No. 20-2257

UNITED STATES COURT OF APPEALS FOR THE FEDERAL CIRCUIT

NATURE SIMULATION SYSTEMS INC.,

Plaintiff-Appellant,

v.

AUTODESK, INC.,

Defendants-Appellees.

Appeal from the United States District Court for the Northern District of California, Case No. 3:19-cv-03192-SK, Magistrate Judge Sallie Kim

AUTODESK, INC.'S COMBINED PETITION FOR PANEL AND EN BANC REHEARING

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MARCH 21, 2022

CERTIFICATE OF INTEREST

Counsel for Autodesk, Inc. certify under Federal Circuit Rule 47.4 that the following information is accurate and complete to the best of their knowledge:

1. **Represented Entities.** Provide the full names of all entities represented by undersigned counsel in this case.

Autodesk, Inc.

2. **Real Party in Interest.** Provide the full names of all real parties in interest for the entities. Do not list the real parties if they are the same as the entities.

None.

3. **Parent Corporations and Stockholders.** Provide the full names of all parent corporations for the entities and all publicly held companies that own 10% or more stock in the entities.

None.

4. **Legal Representatives.** List all law firms, partners, and associates that (a) appeared for the entities in the originating court or agency or (b) are expected to appear in this court for the entities. Do not include those who have already entered an appearance in this court.

MORRISON & FOERSTER LLP: Stephen J. H. Liu

5. **Related Cases.** Provide the case titles and numbers of any case known to be pending in this court or any other court or agency that will directly affect or be directly affected by this court's decision in the pending appeal. Do not include the originating case number(s) for this case.

None.

6. **Organizational Victims and Bankruptcy Cases.** Provide any information required under Fed. R. App. P. 26.1(b) (organizational victims in criminal cases) and 26.1(c) (bankruptcy case debtors and trustees).

Not applicable.

Dated: March 21, 2022 /s/ Brian R. Matsui

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FEDERAL CIRCUIT RULES 35(b)(2) AND 40(a)(5) STATEMENT

Based on my professional judgment, I believe the panel decision is contrary to the following decisions of the Supreme Court of the United States and this Court:

- *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898 (2014); *Teva Pharms. USA v. Sandoz*, 789 F.3d 1335 (Fed. Cir. 2015); *Quad Envt'l Techs. v. Union Sanitary Dist.*, 946 F.2d 870 (Fed. Cir. 1991); *Am. Hoist & Derrick Co. v. Sowa & Sons*, 725 F.2d 1350 (Fed Cir. 1984).

Based on my professional judgment, I also believe this appeal requires an answer to the following precedent-setting questions of exceptional importance:

(1) Whether courts should decide the ultimate legal question of indefiniteness without deferring to patent examiners, especially when the examiner offers no statement, reasoning, or analysis on indefiniteness.

(2) Whether indefiniteness is independent of lack of enablement, adequate written description, and best mode.

The panel majority overlooked the rule against deferring to examiners on legal issues. It also overlooked the rule that invalidity for indefiniteness is distinct from the defenses of lack of enablement and adequate written description.

Dated: March 21, 2022 /s/ Brian R. Matsui

INTRODUCTION

Time and again, this Court has held claims invalid for indefiniteness under *Nautilus, Inc. v. Biosig Instruments, Inc.* when intrinsic evidence points in conflicting directions without indicating to persons of skill in the art how to resolve the conflict. 572 U.S. 898, 910 (2014). Yet rather than apply that law, the majority departed from precedent and adopted a new, heightened standard of deference to patent examiners on the legal question of definiteness.

It is undisputed that the claims here recite a made-up phrase, "*modified* Watson method," with no meaning outside these patents. Although the Watson method was known, the patents inconsistently use the phrase "modified Watson method" across claims, in the written description, and as purportedly reflected in the figures. The panel majority never reconciled this conflicting intrinsic evidence.

Instead, the majority gave "significant" weight to examiner actions during prosecution. But the examiner said *nothing* about the meaning or scope of "modified Watson method." Instead, the majority relied on the mere fact that the examiner, without explaining why, added to the claims certain steps "included" within the "modified Watson method." Those steps conflict with different steps the applicant added. The majority nevertheless declared a new rule that courts must give "appropriate deference" to unexplained examiner amendments and decisions to allow claims.

This Court has never suggested it defers even to administrative patent judges, let alone examiners, on legal determinations about claim scope. At most, the Court has suggested giving weight to examiners on *factual* issues for which examiners have specific experience, such as interpreting prior art. Because the majority's new rule conflicts with precedent and creates uncertainty over when examiners are entitled to deference on legal issues, rehearing should be granted.

BACKGROUND

A. The Technology And Relevant Intrinsic Evidence

The disputed patents—Nos. 10,120,961 and 10,109,105—relate to computer-aided design, a field that "is unusually complex." Dissent 2. The patents involve "Delaunay" triangulation, which is one way of representing the surface of three-dimensional objects using two-dimensional triangles. Appx30 (col.6:62-65); Appx125. The patents refer to the known "Watson method" for producing a Delaunay triangulation. Appx32 (col.9:13-15); Appx130-138. But they claim an allegedly novel modification to that method, a so-called "modified Watson method." Appx32 (col.9:23-40). As Judge Dyk observed, "[t]here is no dispute that the term 'modified Watson method' does not have, and did not have at the time the patents were issued, an ordinary and customary meaning" in this art. Dissent 3.

Although that much is clear, the required modification's scope is unclear because intrinsic evidence points in conflicting directions. *First*, claim 1 (of both

patents) recites that the "modified" Watson method "includes" three steps:

- removing duplicate intersection points;
- identifying positions of end intersection points; and
- splitting portion of each triangle including an upper portion, a lower portion, and a middle portion.

Appx32 (col.9:17-40); Appx46-47 (col.8:64-col.9:3). Yet those steps have no clear relation to the known Watson method, which it is undisputed has nothing to do with intersection points or lines or splitting portions of triangles. Appx130-138.

Second, dependent claim 6 (in both patents) recites "modified Watson method" differently from independent claim 1. Claim 6 says the modified method includes a long list of steps, including steps of the *unmodified* Watson method, plus one purportedly new one—checking whether "the last segment passes through the triangle." Appx32 (col.10:21-45); Appx47 (col.9:53-col.10:12). Nothing in claim 6 clarifies claim 1; for example, claim 6 never mentions duplicate intersection points or upper, lower, or middle triangle portions. Appx32 (col.10:21-45); Appx47 (col.9:53-col.10:12). Nonetheless, NSS argues that the "last segment" step in dependent claim 6 defines "modified Watson method" for all claims, contradicting the different steps in claim 1. NSS Opening Br. 9-10, 22-23; NSS Reply 4.[1]

[1] Nor has NSS ever explained what "the last segment" is, a phrase with no antecedent or clear connection to the claims. Appx32 (col.10:21-45).

