data analysis platform, as well as the operations they perform in analyzing genomic data. These limitations include (a) "a processor and a memory containing instructions that when executed by the processor cause a trusted data analysis platform including a plurality of virtual diagnostic tests to perform operations," (b) "receiving, from a requester system, a request to execute a virtual diagnostic test on the trusted data analysis platform, the virtual diagnostic test comprising a test algorithm for testing genomic data, an input specification governing types and/or characteristics of data input to the virtual diagnostic tests, and a set of one or more digital signatures," (c) "identifying, by the trusted data analysis

platform, at least one sequence data object based on the request," (d) "verifying an authorization of the virtual diagnostic test to access the at least one sequence data object according to permissions associated with the at least one sequence data object and determining that the at least one sequence data object satisfies the input specification," (e) "authenticating the virtual diagnostic test using at least one digital signature from the set of one or more digital signatures," (f) "executing the test algorithm, by the trusted data analysis platform in a secure execution environment, using the at least one sequence data object, to generate a test algorithm output," and (g) "providing, to the requester system, the test algorithm output." None of these limitations recite an abstract idea.

As with the preamble above, it is readily apparent that none of these limitations recites any mathematical concept, as they each recite a structural and/or functional component of the claimed trusted data analysis platform along with the operations they perform. Nor can these limitations be reasonably characterized as "methods of organizing human activity such as fundamental economic practices or managing personal behavior or relationships or interactions between people." Each of these limitations recites computer hardware and associated functionality used in the analysis of genomic data. And while the genomic data analyzed is associated with human beings, the analysis performed by the system does not manage personal behavior or relationships among people.

Finally, these limitations also cannot be practically performed in the mind or using pen and paper. For example, limitation (a) recites the specific computer hardware which is used to implement the genomic analysis. Limitation (b), which generally recites receiving a request to perform a

diagnostic test, is not reasonably characterized as a mental step because the request includes specific information that is not reasonably consumed by a human with only their mind such as a digital signature. Limitation (c), which recites identifying a sequence data object based on the request also is not something that can be reasonably performed by a person in their mind or using pen and paper because sequence data objects are not typically stored in a human-readable format.

Limitation (d), which recites "verifying an authorization of the virtual diagnostic test to access the at least one sequence data object according to permissions associated with the at least one sequence data object and determining that the at least one sequence data object satisfies the input specification" is similarly a computer intensive operation not practically performed by a human. Limitation (e), which recites authenticating the virtual diagnostic test using a digital signature, is also not reasonably performed by a human using their mind or pen and paper, as the generation and analysis of digital signatures requires the use of a computer processor to perform. Similarly, limitations (f) and (g), which recite executing the test algorithm to generate an output and providing the output to "the requester system" also recite operations that require the use of a computer processor to perform. A human cannot execute a test algorithm in their mind on a genomic sample (which, according to the Specification "can produce approximately 300GB of information per person,") nor can a human provide the result to a requester system merely using their mind or pen and paper.

We further observe that the associated description in the specification makes clear that the functions recited in claim 22 are not practically performed in the human mind or with pen and paper. Rather, the recited

operations require specific types of computers configured to perform specific types of operations. *See, e.g.*, Spec. ¶¶ 255–360.

The Examiner determines the claims are directed to an abstract idea because of their similarity to the claim found abstract in *SmartGene*. Final Act. 4. We agree with Appellant, however, the claim 22 goes well beyond the concept identified as abstract in *SmartGene.* The claim in *SmartGene* recited "a method for guiding the selection of a therapeutic treatment regimen for a patient." *SmartGene*, 55 Fed. Appx. 950. The method included providing patient information to a computer and outputting a ranked listing of available treatments along with patient specific instructions for those treatments. *Id.* In concluding the claims were abstract, the Federal Circuit found that "Claim 1 does no more than call on a 'computing device,' with basic functionality for comparing stored and input data and rules, to do what doctors do routinely" and that "every step is a familiar part of the conscious process that doctors can and do perform in their heads." Here, claim 22 recites limitations such as authenticating digital signatures and executing genetic testing, for example, which doctors do not routinely perform in their heads, but instead are always performed on computers. Aside from the fact that both the subject patent in *SmartGene* and the claims at issue involve medical treatment, we discern little similarity between Appellant's claim 22 and the claims found impermissibly abstract in *SmartGene*.

We conclude, therefore, that Appellant's claim 22 does not recite an abstract idea under Step 2A of the Guidance, and we do not sustain the rejection under 35 U.S.C. § 101.

DECISION

The Examiner's rejection under 35 U.S.C. § 101 is reversed.

DECISION SUMMARY

Claims Rejected	Basis	Affirmed	Reversed
22, 24–32, 38, 40–52	§ 101	None	22, 24–32, 38, 40–52

REVERSED