UNITED STATES PATENT AND TRADEMARK OFFICE

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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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Ex parte VIDYA PUNDALIK KAMATH,
ALBERTO SANTAMARIA-PANG, BRION DARYL SARACHAN,
and MEGAN ROTHNEY

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Appeal 2017-004722
Application 13/460,100[1]
Technology Center 1600

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Before DONALD E. ADAMS, MICHAEL J. FITZPATRICK, and
RACHEL H. TOWNSEND, *Administrative Patent Judges*.

TOWNSEND, *Administrative Patent Judge*.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to a method
for selectively displaying representations of cells or sub-cellular structures of
interest in biological tissue, which have been rejected as being directed to
patent ineligible subject matter and as obvious.[2] We have jurisdiction under
35 U.S.C. § 6(b).

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[1] Appellants identify the real party in interest as the General Electric
Company. (Appeal Br. 2.)
[2] We note that the subject matter of this application is similar to that of
Application 13/459,958, which is the subject of Appeal No. 2017-004935,
the claims of which were rejected as being obvious based on different
references than relied upon in this appeal. In a decision issued

We affirm.

STATEMENT OF THE CASE

"Examination of tissue specimens that have been treated to reveal the expression of biomarkers is a known tool for biological research and clinical studies." (Spec. 1.) "Commonly the treated tissue is examined with digital imaging and the level of different signals emanating from different biomarkers can consequently be readily quantified." (*Id.*)

> A technique has further been developed which allows testing a given tissue specimen for the expression of numerous biomarkers. Generally, this technique involves staining the specimen with a fluorophore labeled probe to generate a signal for one or more probe bound biomarkers, chemically bleaching these signals, and re-staining the specimen to generate signals for some further biomarkers.

(*Id.*) "Digital images of the specimen are collected after each staining step." (*Id.*) The claimed invention "leverage[s] multiplexed biomarker images that are generated through known techniques" (*id.* at 10), "allow[ing] users [of a graphical interface] to review complex image and analysis data corresponding to multiple patients, multiple tissue fields-of-view and/or multiple biomarker data in a structured yet flexible and user-friendly manner" (*id.* at 15–16).

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simultaneously herewith, we affirm the rejections of the claims on appeal in Appeal No. 2017-004935 as being obvious. The subject matter of this application is also similar to that of Application 13/460,018, which is the subject of Appeal No. 2017-006470, the claims of which were rejected as being obvious based on different references than relied upon in this appeal. In a decision issued simultaneously herewith, we affirm the rejections of the claims on appeal in Appeal No. 2017-006470 as being obvious.

Claims 1–17, 19–23, and 25 are on appeal. Claim 1 is representative and reads as follows:

1. A computer-implemented method for selectively displaying representations of cells or sub-cellular structures of interest in biological tissue, the method comprising:

utilizing a processor to:

render a graphical user interface on a visual display device;

render, on the graphical user interface, a field of view selection component allowing a user to select a field of view within a set of registered multiplexed biomarker images capturing expression of a plurality of biomarkers in the same sample of the biological tissue, wherein each multiplexed biomarker image of the same sample of the biological tissue depicts expression levels of different biomarkers at least at the cellular level;

in response to user input selecting a respective field of view common to each of the multiplexed cells and corresponding to a subset of cells within the multiplexed biomarker images render, on the graphical user interface, a first image of the selected field of view that includes the subset of cells and expression levels of a first biomarker within the subset of cells;

render, on the graphical user interface, a morphological feature selection component allowing a user to select from among the subset of cells a first morphological feature meeting at least one morphological feature criterion; and

in response to user input selecting the first morphological feature meeting the at least one morphological feature criterion, identify a first set of cells or subcellular structures represented in the first image that meet the at least one morphological feature criterion in the first image of the selected field of view as cells or sub-cellular structures for exclusion from further analysis by the processor.

(Appeal Br. 30.)

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The following grounds of rejection by the Examiner are before us on review:

Claims 1–17, 19–23, and 25 under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

Claims 1–17, 19–23, and 25 under 35 U.S.C. § 103(a) as unpatentable over Carpenter.[3]

DISCUSSION

I

Patent Ineligible Subject Matter

The Examiner finds that claim 1 is directed to the abstract idea of manipulating data in identifying biological units meeting a morpholigical criterion. (Final Action 3–4.) According to the Examiner, all four "render" steps and the "identify" step of the claimed invention together are the abstract idea in that they "are equivalently and jointly steps of the recited analysis algorithm." (Ans. 15.) The Examiner contends that the claims are analogous to case law "i.e. obtaining and comparing intangible data (e.g. *Cybersource, Ambry, Myriad CAFC and SmartGene*) and/or execution of an algorithm to implement mathematical relationships and/or formulas, including image processing (e.g. *TLI, Digitech, Benson, Flook, Diehr, FuzzySharp, In re Grams and In re Abele*)[.]" (Ans. 17.)