Third, the patents' written description says something different from the claims. It includes a "flowchart of [the] Delaunay mesh modified Watson method" in Figure 13 that omits the three steps in claim 1 and "the last segment" step in claim 6. Appx26, Appx29 (col.3:39-40). In one patent (but not the other) the chart says all steps are "Prior Art except" four identified steps. Appx26. None of the purportedly non-prior art steps matches what is recited in claims 1 or 6 for the "modified Watson method." Appx26; Appx32 (col.9:17-40, col.10:21-45).

Fourth, the '961 patent's prosecution history gives more conflicting indicators about the modified Watson method's scope. Originally, the independent claims lacked a "modified Watson method" requirement; that term appeared in dependent claim 6. Appl. No. 15/840,052, at 13. In the only office action, the examiner rejected claim 6 because "the metes and bounds of 'modified Watson method' are not clearly set forth" and "the claim fails to positively recite the steps that modify the Watson method." Appl. No. 15/840,052, Examiner Office Action 3-6 (February 6, 2018).[2]

In response, the applicant amended claim 6, adding the steps now appearing in issued claim 6; the applicant gave no explanation for those steps. Appl.

[2] The trial and appellate records contain a tiny snippet of the prosecution history, which the district court found NSS submitted in violation of local rules. Appx18, Appx71-78. The panel majority sua sponte went outside the appellate record to discuss the additional portions of the history described here.

No. 15/840,052, Applicant Response 8-9, 11 (March 4, 2018). The applicant also amended claim 1 to add "modified Watson method," though without the three steps appearing in issued claim 1. *Id.*

The examiner then issued a Notice of Allowability that said nothing about the previous indefiniteness rejections. Appl. No. 15/840,052, Notice of Allowability 1-8 (Sept. 18, 2018). Although the Notice included an "examiner's amendment" and stated that authorization "was given in an interview with" the applicant, neither the applicant nor examiner submitted the required interview summary. *Id.* at 4-5. The amendment introduced the new claim 1 requirements that "the modified Watson method includes" the steps involving intersection points, intersection lines, and upper, lower, and middle triangle portions. *Id.* The examiner listed those steps when distinguishing the prior art but offered no understanding of what those steps mean or how they modify the Watson method, nor did the examiner state that the steps were added to overcome his prior indefiniteness rejection to dependent claim 6. *Id.* at 6-7.

B. The District Court Held NSS's Claims Invalid For Indefiniteness Based On Irreconcilable Intrinsic Evidence

The district court held that conflicting intrinsic evidence made the claims indefinite. Appx1-19. Although NSS argued for giving "modified Watson method" its "ordinary meaning," the district court credited unrebutted expert testimony that the term had no ordinary meaning in the art. Appx7 (citing Appx53-58). And the

court concluded that the intrinsic record created more questions than answers. Appx7-19. It noted that the patents' written description contradicts the claims. Appx7-10. For example, NSS pointed to Figure 13's flowchart as defining "modified Watson method," but the chart "does not describe in any manner" claim 1's recited steps. Appx9-10. And dependent claim 6 only increased the uncertainty because it suggested "modified Watson method" required something else. Appx10.[3]

The district court faulted NSS for waiting until its reply to submit prosecution history snippets—violating local rules. Appx18-19. Regardless, the court noted that the history added only uncertainty: it "does not show how or why" any claim amendments clarified claim scope. Appx18-19.

C. Departing From Precedent, The Panel Majority Reversed

A divided panel reversed in a precedential decision. The majority cited conflicting descriptions of "modified Watson method" in the claims, description, and figures. Op. 11-17. Yet without reconciling this conflict, the majority suggested the figures provide guidance. Op. 11-13. Rather than explain how a person of skill could understand the claims' scope, the majority created new law by concluding the patents could not be indefinite because the examiner introduced the claim language.

[3] The panel majority incorrectly states the district court received a technology tutorial "presented by the inventor Shangwen Cao." Op. 4. As the docket shows, Autodesk's expert was the sole tutorial witness. D. Ct. Dkt. 43 (May 26, 2020). NSS presented only attorney argument, as it did throughout the proceedings. *Id.*

Op. 13-17. Going well beyond the snippets NSS introduced in the district court and addressed on appeal, the majority stated that "[t]he prosecution history here is significant" because "PTO examiners are entitled to appropriate deference" and are "deemed to be experienced in the relevant technology." *Id.* And the majority found further support because other Section 112 requirements were not before the Court: "[i]t is not disputed that the specification describes and enables practice of the claimed method, including the best mode." *Id.*

Judge Dyk dissented. He rejected the majority's characterization of the district court's opinion, which he described as "detailed and thorough." Dissent 1-2. He also explained: "[t]he fact that a patent examiner introduced the indefinite language does not absolve the claims from the requirements of 35 U.S.C. § 112." *Id.* He noted that the majority "ignores the claim language" by relying on patent figures that "do not include the additional limitations which are expressly required by the claim"—"[t]he majority simply does not address this problem, instead relying on the fact that these limitations were suggested by the patent examiner." Dissent 3-4. The majority also ignored Autodesk's expert, who testified "without contradiction" about what persons of ordinary skill would take from the "unclear" and "inconsistent" intrinsic evidence. Dissent 4 (citing Appx54-56).

REASONS TO GRANT REHEARING

The panel majority's opinion contradicts the settled rule against deferring to examiner legal determinations. It also creates confusion about Section 112's separate requirements to adequately describe, enable, and particularly point out and distinctly claim an invention. Both warrant rehearing.

I. THE MAJORITY'S DECISION CONFLICTS WITH PRECEDENT ON THE DEFERENCE DUE AN EXAMINER

As Judge Dyk recognized and the majority never confronted, NSS's patent claims and written description are "inconsistent" about the scope of the coined term "modified Watson method." Dissent 3-4. Claim 1 suggests "modified Watson method" might mean one thing, dependent claim 6 suggests it could mean something different, and the patents' figures suggest yet a third alternative. Appx26; Appx32 (col.9:17-40, col.10:21-45); *supra* pp. 3-6 (explaining same). Yet without reconciling this conflicting evidence, the majority upheld the claims because the examiner's unexplained decision to amend and allow the claims after an indefiniteness rejection was "entitled to appropriate deference." Op. 13-17 (citing *Tinnus Enter., LLC v. Telebrands Corp.*, 733 F. App'x 1011, 1020 (Fed. Cir. 2018); *PowerOasis v. T-Mobile USA*, 522 F.3d 1299, 1304 (Fed. Cir. 2008); *Am. Hoist & Derrick Co. v. Sowa & Sons*, 725 F.2d 1350, 1359 (Fed. Cir. 1984) (abrogated on other grounds)).

