United States Court of Appeals for the Federal Circuit

INTOUCH TECHNOLOGIES, INC., doing business as InTouch Health,
Plaintiff-Appellant,

v.

VGO COMMUNICATIONS, INC.,
Defendant-Appellee.

2013-1201

Appeal from the United States District Court for the Central District of California in No. 11-CV-9185, Judge Percy Anderson.

Decided: May 9, 2014

DONALD R. WARE, Foley Hoag LLP, of Boston, Massachusetts, argued for plaintiff-appellant. With him on the brief were SARAH COOLEYBECK and BRIAN C. CARROLL. Of counsel was JOSEPH S. CIANFRANI, Knobbe, Martens, Olson & Bear, LLP, of Irvine, California.

LAUREN B. FLETCHER, Wilmer Cutler Pickering Hale and Dorr LLP, of Boston, Massachusetts, argued for defendant-appellee. With her on the brief were WILLIAM F. LEE and SARAH R. FRAZIER. Of counsel on the brief

were MARC E. HANKIN and KEVIN SCHRAVEN, Hankin Patent Law, APC, of Los Angeles, California.

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Before RADER, *Chief Judge,* LOURIE, and O'MALLEY, *Circuit Judges.*

O'MALLEY, *Circuit Judge.*

The world has come a long way; this is a patent case about robots. InTouch Technologies, Inc. d/b/a InTouch Health ("InTouch") and VGo Communications, Inc. ("VGo") both manufacture remote telepresence robot systems. In 2012, InTouch filed a First Amended Complaint in the Central District of California alleging that VGo's remote telepresence robot system infringed several of its patents, including U.S. Patent Nos. 6,346,962 ("the '962 patent"), 6,925,357 ("the '357 patent"), and 7,593,030 ("the '030 patent") (collectively, "the asserted patents"). The asserted patents generally relate to remote telepresence technology regarding camera movement, arbitrating control of a robot, and a call back mechanism to notify a previously denied user that the robot is now available. VGo counterclaimed for declaratory judgment of non-infringement and invalidity.

After a jury trial, the jury returned a verdict of non-infringement of all three asserted patents. It also found claim 79 of the '357 patent and claim 1 of the '030 patent invalid based on obviousness. The district court subsequently denied motions for judgment as a matter of law ("JMOL") and a new trial regarding non-infringement, invalidity, and numerous evidentiary rulings.

InTouch appeals from the district court's final judgment of non-infringement and invalidity, and denial of the post-trial motions for JMOL on those questions. InTouch also appeals from its motion for a new trial based on two allegedly erroneous evidentiary rulings, one which InTouch says tainted the infringement verdict and anoth-

er which InTouch says calls into question the integrity of the invalidity judgments. For the reasons explained below, we affirm the judgment of non-infringement of the asserted patents and the denial of the motion for a new trial on infringement, reverse the findings of invalidity regarding the '357 and '030 patents, and remand to vacate the district court's invalidity judgments.

I. BACKGROUND

A. Factual Background

1. Asserted Patents

InTouch is the owner of the asserted patents. In 2001, InTouch developed a remote telepresence robot system for the health care industry that allows physicians and family members to visit a patient through a remote terminal without travelling to the physical location of the patient. This system permits a user to operate a robot from a remote terminal, e.g., computer or tablet. The InTouch robot contains several features, including a video display, two-way audio, and a camera. Based on the user's instructions, the robot travels throughout a hospital, and a user appears through live video on the video display as a remote presence. For example, a doctor can conduct "in-person" patient consultations from his office in another location through a computer.

On July 25, 2002, InTouch filed a patent application directed to a "Medical Tele-Robotic System." '357 Patent, at [54], [75] (filed July 25, 2002). This application issued as the '357 patent on August 2, 2005. The technology relates to controlling access to a shared remote telepresence robot among multiple users. On September 30, 2008, the U.S. Patent and Trademark Office ("PTO") received an ex parte reexamination request for the '357 patent. After this reexamination, the PTO issued a reexamination certificate cancelling several original claims, allowing certain other claims upon amendment,

and allowing new claims 79–94. Asserted independent claim 79 of the '357 patent states:

> A robot system, comprising:
>
>> a mobile robot that has a camera and a monitor;
>>
>> a first remote station that can access said mobile robot;
>>
>> a second remote station that can access said mobile robot; and,
>>
>> *an arbitrator that can control access to said mobile robot by said first and second remote stations, said arbitrator includes a call back mechanism that informs a user that was denied access to said mobile robot that said mobile robot can be accessed.*

'357 Patent col. 2 ll. 50–59 (ex parte reexamination certificate) (emphasis added). The '357 patent explains that the robot "may be controlled by a number of different users. To accommodate for this the robot may have an arbitration system." *Id.* col. 5 ll. 55–57. The specification then describes separating users into classes and providing override input commands. *Id.* col. 5 ll. 61–65. It provides that "[t]he arbitration scheme may have one of four mechanisms; notification, timeouts, queue and call back." *Id.* col. 6 ll. 43–44. "The notification mechanism may inform either a present user or a requesting user that another user has, or wants, access to the robot." *Id.* col. 6 ll. 44–47. "The call back mechanism informs a user that the robot can be accessed. By way of example, a family user may receive an e-mail message that the robot is free for usage." *Id.* col. 6 ll. 50–54.

The '030 patent is a continuation-in-part of the '357 patent, and shares a common specification. It is titled "Tele-Robotic Videoconferencing in a Corporate Environ-

ment." '030 Patent, at [54] (filed Oct. 14, 2004). This patent issued on September 22, 2009. Asserted independent claim 1 of the '030 patent states:

> A method for conducting a business teleconference, comprising:
>
>> moving a robot that has a screen, a camera, a speaker and a microphone, across a surface of a business facility with at least one signal from a first remote station that has a screen, a camera, a speaker and a microphone;
>>
>> transmitting images and sound between the first robot and the first remote station and displaying the image captured by the remote station camera on the robot screen;
>>
>> moving the robot across the surface of the business facility with at least one signal from a second remote station that has a screen, a camera, a speaker and a microphone;
>>
>> transmitting images and sound between the robot and the second remote station; and,
>>
>> *arbitrating to control access to the robot by either the first remote station or the second remote station.*

'030 Patent col. 6 ll. 18–33 (emphasis added).

InTouch acquired the '962 patent in November 2009 from IBM. The '962 patent is titled "Control of Video Conferencing System with Pointing Device." '962 Patent, at [54] (filed Feb. 27, 1998). The technology relates to controlling the movement of a remote video camera in real time directly responsive to movement of a remote mouse pointer. The patent issued on February 12, 2002.

InTouch asserted claims 1 and 8 of the '962 patent against VGo. Claim 1 of the '962 patent states:

> A method of controlling operations of a video conferencing system, the method comprising the steps of:
>
>> controlling in real time the operation of a camera which provides video to be displayed through input to a pointing device so as to provide direct control of the motion of the camera through movement of the pointing device, wherein said step of controlling comprises the steps of:
>>
>>> receiving input from the pointing device corresponding to movement of the pointing device to provide movement data;
>>>
>>> *actuating the camera associated with the video conferencing system in a direction indicated by the movement data;*
>>>
>>> initiating a timer upon receipt of the movement data; and
>>>
>>> stopping motion of the camera if the timer expires without receiving subsequent movement data.

'962 Patent col. 9 ll. 21–39 (emphases added).

> Claim 8 of the '962 patent states:
>
> A system for controlling operations of a video conferencing systems comprising:
>
>> a camera capable of remote control operation; and

> means for controlling in real time the operation of the camera which provides video to be displayed through input to a pointing device so as to provide direct control of the motion of the camera through movement of the pointing device, wherein said means for controlling comprise:
>
> means for receiving input from the pointing device corresponding to movement of the pointing device to provide movement data;
>
> *means for actuating the camera associated with the video conferencing system in a direction indicated by the movement data;*
>
> means for initiating a timer upon receipt of the movement data; and
>
> means for stopping motion of the camera if the timer expires without receiving subsequent movement data.

Id. col. 10 ll. 9–39 (emphases added).

2. VGo's Accused Product

VGo, founded in 2007, produces low-cost remote telepresence robot systems that allow a user at one location to control remotely a robot to interact with others at a second location. The VGo system includes three main components: the VGo App, the VGoNet, and the VGo robot. A user runs the VGo App program from a computer or tablet to connect to a VGo robot through the VGoNet, a network service in the cloud that connects authorized VGo users with VGo robots. Similarly, the VGo robot contains several features, including a video display, two-way audio, and a camera.