The Examiner further finds that the steps or elements other than the abstract idea, i.e., the user input required, are conventional steps of a

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[3] Carpenter et al., *CellProfiler: image analysis software for identifying and quantifying cell phenotypes*, 7 Genome Biology, R100.1-11, (2006).

computing environment, and conventional data gathering. (Final Action 4.)
The Examiner determines that the claims as a whole are not seen as
"sufficiently analogous to any controlling case law identifying examples of
eligible claims" and that the claim as a whole does not appear to be an
improvement over embodiments available in the art at the time of the
invention. (*Id.*) The Examiner concludes, therefore, that when viewed as a
whole, the claim does not recite limitations to transform the abstract idea
into a patent eligible application of the idea. (*Id.* at 5.)

Section 101 provides that "[w]hoever invents or discovers any new
and useful process, machine, manufacture, or composition of matter, or any
new and useful improvement thereof, may obtain a patent therefor."
35 U.S.C. § 101. In *Alice*, the Supreme Court articulated a two-step test for
examining patent eligibility under § 101. *Alice Corp. Pty. Ltd. v. CLS Bank
Intern'l*, 134 S. Ct. 2347 (2014). Step one involves determining whether the
claims at issue are directed to a patent ineligible concept, and step two,
reached only if the determination in step one is yes, considers the elements
of each claim both individually and "as an ordered combination" to
determine whether additional elements "transform the nature of the claim"
into a patent eligible application. *Id.* at 2355.

Appellants contend that "[t]here is no indication in the case law that a
method or system" as claimed "should be considered an abstract idea."
(Reply Br. 4.) While the claim does not precisely match up to the claims
found to be ineligible in *Mayo Collaborative Services v. Prometheus
Laboratories, Inc.*, 566 U.S. 66 (2012) (finding ineligible a claim directed at
the collection of data to be combined in a particular way and plugged into a
mathematical equation, taking into account the calculated result), or

SmartGene, Inc. v. Advanced Biological Laboratories, SA, 555 F. App'x 950 (Fed. Cir. 2014) (finding ineligible a claim to organization and comparison of information to develop a guideline), or *In re Grams*, 888 F.2d 835 (Fed. Cir. 1989) (finding ineligible a claim directed at the collection of data to be combined in a particular way and plugged into a mathematical equation to produce more data which is assessed for particular relevance), we agree with the Examiner that the claim is directed to an abstract idea.

"The Supreme Court has not 'delimit[ed] the precise contours of the 'abstract ideas' category.'" *Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat'l Ass'n*, 776 F.3d 1343, 1346 (Fed. Cir. 2014) (quoting *Alice*, 134 S. Ct. at 2357). However, our reviewing Court has held "[i]nformation as such is an intangible" and thus, has "treated collecting information, including when limited to particular content (which does not change its character as information), as within the realm of abstract ideas." *Elec. Power Grp., LLC v. Alstom S.A.*, 830 F.3d 1350, 1353 (Fed. Cir. 2016) (collecting cases). Likewise it has "treated analyzing information by steps people go through in their minds, or by mathematical algorithms, without more, as essentially mental processes within the abstract-idea category." *Id.* at 1354 (collecting cases). And, it has "recognized that merely presenting the results of abstract processes of collecting and analyzing information, without more (such as identifying a particular tool for presentation), is abstract as an ancillary part of such collection and analysis." *Id.* (collecting cases).

Claim 1 is directed to providing an interactive display that allows a user to select a certain set of data for visual display and further allows the user to narrow the field of data displayed based on a certain selected

characteristic that when selected, allows the processor to identify data to be excluded from further analysis. While it is true that the method recites the use of a processor to render graphical user interfaces (GUI) and certain elements on the GUI, those steps are simply a display of data that the processor manipulates in response to user input. Thus, as the Examiner indicates, the claim as a whole concerns nothing more than the display of data and its manipulation by a processor using computer algorithms that incorporate user selection of specified data. We do not find this to be an overgeneralization of claim 1, as urged by Appellants (Reply Br. 8).