That approach defies precedent. Examiner legal determinations warrant no deference. "[C]laim indefiniteness is a legal conclusion that is drawn from the court's performance of its duty as the construer of patent claims." *Atmel Corp. v. Info. Storage Devices*, 198 F.3d 1374, 1378 (Fed. Cir. 1999). When resolving questions about intrinsic evidence, this Court never defers to an agency or lower tribunal's conclusion, because "[d]etermining the meaning or significance to ascribe to the legal writings which constitute the intrinsic record is legal analysis." *Teva Pharms. USA v. Sandoz*, 789 F.3d 1335, 1342 (Fed. Cir. 2015). Until this decision, that was as true for patent examiners, who have no formal legal training, as for formally trained administrative or Article III judges. But for the first time, the majority announced a new rule giving special significance to an examiner's implied legal determination of definiteness.

The Supreme Court has rebuffed attempts to bind courts based on that kind of agency action. It has cabined the circumstances in which courts may defer to executive agency legal determinations. *E.g.*, *Kisor v. Wilkie*, 139 S. Ct. 2400, 2414-18 (2019) (detailing strict requirements on when courts may defer to agency legal interpretations of regulations). And it has already refused to adopt a fluctuating standard of proof depending on what an examiner previously considered. *Microsoft Corp. v. i4i Ltd. P'ship*, 564 U.S. 91, 108-09 (2011). Yet the majority's rule would

effectively create a super-presumption of validity based on *implied* examiner legal determinations.

This Court, too, has already rejected such a rule. For example, although obviousness depends on underlying factual issues, this Court has spurned deference to examiner determinations on legal conclusions of obviousness: "The courts are the final arbiter of patent validity and, although courts may take cognizance of, and benefit from, the proceedings before the patent examiner, the question is ultimately for the courts to decide, without deference to the rulings of the patent examiner." *Quad Envt'l Techs. v. Union Sanitary Dist.*, 946 F.2d 870, 875-76 (Fed. Cir. 1991). Thus, when "there is no factual issue" in dispute, suggestions of "deference to the examiner" have "no merit" because the Court makes "ultimate legal" determinations "without deference." *Iron Grip Barbell Co. v. USA Sports*, 392 F.3d 1317, 1323 (Fed. Cir. 2004) (distinguishing deference on "legal issue of obviousness" from "underlying factual issues"); *Newell Cos. v. Kenny Mfg.*, 864 F.2d 757, 767 (Fed. Cir. 1988) (similar).

To be sure, this Court has spoken of giving some weight to examiner competence on certain *factual* issues. But examiner fact findings may carry weight only where they entail examiner "expertise in interpreting the references" when reviewing patent applications. *E.g.*, *Am. Hoist*, 725 F.2d at 1359; *Bausch & Lomb v. Barnes-Hind/Hydrocurve*, 796 F.2d 443, 447 (Fed. Cir. 1986) (same);

PowerOasis, 522 F.3d at 1304 (same). In those narrow circumstances, the Court has recognized that factfinders may give some weight to the fact that the same prior art was previously before the agency. *E.g.*, *PowerOasis*, 522 F.3d at 1304 (explaining same).

Even giving weight to fact-based determinations has limits. Examiner or administrative patent judge experience can be relied on for only factual "conclusions as to peripheral issues"—not the ultimate patentability conclusion. *In re Zurko*, 258 F.3d 1379, 1386 (Fed. Cir. 2001); *K/S Himpp v. Hear-Wear Techs., LLC*, 751 F.3d 1362, 1365 (Fed. Cir. 2014). And unexplained factual conclusions carry no weight. *Gabrielidis v. Prince Sports Grp.*, 243 F.3d 565 (Fed. Cir. 2000) (recognizing that mere fact of examiner allowance was "inconclusive" about what prior art disclosed). To merit any weight, examiners must show their work, because examiners' "knowledge of the relevant prior art is, to a large part, the product of [their] consideration of the references before" them rather than independent knowledge of the facts within a particular field. *W. Elec. Co. v. Piezo Tech.*, 860 F.2d 428, 432 (Fed. Cir. 1988). Indeed, unexplained factual conclusions are grounds for vacatur when challenged on appeal, not a basis for deference. *In re Lee*, 277 F.3d 1338, 1346 (Fed. Cir. 2002); *In re Van Os*, 844 F.3d 1359, 1361-62 (Fed. Cir. 2017).

Nothing in *Tinnus* suggests otherwise. *Contra* Op. 16 (citing *Tinnus*). As a non-precedential decision, *Tinnus* created no new law on examiner deference.

Federal Circuit Rule 32.1(d). Moreover, *Tinnus* cited the prosecution history because the examiner (unlike here) explained the meaning of the disputed term, shedding further light on claim scope. 733 F. App'x at 1019-20. Thus, in *Tinnus* it was not blind deference to an examiner's amendment that mattered, but the fact that the public patent record, which included the examiner's explanation, provided reasonable certainty. *Id.*

This Court's decision on remand in *Teva* illustrates the perils of giving deference to examiner legal conclusions about indefiniteness. 789 F.3d at 1342-43. There, as here, different applications containing the same term were rejected during prosecution for indefiniteness—rejections this Court understood to suggest that the "specification does not conclusively establish" claim definiteness. *Id.* But rather than uphold claims based on an amorphous concept of "appropriate deference," the Court instead concluded that the prosecution history exacerbated the uncertainty. *Id.* The applicant responded to one rejection with one explanation for the disputed term but responded to another with a conflicting explanation. *Id.* That conflict left the claims without reasonably certain scope. *Id.*

Just as in *Teva*, absent the panel majority's legally flawed deference, the prosecution history here only adds uncertainty over the meaning of the coined term "modified Watson method." In response to the examiner's indefiniteness rejection, the applicant made one amendment to the scope of "modified Watson method,"

adding the steps that appear in issued claim 6. Applicant Response 8-9, 11. But without providing any explanation, the examiner made a different amendment, requiring different and conflicting steps for "modified Watson method" in independent claim 1. Notice of Allowability 4. Thus, like the prosecution history in *Teva*, the applicant's and examiner's actions give different and irreconcilable indicators about the meaning of "modified Watson method."

