# United States Court of Appeals for the Federal Circuit

03-1540, -1553

NATIONAL INSTRUMENTS CORPORATION,

Plaintiff-Cross Appellant,

v.

THE MATHWORKS, INC.,

Defendant-Appellant.

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DECIDED: September 3, 2004

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Before MAYER, Chief Judge, FRIEDMAN, Senior Circuit Judge and LINN, Circuit Judge.

PER CURIAM.

The MathWorks, Inc. ("MathWorks") appeals the judgment of the United States District Court for the Eastern District of Texas, which denied a motion for judgment as a matter of law ("JMOL") that MathWorks does not infringe fifteen claims of three United States Patents* assigned to National Instruments Corporation ("NI"). National Instruments Corp. v. The MathWorks, Inc., No. 2:01-CV-11 (E.D. Tex. Jun. 23, 2003) ("Opinion and Order"). MathWorks also seeks JMOL of invalidity of the asserted claims, a new trial and reversal of the permanent injunction entered by the trial court. NI cross-appeals seeking JMOL of infringement of five claims of United States Patent No. 5,291,587 ("the '587

patent"). We affirm.

The technology of the patents in suit concerns the creation of model systems (generally known as "data flow diagrams") through building diagrams on a computer screen by pointing and clicking with a mouse, rather than writing traditional lines of code. Relying upon the intrinsic evidence of record, the trial court interpreted the disputed claim term "data flow diagrams" as a graphical computer program whose execution follows a set of semantic or operational rules as follows:

1. the order of operations is not completely specified by the user;

2. the order of operations is implied by data interdependencies;

3. a node may only execute after all necessary inputs have become available, and;

4. outputs are generated after a node completes execution.

National Instruments Corp. v. The MathWorks, Inc., No. 2:01-CV-11 (E.D. Tex. May 24, 2002) ("Claim Construction Opinion and Order") (emphasis added). The trial court determined that the written description did not provide an explicit definition of the terms "data flow" and "data flow diagram," but the disclosure did use the terms according to the semantic principles in a consistent way. MathWorks contends only that the word "necessary" was erroneously added to the court's interpretation and that the proper construction should require "all inputs" to be available before a given block may start and complete execution.

The trial court did not adopt the proposed definition offered by either party but instead drafted its own based upon the intrinsic evidence. We agree with the court's interpretation. MathWorks proffered the word "necessary" as a qualifier for "inputs" throughout its claim construction briefing. MathWorks proposed that "a node may only execute once it has received all necessary inputs," and "an operation may only execute once it has all necessary inputs available." As to part three of the semantic principles, the trial court essentially adopted MathWorks' proposed definition, which MathWorks now attempts to disavow or modify. See Metabolite Labs., Inc. v. Lab. Corp. of Am. Holdings, 370 F.3d 1354, 1364 (Fed. Cir. 2004) (a party will be judicially estopped from asserting a claim construction inconsistent

with a position it advocated at trial and persuaded the trial court to adopt). We agree with the trial court that the inclusion of "necessary" was proper given that the ordinary meaning of "data flow" and "data flow diagram" does not limit the scope of the terms to await inputs that may be unnecessary for execution, and, likewise, the specification does not limit semantic limitation three to require "all inputs" be available before execution.

The portions of the specification relied upon by MathWorks concerned embodiments that describe the operation of certain nodes as "[i]n accordance with data flow principles." See, e.g., '221 patent, col. 11, ll. 43-44. This language, directed to certain embodiments, is insufficient to limit "data flow" or "data flow diagrams" because the patents do not manifest an intent to impart a special meaning to the terms and the broader language of the claims only require that nodes wait for inputs that are then needed, not "all inputs." See Rexnord Corp. v. Laitram Corp., 274 F.3d 1336, 1342 (Fed. Cir. 2001) ("unless compelled to do otherwise, a court will give a claim term the full range of its ordinary meaning as understood by an artisan of ordinary skill").

Under the correct claim construction, the jury's verdict that the accused product, Simulink, satisfies the "data flow diagram" limitation is supported by substantial evidence. MathWorks contends that complex diagrams are never "data flow diagrams" and that Simulink's interleaved execution of block methods in time-step increments violates the data flow rules. Further, MathWorks alleges that NI's evidence never analyzed execution during each step, but instead NI erroneously crossed time-steps, which should result in semantic limitations three and four not being met. Evidence presented in the form of expert witness testimony, MathWorks' own documentation, and a Simulink debugger system were sufficient for a jury reasonably to find that Simulink nodes produce their output after completing execution, and that Simulink nodes do not execute until they have all necessary inputs, thus satisfying the claim limitations for "data flow diagrams."