While the claim itself does not specify the algorithm used to process the data for display (Appeal Br. 15; Reply Br. 7), it is clear that such is a necessary step for the processor to render the image that includes the user specified selection on GUI. *See, e.g.*, Spec. 10–11

> (Systems and methods disclosed herein may include one or more programmable processing units having associated therewith executable instructions held on one or more computer readable medium, RAM, ROM, hard drive, and/or hardware. . . . Hardware may, for example, include components and/or logic circuitry for executing the embodiments taught herein as a computing process. . . . Displays and/or other feedback means may also be included, for example, for rendering a graphical user interface.);

see also Spec. 11 (the "actual software code or control hardware which may be used to implement" the embodiments is not limiting).

Appellants argue the Examiner's rejection is in error because the claim "is not similar to the examples of abstract ideas provided in the USPTO's Guidance or the USPTO's Update." (Appeal Br. 13.) Even if true, that is no basis for concluding that the Examiner erred in determining that claim 1 is directed to an abstract idea. We are aware of no controlling

precedent, nor do Appellants identify any precedent, that precludes an examiner from determining that a claim is directed to an abstract idea unless it is a concept that a court has previously identified explicitly as an abstract idea.

We do note, however, that there are examples in the Guidelines of claims that include GUI limitations, some of those claims are noted to be patent ineligible and others patent eligible. We agree with Appellants that claim 1 is not like the example claims that concern meal planning, which the Guidelines indicate are directed to patent ineligible subject matter because they were directed to a "mental process of managing behavior that could be performed in the human mind, or by a human using a pen and paper." 2015 Update to the 2014 *Interim Guidance on Subject Matter Eligibility* ("101 Guidelines") published on Dec. 16, 2014 (79 Fed. Reg. 74618), Appendix 1: Examples at 5–6 (Example 22). We note that the claimed method, however, is also not akin to a GUI claim that the Guidelines indicated is directed to patent eligible subject matter. 101 Guidelines at 7–12. For example, the claim is not directed to addressing a problem with a GUI, such as overlapping windows within a GUI where the method "recite[s] a specific application of the mathematical algorithm that improves the functioning of the basic display function of the computer itself." *See* 101 Guidelines at 8, 11–12.

The claimed method does not improve computer technologies, *see, e.g., McRO, Inc. v. Bandai Namco Games America Inc.,* 837 F.3d 1299 (Fed. Cir. 2016) (improvement in how a physical display operated), *Finjan, Inc. v. Blue Coat Systems, Inc.,* 879 F.3d 1299, 1305 (Fed. Cir. 2018) (claims were directed to employing a new kind of file that enables a computer security

system to do things it could not do before), or recite steps or rules that solve a technological problem in the use of computers in a particular way, *see, e.g., Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1335–36 (Fed. Cir. 2016); *Bascom Glob. Internet Servs., Inc. v. AT&T Mobility LLC*, 827 F.3d 1341, 1348–49 (Fed. Cir. 2016). Nor is the claim directed to a solution that is rooted in computer technology in order to overcome a problem specifically arising in the realm of computer networks. *See, e.g., DDR Holdings, LLC v. Hotels.com, L.P.*, 773 F.3d 1245, 1257 (Fed. Cir. 2014). In *DDR*, the court stated that "the [ ] patent's claims address the problem of retaining website visitors that, if adhering to the routine, conventional functioning of Internet hyperlink protocol, would be instantly transported away from a host's website after 'clicking' on an advertisement and activating a hyperlink." *DDR Holdings*, 773 F.3d at 1257. This was done in the claim by serving a composite page with content based on the link that was activated to serve the page. *Id.*

The claim is not directed to a method of using an improved computer tool, but rather to a method of using a conventional computer tool merely to manipulate data more efficiently. As the Specification indicates, the claimed invention "leverage[s] multiplexed biomarker images that are generated through known techniques." (Spec. 10.) While Appellants argue that the claims at issue "clearly provide improvements in the specialized technical field of image analysis of biological tissues" and improve the diagnosis of cancer (Appeal Br. 21–22), the Specification indicates that the improvement is a time-efficient selection of data sources that is user-friendly and allows users not to have to memorize where image data is stored. As the Specification explains:

> The ability to select data using the data source selection
> component, the slide-spot browser tool and the marker selection
> component in the user interface allows intuitive, time-efficient
> and user-friendly selection of data sources.