The parties generally agree on how the VGo system operates. *See* Joint Appendix ("J.A.") 15000–72, 10750–

59, 10880–93. The VGo system allows up to twenty pre-authorized users to gain control of a robot. When a user launches the VGo App, he sees a window containing a "buddy list" of VGo robots with color-coded status indicator buttons to the left of each robot name. The color of the status indicator button specifies each robot's availability, including green for "Ready," red for "Busy," and grey for "Offline."   The green "Ready" button indicates that the robot is available. If the robot is available, the "buddy list" also displays a green "call button" with a video camera icon to the right of the robot's name. By clicking the green "call button" of an available robot, the VGo system provides the first requesting user exclusive control of that robot, and the status indicator changes from green for "Ready" to red for "Busy." The green "call button" to the right of the robot's name also disappears. When a user surrenders control of a VGo robot, the robot sends a message to the VGo system, which changes the VGo robot's status indicator from red for "Busy" to green for "Ready."   The green "call button" to the right of that robot's name then reappears.

Once connected, a user can drive the robot around and communicate with others at the robot's location. The VGo system includes "real-time" control of the VGo robot's camera through a computer mouse in "look mode." J.A. 10886–89. In this mode, the camera can tilt to look up or down. To look right or left, the entire robot rotates right or left, respectively. The direction the VGo robot turns is based on the location of the pointer in the VGo App interface screen. The interface screen includes a centerline, and if the pointer is to the right of the centerline, the robot rotates right, and vice versa. Even if the pointer is not moving, but is located to the right of the centerline, the robot will continue to rotate right. And, even if the pointer is moving left, as long as it is located to the right of the centerline, the robot will continue to rotate right.

3. Prior Art

At the district court, VGo pointed to numerous prior art references in support of its assertion that the claims of the '357 patent and the '030 patent are invalid as obvious. VGo argued that claim 79 of the '357 patent was obvious based on a combination of three references: (1) U.S. Patent No. 6,292,713 ("Jouppi"), (2) Dudenhoeffer et al., *Command And Control Architectures for Autonomous Micro-Robotic Forces FY-2000 Project Report*, Idaho National Eng'g and Enviro. Lab. (April 2001) ("Dudenhoeffer"), and (3) Adam Roach, *Automatic Call Back Service in SIP* (Ericsson Inc., Internet Draft 2000) ("Roach"). VGo argued that claim 1 of the '030 patent was obvious based on a combination of the Jouppi patent with either (1) the Dudenhoeffer reference, (2) Ken Goldberg et al., *Desktop Teleoperation via the World Wide Web*, IEEE Int'l Conference on Robotics and Automation (1995) ("Goldberg"), or (3) Dirk Schulz et al., *Web Interfaces for Mobile Robots in Public Places*, Robotics & Automation Magazine, Mar. 2000 ("Schulz"). We discuss these references briefly below.

a. The Jouppi Patent

The Jouppi patent issued on September 18, 2001. U.S. Patent No. 6,292,713, at [45] (filed May 20, 1999). It discloses a robotic telepresence system that has a user station at a first geographic location and a robot at a second geographic location. *Id.* at [57]. The patent describes a robot with cameras and two-way audio-video technology controlled by a remote user. *See id.* col. 3 ll. 25–32. The robot responds to commands from a remote terminal. *See id.* col. 3 ll. 43–47. Two different types of remote terminals are discussed: a user station and an immersion room. The user station can be permanent (e.g., desktop) or mobile (e.g., laptop). *See id.* col. 12 l. 64–col. 13 l. 67. The immersion room is similar to a movie theater conference room, which "functions as a user

station and provides the user with a sense of being in the remote geographic location." *See id.* col. 13 ll. 55–58. The written description also states that the robotic telepresence procedures include: "A connect_to_user_station procedure 722 that establishes the communication connection via the wireless transmitter/receiver 76 to the user station or immersion room." *Id.* col. 17 ll. 35–38.

b. The Dudenhoeffer Reference

The Dudenhoeffer reference is titled "Command and Control Architectures for Autonomous Micro-Robotic Forces." Dudenhoeffer, at i–ii. It is an April 2001 publication from the Human Systems Engineering and Sciences Department of the Idaho National Engineering and Environmental Laboratory. *Id.* According to the abstract, this reference "addresses the issues and development of command and control for large-scale numbers of autonomous robots deployed as a collective force." *Id.* at iii. The abstract explains that "[t]ele-operation should not be the goal, but rather a level of adjustable autonomy and high-level control. If a herd of sheep is comparable to the collective of robots, then the human element is comparable to the shepherd pulling in strays and guiding the herd in the direction of greener pastures." *Id.*

The program's purposes are to enable "[a] large collection of micro-robots that can move, communicate, and work collectively to achieve a collective goal," and to "permit the human to interact with the robots as a group . . . rather than requiring the human operator to interact with each and every individual robot." *Id.* at 1–2. The project "includes the development and evaluation of various command and control architectures for use by humans in the deployment of large-scale micro-robotic forces. Specific areas to be examined include shared control by multiple users, *arbitration of control between*

users, and collaboration and cooperation between autonomous units." *Id.* at 4 (emphasis added).

c. The Roach Reference

The Roach reference is a March 2000 publication from the Internet Engineering Task Force of Ericsson Inc. Roach, at 1. The reference is titled "Automatic Call Back Service in SIP." *Id.* This reference "describes a proposed implementation of an Automatic Call Back (ACB) Service using SIP." *Id.* The process includes a caller making a voice call, and, if he receives a busy signal, choosing to activate the ACB service. *See id.* at 1–2. Once the callee's device becomes available, the ACB service is triggered and the service alerts the caller through a call back from the service notifying the caller that the callee's device is now available. *See id.*

d. The Goldberg Reference

The Goldberg reference is a 1995 publication titled "Desktop Teleoperation via the World Wide Web." Goldberg, at 654. It describes a system that permits world wide web users to remotely control a robot arm moving in a sandpit. In the system design and user interface section, Goldberg states that "[a]ny number of 'observers' can simultaneously view the status image, but only the current 'operator' can send commands by clicking on the image. To limit access to one operator at a time, we implemented password authentication and a queue that gives each operator 5 minutes at the helm." *Id.* at 655.

e. The Schulz Reference

The Schulz reference is titled "Web interfaces for Mobile Robots in Public Places." Schulz, at 1. Schulz "describes a series of Web interfaces, designed to remotely operate mobile robots in public places." *Id.* One of the web interfaces "enables visitors to send a robot to a user-specified target location anywhere in the museum [to perform the function of a robotic tour-guide], assuming

that the target location is in fact reachable. Control brokering is achieved through a first-come-first-serve basis, using a limited-size queue to schedule requests." *Id.* at 2. Another interface "uses a voting scheme to arbitrate control among Web users. Here visitors can vote for a specific tour. At pre-scheduled points in time, the robot performs the function selected by the largest number of Web users." *Id.*

B. Procedural History

On November 4, 2011, InTouch filed a complaint alleging VGo's remote telepresence robot system infringed the '962 and '357 patents. Compl., *InTouch Techs., Inc. v. VGo Commc'ns, Inc.*, No. 11-cv-9185 (C.D. Cal. Nov. 4, 2011), ECF No. 1. On April 27, 2012, InTouch filed a first amended complaint adding a claim alleging infringement of the '030 patent.[1] First Am. Compl., *InTouch Techs.*, No. 11-cv-9185 (C.D. Cal. Apr. 27, 2012), ECF No. 39. In response, VGo counterclaimed for declaratory judgment of non-infringement and invalidity of the asserted patents. Answer, Affirmative Defenses, & Countercls., *InTouch Techs.*, No. 11-cv-9185 (C.D. Cal. May 21, 2012), ECF No. 44.

1. Claim Construction Order

On November 16, 2012, the district court issued its Claim Construction Order. Claim Construction Order, *InTouch Techs.*, No. 11-cv-9185 (C.D. Cal. Nov. 16, 2012), ECF No. 199. The parties disputed the construction of numerous claim terms. The court construed the following terms relevant to this appeal: (1) the '357 patent claim

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[1] The first amended complaint also alleged infringement of U.S. Patent Nos. 7,289,883 and 7,310,570. In July 2012, the district court granted the parties' stipulation to dismiss InTouch's infringement claims for these two patents.

term "arbitrator" as "a device that determines which user or station has exclusive control, or which user's commands the robot should follow"; (2) the '030 patent claim term "arbitrating to control access to the robot by either the first remote station or the second remote station" as "determining which remote station has exclusive control of the robot"; (3) the '357 patent claim term "call back mechanism" as "a device that sends a message to a specific user who previously was denied access to a particular mobile robot that the same mobile robot can now be accessed"; (4) the '962 patent claim term "controlling in real-time operation of the camera which provides video to be displayed through input to a pointing device so as to provide direct control of the motion of the camera through movement of the pointing device" as "controlling the motion of the camera based on translational (e.g. side-to-side, forward, back) movement of the pointing device, as distinguished from control in which a user moves the pointing device to a particular location on the screen and clicks a button to reorient the camera"; and (5) the '962 patent claim term "means for actuating the camera associated with the video conferencing system in a direction indicated by the movement data" as a means plus function term whose corresponding structure was "computer software or a special purpose hardware-based computer system that moves the camera, as shown in Figures 4 and 5 and as described in Column 8:5-35." *See id.* at 5–6, 9–11, 14–16.