Giving deference to the bare fact of an examiner amendment here would also be wrong because it would reward failure to comply with governing regulations. Under 37 C.F.R. § 1.2, "[a]ll business with the Patent and Trademark Office should be transacted in writing." But "[t]he action of the U.S. Patent and Trademark Office cannot be based exclusively on the written record in the Office if that record is itself incomplete through the failure to record the substance of interviews." Manual of Patent Examining Procedure § 713.04. Office regulations thus require "a complete written statement of the reasons presented at the interview as warranting favorable action." 37 C.F.R. § 1.133(b). Here, neither the applicant nor the examiner made the required "complete written statement" of the interview that led to the examiner amendment and notice of allowability.

Finally, the panel majority was also out of step with precedent in stating that "examiners are deemed to be experienced in the relevant technology." *Contra* Op. 16. The cases the panel cited—*Tinnus*, *PowerOasis* and *American Hoist*—

recognize something different: examiners are experienced in "interpreting the references" and "familiar from their work with the level of skill in the art." *Am. Hoist*, 725 F.2d at 1359. That is, examiners are merely presumed to have experience as examiners. *Id.* There is no basis to go further since the education and work experience required for examiners often differ substantially from those required for the level of ordinary skill in a particular field. *Compare* Appx7 (unrebutted that level of skill required "at least a master's degree" or "two years" experience beyond bachelor's), *with* OPM.GOV, https://www.opm.gov/policy-data-oversight/classification-qualifications/general-schedule-qualification-standards/1500/computer-science-series-1550/ (only bachelor's degree and no work experience for examiner); *accord Kyocera Senco Indus. Tools v. ITC*, 22 F.4th 1369, 1376-77 (Fed. Cir. 2022) (abuse of discretion to admit expert testimony from person lacking ordinary skill in art).

* * *

The panel's break with settled precedent requires rehearing. And because under that precedent NSS's claims are invalid for indefiniteness, the district court's decision should be affirmed.

II. THE MAJORITY'S DECISION CREATES CONFUSION ABOUT SECTION 112'S INDEPENDENT REQUIREMENTS

Rehearing is warranted for another reason: the majority's decision creates confusion about Section 112's separate requirements. This Court has read

Section 112 as setting forth discrete requirements, such as the written description, enablement, and definiteness requirements. Yet the majority suggested that failing to show inadequate description or lack of enablement—during claim construction—somehow shows claims are not indefinite. Op. 17.

Section 112 requires a "specification" with "a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art" to "make and use the same." 35 U.S.C. § 112(a). It also requires a patent to "set forth the best mode contemplated by the inventor" for "carrying out the invention." *Id.* And it separately requires "one or more claims particularly pointing out and distinctly claiming the subject matter" of the invention. *Id.* § 112(b).

The majority's decision blurs the lines between these requirements. To support reversal, the majority states:

> It is not disputed that the specification describes and enables practice of the claimed method, including the best mode. The claims, as amended during prosecution, were held by the examiner to distinguish the claimed method from the prior art and to define the scope of the patented subject matter. The district court made no contrary findings. Indefiniteness under 35 U.S.C. § 112 was not established as a matter of law.

Op. 17.

But this Court has never suggested Section 112's requirements are intertwined such that proving invalidity for indefiniteness somehow depends on also proving

invalidity for lack of written description, enablement, or best mode. Far from it. The Court went en banc to preserve the separateness of Section 112 requirements in *Ariad Pharms. v. Eli Lilly & Co.* 598 U.S. 1336, 1340 (2010) (Section 112 "contains a written description requirement separate from enablement"). And in *Nautilus*, the Supreme Court focused solely on the statutory requirement for claims "particularly pointing out and distinctly claiming the subject matter" of the invention. 572 U.S. at 901. It was that statutory requirement, alone, that required patents to "inform those skilled in the art about the scope of the invention with reasonable certainty." *Id.* at 909-10.

Because Section 112's requirements are distinct, this Court has cautioned against blurring them as the majority did here. *Spectra-Physics v. Coherent*, 827 F.2d 1524, 1534-35 (Fed. Cir. 1987) (explaining that district court "confused" enablement and best mode, which must be kept "separate and distinct"); *see Biogen Int'l GmbH v. Mylan Pharms.*, No. 20-1933, 2022 WL 791426, at *6 (Fed. Cir. March 16, 2022) (Lourie, J., dissenting from en banc denial and criticizing error in "blurring the lines between" Section 112's requirements). The majority's opinion is irreconcilable with this precedent.

Moreover, the majority's opinion is just wrong that other Section 112 issues were undisputed. They are disputed: Autodesk pleaded invalidity under Section 112 in its answer and served invalidity contentions that included lack of enablement

and inadequate description. Answer at 8, D. Ct. Dkt. 17 (Aug. 30, 2019). None of those issues have been adjudicated yet because the claims were found indefinite during claim construction. As for the purported absence of any "best mode" challenge, that statement is directly contrary to law; Congress eliminated a best mode defense for NSS's patents. 35 U.S.C. § 282(b)(3)(A).

Regardless, whether Section 112's other requirements are disputed has no bearing on the sole issue before the Court—whether the patents satisfy the requirement to particularly point out and distinctly claim the invention's subject matter. Absent rehearing, the majority's legally and factually unsupported reasoning risks confusing courts and litigants about these distinct requirements.

CONCLUSION

The petition should be granted.

Dated: March 21, 2022

Respectfully submitted,

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ADDENDUM

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ADDENDUM
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United States Court of Appeals for the Federal Circuit

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2020-2257

Appeal from the United States District Court for the Northern District of California in No. 3:19-cv-03192-SK, Magistrate Judge Sallie Kim.

Decided: January 27, 2022

MATTHEW MICHAEL WAWRZYN, Wawrzyn LLC, Chicago, IL, argued for plaintiff-appellant.

BRIAN ROBERT MATSUI, Morrison & Foerster LLP, Washington, DC, argued for defendant-appellee. Also represented by SETH W. LLOYD; RUDOLPH KIM, ROMAN A. SWOOPES, Palo Alto, CA.

Before NEWMAN, LOURIE, and DYK, *Circuit Judges*.

Opinion for the court filed by *Circuit Judge* NEWMAN.

Dissenting opinion filed by *Circuit Judge* DYK.

NEWMAN, *Circuit Judge*.