(*See, e.g.*, Spec. 19–20; *see also* Spec. 9 ("Exemplary embodiments enable

structured, yet flexible and user-friendly, displays of selective features

and/or analysis that allow pathologists to arrive at more objective and

repeatable diagnoses and disease or condition models.")). As also

explained:

> The ability to select particular studies/experiments, slides, spots
> and biomarkers using the tools provided on the user interface
> makes it unnecessary for a user to remember the locations of
> the files related to the studies/experiments, slides, spots and
> biomarkers, and allows the user to select data sources in an
> intuitive, time-efficient and user-friendly manner.

(Spec. 16.) Appellants do not argue, nor do we find anything in the

Specification to indicate, that the process involves an improvement to

computer technology as such or uses specific rules to solve a computer

technological problem. We conclude that the method reads on general-

purpose computer technology used to process data more efficiently than a

human can. However, the claimed method steps merely recite displaying

data and its manipulation by a processor that implicitly use computer

algorithms to process that data and incorporate user selection of specified

data. As discussed above, information as such is an intangible, and merely

collecting it, analyzing it, and/or displaying it, even when limited to

particular content that does not change its character as information is

abstract. *See Elec. Power Grp.*, 830 F.3d at 1353–54. Moreover, our

reviewing court has held that speed and accuracy increases stemming from

the ordinary capabilities of a general purpose computer "do[] not materially

alter the patent eligibility of the claimed subject matter." *Bancorp Servs.,
L.L.C. v. Sun Life Assurance Co. of Canada*, 687 F.3d 1266, 1278 (Fed. Cir.
2012).

In light of the foregoing, we do not find Appellants' argument that the
Examiner "fails to provide a <u>reasoned rationale</u> articulating the reasons for
contending that the claims are directed to an abstract idea" (Appeal Br. 9–
11), persuasive. Likewise, we also do not find Appellants' argument that the
claimed method is not abstract because it recites concrete steps (Appeal Br.
12, 16–17), and "is <u>not</u> similar to the economic principle of intermediated
settlement of the other examples provided in *Alice*" or "the examples of
abstract ideas provided in the USPTO's Guidance or the USPTO's Update"
(Appeal Br. 12–14; Reply Br. 3–6), persuasive.

Turning to *Alice* step-two, Appellants argue that the claimed method
amounts to significantly more than an abstract idea because the specified
steps of the claim "cannot be considered a conventional data gathering step"
as they are not examples of conventional computer functions provided in the
examples in the USPTO's 101 Guidelines such as "automating mental tasks
and receiving or transmitting data over a network." (Appeal Br. 19; *see also*
Reply Br. 9–11.) We do not find Appellants' argument persuasive. The
rendering of information on a display in response to user input is a
conventional function performed by a processor in conjunction with a
display device. *See, e.g.*, 101 Guidelines at 6 ("The meal builder would
require a processor and memory in order to perform basic computer
functions of accepting user input, retrieving information from a database,
manipulating that information and displaying the results."). We find that the
limitations when considered independently and together do not recite

limitations that transform the data processing and display into something more than an abstract idea.

Appellants also assert that the recitations of the specific selection, displaying, enabling of selection, and identifying steps are not conventional steps and thus provide for an "inventive concept." (Appeal Br. 21.) We do not find this argument persuasive. The search for an inventive concept is distinct from demonstrating novelty. *See, e.g., SAP America, Inc. v. Investpic LLC*, 898 F.3d 1161, 1162 (Fed. Cir. 2018) (citing *Synopsys, Inc. v. Mentor Graphics Corp.*, 839 F.3d 1138, 1151 (Fed. Cir. 2016) ("[A] claim for a *new* abstract idea is still an abstract idea. The search for a § 101 inventive concept is thus distinct from demonstrating § 102 novelty.")). The steps that Appellants identify may or may not be novel or non-obvious, but they are simply the manipulation or selection of information as such that does not rely on novel or non-obvious technology or rely on a novel or non-obvious computer technique or data structure. Consequently, we conclude as the Examiner did, that the steps are themselves, both individually and in combination, simply abstract.

Appellants further argue that claim 1 prevents preemption because "other parties are still free to selectively view or display particular cells of interest in a biological tissue via image-based analysis, for example." (Appeal Br. 20–21.) This argument is not found persuasive either because the high-level of abstraction of the recited limitations of claim 1 would appear to prevent exactly what Appellants indicate is "still free" to other parties. In any event, however, even if Appellants' position were correct that some aspect of image-based analysis were still free to other parties, "the absence of complete preemption does not demonstrate patent eligibility."