2. Jury Trial

The district judge presided over a five-day jury trial. On November 29, 2012, the jury returned a verdict in favor of VGo, finding non-infringement of the '357, '030, and '962 patents. It also found claim 79 of the '357 patent

and claim 1 of the '030 patent invalid for obviousness.[2] The district court entered judgment in favor of VGo consistent with the jury's findings.

3. Post-Trial Motions

InTouch then moved for JMOL or a new trial on both infringement and invalidity. On January 28, 2013, the trial court denied InTouch's post-trial motions. Minute Order, *InTouch Techs.*, No. 11-cv-9185 (C.D. Cal. Jan. 28, 2013), ECF No. 262.

The court first addressed the non-infringement verdict and InTouch's argument that no reasonable jury could have found that VGo's product lacks an arbitrator which "determines" whether the user or remote station has exclusive control of the robot. The trial court disagreed with InTouch. The court found substantial evidence, based on testimony presented from both parties and a comparison of the parties' products, to support the jury's finding that "'arbitrating' involves active decision-making on the part of the arbitrator," and that active decision-making does not occur in the VGo products. *Id.* at 4. Addressing the "call back mechanism" limitation, the court found that there is substantial evidence in the record to support the jury's finding of non-infringement based on the testimony of VGo's Chief Operating Officer and co-founder, Mr. Ryden, and his demonstration of the VGo products, including testimony that the VGo system does not send messages to a specific user who tried to connect and was denied access and evidence that the VGo robot has no way of knowing who tried to connect and was denied access.

The court also found that the jury's verdict that the robot does not infringe the asserted claims of the '962

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[2]   VGo did not challenge the validity of the '962 patent.

patent was supported by substantial evidence. Again, relying on Mr. Ryden's testimony, the district court concluded that a jury could reasonably have found that the movement in VGo's products was not controlled by translational movement, and, thus, did not infringe the asserted claims.

Turning to the invalidity findings, as discussed in more detail below, the court stated that "the Court is satisfied that the jury's verdict of obviousness is well-supported by substantial evidence in the record." *Id.* at 7.

The district court last addressed certain evidentiary rulings InTouch claimed warranted a new trial. Relevant to this appeal, the court first addressed the fact that the court had permitted VGo's principal to discuss legal opinions regarding infringement he allegedly received from outside counsel, despite VGo's prior refusal to waive the attorney-client privilege with respect to those communications. The trial court concluded that InTouch had failed to establish sufficient prejudice from this evidentiary ruling, even if it was error, to justify a new trial. Addressing InTouch's claim that the trial court erred when it allowed VGo's co-founder, Mr. More, to discuss previously undisclosed prior art robots, the court again concluded that InTouch had failed to explain how Mr. More's testimony affected its substantial rights.

InTouch appeals the final judgment of the district court and the denial of its post-trial motions. We have jurisdiction under 28 U.S.C. § 1295(a)(1).

II. DISCUSSION

A. Standard of Review

This Court reviews decisions on motions for JMOL, motions for a new trial, and evidentiary rulings under the law of the regional circuit. *Verizon Servs. Corp. v. Cox Fibernet Va., Inc.,* 602 F.3d 1325, 1331 (Fed. Cir. 2010); *Research Corp. Techs. v. Microsoft Corp.,* 536 F.3d 1247,

1255 (Fed. Cir. 2008).   Here, the applicable regional circuit is the Ninth Circuit.   Under Ninth Circuit law, when reviewing the denial of a renewed motion for JMOL, "[t]he test is whether the evidence, construed in the light most favorable to the nonmoving party, permits only one reasonable conclusion, and that conclusion is contrary to that of the jury." *White v. Ford Motor Co.*, 312 F.3d 998, 1010 (9th Cir. 2002) (internal quotation marks omitted).

Claim construction is a question of law reviewed de novo. *Lighting Ballast Control LLC v. Philips Elecs. N. Am. Corp.*, 744 F.3d 1272, 1276–77 (Fed. Cir. 2014) (en banc); *Cybor Corp. v. FAS Techs., Inc.*, 138 F.3d 1448, 1456 (Fed. Cir. 1998) (en banc).   Infringement is a question of fact reviewed for substantial evidence. *01 Communique Lab., Inc. v. LogMeIn, Inc.*, 687 F.3d 1292, 1296 (Fed. Cir. 2012).   The patentee bears the burden of proof for infringement. *See Medtronic, Inc. v. Mirowski Family Ventures, LLC*, — U.S. —, 134 S.Ct. 843, 849 (2014). "Because obviousness is a mixed question of law and fact, '[w]e first presume that the jury resolved the underlying factual disputes in favor of the verdict [ ] and leave those presumed findings undisturbed if they are supported by substantial evidence.   Then we examine the [ultimate] legal conclusion [of obviousness] de novo to see whether it is correct in light of the presumed jury fact findings.'" *Kinetic Concepts, Inc. v. Smith & Nephew, Inc.*, 688 F.3d 1342, 1356–57 (Fed. Cir. 2012) (quoting *Jurgens v. McKasy*, 927 F.2d 1552, 1557 (Fed. Cir. 1991)).

The Ninth Circuit reviews the denial of a new trial motion for abuse of discretion. *Molski v. M.J. Cable, Inc.*, 481 F.3d 724, 728 (9th Cir. 2007).   A new trial is required if the court made incorrect and prejudicial admissibility rulings, or the verdict is contrary to the great weight of the evidence. *Chiron Corp. v. Genentech, Inc.*, 363 F.3d 1247, 1258 (Fed. Cir. 2004) (citing *Murphy v. City of Long Beach*, 914 F.2d 183, 186 (9th Cir. 1990); *Chalmers v. City of Los Angeles*, 762 F.2d 753, 761 (9th Cir. 1985)).

The Ninth Circuit reviews evidentiary rulings for an abuse of discretion. *United States v. Wiggan*, 700 F.3d 1204, 1210 (9th Cir. 2012) (citations omitted); *Boyd v. San Francisco*, 576 F.3d 938, 943 (9th Cir. 2009).

B. Claim Construction

To determine the scope and meaning of a claim, we examine the claim language, written description, prosecution history, and any relevant extrinsic evidence. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1315–19 (Fed. Cir. 2005) (en banc). Generally, a claim term is given the ordinary and customary meaning as understood by a person of ordinary skill in the art at the time of invention. *Id.* at 1312–13. We must read claims in view of the specification, which "is the single best guide to the meaning of a disputed term." *Id.* at 1315 (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)).

The parties only dispute the construction of three claim terms. InTouch challenges the district court's construction of the '030 patent claim term "arbitrating to control" and the '357 patent claim terms "arbitrator" and "call back mechanism."[3] We address the terms "arbitrating to control" and the "arbitrator" together.

1. Arbitrator/Arbitrating

InTouch challenges the district court's construction of the '030 patent term "arbitrating to control" as "determining which remote station has exclusive control of the robot," and the '357 patent claim term "arbitrator" as "a device that determines which user or station has exclusive control, or which user's commands the robot should follow." InTouch argues that the district court should have adopted its proposed construction for arbitrator as "a

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[3]   InTouch does not challenge the construction of the '962 patent claim terms. *See* Appellant Br. 14.

device that allows exclusive control of the mobile robot by one of the remote stations." Appellant Br. 42–43 (emphasis omitted). According to InTouch, an "arbitrator" requires only that it control access among multiple remote users. InTouch points to the written description, which it says discloses a queue-based arbitration system which simply allows access based on the timing of access requests, requiring no "decision" or "determination." VGo asserts that the district court correctly construed claim 79 because the claim itself recites that an arbitrator can *control* access to the robot. We agree with VGo.

Like the district court, we find InTouch's proposed construction "inaccurate and too narrow." The term "'[a]llows' does not properly describe the role of the arbitrator and the arbitration system in resolving the control of the robot." Claim Construction Order at 6, ECF No. 199. Claim 79 of the '357 patent states "an arbitrator that can control access to said mobile robot by said first and second remote stations," and claim 1 of the '030 patent states "arbitrating to control access to the robot by either the first remote station or the second remote station." '357 Patent col. 2 ll. 55–56 (ex parte reexamination certificate); '030 Patent col. 6 ll. 33–34. The claim language itself requires that the arbitrator control access to the robot by remote terminals. The written description explains that the arbitrator needs to "resolve access requests from the various users," not simply allow access. '357 Patent col. 6 ll. 54–55. It also provides that Tables 1 and 2 "show how the mechanisms resolve access requests from the various users." *Id.* Table 2 shows a grid disclosing how requests are "resolved" based on competing requests between a current user and a requesting user. *Id.* Table 2. Based on this context, it is clear that, for the arbitrator to control access, it needs the capability to consider and resolve access requests from and among multiple users. Consequently, we find that the district court properly construed the terms "arbitra-

tor/arbitrating" to require a determination of which user has the right to exclusive control or which user's command to follow. Indeed, the written description confirms that this "determination" requires the consideration of competing requests between multiple users.

InTouch's reference to a queue-based system does not alter our view. Even under a queue-based system, an arbitrator still "determines" which user has exclusive control between two competing requests. The described queue-based system does not simply allow access to the robot; nor does it simply deny access to a competing request. It considers a request from at least a second user, and places that user into a queue.

For these reasons, we conclude that the district court did not err in construing the terms "arbitrator" and "arbitrating" to require a determination of which user among multiple users has exclusive control of the robot.[4]

2. Call Back Mechanism

InTouch asserts that the district court also incorrectly construed the term "call back mechanism," as used in the '357 patent, to be "a device that sends a message to a *specific* user who previously was denied access to a particular mobile robot that the same mobile robot can now be accessed." Claim Construction Order at 10, ECF No. 199 (emphasis added). In support, the district court pointed to the plain language of the claim, the written description, and the prosecution history. We agree that

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[4]   We are not persuaded by InTouch's claim that the district court issued three conflicting constructions of the term "arbitrator/arbitrating." The district court simply used additional language in its post trial orders to explain its conclusion that the VGo system lacked the arbitrator limitation as defined. We find nothing improper in that conclusion.

the district court properly construed the term "call back mechanism" in light of the intrinsic evidence as a whole.

InTouch says the key issue is "whether the term requires a message directed to one-and-only-one user who was denied access, or whether such message may additionally be received by other authorized users." Appellant Br. 44; Appellant Reply Br. 13. It argues that the plain language of the claim does not foreclose other users from receiving a call back message and that the insertion of the word "specific" into the construction improperly reads into the claim a requirement that the mechanism must send a message to one-and-only-one user. VGo responds that "the word 'specific' simply makes explicit what is already implicit in the claim language." Appellee Br. 40. While we agree with InTouch that the call back mechanism can send a message to more than one user, we agree with the district court that the term requires a device that sends an availability message to a user *who previously was denied access* to that particular robot. The call back mechanism could send this message to every specific user who was previously denied access, but the individuals receiving the message must have previously tried and failed to gain access.

The plain language of the claim supports the district court's construction. *See Phillips*, 415 F.3d at 1312 ("[T]he words of a claim 'are generally given their ordinary and customary meaning.'" (citations omitted)). Claim 79 of the '357 patent recites "a call back mechanism that informs a user that was denied access to said mobile robot that said mobile robot can be accessed." '357 Patent col. 2 ll. 57–59 (ex parte reexamination certificate). The phrase, "call back mechanism," on its face connotes an intention to call *back* a user that was previously denied access. To call back a user, the call back mechanism requires knowledge of who the user is, and whether that user requested and was denied access, i.e., knowledge of which specific user or users fall into that category.

The written description reinforces the notion that the call back mechanism must message a specific user by distinguishing the call back mechanism from a notification mechanism. The written description describes a single example of the call back mechanism, where "a family user may receive an e-mail message that the robot is free for usage." '357 Patent col. 6 ll. 51–53. It also explains that the notification mechanism "may inform either a present user or a requesting user that another user has, or wants, access to the robot." *Id.* col. 6 ll. 44–47. As such, the notification mechanism also sends a message, but performs this step in a different manner.

The prosecution history of the '357 patent removes any remaining doubt that the call back mechanism requires a message to a specific user that requested and was denied access. "[A] court 'should also consider the patent's prosecution history, if it is in evidence.'" *Phillips*, 415 F.3d at 1317 (quoting *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995)). The prosecution history "consists of the complete record of the proceedings before the PTO." *Id.* During reexamination, the applicants described the call back mechanism repeatedly, explaining that it contemplates a request from a user, that user being denied access, and that specific user receiving a call back message when the robot becomes available. For example, in a December 24, 2009 Office Action Response, the applicants remarked that the call back mechanism "describ[es] a situation where a requesting user is denied access and informed of this fact, but then receives a callback five minutes later." J.A. 16722–23. And, yet again, applicants stated that "[the prior art reference] does not disclose the claimed situation where a station *requests access*, access is denied, and then a callback [message is sent]." J.A. 106723 (emphasis added). This prosecution history makes clear that the call back mechanism sends a message to call back only those

specific users that previously requested access and were denied that access.

For these reasons, we conclude that the proper construction of the term "call back mechanism" requires "a device that sends a message to a specific user or users who previously were denied access to a particular mobile robot that the same mobile robot can now be accessed." While this differs slightly from the trial court's construction, it does not do so in a way that materially impacts the infringement verdicts.

C. Infringement

The jury returned a verdict in favor of VGo finding non-infringement with respect to all three asserted patents: the '357 patent, the '030 patent, and the '962 patent. Subsequently, as noted, the district court found all three verdicts of non-infringement supported by substantial evidence. On appeal, the objection to the infringement verdict focuses on four limitations: arbitrator/arbitrating, call back mechanism, camera movement, and initiating the timer.[5] For the reasons below, we affirm the judgment of non-infringement for all the asserted patents.

1. The '357 Patent

Claim 79 of the '357 patent requires a robot system, including "an arbitrator that can control access to said mobile robot by said first and second remote stations, said arbitrator includes a call back mechanism that informs a user that was denied access to said mobile robot that said

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[5]   Because we find substantial evidence exists to support the conclusion that the VGo system lacks the "actuating the camera" and "actuating means" limitations, we do not reach InTouch's arguments relating to the "initiating the timer" limitation.

mobile robot can be accessed." '357 Patent col. 2 ll. 55–59 (ex parte reexamination certificate).

a. Arbitrator

The district court found that substantial evidence supports the jury's verdict of non-infringement because a "reasonable jury could have found that [VGo's] product lacks an arbitrator that '*determines*' which user or remote station has exclusive control of the mobile robot" as it "merely passively allows only the first user to exclusively control the robot." Minute Order at 4, ECF No. 262. As noted above, we find that the district court properly construed the term "arbitrator" as "a device that determines which user or station has exclusive control, or which user's commands the robot should follow." And, we find that the term "determines," in this context, requires the ability to consider and resolve competing requests.

InTouch argues that the VGo robot "determines" which pre-authorized user has exclusive control based on "first-come/first-served" rules and thereby precludes others from gaining access. InTouch further alleges that the term "determines" means "regulates" without any active decision making, and that the VGo system "automatically determines which user controls the robot." Appellant Reply Br. 11, 14. We disagree with InTouch that the VGo system "determines" which pre-authorized user has exclusive control.

By asking that we define "determines" as it proposes, InTouch seeks to back into a construction of the claim limitation "arbitrator" which we have already rejected. While addressing the construction of the term "arbitrator," we concluded that the specification requires the arbitrator to possess the ability to consider and resolve competing requests. *See supra* section II.B.1. As such, the VGo system lacks an arbitrator because the VGo system cannot consider and resolve competing requests for a single robot, i.e. it makes no determination about

competing user requests. Indeed, InTouch concedes that "[t]he VGo system grants the first requesting user control of that robot to the exclusion of others on the list" and "the VGo system prevents other users from accessing the 'Busy' robot until the user releases control." Appellant Br. 22 (citations omitted). Because others cannot access the robot until the user releases control, the VGo system never considers and resolves competing requests for that robot, and thus, does not "determine" which user has exclusive control of the robot. Consequently, the VGo system lacks an "arbitrator."

We agree with the district court that substantial evidence supports this conclusion. VGo submitted the testimony of Mr. Ryden. Mr. Ryden demonstrated the VGo system for the jury. During the demonstration, he showed that the VGo system makes no "decision" as to which user can connect and control the VGo robot because the system simply provides exclusive control to the first requesting user. J.A. 10758–59. He confirmed that there is no way that a user can connect to a robot after another user has already connected to that robot, and that the VGo system does not even know that somebody else wants to connect to that robot. J.A. 10758–59. Mr. Ryden explained that, once a user connects to a robot, the green "call button" disappears. J.A. 10758. Another user does not even have the option of trying to connect to an unavailable VGo robot, so no competing requests for access can exist. J.A. 10757–58.

The jury had the right to rely upon Mr. Ryden's testimony and to reject any testimony proffered by InTouch to the contrary. We do not decide what evidence seems more persuasive. Our only role is to determine whether there was substantial evidence upon which the jury could predicate its non-infringement judgment. *See i4i Ltd. P'ship v. Microsoft Corp.*, 598 F.3d 831, 849 (Fed. Cir. 2010) ("Because infringement was tried to a jury, we review the verdict only for substantial evidence." (citing

ACCO Brands, Inc. v. ABA Locks Mfr. Co., 501 F.3d 1307, 1311 (Fed. Cir. 2007))). We find that there was.

InTouch's objections to the jury's non-infringement finding under the Doctrine of Equivalents ("DOE") fare no better. InTouch points to Dr. Hackwood's expert testimony that the differences in the claimed "arbitrator" and VGo's arbitration system were insubstantial. Specifically, Dr. Hackwood testified that the VGo system has the function of controlling access to the VGo robot between first and second remote stations through the VGo App software that allows only one user to connect to the robot. *See* J.A. 10667–69, 17430. According to Dr. Hackwood, only one remote station has control of the robot at any one time because the green "call button" disappears and the status indicator turns from green to red. *See* J.A. 10667–69, 17430. While this testimony was proffered, the jury was free to reject it. As VGo points out, the jury was free to believe that the VGo system does not resolve *competing* requests for control of the robot based on the substantial evidence of that fact submitted by VGo as outlined above. Since it does not do so, the jury could reasonably conclude that the VGo system does not perform substantially the same function, and does not do so in substantially the same way, Dr. Hackwood's testimony notwithstanding. *See Dawn Equip. Co. v. Ky. Farms Inc.*, 140 F.3d 1009, 1015–16 (Fed. Cir. 1998) ("Under the function-way-result test, one considers whether the element of the accused device at issue performs substantially the same function, in substantially the same way, to achieve substantially the same result, as the limitation at issue in the claim." (citing *Hilton Davis Chem. Co. v. Warner-Jenkinson Co.*, 62 F.3d 1512, 1518 (Fed. Cir. 1995) (en banc), *rev'd on other grounds*, 520 U.S. 17 (1997))).

Based on the evidence submitted, we conclude that the jury reasonably could have found that the VGo system does not infringe the claimed "arbitrator" limitation of claim 79, either literally or under the DOE.

b. Call Back Mechanism

The district court also found that the record contains substantial evidence to support the jury's verdict of non-infringement because the VGo system does not employ the "call back mechanism" of the '357 patent. InTouch argues that the VGo system includes a "call back mechanism" because the VGo robot sends an availability message to all authorized users, including any previously denied access, informing them the robot can be accessed when a user surrenders control of a robot by changing the status indicator button from red to green. InTouch claims that "[i]t is legally irrelevant that the message is received by multiple users, rather than one-and-only-one 'specific' user." *Id.* VGo responds that the "call back mechanism" is "intended to call *back* users who were previously denied access," which its indicator lights do not do. As VGo notes, the green status indicator is always displayed after a user surrenders control, even if no one has previously tried to access the robot. J.A. 10612–13. Further, VGo contends that "the VGo system is not even *capable* of sending a 'call back' message to users." Appellee Br. 43. We do not agree with InTouch.

As discussed above, we confirmed the district court's construction of the term "call back mechanism" as "a device that sends a message to a specific user or users who previously were denied access to a particular mobile robot that the same mobile robot can now be accessed." *See supra* section II.B.2. As we clarified, we do not find that the "call back mechanism" requires that a message be sent to one-and-only-one specific user. Instead, the system can send a message to every specific user that requested access and was denied, but the users must be targeted based on their prior efforts to access the robot.

The jury had substantial evidence upon which it could conclude that the VGo system lacks a "call back mechanism." Dr. Hackwood testified that the status indicator

meets this limitation by sending a message to all users when a robot previously unavailable becomes available by turning from red to green. J.A. 10456–59. Mr. Ryden, however, testified that the VGo system does not have the ability to recognize whether any user has been denied access. *See* J.A. 10882. In support, he explained that the green "call button" disappears when a user is connected to a robot, thereby prohibiting another user from even requesting access to the same VGo robot. *See* J.A. 10758. Without this green "call button," the VGo system cannot even identify any user that wants access, and it certainly does not know who may have previously sought access, but was denied. *See* J.A. 10882.

Nor do we agree with InTouch that the jury's only reasonable choice was to conclude that the VGo system works in substantially the same way to perform the same function. Again, while Dr. Hackwood testified that the VGo system performs substantially the same function because "[i]t sends a message to a specific user who previously has been denied access to that particular [VGo] robot that the same VGo robot can now be accessed," J.A. 10670, the jury was free to reject that contention. Because the VGo system does not "call back" a user *that was previously denied access*, it simply does not perform the same function in the same way as the claimed invention.

Based on these conclusions, we find that substantial evidence supports the jury's finding of non-infringement of claim 79 of the '357 patent. Consequently, we affirm the denial of InTouch's motion for JMOL of infringement of the '357 patent.

2. The '030 Patent

Claim 1 of the '030 patent discloses a method for conducting a business teleconference that includes the step of "arbitrating to control access to the robot by either the first remote station or the second remote station." While the '030 patent uses the term "arbitrating," the same logic

and reasoning we employed in analyzing the "arbitrator" limitation in the '357 patent applies here. *See supra* section II.C.1.a. For similar reasons, we find that the jury's verdict is supported by substantial evidence, and thus, we affirm the district court's denial of InTouch's motion for JMOL of infringement of the '030 patent.

3. The '962 Patent

Claim 1 of the '962 patent discloses a method of controlling operations of a video conferencing system that includes the step of "actuating the camera associated with the video conferencing system in a direction indicated by the movement data." '962 Patent col. 9 ll. 32–34. Claim 8 of the '962 patent requires a system for controlling operations of a video conferencing system, including "means for actuating the camera associated with the video conferencing system in a direction indicated by the movement data." *Id.* col. 10 ll. 22–23. For the reasons below, we find that the VGo system lacks the limitation of "actuating the camera." Consequently, we conclude that substantial evidence supports the jury's verdict of non-infringement of the '962 patent, and, thus, affirm the district court's denial of InTouch's motion for JMOL of infringement.

The district court found that that the jury's verdict of non-infringement is supported by substantial evidence based on the testimony and demonstration at trial. InTouch argues that the "actuating the camera" claim limitation is satisfied because, when the pointer moves to the right of the center of the screen, the robot, inherently with the camera, moves right. Appellant Br. 34. It claims it does not matter that, when the pointer moves left, but stays to the right of the center of the screen, the robot/camera continues to move right, but more slowly. It alleges that the claim does not require "same" direction movement of the camera and pointer. *Id.* at 35. InTouch also contends that VGo stipulated that its robot "includes means for providing direct control of the motion for a

camera," thus, meeting this claim limitation. Appellant Br. 36. VGo responds that it did not stipulate that the VGo system provides direct control of the camera through *movement* data. And, that substantial evidence supports the jury's findings that it does not infringe the '962 patent because the evidence established that VGo uses *position* data, rather than *movement* data, to control the robot's camera. *See* Appellee Br. 22.

The district court's construction of the "actuating the camera" limitation resolves this dispute. InTouch does not challenge the district court's construction of the claim terms in the '962 patent. The district court construed the "means for actuating the camera associated with the video conferencing system in a direction indicated by the movement data" to have a function of "actuating the camera associated with the video conferencing system in a direction indicated by the movement data" and the structure as "computer software or a special purpose hardware-based computer system that moves the camera, as shown in Figures 4 and 5 and as described in Column 8:5-35." Claim Construction Order at 19, ECF No. 199. Those portions of the written description define the operation of the video conferencing system. Notably, they explain that "the video conferencing system determines the direction of motion of the pointing device (block 94). The camera is then actuated to move *in the direction indicated* by the pointing device movement (block 96)." '962 Patent col. 8 ll. 26–28 (emphasis added).[6] Thus, the step of "actuating the camera associated with the video conferencing system in a direction indicated by the movement data" requires a direct response by the camera in the direction indicated by the movement of the pointing

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[6] Corresponding Figure 5 provides a flowchart with identical steps as those described in column 8 lines 26 to 28 of the specification.

device. Indeed, InTouch concedes that "the patent is directed to systems that control camera movement continually, in real time, responsive to the *movements* of a user's mouse." Appellant Reply Br. 5 (emphasis added).

The VGo system does not, in real-time, "determine the direction of motion of the pointing device" and "move the camera in the direction indicated by the pointing device movement." Mr. Ryden testified that the VGo system does not send "movement data," but, instead, relies on "position data." J.A. 10888; *see also* J.A. 6933. Mr. Ryden explained that movement in the VGo system "depends on the position of the cursor" in relation to the centerline of the image. J.A. 10887–89. For example, he explained that "[e]ven if I move the cursor to the left, if I'm on the right-hand side of the image it's going to move right; so it's all about the position where the cursor is on the screen." J.A. 10887–88. As VGo's system moves the camera based on data corresponding to the pointer's position vis-à-vis the centerline, not the directional movement of the pointer, we find substantial evidence exists to support the conclusion that the VGo system lacks the "actuating the camera" limitation.

In the alternative, InTouch asserts that VGo infringes the '962 patent under the DOE. InTouch alleges that VGo's actuating of the camera by moving the robot body rather than the camera itself was an insubstantial difference. VGo does not appear to dispute that this method of camera actuation is an insubstantial difference. InTouch does not assert, however, that the VGo system's camera movement based on position data rather than movement data is an insubstantial difference. And, InTouch's own expert conceded that "actuating" would only occur in the same way as described in the '962 patent if VGo's camera panned in the same direction the pointer moved based on direct translational input. J.A. 10675–76. As such, we find that the jury had substantial evidence from which it

could conclude that InTouch failed to prove infringement, either directly or under DOE.

D. Invalidity

InTouch also challenges the jury verdicts to the extent the jury found claim 79 of the '357 patent and claim 1 of the '030 patent invalid. "A general jury verdict of invalidity should be upheld if there was sufficient evidence to support any of the alternative theories of invalidity." *See Cordance Corp. v. Amazon.com, Inc.*, 658 F.3d 1330, 1339 (Fed. Cir. 2011). "Because obviousness is a mixed question of law and fact, '[w]e first presume that the jury resolved the underlying factual disputes in favor of the verdict [ ] and leave those presumed findings undisturbed if they are supported by substantial evidence. Then we examine the [ultimate] legal conclusion [of obviousness] de novo to see whether it is correct in light of the presumed jury fact findings.'" *Kinetic Concepts, Inc.*, 688 F.3d at 1356–57 (quoting *Jurgens*, 927 F.2d at 1557).

A patent is invalid for obviousness "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." 35 U.S.C. § 103. Obviousness is a question of law based on underlying factual findings: (1) the scope and content of the prior art; (2) the differences between the claims and the prior art; (3) the level of ordinary skill in the art; and (4) objective indicia of nonobviousness. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966). Courts must consider all four *Graham* factors prior to reaching a conclusion regarding obviousness. *In re Cyclobenzaprine Hydrochloride Extended-Release Capsule Patent Litig.*, 676 F.3d 1063, 1076–77 (Fed. Cir. 2012); *see Kinetic Concepts, Inc.*, 688 F.3d at 1360 ("the obviousness inquiry requires examination of all four *Graham* factors").

A party seeking to invalidate a patent on obviousness grounds must "demonstrate 'by clear and convincing evidence that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.'" *Procter & Gamble Co. v. Teva Pharm. USA, Inc.*, 566 F.3d 989, 994 (Fed. Cir. 2009) (quoting *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1361 (Fed. Cir. 2007)). While an analysis of any teaching, suggestion, or motivation to combine elements from different prior art references is useful in an obviousness analysis, the overall inquiry must be expansive and flexible. *KSR Int'l Co. v. Teleflex, Inc.*, 550 U.S. 398, 415, 419 (2007). "Often, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate review, this analysis should be made explicit." *Id.* at 418 (citing *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006) ("[R]ejections on obviousness grounds cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of obviousness.")).

The district court must consider evidence showing objective indicia of nonobviousness, which constitute "independent evidence of nonobviousness." *Mintz v. Dietz & Watson, Inc.*, 679 F.3d 1372, 1378 (Fed. Cir. 2012) (quoting *Pressure Prods. Med. Supplies, Inc. v. Greatbatch Ltd.*, 599 F.3d 1308, 1319 (Fed. Cir. 2010)). Objective indicia "may often be the most probative and cogent evidence of nonobviousness in the record." *Ortho–McNeil Pharm. v. Mylan Labs., Inc.*, 520 F.3d 1358, 1365 (Fed. Cir. 2008).

"These objective criteria help inoculate the obviousness analysis against hindsight." *Mintz*, 679 F.3d at 1378. And, "[t]his built-in protection can help to place a scientific advance in the proper temporal and technical perspective when tested years later for obviousness against charges of making only a minor incremental improvement." *Id.* We must also keep in mind "[t]hat which may be made clear and thus 'obvious' to a court, with the invention fully diagrammed and aided, . . . may have been a breakthrough of substantial dimension when first unveiled." *Interconnect Planning Corp. v. Feil*, 774 F.2d 1132, 1138 (Fed. Cir. 1985).

Following the jury verdict of invalidity, the district court entered judgment finding claim 79 of the '357 patent and claim 1 of the '030 patent invalid for obviousness. Judgment at 1–2, *InTouch Techs.*, No. 11-cv-9185 (C.D. Cal. Jan. 5, 2013), ECF No. 252. In response to subsequent motions for JMOL and a new trial, the district court found that the record supports the jury's verdict of invalidity for the '357 and '030 patents. Minute Order at 6, ECF No. 262. Specifically, the district court explained that Dr. Yanco "provided several detailed explanations and reasons as to why a person of ordinary skill in the art might be motivated to combine references regarding remotely controlled robots, telepresence robots, and teleconferencing protocols." *Id.* at 7 (citing J.A. 10941–42, 10953, 10955–56, 10960). The district court also found that "the File History of the '357 Patent and the prior art references themselves, to which the jury had full access, include additional reasons and motivations to combine the prior art, all of which, taken together, provide substantial evidentiary support for the jury's finding that the '357 and '030 Patents are invalid." *Id.*

Turning to the InTouch's evidence, the district court found that the InTouch "offered expert testimony that its patents were not obvious, and attempted to bolster this testimony with objective indicia of nonobviousness. That

evidence (in addition to being weak and of little relevance), however, was contradicted by [VGo's] clear expert testimony, as well as the lay testimony of Mr. Ryden and Mr. More, who explained the origins, development and commercial success of their own products, to particularly strong effect." *Id.* The court then stated that, "[p]erhaps most importantly, Mr. Ryden demonstrated the allegedly-infringing 'arbitration' system of [VGo's] robot, which differs substantially and fundamentally from that claimed in [InTouch's] patents and used in [InTouch's] robots." *Id.* It concluded by saying that "the jury could have applied its common sense to the evidence to come to its conclusion . . . that the '357 Patent and '030 Patent are invalid for obviousness." *Id.* (citation omitted).

VGo insists that these conclusions are correct and support its request that we affirm the obviousness findings. InTouch argues that VGo's expert testimony was replete with errors because Dr. Yanco applied an incorrect legal standard, and failed to consider objective evidence of nonobviousness. In particular, InTouch asserts that VGo's expert, Dr. Yanco, failed to identify any reason why one of ordinary skill in the art at the time of the invention would have sought to combine or modify the references. Appellant Br. 51. InTouch also submits that Dr. Yanco did not consider the objective indicia of nonobviousness, nor even know of the concept. *Id.*

While our standard of review regarding the jury's implied factual findings is a stringent one, we agree with InTouch that the evidence on which VGo relies is not substantial enough to support an obviousness finding. Indeed, it did not even come close. Dr. Yanco's testimony was plagued with numerous problems, including her failure to: (1) identify sufficient reasons or motivations to combine the asserted prior references; (2) focus on the relevant time frame of 2001; or (3) consider any objective evidence of nonobviousness. Dr. Yanco's testimony was nothing more than impermissible hindsight; she opined

that all of the elements of the claims disparately existed in the prior art, but failed to provide the glue to combine these references. While she opined that the references were like separate pieces of a simple jigsaw puzzle, she did not explain what reason or motivation one of ordinary skill in the art at the time of the invention would have had to place these pieces together. And, she did not even factor the objective evidence of nonobviousness into her obviousness analysis. For the reasons below, we reverse the district court's judgment invalidating claim 79 of the '357 patent and claim 1 of the '030 patent, and remand with directions to vacate those judgments.

1. The '357 Patent

VGo argued that claim 79 of the '357 patent was obvious based on a combination of three references: (1) the Jouppi patent, (2) the Dudenhoeffer reference, and (3) the Roach reference. In support, VGo *solely* relied on the testimony of Dr. Yanco. Dr. Yanco testified that she understood obviousness to mean that a person of ordinary skill in the art of robotics could look at two references, and think they could combine the two references. J.A. 10920. In her opinion, one of ordinary skill in the art is someone with an undergraduate degree in computer science, mechanical engineering, or electrical engineering, but found that more likely a combination of all three would be the norm.[7] J.A. 10920–21. She narrowed what she claimed were the best references in support of her invalidity opinion regarding the '357 patent to the combination of Jouppi, Dudenhoeffer, and Roach. *See* J.A. 10922–23. She stated that "putting these three [references] together you actually get [claim 79]." J.A. 10923.

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[7]   InTouch agrees that the level of skill in the art is beyond that of an ordinary person. *See* Appellant Br. 38.

InTouch first disagrees with VGo's characterization of the scope and content of the Jouppi and Dudenhoeffer references. InTouch argues that Jouppi fails to disclose a robot system with *multiple* remote terminals, as it only describes a single robot controlled by a single control station. It alleges that Jouppi discloses an "either/or" option of a user station or immersion room. During trial, Dr. Yanco testified that Jouppi does disclose a second remote terminal. In support, she pointed to the "connect_to_user_station procedure (722)." J.A. 10929–30. While Dr. Yanco's reading of Jouppi is certainly debatable, it is plausible. Because we must infer that the jury resolved the underlying factual disputes in favor of VGo and we find at least some evidence on the record from which it could find that Jouppi discloses the possibility of using two remote terminals, we proceed on the assumption that it does. *See White*, 312 F.3d at 1010.

Turning to Dudenhoeffer, InTouch argues that it "does not disclose allocating exclusive control of a single telepresence robot between multiple control stations." Appellant Br. 53. It alleges that Dudenhoeffer only discloses joint control of a micro-robotic swarm as a collective, rather than control of each and every individual robot. VGo responds that Dudenhoeffer "unquestionably discloses 'arbitration of control between users,'" including the control of individual robots. Appellee Br. 51–52 (quoting Dudenhoeffer, at 4). In support, VGo again relies on Dr. Yanco's testimony, where she opined that section 4.2.2 of Dudenhoeffer lists three levels of control, with the first level of control consisting of an interface with the individual robots. J.A. 10935; *see also* Dudenhoeffer, at 8 (describing a "mechanism . . . to arbitrate between competing priorities of the command and control system and the behavioral characteristics of *the robot*" (emphasis added)).

While Dr. Yanco alleges that these sections disclose an arbitrator mechanism like the one in the claimed

invention, the Dudenhoeffer reference itself paints a different picture. Dudenhoeffer states that:

> The objective of the project is to identify, develop, and evaluate various command and control architectures that permit continuous, real-time human user interaction with large-scale micro-robotic forces as a collective entity (including the capacity to task and query), *rather than requiring the human operator to interact with each and every individual robot.* These control architectures must address situations in which the number of autonomous units makes the individual control of units by a single point neither feasible nor desirable.

Dudenhoeffer, at 1 (emphasis added).

While Dudenhoeffer includes the term "arbitration," this alone is insufficient to permit the conclusion that it refers to the same *type* of arbitration at issue in the '357 and '030 patents. *See id.* at 4 ("INEEL-specific tasking includes the development and evaluation of various command and control architectures for use by humans in the deployment of large-scale micro-robotic forces. Specific areas to be examined include shared control by multiple users, *arbitration of control between users*, and collaboration and cooperation between autonomous units." (emphasis added)). As found above, the claimed invention includes an arbitrator that *determines* which user or remote station has exclusive control of the mobile robot.

Contrary to Dr. Yanco's assertions, Dudenhoeffer simply does not describe an arbitrator that determines which user or remote station has exclusive control of an individual robot. While the arbitrator in Dudenhoeffer does resolve conflicts, it does not determine which users may exclusively control an individual robot. In describing "Necessary Command and Control Elements" for a large number of autonomous robots, Dudenhoeffer provided a list of prerequisite elements for such a command and

control system. *Id.* at 7–9. This list included "Arbitration," which is described as:

> Arbitration – A mechanism must be available to arbitrate between competing priorities of the command and control system and the behavioral characteristics of the robot. Arbitration mediation is also needed in the case of shared control where multiple operators may control different functions within the same task force. An example is the case where a forward-deployed Army Ranger is tasked with ensuring that the robots are in position to analyze an area for the possible presence of weapons of mass destruction. Another operator at a command center may be in charge of sensor operation and the geometric configuration of the task force. It is conceivable that competing orders may be issued to the robots. Some mechanism must exist to resolve such conflicts.

Id. at 8. This section notes, moreover, that "the command and control system must direct thousands of independent robots *where individual robot control is beyond the capabilities of a single operator.*" *Id.* at 9 (emphasis added).

In a section relating to Hierarchical Structure Design Implementation, Dudenhoeffer states that "[t]he hierarchical command and control structure provides commanders a means to communicate, task, and restructure resources *without interaction at an individual robot level.*" *Id.* at 13 (emphasis added). This system provides a "first level of control [that] consists of an interface with individual robots . . . to permit the operator to control or evaluate the state of individual robots." *Id.* Specifically, this individual control level "consist[s] of commands to the robot for behavior modification," which include changing the robot's group or leadership designation, and allowing the operator to suspend or activate a robot. *See id.* at 16. This first level of control does not involve controlling a

single specific robot exclusive to others. We find that there is no evidence, much less substantial evidence, from which the jury could conclude that Dudenhoeffer discloses the type of arbitrator claimed in the '357 patent, notwithstanding Dr. Yanco's conclusory opinion to the contrary.

Even assuming Dudenhoeffer disclosed the type of "arbitrator" claimed in the patent before us, there is insufficient evidence on this record of a reason or motivation for one of ordinary skill in the art at the time of the invention to combine Dudenhoeffer with Jouppi and Roach. A reason for combining disparate prior art references is a critical component of an obviousness analysis; "this analysis should be made explicit." *KSR,* 550 U.S. at 418 (arguments need to provide an "articulated reasoning with some rational underpinning" to make the asserted combinations) (quoting *In re Kahn*, 441 F.3d at 988.). "[I]t can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does . . . because inventions in most, if not all, instances rely upon building blocks long since uncovered, and claimed discoveries almost of necessity will be combinations of what, in some sense, is already known." *See KSR*, 550 U.S. at 418–19. VGo once more relies solely on the testimony of Dr. Yanco for this showing. We find her testimony insufficient, however.

Dr. Yanco first testified about combining the Jouppi and Dudenhoeffer references to add the arbitrator element. She testified that she can combine Jouppi with Dudenhoeffer because Dudenhoeffer "is talking about what happens when you have multiple robots and you want to control them from different stations." J.A. 10940. Elaborating further, Dr. Yanco explained that one of ordinary skill would combine Jouppi with Dudenhoeffer as "something that that person of ordinary skill in the state of art of the robotics will do," because Dudenhoeffer

"is providing a remote telepresence for that soldier." J.A. 10941–42.

Dr. Yanco then relied on the Roach reference for the call back mechanism. She testified that Roach discloses "doing things over the Internet," and that since "robots are going over the Internet too; so that applies to them as well." J.A. 10940–41. She then stated that she would combine Roach with the other references to let someone who cannot get access to a robot know that it became available. J.A. 10942. Dr. Yanco then testified that "[s]o when we take these three things and we look at them together, it covers Claim 79 of Patent '357." J.A. 10941.

We find that Dr. Yanco failed to provide the necessary "articulated reasoning with some rational underpinning" to support a conclusion of invalidity based on these combinations. *See KSR,* 550 U.S. at 418 (quoting *In re Kahn*, 441 F.3d at 988). Dr. Yanco's testimony was vague and did not articulate reasons why a person of ordinary skill in the art at the time of the invention would combine these references. *See Innogenetics, N.V. v. Abbott Labs.,* 512 F.3d 1363, 1373–74 (Fed. Cir. 2008) ("Such vague testimony would not have been helpful to a lay jury in avoiding the pitfalls of hindsight that belie a determination of obviousness."). It appears that Dr. Yanco relied on the '357 patent itself as her roadmap for putting what she referred to as pieces of a "jigsaw puzzle" together.

VGo's expert also succumbed to hindsight bias in her obviousness analysis. Dr. Yanco's testimony primarily consisted of conclusory references to her belief that one of ordinary skill in the art *could* combine these references, not that they *would* have been motivated to do so. *See ActiveVideo Networks, Inc. v. Verizon Commc'ns, Inc.*, 694 F.3d 1312, 1327 (Fed. Cir. 2012) ("[T]he expert's testimony on obviousness was essentially a conclusory statement that a person of ordinary skill in the art would have known, based on the 'modular' nature of the claimed

components, how to combine any of a number of references to achieve the claimed inventions. This is not sufficient and is fraught with hindsight bias."). Dr. Yanco also failed to address why one of ordinary skill in the art *at the time of the invention*, which was 2001, would be motivated to combine these three references. *See In re Cyclobenzaprine,* 676 F.3d at 1073 ("This hindsight analysis is inappropriate because obviousness must be assessed at the time the invention was made."). Not once during Dr. Yanco's direct examination regarding the '357 patent did she analyze what one of skill in the art would have understood as of 2001. Dr. Yanco simply opined what a skilled artisan could accomplish in 2011; that is not the relevant inquiry.

There was, moreover, no effort by Dr. Yanco to guard against this hindsight bias by appropriately considering all objective evidence of nonobviousness. *See In re Cyclobenzaprine*, 676 F.3d at 1079 ("The objective considerations, when considered with the balance of the obviousness evidence in the record, guard as a check against hindsight bias."). VGo does not dispute that Dr. Yanco ignored the objective evidence of nonobviousness. Indeed, Dr. Yanco testified that she did not realize she needed to consider this factor as part of her obviousness analysis. Dr. Yanco testified that she had not even heard of the concept of objective evidence of nonobviousness. J.A. 10978–79 ("Q. Now have you heard of something called objective evidence of non-obviousness? A. Sorry. I'm not a lawyer. Q. You've never heard of that phrase at all? A. Sorry. No."). Yet, she concluded that the asserted claims of the '357 and '030 patents were obvious. By failing to account for objective evidence of nonobviousness, Dr. Yanco's analysis was incomplete, and ultimately

insufficient to establish obviousness by clear and convincing evidence.[8]

InTouch submitted evidence regarding the substantial commercial success of its product, widespread industry praise, and licenses. InTouch also provided expert testimony through Dr. Hackwood that there was a nexus between these objective indicia and the asserted claims. *See Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1311–12 (Fed. Cir. 2006) ("Evidence of commercial success, or other secondary considerations, is only significant if there is a nexus between the claimed invention and the commercial success."). Given the many weaknesses in Dr. Yanco's testimony, and VGo's failure to persuasively rebut InTouch's evidence of nonobviousness, either through Dr. Yanco, or otherwise, we find insufficient evidence to support the conclusion that VGo bore its burden of proving clearly and convincingly that claim 79 of the '357 patent was obvious.

While, in denying JMOL, the trial court relied on the success of VGo's competing robot and the jury's right to use its common sense, on this record we find neither of those factors sufficient to support a judgment of obviousness. Indeed, the second factor is not even relevant to the

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8   We do not imply that a defendant must proffer an expert on objective indicia of nonobviousness before the trier of fact may reject such evidence. Indeed, technical experts may testify to matters like the level of skill in the art at the time of the invention and what a skilled artisan might find obvious in light of the prior art without addressing objective indicia of non-obviousness. But, where, as here, an expert purports to testify, not just to certain factual components underlying the obviousness inquiry, but to the ultimate question of obviousness, the expert must consider all factors relevant to that ultimate question.

obviousness inquiry. A court may only rely upon the common sense of one of ordinary skill in the art, not that of the jury in assessing a claim of obviousness. *See Perfect Web Techs., Inc. v. InfoUSA, Inc.*, 587 F.3d 1324, 1329 (Fed. Cir. 2009) (obviousness inquiry may include "common sense available to the person of ordinary skill in the art that do not necessarily require explication in any reference or expert opinion"); *Leapfrog Enters., Inc. v. Fisher-Price, Inc.*, 485 F.3d 1157, 1161 (Fed. Cir. 2007) ("Indeed, the common sense of those skilled in the art demonstrates why some combinations would have been obvious where others would not."). VGo's expert testified that the level of ordinary skill in the art of robotics is high and specialized—clearly at a level above that of a lay person. And, Dr. Yanco never referred to the common sense of one of ordinary skill in the art, providing nothing from which the jury or the trial court could draw on this point.

For these reasons, we conclude that VGo failed to meet its burden of proving invalidity of the '357 patent by clear and convincing evidence, and that the district erred in denying JMOL as to the validity of the '357 patent. Therefore, we reverse the district court's judgment of invalidity regarding claim 79 of the '357 patent.

2. The '030 Patent

VGo argued that claim 1 of the '030 patent was obvious in light of a combination of the Jouppi patent with either: (1) the Dudenhoeffer reference, (2) the Goldberg reference, or (3) the Schulz reference. We find that Dr. Yanco's analysis of the validity of this claim was flawed for many of the same reasons we found her analysis of claim 79 of the '357 patent inadequate.

Specifically in reference to the '030 patent, Dr. Yanco testified that she would find the combination of Jouppi with Dudenhoeffer obvious to one of ordinary skill in the art because "I do believe that somebody *could* look at a

telepresence robot and combine that with what we're really looking at is military telepresence. If you put those two things together, *a person of ordinary skill can do that*." J.A. 10953 (emphases added).

We have already addressed Dr. Yanco's misinterpretation of Dudenhoeffer; those findings control here as well, making it an inadequate reference upon which to predicate an obviousness finding to the '030 patent. So we turn to the Goldberg and Schulz references. For the "arbitrator" mechanism, Dr. Yanco relied on Goldberg's statement that "[t]o limit access to one operator at a time, we implemented password authentication and a queue that gives each operator 5 minutes at the helm." Goldberg, at 655. Dr. Yanco stated that it would be obvious to someone of ordinary skill in the art of robotics to combine Jouppi with Goldberg because "Goldberg is basically a telepresence robot system." J.A. 10955–56. While Dr. Yanco did not provide any explicit reasoning for combining the Schulz reference with Jouppi, VGo relies on Dr. Yanco's general statement that any of these three references could be combined with Jouppi as they all "describe[ ] multiple-control stations as well and how to choose between what users are trying to do from those." J.A. 10961.

Again, we conclude that VGo failed to meet its burden of proving obviousness by clear and convincing evidence. Dr. Yanco failed to provide any meaningful explanation for why one of ordinary skill in the art would be motivated to combine these references at the time of this invention. At best, she opined that one in the field of robotics *could* combine these references in 2011, though even that is a generous reading of her testimony. And, again, Dr. Yanco did not consider the impact of the objective evidence of nonobviousness in this inquiry. Therefore, we reverse the district court's judgment of invalidity regarding claim 1 of the '030 patent as well.

E. Evidentiary Rulings

InTouch argues that the district court materially prejudiced InTouch by improperly admitting testimony regarding legal opinions from VGo's outside counsel and testimony from Mr. More as to previously undisclosed prior art. InTouch requests a new trial based on these evidentiary errors. "A party seeking reversal for evidentiary error must show that the error was prejudicial, and that the verdict was 'more probably than not' affected as a result." *Boyd*, 576 F.3d at 943 (quoting *McEuin v. Crown Equip. Corp.*, 328 F.3d 1028, 1032 (9th Cir. 2003)).

We first address Mr. Ryden's testimony regarding the opinions of VGo's outside counsel. InTouch argues that the district court improperly allowed Mr. Ryden to testify that outside counsel did not believe VGo's products infringed the patents in suit. InTouch argues that this testimony should have been excluded because VGo expressly refused to waive attorney-client privilege regarding those opinions during discovery. InTouch alleges that, without discovery, it was deprived of the ability to challenge this testimony.

During cross-examination at trial, InTouch questioned Mr. Ryden about the bases for his own conclusion that VGo's robots were non-infringing. He was asked whether he: (1) was a patent attorney, (2) had formal legal training, (3) knew the process for determining infringement, (4) performed a claim construction analysis, (5) reviewed file histories, and (6) analyzed multiple aspects of direct and indirect infringement. *See* J.A. 10910–13. On re-direct, VGo's counsel asked Mr. Ryden: "when you looked at the patents in 2010 what did you do?" J.A. 10913. Mr. Ryden responded that he reviewed the patents and discussed them with InTouch's Chief Technology Officer, and that, together, they discussed these patents with their outside counsel. *See* J.A. 10913. InTouch objected to the reference to outside counsel. The

district judge overruled the objection stating that InTouch "opened the door on that one." J.A. 10913. Subsequently, Mr. Ryden testified that, based on these reviews and discussions, "we felt that the technology that we were using was not infringing on the patent, and we did not need a license." J.A. 10913. InTouch did not object to this response or seek to strike it. *See* J.A. 10913.

In response to the InTouch's motion for a new trial, the district court found that InTouch failed to explain how the jury and the trial were "irreparably prejudiced" by Mr. Ryden's testimony. The district court pointed out that the jury was instructed that Mr. Ryden's testimony on the advice of outside counsel was relevant only to the issue of willfulness, which the jury did not reach. Minute Order at 8, ECF No. 262.

InTouch argues that this testimony was highly prejudicial because "evidence of an independent non-infringement opinion was 'directly probative of the central issues in dispute,' *i.e.*, VGo's direct and indirect infringement, the ultimate issue the jury was asked to decide." Appellant Br. 67 (quoting *Obrey v. Johnson*, 400 F.3d 691, 701–02 (9th Cir. 2005)). While we agree with InTouch that the testimony was improper, we find that InTouch failed to establish that the verdict was more probably than not affected by this error.

The district court charged the jury that someone "may directly infringe a patent even though they believe in good faith that what they are doing is not an infringement of any patent." Jury Instructions at 20, *InTouch Techs.*, No. 11-cv-9185 (C.D. Cal. Nov. 29, 2012), ECF No. 228. It then stated that "[a] patent claim is literally infringed only if [VGo's] product or method includes each and every element or method step in that patent claim." *Id.* at 21. Subsequently, the district court told the jury that, if it finds infringement, only then must it determine if the infringement was willful. *See id.* at 41. To determine

willfulness, the jury was told it may consider "whether [VGo] relied on competent legal advice." *Id.* Based on these jury instructions, we agree with the district court that it is unlikely that Mr. Ryden's testimony on outside counsel's opinion factored into the jury's infringement verdict. *See* Minute Order at 8, ECF No. 262. We agree, moreover, that "a jury is presumed to follow the instructions they are given." *Id.* (citing *Weeks v. Angelone*, 528 U.S. 225, 234 (2000)).[9] We, thus, decline to order a new infringement trial on this ground.

InTouch next argues that the district court improperly admitted the testimony of VGo's co-founder, Mr. More. Over InTouch's objections, Mr. More was permitted to testify about prior art robots that VGo did not identify in its invalidity contentions. On the basis of this evidentiary ruling, InTouch seeks a new trial on the validity of the '357 and '030 patents. Given our earlier conclusions ordering vacatur of the invalidity judgments, this issue is moot.

CONCLUSION

For the reasons stated above, we affirm the judgment of non-infringement for all three asserted patents as supported by substantial evidence, reverse the findings of

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[9] InTouch also alleges that VGo's counsel made improper statements in its closing argument. InTouch, however, failed to raise any objections at that time. Therefore, we consider these arguments waived. We note, moreover, that the jury instructions clearly stated that "[a]rguments and statements by lawyers are not evidence . . . What they have said in their opening statements, closing arguments, and at other times is intended to help you interpret the evidence, but is not evidence." Jury Instructions at 4, ECF No. 228. Consequently, we decline to disturb the infringement verdict on these grounds.

invalidity regarding the '357 and '030 patents, and re-
mand to vacate those invalidity judgments.

**AFFIRMED-IN-PART, REVERSED-IN-PART, AND
REMANDED**