Nature Simulation Systems, Inc. ("NSS") is the owner of United States Patents No. 10,120,961 ("the '961 patent") and No. 10,109,105 ("the '105 patent"), both entitled "Method for Immediate Boolean Operations Using Geometric Facets." The patents relate to methods of packaging computer-aided data for three-dimensional objects.[1]

NSS brought suit for infringement against Autodesk, Inc. in the United States District Court for the Northern District of California. At issue are claims 1 and 8 of the '961 patent and claim 1 of the '105 patent. The district court held a claim construction (*Markman*) hearing, and ruled the claims invalid on the ground of claim indefiniteness, 35 U.S.C. § 112(b).[2] That decision is the subject of this appeal.

We conclude that the district court erred on the legal standard for claim indefiniteness, and that on the correct standard the claims are not indefinite. The decision of invalidity on this ground is reversed.

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[1] The '961 patent is a continuation-in-part of the '105 patent, and the specifications and claims do not materially differ with respect to the issues of this appeal; thus the parties and this court generally cite to the '961 patent.

[2] *Nature Simulation Systems Inc. v. Autodesk, Inc.*, No. 19-CV-03192-SK, ECF. No. 61, (N.D. Cal. July 31, 2020) ("Dist. Ct. Op."); Final Judgment, 2020 WL 5525170 (N.D. Cal. Aug. 11, 2020).

BACKGROUND

Standards of review

Claim construction is a question of law, and receives de novo review on appeal. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 390–91 (1996); *Teva Pharms. USA Inc. v. Sandoz, Inc.*, 574 U.S. 318, 325 (2015). Claim indefiniteness is a legal conclusion, in implementation of 35 U.S.C. § 112. *See Atmel Corp. v. Info. Storage Devices, Inc.*, 198 F.3d 1374, 1378 (Fed. Cir. 1999) ("'A determination of claim indefiniteness is a legal conclusion that is drawn from the court's performance of its duty as the construer of patent claims.' Indefiniteness, therefore, like claim construction, is a question of law that we review *de novo*.") (quoting *Personalized Media Communications, LLC v. Int'l Trade Comm'n*, 161 F.3d 696, 705 (Fed. Cir. 1998)).

Claim indefiniteness is decided from the viewpoint of persons skilled in the field of the invention. *Personalized Media*, 161 F.3d at 705. The district court and the parties agreed that for the technology here at issue, such persons would have "at least a master's degree in computer science or a related field, or a bachelor's degree in computer science or a related field plus two years of relevant experience, with experience in computer graphics, computer-aided design, solid modeling, or geometric modeling." Dist. Ct. Op. at 7.

United States patents are accompanied by a presumption of validity, 35 U.S.C. § 282, and invalidity must be established by clear and convincing evidence. *Sonix Tech. Co. Ltd. v. Pubs. Int'l, Ltd.*, 844 F.3d 1370, 1377 (Fed. Cir. 2017).

The patented inventions

The '961 and '105 patents are for a computer-implemented method for building three-dimensional objects employing a computation method called "Boolean operation." The patents introduce the invention as follows:

> This invention provides an immediate Boolean operation method for building three (3) dimensional geometric models from primary geometric objects to Computer Aided Design, Computer Graphics, Solid Modeling systems, and Surface Modeling systems, which are widely used in product design, manufacturing, and simulation. Mechanic industry, culture and sports, everywhere there are geometric shapes, may have CAD/CG applications.

'961 patent, col.1, ll.7–14. The patents are for data structures and algorithms for the claimed method, which is described as a modification of a known Boolean operation published in 1981 for analyzing and representing three-dimensional geometric shapes ("the Watson method"). The district court states: "NSS concedes that the general idea of performing Boolean operations in this area was well known before the patents in dispute, as the asserted patents cite to prior art disclosing this concept." Dist. Ct. Op. at 2. The court summarized the prior art:

> There are two methods from prior art that are cited in the asserted patents. The Delaunay method is a known method of triangulation (known as the "Delaunay triangulation"), and the Watson method is a known algorithm for computing a Delaunay triangulation that is described in a paper written in 1981 by D.F. Watson.

Id. (citing '961 patent col.6 ll.64–66; '105 patent col.6 ll.42–44). The patents state that the "modified Watson method" described therein provides simplicity and flexibility compared with prior methods, and is easier to program and implement. '961 patent, col.1, ll.17–62. Both sides presented technology tutorials to the district court; the NSS tutorial was presented by inventor Shangwen Cao, and the Autodesk tutorial was presented by expert Dr. Daniel Aliaga.

At the *Markman* hearing, Autodesk requested construction of eight terms in the claims, and supported this

request with the Declaration of Dr. Aliaga. NSS argued that the challenged terms do not require construction, are clearly set forth in the specification, and should receive their ordinary meaning in this field of technology.

The district court based its decision on two of the challenged terms, shown in boldface in clauses [2] and [3] of Claim 1:

> 1. A method that performs immediate Boolean operations using geometric facets of geometric objects implemented in a computer system and operating with a computer, the method comprising:
>
> > [1] mapping rendering facets to extended triangles that contain neighbors;
> >
> > [2] building intersection lines starting with and ending with searching for the first pair of triangles that hold a start point of an intersection line by detecting whether two minimum bounding boxes overlap and performing edge-triangle intersection calculations for locating an intersection point, then **searching neighboring triangles of the last triangle pair that holds the last intersection point** to extend the intersection line until the first intersection point is identical to the last intersection point of the intersection line ensuring that the intersection line gets closed or until all triangles are traversed;
> >
> > [3] splitting each triangle through which an intersection line passes using **modified Watson method,** wherein the modified Watson method includes removing duplicate intersection points, identifying positions of end intersection points, and splitting portion of each triangle including

> an upper portion, a lower portion, and a middle portion;
>
> [4] checking each triangle whether it is obscure or visible for Boolean operations or for surface trimming;
>
> [5] regrouping facets in separate steps that includes copying triangles, deleting triangles, reversing the normal of each triangle of a geometric object, and merging reserved triangles to form one or more new extended triangle sets; and
>
> [6] mapping extended triangles to rendering facets.

'961 patent, col.9, ll.17–48 (bracketed numbers and boldface added).

After the *Markman* hearing the district court ruled that these two claim terms are indefinite, rendering the claims invalid. The district court did not define the two terms; instead, the court held that a claim term is indefinite, as a matter of law, if there are any "unanswered questions" about the term. The court referred to the conflict between the opinion of Autodesk's expert, and the patent examiner's resolution of indefiniteness, and stated:

> [T]he question is thus: if the PTO issues a patent after amendment to clarify an indefinite term, but an expert later opines that a POSITA would not understand the term, how does the Court determine whether the term is indefinite? The only way to do so here is to look at each argument to see if Autodesk raises any unanswered questions. Here, Autodesk does.

Dist. Ct. Op. at 8. The district court recited several "unanswered questions," and further stated that even if the questions are answered in the specification, the definiteness

requirement is not met if the questions are not answered in the claims. Thus the court held the claims invalid under 35 U.S.C. § 112.

NSS states that the court applied incorrect legal standards, and that on the correct law the claims are not indefinite.

DISCUSSION

Patent claims must provide reasonable certainty in defining what is patented, in conformity with the requirements of 35 U.S.C. § 112. We start with the statute:

35 U.S.C. § 112

Section 112 states the required content of the patent document. Section 112(a) provides that the specification must describe the invention in full, clear, concise, and exact terms, as to enable its practice by any person skilled in the field of the invention, and must include the best mode known to the inventor:

> **§ 112. Specification**
>
> **(a) In General.--** The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor or joint inventor of carrying out the invention.

Section 112(b) requires that the specification conclude with claims that state the subject matter that is patented:

> **(b) Conclusion.--** The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which

> the inventor or a joint inventor regards as the invention.

The claims define the patent right, and perform the "notice" function of legal documents; thus precision and clarity are necessary. *See Ariad Pharms., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336 (Fed. Cir. 2010):

> [The claims'] principal function, therefore, is to provide notice of the boundaries of the right to exclude and to define limits; it is not to describe the invention, although their original language contributes to the description and in certain cases satisfies it. Claims define and circumscribe, the written description discloses and teaches.

Id. at 1347. *See Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 909 (2014) ("a patent must be precise enough to afford clear notice of what is claimed, thereby 'appris[ing] the public of what is still open to them.'" (quoting *Markman*, 517 U.S. at 373)).

The claims are viewed and understood in the context of the specification and the prosecution history, as the Court summarized in *Nautilus*:

> Cognizant of the competing concerns, we read § 112, ¶ 2 to require that a patent's claims, viewed in light of the specification and prosecution history, inform those skilled in the art about the scope of the invention with reasonable certainty. The definiteness requirement, so understood, mandates clarity, while recognizing that absolute precision is unattainable.

572 U.S. at 910. When the meaning or scope of a patent claim is disputed by litigants, the judicial role is to construe the claim as a matter of law, on review of appropriate sources of relevant information. As summarized in *Phillips v. AWH Corp.*, the court looks first to the intrinsic record of the patent document, including "the words of the claims

themselves, the remainder of the specification, the prosecution history, and extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art." 415 F.3d 1303, 1314 (Fed. Cir. 2005) (en banc) (quoting *Innova/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.*, 381 F.3d 1111, 1116 (Fed. Cir. 2004)).

Here, however, the district court did not construe the claims, did not apply the protocols of intrinsic and extrinsic evidence, and did not resolve the meaning and scope of the challenged claims. The district court applied an incorrect standard of "unanswered questions" and a flawed analysis of validity.

The district court's standard of "unanswered questions"

The district court held the claims indefinite based on the "unanswered questions" that were suggested by Autodesk's expert. For the term "searching neighboring triangles of the last triangle pair that holds the last intersection point," the court recited three unanswered questions:

> Aliaga points to several unanswered questions about this language: (1) whether the phrase requires searching repeatedly or iteratively or merely once; (2) what the "last triangle pair" or "last intersection point" is; (3) how can one "extend an intersection line" when in some cases it is not possible, as Aliaga demonstrates.

Dist. Ct. Op. at 17–18 (citing Aliaga Decl. ¶ 26).

For the term "modified Watson method," the district court recited four unanswered questions provided by Autodesk's expert:

> The claim language leaves unanswered the following questions: (1) What is a neighboring point of intersection (referred to as PET in the patents)?; (2) What is the meaning of an 'identical' point of

> intersection?; (3) What is the meaning of removing a point of intersection?; (4) From what is the point of intersection being removed? NSS does not respond to these specific questions, which highlight the ambiguity of the claim language.

Dist. Ct. Op. at 9.

In response to NSS's argument that these questions are answered in the specification, the court held that definiteness requires that the questions are answered in "the claim language, standing alone," as stated in the Aliaga Declaration:

> ¶ 27. [T]he claim language, standing alone, does not specify which of those neighboring, intersecting triangles should be used to identify additional intersection points. Nor does the claim specify (where there are multiple potential intersection points for a given pair of neighboring triangles) which of the multiple potential intersection points should be used to extend the intersection line. Thus, the claim language is indefinite.

Aliaga Decl. ¶ 27. "Claim language, standing alone" is not the correct standard of law, and is contrary to uniform precedent. Patent claims are viewed and understood in light of the specification, the prosecution history, and other relevant evidence, as "would have allowed a skilled artisan to know the scope of the claimed invention with reasonable certainty." *Sonix Tech.*, 844 F.3d at 1376.

The district court did not apply this standard protocol for analyzing claim definiteness, and did not construe the claims. Instead, the court held that the questions raised by Autodesk must be answered, and that the answers must be in the claims. NSS states that on the correct claim construction, the claims are not indefinite.

The specification

The specification describes the invention in text, drawings, and flowcharts. NSS states on this appeal that even if the theory of "unanswered questions" were accepted, any relevant questions are answered in the specification. For example, with respect to the intersection points that were a focus of the criticism recited by the district court, NSS cites the description in the specification captioned "The First Intersection Point" and "Extending an Intersection Line." '961 patent, col.5, l.41–col.6, l.24. NSS also points to the Figure 4 flowchart for building intersection lines, to Figures 6A and 6B for showing intersection points, and Figures 9A–9D for examples of intersection lines.

The specification describes, and the claim recites, that the intersection line is built from the intersection points around the objects being compared, "searching neighboring triangles of the last triangle pair that holds the last intersection point to extend the intersection line until the first intersection point is identical to the last intersection point of the intersection line ensuring that the last line gets closed or until all triangles are traversed." '961 patent, col.9, ll.23–33.

Figure 13 is a flowchart of "Delaunay mesh modified Watson method that created the sequence" shown in Figure 12. Figures 12A–12H show the decomposition of a square into triangles, the placement of intersection points within those triangles, and the use of triangles containing intersection points to build polygons from which new triangles are generated, along with comparisons with the prior art Watson method. Figure 13 shows that where any triangle contains a valid intersection point, the claimed method "moves the triangle to the deleted Triangle Set, uses deleted Triangle Set to build a polygon," and "uses the polygon to generate triangles."

The specification describes the Watson and Delaunay prior art, in text and drawings to show how they are used

and modified in the subject invention. Dr. Aliaga acknowledged this prior art in his expert declaration, stating: "To be clear, I am familiar with the Delaunay method, which is a known method of triangulation that is mentioned in the patents. . . . And I am also aware of the 'Watson' algorithm for computing a Delaunay triangulation that is described in a 1981 paper by D.F. Watson cited in the patents." Aliaga Decl. ¶ 15.

The claims are properly viewed in light of this knowledge, for this prior art constitutes "extrinsic evidence concerning relevant scientific principles [and] the meaning of technical terms." *Phillips*, 415 F.3d at 1313 (quoting *Innova/Pure Water*, 381 F.3d at 1116). The Court guided in *Nautilus*:

> One must bear in mind, moreover, that patents are "not addressed to lawyers, or even to the public generally," but rather to those skilled in the relevant art. *Carnegie Steel Co. v. Cambria Iron Co.*, 185 U.S. 403, 437 (1902) (also stating that "any description which is sufficient to apprise [steel manufacturers] in the language of the art of the definite feature of the invention, and to serve as a warning to others of what the patent claims as a monopoly, is sufficiently definite to sustain the patent").

572 U.S. at 909. The function of the claims is not to duplicate the specification.

The district court declined to consider information in the specification that was not included in the claims. For example, in rejecting NSS's argument that the modified Watson method is described in the specification, the district court stated:

> NSS points to column 7 of the specification and relies on step 5(a) of column 7 to show the modification of the Watson method. ('961 patent at 7:17–

> 23). This language adds an additional condition: "or last segment passes through the triangle." Again, this language is not contained in the claim language and does not explain the challenged claim language.

Dist. Ct. Op. at 10.

The district court misperceived the function of patent claims; *see In re Vamco Machine & Tool, Inc.*, 752 F.2d 1564 (Fed. Cir. 1985):

> The function of claims is (a) to point out what the invention *is* in such a way as to distinguish it from what was previously known, i.e., from the prior art; and (b) to define the *scope of protection* afforded by the patent. In both of those aspects, claims are not technical descriptions of the disclosed inventions but are legal documents like the descriptions of lands by metes and bounds in a deed which *define the area* conveyed but *do not describe the land*.

Id. at 1577 n.5 (emphases original). As noted in *SRI International v. Matsushita Electric Corp. of Am.*, 775 F.2d 1107, 1121 n.14 (Fed. Cir. 1985): "Specifications teach. Claims claim."

The prosecution history

The prosecution history here is significant, for the patent examiner had initially rejected the claims on the ground of indefiniteness, and the examiner required additional definition in the claim clauses here at issue. For example, the examiner had initially rejected the claims for indefiniteness of the clause "extending intersection lines until they get closed by searching neighboring triangles;" the examiner wrote: "What is causing the closure of the intersection lines? The nexus between 'extending the intersection lines' and 'searching neighboring triangle pairs' is also not clearly set forth." Appl. No. 15/840,052, Official Action (Non-Final Rejection) of Feb. 6, 2018, at 3. The

applicant, in consultation with the examiner, amended this term in claim clause [2], as shown in the prosecution record:

> [2] building intersection lines starting with and ending with searching for the first pair of triangles that hold a start point of an intersection line by detecting whether two minimum bounding boxes overlap and performing edge-triangle intersection calculations for locating an intersection point, ~~extending the intersection lines until they get closed by searching neighboring triangles or all triangles are traversed;~~ then searching neighboring triangles of the last triangle pair that holds the last intersection point to extend the intersection line until the first intersection point is identical to the last intersection point of the intersection line ensuring that the intersection line gets closed or until all triangles are traversed;

Appl. No. 15/840,052, Amend. of Apr. 4, 2018, at 9 (markings in original). With this amendment the examiner withdrew the indefiniteness rejection relating to the intersection lines.

The applicant and the examiner also interacted to amend the term "modified Watson method." An Examiner's Amendment of August 28, 2018 amended claim clause [3] as follows:

> [3] splitting each triangle through which an intersection line passes using modified Watson method, wherein the modified Watson method includes removing duplicate intersection points, identifying positions of end intersection points, and splitting portion of each triangle including an upper portion, a lower portion, and a middle portion;

Appl. No. 15/840,052, Examiner's Amend. in Notice of Allowance, Sept. 18, 2018, at 4–5 (markings in original).

With the agreed amendments, the examiner withdrew the rejections for indefiniteness and allowed the claims. *Id.*

However, the district court rejected the examiner's conclusion as to indefiniteness, the court reciting the initial rejection and the amendment, and stating that this action did not answer "the questions posed by Aliaga":

> The prosecution history does not show how or why the amendment answered the unanswered questions. The prosecution history does not provide a clear reason for the amendment that clarifies the underling ambiguity. The PTO initially rejected Claim 1 as indefinite: "The nexus between 'extending the intersection lines' and 'searching neighboring triangles' is also not clearly set forth. The examiner is not able to ascertain the scope of the claimed invention," (Dkt. 37-1 (Ex. A at page 4).) In response, NSS added the following language: "building intersection lines starting with and ending with . . . calculations for locating an intersection point, then searching neighboring triangles of the last triangle pair that holds the last intersection point to extend the intersection line until the first intersection point is identical to the last intersection point of the intersection line ensuring that the intersection line gets closed or until all triangles are traversed." (*Id.*) This added language does not answer the questions posed by Aliaga.

Dist. Ct. Op. at 19 (ellipses and parentheticals in original).

The district court gave no weight to the prosecution history showing the resolution of indefiniteness by adding the designated technologic limitations to the claims. The court did not discuss the Examiner's Amendment, and held that since Dr. Aliaga's questions were not answered, the claims are invalid.

Actions by PTO examiners are entitled to appropriate deference as official agency actions, for the examiners are deemed to be experienced in the relevant technology as well as the statutory requirements for patentability:

> We presume that an examiner would not introduce an indefinite term into a claim when he/she chooses to amend the claim for the very purpose of putting the application in a condition for allowance.

Tinnus Enters., LLC v. Telebrands Corp., 733 F. App'x 1011, 1020 (Fed. Cir. 2018). *See also PowerOasis, Inc. v. T-Mobile USA, Inc.*, 522 F.3d 1299, 1304 (Fed. Cir. 2008) (stating that PTO examiners are "assumed to have some expertise in interpreting the references and to be familiar from their work with the level of skill in the art and whose duty it is to issue only valid patents." (quoting *Am. Hoist & Derrick Co. v. Sonra & Sons, Inc.*, 725 F.2d 1350, 1359 (Fed. Cir. 1984) (overruled on other grounds))).

The Court recognized, in discussing claim definiteness, that:

> The standard we adopt accords with opinions of this Court stating that "the certainty which the law requires in patents is not greater than is reasonable, having regard to their subject-matter." *Minerals Separation, Ltd. v. Hyde*, 242 U.S. 261, 270 (1916).

Nautilus, 572 U.S. at 910.

The subject matter herein is an improvement on the known Watson and Delaunay methods, and partakes of known usages for established technologies. Precedent teaches that when "the general approach was sufficiently well established in the art and referenced in the patent" this "render[ed] the claims not indefinite." *Presidio Components, Inc. v. Am. Tech. Ceramics Corp.*, 875 F.3d 1369, 1377 (Fed. Cir. 2017). The situation here is analogous, for the 1981 Watson method and the Delaunay method were

known in the art. It is not disputed that the specification describes and enables practice of the claimed method, including the best mode. The claims, as amended during prosecution, were held by the examiner to distinguish the claimed method from the prior art and to define the scope of the patented subject matter. The district court made no contrary findings. Indefiniteness under 35 U.S.C. § 112 was not established as a matter of law.

CONCLUSION

The district court's decision is reversed. We remand for further proceedings.

REVERSED AND REMANDED

United States Court of Appeals for the Federal Circuit

NATURE SIMULATION SYSTEMS INC.,
Plaintiff-Appellant

v.

AUTODESK, INC.,
Defendant-Appellee

2020-2257

Appeal from the United States District Court for the Northern District of California in No. 3:19-cv-03192-SK, Magistrate Judge Sallie Kim.

DYK, *Circuit Judge*, dissenting.

Contrary to the majority, I think that the asserted claims are invalid because they are indefinite. The fact that a patent examiner introduced the indefinite language does not absolve the claims from the requirements of 35 U.S.C. § 112. I respectfully dissent.

The majority faults the district court for applying an incorrect "unanswered questions" standard, Maj. Op. 9, but this is not the district court's decision. In a detailed and thorough analysis, the district court read the patent's claims in light of the specification to determine if it would inform those skilled in the art about the scope of the invention with reasonable certainty, which is exactly what is required under *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572

U.S. 898, 910 (2014). Regardless, the question of definiteness is a legal question which we review de novo, and the majority's legal conclusion is, in my view, manifestly incorrect.

The field of art here, computer-aided design, is unusually complex, involving methods of using computer systems to build geometric objects. The patents purport to improve on two established methods of computer-aided design: constructive solid geometry, which combines simple objects using Boolean operations (e.g., intersection, combination, exclusion) to build complex objects, and boundary representation, which represents three-dimensional objects by defining their surfaces as meshes of two-dimensional objects.

Claim 1 of U.S. Patent No. 10,120,961 ("the '961 patent") claims:

> 1. A method that performs immediate Boolean operations using geometric facets of geometric objects implemented in a computer system and operating with a computer, the method comprising:
>
> mapping rendering facets to extended triangles that contain neighbors;
>
> building intersection lines starting with and ending with searching for the first pair of triangles that hold a start point of an intersection line by detecting whether two minimum bounding boxes overlap and performing edge-triangle intersection calculations for locating an intersection point, then searching neighboring triangles of the last triangle pair that holds the last intersection point to extend the intersection line until the first intersection point is identical to the last intersection point of the intersection line ensuring that the intersection line

> gets closed or until all triangles are traversed;
>
> splitting each triangle through which an intersection line passes using modified Watson method, wherein the modified Watson method includes removing duplicate intersection points, identifying positions of end intersection points, and splitting portion of each triangle including an upper portion, a lower portion, and a middle portion . . . .

'961 patent, col. 9, ll. 17–40; *see also* U.S. Patent No. 10,109,105, col. 8, l. 47–col. 9, l. 3. (emphasis added). The indefiniteness issue concerns the underscored language.

There is no dispute that the term "modified Watson method" does not have, and did not have at the time the patents were issued, an ordinary and customary meaning to a person of ordinary skill in the art. The majority finds that Figures 12 and 13 of each patent define the "modified Watson method." Maj. Op. 11–12 ("The specification describes the Watson and Delaunay prior art, in text and drawings to show how they are used and modified in the subject invention."). Figures 12A through 12H of the patents at issue "show a Delaunay mesh sequence in which each intersection point is inserted into the mesh step by step," while Figure 13 "is the flowchart of Delaunay mesh modified Watson method that created the sequence of [Figures] 12A through 12H." '961 patent, col. 3, ll. 36–41.

The problem with the majority's definition is that it ignores the claim language. As the district court found, J.A. 9–10, and Nature concedes, Nature Reply Br. 6, claim 1 adds limitations not found in Figures 12A–H or 13: "removing duplicate intersection points, identifying positions of end intersection points, and splitting portion of each triangle including an upper portion, a lower portion, and a middle portion." Thus, the majority's definition of "modified

Watson method" in claim 1 is inconsistent with the claim itself: the majority looks to figures 12 and 13 to find the "modified Watson method" but those figures do not include the additional limitations which are expressly required by the claim language. Even more significant, nothing in the patent specification defines what these additional limitations mean. The only expert evidence on these limitations in the record is by Autodesk's expert, who testified without contradiction that these limitations are "not describe[d]" in the patent, "ambiguous" and "unclear," and "inconsistent with" Figure 13 and the accompanying text. J.A. 54–56.

The majority simply does not address this problem, instead relying on the fact that these limitations were suggested by the patent examiner. The majority holds that "[a]ctions by PTO examiners are entitled to appropriate deference" because examiners are "deemed to be experienced in the relevant technology as well as the statutory requirements for patentability." Maj. Op. 16. But the test for definiteness is whether the claims "inform those skilled in the art about the scope of the invention with reasonable certainty," *Nautilus*, 572 U.S. at 910, not whether the claim language was added by a patent examiner or was not indefinite to the examiner. There is no reasonable basis in the claims or specification for the majority's decision. I respectfully dissent.

CERTIFICATE OF COMPLIANCE

I hereby certify that this petition complies with the type-volume limitation of Fed. Rs. App. P. 35(b)(2) and 40(b)(1) because it contains 3,896 words excluding the parts exempted by Fed. R. App. P. 32(f) and Fed. Cir. R. 32(b)(2).

This petition complies with the typeface requirements of Fed. R. App. P. 32(a)(5) and the type style requirements of Fed. R. App. P. 32(a)(6) because it has been prepared in a proportionally spaced typeface using Microsoft Word 2016 in 14-point Times New Roman font.

Dated: March 21, 2022 /s/ Brian R. Matsui

ny-2333502