Ariosa Diagnostics, Inc. v. Sequenom, Inc., 788 F.3d 1371, 1379 (Fed. Cir. 2015). "Where a patent's claims are deemed only to disclose patent ineligible subject matter under the [two-step] framework, as they are in this case, preemption concerns are fully addressed and made moot." *Id.*; *see also Intellectual Ventures I LLC v. Symantec Corp.*, 838 F.3d 1307, 1321 (Fed. Cir. 2016) ("A narrow claim directed to an abstract idea, however, is not necessarily patent-eligible . . . ."); *OIP Techs., Inc. v. Amazon.com, Inc.*, 788 F.3d 1359, 1362–63 (Fed. Cir. 2015) ("[T]hat the claims do not preempt all [inventions in the field] or may be limited to [certain processes in the field] do[es] not make them any less abstract.").

Finally, Appellants argue that because claim 1 "is tied to a particular machine or apparatus" that "points to patent eligibility." (Appeal Br. 22.) This argument is not persuasive because the machine that stores data and performs the analytical processing is a general purpose computer, and the use of such a generic computer element does not transform an otherwise abstract idea into patent-eligible subject matter. *See, e.g., Mayo*, 566 US at 84 (("[S]imply implementing a mathematical principle on a physical machine, namely a computer, [i]s not a patentable application of that principle.") (describing *Gottschalk v. Benson*, 409 U.S. 63, 64 (1972)); *DDR Holdings*, 773 F.3d at 1256 ("[A]fter *Alice*, there can remain no doubt: recitation of generic computer limitations does not make an otherwise ineligible claim patent-eligible. The bare fact that a computer exists in the physical rather than purely conceptual realm 'is beside the point.'")

Furthermore, as the Specification indicates, machines for obtaining a tissue sample; applying a multiplexing staining and destaining technique to the tissue sample and generating digital images of the tissue sample during

the multiplexing staining and destaining were known at the time of filing, as was analyzing the images of the treated sample, and storing the digital images on a storage device for analysis. (*See, e.g.*, Spec. 1, 10.) Appellants do not assert that the processor or display are new or non-obvious. Thus, these limitations do not imbue the claim with an inventive concept. *Accord Berkheimer v. HP Inc.*, 881 F.3d 1360, 1370 (Fed. Cir. 2018) (holding claims lacked an inventive concept because they "amount to no more than performing the abstract idea of parsing and comparing data with conventional computer components"); *Affinity Labs of Tex., LLC v. DIRECTV, LLC*, 838 F.3d 1253, 1262 (Fed. Cir. 2016) (holding a claim lacked an inventive concept because it "simply recites the use of generic features . . . as well as routine functions . . . to implement the underlying idea").

Appellants purport to argue claim 25 separately from claim 1. However, we do not discern a difference in the arguments. (*See* Appeal Br. 23–24 (noting claim 25 that recites a system "having a display, processor, and non-transitory storage media configured to . . ." "is not an abstract idea for at least the reasons set forth above with respect to independent claim 1."); *see generally* Reply Br. (arguing against the Examiner's 101 rejection of claims 1 and 25 together). Claim 25 is no different from claim 1 in substance other than the recitation of generic computer components. The handful of generic computer components, however, are configured to implement the same idea as recited in claim 1. Thus, for the reasons set forth above, we also agree with the Examiner that claim 25 is directed to patent ineligible subject matter.

Consequently, for all of the reasons discussed above, we sustain the Examiner's rejection of claims 1 and 25 under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

Claims 2–17 and 19–23 have not been argued separately and therefore fall with claim 1. 37 C.F.R. § 41.37(c)(1)(iv).

II

Obviousness

The Examiner finds that the claimed GUI is taught by Carpenter's CellProfiler. (Final Action 6.) According to the Examiner, Carpenter describes a user being able to click "to outline a region of interest" in a multiplexed biomarker image where there has been fluorescence imaging of expressed proteins and rendering images representing expression levels and biological units via an analysis pipeline that is displayed. (*Id.* at 6–7.) Also, according to the Examiner, Carpenter teaches that the imaging is of multiple intracellular objects using multiple wavelength imaging. (Ans. 21–22.) The Examiner indicates that Carpenter discloses cell identification by cell morphologies and that some objects may be removed based on their measurements. (Final Action at 7.)