MathWorks contends that Simulink, when used in its ordinary and intended manner, does not have the "front panel" limitation as required by a majority of the claims in dispute. This argument is two fold. First it first alleges that the claim limitation is not met generally, and, secondly, that NI failed

to produce evidence proving that it ever assembled or induced its customers to assemble a "front panel." The trial court interpreted "front panel" to mean "a graphical user interface that is separate and apart from the associated data flow diagram and that displays inputs and output controls, where there is at least one input control and at least one output control in the front panel." Claim Construction Opinion and Order. MathWorks claims that the Simulink "front panel" lacks an interface that includes both an "input control" and an "output control." It is implicitly asserting that if the input and output controls are contained in separate windows they cannot comprise a "front panel." This single window limitation was rejected by the trial court both during the original claim construction proceedings and on JMOL. Under the court's construction, which MathWorks does not appeal, the "front panel" is not limited to a single window or control display. The "front panel" limitation is directed to separating the input and output control windows from the procedural display or associated data flow diagram. Simulink meets this limitation even when the input and output displays are not combined.

Next, MathWorks points to a lack of evidence of direct infringement or inducement to infringe, claiming that the circumstantial evidence presented is only speculation that its customers might have used the accused product in an infringing manner. We have recognized that a device does not infringe merely because it is capable of being modified to operate in an infringing manner. High Tech Med. Instrumentation, Inc. v. New Image Indus., Inc., 49 F.3d 1551, 1555 (Fed. Cir. 1995) ("The question is not what [a device] might have been made to do, but what it was intended to do and did do . . . . That a device could have been made to do something else does not of itself establish infringement.") (internal quotations and citations omitted). As is the case here, however, a device may infringe if it has the present capability of functioning in the same manner described by the claim, see Intel Corp. v. United States Int'l Trade Comm'n, 946 F.2d 821, 832 (Fed. Cir. 1991), and sufficient evidence has been presented to persuade the trier of fact that the device is indeed used in such a manner, see Moleculon Research Corp. v. CBS, Inc., 793 F.2d 1261, 1272 (Fed. Cir. 1986) (holding that "direct evidence of a fact is not necessary" and that "[c]ircumstantial evidence is not only sufficient, but may also be more certain, satisfying and persuasive"). NI's proof was based on MathWorks' own instructions for using Simulink as well as training seminars where MathWorks coached and encouraged customers to do

exercises that were covered by the claims. The evidence of MathWorks' training materials, which teach how to use Simulink to perform the infringing methods, and the evidence presented that Simulink was designed to infringe during its normal use presents substantial evidence for the jury to find either direct or induced infringement.

MathWorks believes the permanent injunction barring all sales of Simulink went impermissibly beyond the jury's findings. "Because courts have broad discretion in determining the scope of injunctive relief under 35 U.S.C. § 283 [2000], we review the scope of a district court's permanent injunction for an abuse of discretion." Johns Hopkins Univ. v. Cellpro, Inc., 152 F.3d 1342, 1354 (Fed. Cir. 1998). Evidence at trial established that the Simulink software – in ordinary use as intended by MathWorks – infringes claims of the '221, '336 and '568 patents and, therefore, the trial court did not abuse its discretion in determining that an injunction against sales of Simulink is necessary to prevent future infringement. MathWorks claims that Simulink "has myriad applications that would not infringe the method claims," so the injunction should be narrowly tailored. The trial court was cognizant of these arguments and nonetheless determined that "the scope of the injunction remains that which is necessary to deter future infringement." Opinion and Order. The permanent injunction used specific terms and described with reasonable detail the acts sought to be restrained and limited its prohibition to the infringing Simulink software; all the while allowing a limited amount of ongoing service to existing Simulink users. See, e.g., Additive Controls & Measurement Sys. v. Flowdata, Inc., 986 F.2d 476, 479 (Fed. Cir. 1993) (analyzing the requirements of Fed. R. Civ. P. 65(d)). To the extent Simulink may have noninfringing uses, the burden rests with MathWorks to avoid the injunction by separating out the infringing uses through reprogramming or the like.

MathWorks alleges that the trial court abused its discretion by denying its request for a new trial based upon an alleged irreconcilable jury verdict. The jury issued a special verdict finding infringement of each of the claims in suit in the '336, '221 and '568 patents, but no infringement of any of claims 1, 2, 4, 8 and 17 of the '587 patent. MathWorks contends that this is an irreconcilable verdict because the '587 patent contains broader claims compared to the other three patents found infringed.

In Snyder v. Trepagnier, the Fifth Circuit explained its review of special verdicts:

> [W]e must make "a concerted effort to reconcile apparent inconsistencies . . . if at all possible." We must ask whether "the answers may fairly be said to represent a logical and probable decision on the relevant issues as submitted . . . ." Only if there is no view of the case that will make the jury's answers consistent may we set aside its decision.

142 F.3d 791, 800 (5th Cir. 1998) (citations omitted). The jury's verdicts are logically reconcilable because the claims of the '587 patent are not identical and have unique limitations when compared to the claims of the infringed patents. Specifically, MathWorks argues that claims 4 and 8 of the '587 patent are identical to claims of the other patents. Claims 4 and 8, however, use the unique terms "variable input-icons" and "variable output-icons," whereas all the asserted claims of the '336, '221 and '568 patents with a "front panel" limitation use the claim language "input variable-icon" and "output variable-icon." While admittedly similar terms, the trial court defined "input variable-icon" and "output variable-icon" in its claim construction order that was presented to the jury but did not so define the other terms. See Claim Construction Opinion and Order part 3(C). Accordingly, it was logical for the jury to presume the terms capable of varying scope when the evidence is viewed in a light most favorable to the jury's verdict. Claim 4 of the '587 patent also requires the unique limitation of "constructing execution instructions" and "executing . . . said execution instructions to update in real time the value shown by the variable output," which are not found in the other asserted claims. '587 patent, col. 35, ll. 58, 65-68.

NI's motion for JMOL of infringement of the five claims of the '587 patent is intertwined with MathWorks' demand for a new trial. For many of the same reasons, we deny NI's request. NI argues that the '587 patent has unique limitations compared to the other patents in suit, but they are nonetheless entitled to JMOL of infringement because none of these limitations were contested during trial. It claims that it has offered unrebutted evidence of satisfaction of each of the unique '587 patent limitations. But there is substantial evidence that could have led a reasonable jury to conclude that one or more of the '587 patent's claim elements were missing. The difference in "variable input-icons" and "variable output-icons" of the '587 patent contrasted with "input variable-icon" and "output variable-icon" of the infringed patents is significant considering the terms were in dispute, part of the trial court's

claim construction order, and they comprise a portion of the "front panel" limitation, which was hotly contested.

MathWorks claims that it is entitled to JMOL of anticipation because two prior art systems, Sutherland and MATRIX$_x$, contained all elements of the patents in suit as construed by the district court. We agree with the trial court that there is sufficient evidence to support the jury's failure to find invalidity under the clear and convincing standard. Among other limitations, NI presented considerable evidence that the two prior art systems lacked portions of the "front panel," which requires, inter alia, a "graphical user interface" and an "input control." MathWorks claims that NI avoided anticipation by the Sutherland reference by improperly importing two additional elements into the meaning of "input control," namely, that input controls display the value entered by the user, and that input controls must be capable of manipulation at any time.

As discussed above, the trial court construed "front panel," as proposed by MathWorks, to mean "a graphical user interface that is separate and apart from the associated data-flow diagram and that displays inputs and output controls, where there is at least one input control and at least one output control in the front panel" (emphases added). Based upon this interpretation and the specifications of the patents in suit, NI's expert opined that the input controls require the value of the input to be displayable and the value capable of manipulation or adjustment by the user. When comparing the claim limitations to the Sutherland reference, NI's expert testified that Sutherland does not disclose a true input control, that the input value is not displayed, and that the input mechanism of Sutherland is not adjustable. This analysis does not import additional limitations into the correct interpretation of "front panel" and the jury's decision not to invalidate the claims based upon Sutherland is therefore supported by substantial evidence.

MathWorks' arguments as to MATRIX$_x$ are similar to its Sutherland arguments in substance. It again criticizes NI's expert claiming that a manipulation requirement was improperly added to "input controls" of the "front panel" limitation. As discussed above, NI presented evidence based upon a definition of "input controls" derived from the patents in suit that requires the input variable to be both

displayable and adjustable by the user. MathWorks does not challenge the trial court's claim construction, likely because the construction serves its purposes for its infringement arguments. NI presented ample evidence that MATRIX$_X$ lacked a mouse, input icons and windows, which are elements of the "graphical user interface."

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* United States Patent Nos. 4,901,221 ("the '221 patent"); 4,914,568 ("the '568 patent"); and 5,301,336 ("the '336 patent").