Appellants contend that Carpenter does not teach the field of view selection component because Carpenter does not teach selecting a field of view from a *set* of registered multiplexed biomarker *images* capturing expression of a plurality of different biomarkers in the *same sample* of tissue. (Appeal Br. 26; Reply Br. 2.) Appellants explain that the Figures of Carpenter that the Examiner relies on for this teaching (Figs. 2D, 3, and 4) do not identify a set of multiplexed biomarker images that capture expression of a plurality of different biomarkers in the same sample.

(Appeal Br. 26.) According to Appellants, "the images involving biomarkers available for analysis in Carpenter appear to be obtained from <u>different samples</u> (e.g., control samples versus treated cells). *See id.*, FIGS. l(e), 3, and 4(a)." (*Id.*) The remainder of Appellants' arguments as to what is missing from Carpenter stems from its assertion that Carpenter does not teach the selection from a *set* of registered multiplexed biomarker *images* capturing expression of a plurality of biomarkers in the *same sample* of tissue. (*See* Appeal Br. 26–27 (indicating that the rendering an image from the selected point of view is not taught because "Carpenter appears to be completely silent with regard to a set of registered multiplexed biomarker images that capture expression of a plurality of biomarkers in the <u>same</u> <u>sample</u> of the biological tissue . . ."); Reply Brief 3 (same).)

We do not find Appellants' arguments persuasive. A reference is available for all that it teaches to a person of ordinary skill in the art, not just what is disclosed in the examples. *In re Inland Steel Co.*, 265 F.3d 1354, 1360 (Fed. Cir. 2001); *Merck & Co. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989). Carpenter describes its computer interface for high throughput cell analysis using image cytometry. (Carpenter R100 and 100.3.) Carpenter explains that the system employs

> software [that] uses the concept of a 'pipeline' of individual
> modules (Figure 1b; Additional data file 2). Each module
> processes the images in some manner, and the modules are
> placed in sequential order to create a pipeline: usually image
> processing, then object identification, then measurement.

(Carpenter R100.3, col. 2.) Carpenter notes that the analysis begins with an image "or group of images if multiple wavelengths are available" traveling through the pipeline. (*Id.*) And Carpenter describes that image cytometry can monitor various different proteins relative to one another. (*See, e.g., id.*

at R100.6.) Carpenter describes multiple images being viewed from an image set (e.g., Figs. 2 and 4(a)) or from a sample (e.g., Fig. 3). (*See also* *id.*at R100.9 (discussing cluster computing on large sets of images).) In other words, Carpenter teaches analyzing multiplexed biomarker images using a graphical user interface, and while Carpenter may not specifically state that images are from a sample are in a set (Appeal Br. 26), Carpenter's teachings when read together suggest that Carpenter's cell profiler stores multiplexed biomarker images of a sample together as sets. Moreover, Carpenter teaches the images can include different biomarkers using, for example, multiple wavelengths.

Claim 1 requires a processor to render a field of view selection component. As the Examiner explains, Carpenter describes being able to outline a region of interest in each image. (*Id.* at 100.3, col. 2.) The ability in Carpenter to outline a region of interest appears to meet the selection of a field of view limitation, and Appellants do not argue to the contrary. Claim 1 further requires that the field of view be from within a set of registered multiplexed biomarker images capturing biomarkers in the same sample of tissue. As noted above, Carpenter teaches or suggests that CellProfiler stores images as a set from a single biological sample and that the images provide information of different biomarkers. Consequently, we agree with the Examiner that Carpenter teaches the claimed field of view selection from a set of images as required by claim 1.

Consequently, we sustain the Examiner's rejection of claim 1 under 35 U.S.C. § 103 as being unpatentable over Carpenter.

Appellants' arguments that the Examiner erred in rejecting claim 25 as being obvious over Carpenter are the same as asserted for claim 1. (*See*

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Appeal Br. 26.) For the reasons just discussed, we do not find Appellants' arguments persuasive.

Claims 2–17 and 19–23 have not been argued separately and therefore fall with claim 1. 37 C.F.R. § 41.37(c)(1)(iv).

SUMMARY

We affirm the Examiner's rejection of claims 1–17, 19–23, and 25 under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

We affirm the Examiner's rejection of claims 1–17, 19–23, and 25 under 35 U.S.C. § 103(a) as unpatentable over Carpenter.

TIME PERIOD FOR RESPONSE

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED