United States Court of Appeals for the Federal Circuit

2007-1272, -1356

800 ADEPT, INC.,

Plaintiff-Appellee,

v.

MUREX SECURITIES, LTD., MUREX LICENSING CORPORATION, TARGUS INFORMATION CORPORATION, and WEST CORPORATION,

Defendants-Appellants.

Stephen D. Milbrath, Allen, Dyer, Doppelt, Milbrath & Gilchrist, P.A., of Orlando, Florida, argued for plaintiff-appellee. With him on the brief were Brian R. Gilchrist and Stephen H. Luther.

William F. Lee, Wilmer Cutler Pickering Hale and Dorr, LLP, of Boston, Massachusetts, argued for defendants-appellants. With him on the brief were Lisa J. Pirozzolo and Benjamin M. Stern, and Paul R.Q. Wolfson, of Washington, DC.

Appealed from: United States District Court for the Middle District of Florida

Chief Judge Patricia C. Fawsett

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Appeals from the United States District Court for the Middle District of Florida in case no. 6:02-CV-1354, Chief Judge Patricia C. Fawsett.

DECIDED: August 29, 2008

Before GAJARSA, Circuit Judge, PLAGER, Senior Circuit Judge, and DYK, Circuit Judge.

Opinion for the court filed by Senior Circuit Judge Plager. Circuit Judge Dyk concurs in the result.

PLAGER, Senior Circuit Judge.

This patent case involves technology for routing "1-800" telephone calls to an appropriate service location, e.g., the service provider closest to the customer who placed the call. Plaintiff 800 Adept, Inc. ("Adept") and Defendant Targus Information Corporation ("Targus") sell competing services that are used to route calls made to 800 numbers, and both companies own patents covering systems and methods for call routing. Their customers include owners of 800 numbers, such as Enterprise Rent-A-

Car and Pizza Hut, as well as providers of telecommunications 'platforms'[1] that route 800 calls for such businesses.

In 2002, Adept sued Targus, its affiliated companies Murex Securities, Ltd. and Murex Licensing Corporation, and its customer West Corporation[2] in the United States District Court for the Middle District of Florida, alleging that services sold by Targus infringed two patents owned by Adept.[3] Adept further alleged that Targus had tortiously interfered with Adept's business relationships by asserting Targus's patents against Adept's customers. Targus filed counterclaims alleging that Adept's call routing services infringed various claims in several Targus patents.[4]

After a 24-day jury trial, the jury's verdict essentially found for plaintiff Adept on all issues. The jury found that Targus willfully infringed the asserted claims of Adept's patents and that Adept did not infringe the asserted claims of Targus's patents. The jury found that all the asserted claims of Targus's patents were invalid and further found that the unasserted claims of Targus's '897 patent and '131 patent were invalid as well. The jury also found Targus liable under state law for tortious interference with Adept's

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[1] A platform is one or more computers linked to a long distance or local telecommunications network and is used to handle telephone calls requiring special services.

[2] The Defendants will be collectively referred to as "Targus" throughout the remainder of this opinion unless otherwise indicated.

[3] The Adept patents at issue in this case are U.S. Patent No. Re. 36,111 ("the '111 patent"), which is a reissue of U.S. Patent No. 5,588,048, and U.S. Patent No. 5,805,689 ("the '689 patent"), collectively referred to as the "Neville patents."

[4] The Targus patents at issue are U.S. Patent No. 4,757,267 ("the '267 patent" or "Riskin patent") and U.S. Patent Nos. 5,506,897 ("the '897 patent"), 5,848,131 ("the '131 patent"), 5,901,214 ("the '214 patent"), 5,907,608 ("the '608 patent"), 5,910,982 ("the '982 patent"), 5,956,397 ("the '397 patent"), 5,982,868 ("the '868 patent"), 6,058,179 ("the '179 patent"), and 6,091,810 ("the '810 patent"), collectively referred to as the "Moore-Shaffer patents."

business relationships. The jury awarded Adept $18 million for patent infringement and $7 million on the tortious interference claim.

The trial court entered judgment on the jury verdict, issued a permanent injunction, and awarded enhanced damages of $24 million on the patent infringement claim, bringing the total damages award to $49 million. The trial court also determined that the case was exceptional and therefore Adept was entitled to attorney fees under 35 U.S.C. § 285.

After thorough consideration of all the issues in the case, we conclude that the trial court erred regarding a critical claim construction issue in the Adept patents, one that permitted the jury to make incorrect findings. Under the correct claim construction, no reasonable jury could find that Targus infringes the asserted claims of Adept's patents; accordingly, we reverse the trial court's judgment of infringement. For the reasons we shall explain, we also reverse the trial court's judgment for Adept on its tortious interference claim. In light of these determinations, we vacate the trial court's damages award, the permanent injunction, and the judgment with respect to willfulness, enhanced damages, and attorney fees.

Regarding the Targus patents, with two exceptions we affirm the trial court's judgment upholding the jury's verdict that the asserted claims of Targus's patents are invalid; for the reasons we explain, we vacate the invalidity judgment on two of the asserted claims of Targus's patents and remand for a new trial on these claims. Because the validity of the unasserted claims of Targus's patents was not at issue during the trial, we vacate the trial court's invalidity judgment with respect to all of those claims.

BACKGROUND

The patents at issue in this case relate to technology for routing telephone calls made to 800 numbers. Typically when a caller dials an 800 number, the long distance carrier ("LDC") handling the call must identify the 10-digit telephone number, known as a "Plain Old Telephone System" ("POTS") number, to which to route the call. (A POTS number has the form NPA-NXX-XXXX, where NPA is the area code and NXX is the exchange.) If all calls to a particular 800 number are to be routed to a single location, the process is relatively simple. Some businesses, however, advertise a single 800 number but have multiple service locations. When a caller dials the 800 number of one of these businesses, the LDC must have some way to determine the POTS number of an appropriate service location. For example, if the 800 number is for a chain of pizza restaurants, the correct service location could be the closest restaurant or one that delivers within the geographic area in which the caller is located.

Plaintiff Adept owns the '111 patent and its divisional, the '689 patent, both of which claim priority to an application filed on July 31, 1992. The two patents, referred to as the Neville patents, are entitled "Geographically Mapped Telephone Routing Method and System," and have virtually identical written descriptions.[5] The Neville patents disclose a method for directly routing an 800 call to the appropriate service location based on the caller's 10-digit telephone number (NPA-NXX-XXXX), sometimes referred to as the Automatic Number Identification ("ANI"). The invention involves the construction of a database that assigns a service location POTS number to every potential caller according to geographic criteria provided by the owner of the 800

[5] For convenience, this opinion cites only to the written description of the '111 patent.

number. This database can be provided to the LDC, which then routes calls made to the 800 number according to the routing instructions in the database. The process is summarized in the patent's abstract:

> A method and system for direct routing of telephone calls made by a caller originating from within specific calling areas to one of a plurality of locations of a second party according to certain criteria established by the second party. This routing is accomplished based on the assignment of latitude and longitude coordinates to a potential caller's location. Once these coordinates are assigned to each of the potential callers, the second party's criteria is applied to assign the potential caller to a second party. Such criteria could be existence within a previously-defined geographic area, a custom defined geographic area, or through calculations such as the shortest distance between coordinate points. *Once all such assignments have been made, a database is assembled to be used by a long distance carrier for direct routing of telephone calls from callers to an assigned second party.*

'111 patent, abstract (emphasis added).

The '111 patent has five independent claims, and the '689 patent has one independent claim, all of which were asserted by Adept against Targus. Claim 1 and claim 17 of the '111 patent are system claims; claim 9 and claim 29 of the '111 patent are method claims; and claim 41 of the '111 patent and claim 1 of the '689 patent are directed to a method of constructing a database. Claim 29, a method claim, is illustrative of the Adept patent claims:

> 29. A method for *direct routing* a telephone call from a first party who has an originating telephone number at a physical location and who dials a telephone number including digits uniquely characteristic to a second party having a plurality of service locations, said method comprising the steps of:
>
> [a] allocating latitude and longitude coordinates to the physical location of all potential first parties;
>
> [b] defining the boundaries of one or more geographical areas which can be of any size and shape according to predetermined criteria, each point along said boundaries being defined by latitude and longitude coordinates;

> [c] *assigning to the physical location of said potential first parties a telephone number of a service location of a second party that will receive calls* originating from within the boundary of a geographic area in which the latitude and longitude coordinates of the physical location of each of said potential first parties lie;
>
> [d] determining the originating telephone number of the first party from which said telephone call is to be routed; and
>
> [e] *directly routing* said telephone call to a service location of the second party assigned to said originating telephone number of the first party by said step of assigning.

'111 patent, col.15 ll.19-45 (emphases and paragraph lettering added).

Defendant Targus owns two families of patents referred to as the Moore-Shaffer patents, which, like the Neville patents, disclose various systems and methods for routing 800 calls to an appropriate service location based on the caller's 10-digit telephone number. The first family includes seven patents: the '897 patent; its continuation-in-part, the '131 patent; its continuation-in-part, the '868 patent; and its four continuations, the '608 patent, the '982 patent, the '397 patent, and the '810 patent. The second family includes the '214 patent and its continuation, the '179 patent.

The earliest Moore-Shaffer patent is the '897 patent, which claims priority to an application filed on February 22, 1993. The '897 patent, which issued in 1996, was also the subject of a reexamination request filed by Adept in 1999. The United States Patent and Trademark Office ("PTO") granted the request and in 2001 issued a reexamination certificate, confirming the patentability of all claims.

The '897 patent discloses a database containing two tables—a master table and a client table—linked by a spatial key. Each record in the master table contains a caller telephone number and a corresponding spatial key, such as a nine-digit postal code

(referred to as "zip+4"). '897 patent, col.8 l.55 to col.9 l.6. Each record in the client table contains a spatial key and the telephone number of a corresponding client service location. Id. at col. 9 ll.7-26. The master table is indexed by caller telephone numbers, and the client table is indexed by the spatial key, so that when a call is placed the system retrieves from the master table the spatial key corresponding to the caller's telephone number and then retrieves from the client table the telephone number of the client service location corresponding to that spatial key. Id. at col.10 ll.1-7. The '897 patent describes two methods for constructing the client table, one involving radius-defined service areas and one involving polygon-defined service areas for each service location. Id. at col.15 l.52 to col. 28 l.5. The '131 patent, a continuation of the '897 patent, is similar to the '897 patent but additionally includes a third table containing specific service location information, such as store hours, that may be recited to the caller by a Voice Response Unit. '131 patent col.31 ll.27-53.

With the '868 patent, a continuation-in-part of the '131 patent, Moore and Shaffer introduced several new embodiments. One of these was a "real-time" system, in which spatial calculations are performed during the call to determine the appropriate service location for a caller. '868 patent col.45 l.35 to col.55 l.50. As in the '897 patent, the service area for each client service location can be defined as an area with a radius of any size or a polygon of any size and shape. Id. at col.47 ll.14-17. Unlike the two-table system first described in the '897 patent, however, the real-time system does not simply retrieve records from tables to obtain a service location for a caller. Instead, after a call is placed, the system creates a window key (e.g., a rectangular area defined by longitude and latitude coordinates) that is associated with the caller's location. Id. at

col.51 ll.26-42. Based on this window key, the system builds a list of potential service locations and then performs more detailed spatial calculations to generate a final list of service locations whose service areas encompass the caller's location, in ascending order of distance between the caller's location and the service location. Id. at col.51 l.42 to col.54 l.45. The claims of the '868 patent are directed to various aspects of the real-time system and process.

The four continuations of the '868 patent—the '608 patent, '982 patent, '397 patent, and '810 patent—have the same written description as the '868 patent. While some claims of these patents are directed to the real-time system, many are directed to other embodiments, including, for example, a single-table database, referred to as a "telephone number to telephone number" ("TNTTN") table, which is essentially a merger of the master and client tables first disclosed in the '897 patent.

The second family of Moore-Shaffer patents includes the '214 patent and '179 patent. They disclose spatial key-linked, multi-table databases for providing information to callers or service locations. The processes described in the '214 and '179 patents for applications that require connecting a caller to a service location are similar to the process described in the '131 patent.

Targus sells services that operate in conjunction with telecommunications platforms to route 800 calls. One service, IntelliRouting Express, uses the real-time process described in Targus's '868 patent to identify the location of a caller and determine an appropriate service location after the call is placed and while the caller remains on the line. The service provides the telephone number of the correct service location to the platform, which then processes the call. Another Targus service,

Location Express, merely identifies the latitude/longitude location of the caller and provides it to the platform, which then uses that information while the caller is on the line to perform whatever calculations are necessary to determine an appropriate service location.

Plaintiff Adept alleged that Targus's IntelliRouting Express and Location Express services literally infringe all six independent claims of the Neville patents and several dependent claims. Two key claim construction issues before the trial court concerned the "directly routing" (paragraph [e] in illustrative claim 29, above) and "assigning" (paragraph [c]) limitations in the Neville patents. The case was initially assigned to District Judge Antoon, who construed the term "directly routing" in the Neville patents to mean "routing a telephone call to another party without a human or computer re-dialing or otherwise placing a second call." 800 Adept, Inc. v. Murex Secs., Ltd., No. 6:02-CV-1354, slip op. at 38 (M.D. Fla. May 27, 2005).

Subsequently, the case was transferred to Chief Judge Fawsett three months before trial. On Targus's motion, she construed the claim language in the "assigning" limitation, language that is present in all of the asserted claims of the Neville patents. First, she construed the term "potential first parties" as "individuals who can place a telephone call but have not yet done so." 800 Adept, Inc. v. Murex Secs., Ltd., No. 6:02-CV-1354, slip op. at 16 (M.D. Fla. Aug. 3, 2006). She then construed "assigning" as referring to "a designation made *prior* to the telephone call of the first parties" (emphasis added). However, she declined to find that there was a disclaimer of calculations made *after* the call is placed. Id. at 19-22. She further held that the claims are not limited to a database containing a single look-up table. Id. at 18-19.

During trial, a critical issue in Adept's infringement case against Targus was whether Targus's "real-time" process, which performs spatial calculations during the call to determine an appropriate service location, satisfies the "assigning" limitation in the claims of the Neville patents. Adept's counsel argued that the court's construction of the term "assigning" should be modified so the jury would understand it to cover "a stored procedure and algorithm in the database that constitutes a, quote, assignment, closed quote, but nevertheless makes that calculation while the caller is on-line." (Trial Tr. 254:7-10, Oct. 20, 2006). On the nineteenth day of trial, in response to Adept's argument, and over the objection of Targus's counsel, Chief Judge Fawsett added a sentence to the claim construction. The final jury instruction regarding this limitation read:

> The term "*assigning*" as used in the third element of the claims of the '111 and '689 Patents refers to "*a designation made prior to the telephone call of the first parties.*" However, the '111 and '689 patents do not exclude calculations made during the telephone call.

As we explain more fully below, the addition of the "However . . . " sentence to the assigning limitation changed the dynamic of the trial.

The jury ruled in Adept's favor on all of its patent infringement allegations against Targus, finding that Targus infringed all six independent claims and the asserted dependent claims of the Neville patents and that those claims were not invalid or unenforceable. The jury also found that Targus's infringement was willful.[6] In addition, the jury found that Targus tortiously interfered with the business relationships between Adept and its customers and further found that Targus acted in bad faith. The jury

[6] The jury found that Targus's customer West infringed the asserted system and method claims but not the database claims and further found that West's infringement was not willful.

awarded Adept $18 million in patent infringement damages and $2 million in compensatory damages and $5 million in punitive damages on the tortious interference claim.

Adept also prevailed at trial on all issues related to Targus's patents. The jury found that Adept did not infringe any of the asserted claims of Targus's patents. Regarding the validity of Targus's patents, the jury determined that *all* claims of the '897 patent and the '131 patent were invalid, even though Targus asserted only claim 69 of the '897 patent and claims 1 and 50 of the '131 patent. The jury also found that the asserted claims of the other Moore-Shaffer patents were invalid.[7]

Targus filed a renewed motion for judgment as a matter of law and an alternative motion for a new trial, both of which the trial court denied without discussion. The trial court awarded Adept an additional $24 million in enhanced patent infringement damages in accordance with 35 U.S.C. § 284, bringing the total damages award to $49 million. The court then entered final judgment and a permanent injunction. The trial court also determined that the case was exceptional under 35 U.S.C. § 285 and that Adept was entitled to attorney fees, but the court denied the motion for attorney fees without prejudice to reassertion after completion of the appellate process.

Targus appeals the judgment with respect to infringement of Adept's patents, the invalidity of Targus's patents, tortious interference, and willfulness. Targus also appeals the jury's damages award, the trial court's award of enhanced damages, and the trial court's determination that Targus was entitled to attorney fees. Finally, Targus

[7] The asserted claims of the other Moore-Shaffer patents were claim 19 of the '214 patent, claim 25 of the '179 patent, claim 46 of the '868 patent, claims 1 and 20 of the '608 patent, claims 4 and 13 of the '982 patent, claim 1 of the '397 patent, and claim 10 of the '810 patent.

challenges the permanent injunction as vague or overbroad. We have jurisdiction pursuant to 28 U.S.C. § 1295(a)(1).

DISCUSSION

I. Adept Patents

Targus contends that the trial court erred in failing to enter judgment as a matter of law that the accused Targus services do not infringe the asserted claims of the Neville patents. Targus focuses on the two claim limitations previously noted—"assigning" and "directly routing." Regarding the assigning limitation, Targus argues that the trial court erred in modifying its claim construction in a way that allowed Adept to argue at trial that the assignment could be done during the call. Under the proper construction of "assigning," Targus maintains, its services do not infringe the claims of the Neville patents. Because we agree with Targus that under the correct claim construction no reasonable jury could find that Targus's services perform the "assigning" step, we need not address Targus's arguments with respect to the "directly routing" limitation.

A. Claim Construction—the "Assigning" Limitation

Targus argues that the claims in the Neville patents require assignment of a service location telephone number to the telephone number of each potential caller before any call is placed. Adept does not dispute that the assignment must occur before a call is placed, but argues that the assigning limitation can be satisfied by placing "in or with" a database an algorithm or criteria for determining the correct service location, even though the calculations necessary to implement the algorithm or apply the criteria are performed during the telephone call. Targus responds that any

calculations needed to complete the assignment of service location numbers to potential callers must occur before the call. The ultimate question, then, is not when the assigning step must occur, which the parties agree must be prior to any telephone call, but rather what constitutes an assignment. To that end, Targus argues that the trial court erred when it added to its original claim construction the "However . . . " statement that the patents "do not exclude calculations made during the telephone call" because that allowed the jury to apply Adept's flawed interpretation.

Though in claim construction matters we give due weight to a trial court's claim construction, ultimately claim construction is a matter of law the final responsibility for which lies with us. Cybor Corp. v. FAS Techs., Inc., 138 F.3d 1448, 1456 (Fed. Cir. 1998) (en banc). As usual, we start with the language of the claims themselves. Phillips v. AWH Corp., 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). The relevant language (see, e.g., claim 29 of the '111 patent, above) is: "assigning to the physical location of said potential first parties a telephone number of a service location of a second party that will receive calls . . . ."[8] '111 patent col.15 ll.33-35. Use of the word "potential" to describe the callers and use of the future tense ("will receive calls") for the recipient points directly to the conclusion that the assigning step must occur before a call is placed. The plain language of the claims makes clear that the "assigning" step requires that "a telephone number of a service location" be assigned to each potential caller. Nothing in the claims suggests that storing an algorithm that will be used to determine the telephone number of the correct service location *during a telephone call*

[8] The other independent claims either include identical language or refer to the "originating telephone number" of said potential first parties (i.e., callers) rather than their "physical location."

constitutes an assignment of a service location telephone number to a potential caller *before a telephone call is placed*.

The patents' written description confirms this. See Phillips, 415 F.3d at 1315-17. The Neville patents disclose a method for routing 800 calls using routing instructions contained in a database. According to the written description, the database is constructed by assigning the telephone number of an appropriate service location to each potential caller. '111 patent fig.1, col.11 ll.42-54. The assignments are made by applying customer-provided criteria, such as "existence within a previously-defined geographic area, a custom defined geographic area, or through calculations such as the shortest distance between coordinate points." Id. abstract. As summarized in the abstract, the patents make clear that assignment of service location telephone numbers to potential callers must be completed before a telephone call is ever placed: "*Once all such assignments have been made*, a database is assembled *to be used* by a long distance carrier for direct routing of telephone calls." Id. (emphasis added).

The assigning step in the Neville patents results in "direct routing instructions" that are submitted to an LDC to be used for routing calls. Adept argues that these routing instructions could include stored procedures such as the distance calculations mentioned in the abstract. The written description, however, does not support Adept's position. The "routing instructions" are always described as a database containing potential caller telephone numbers and corresponding service location telephone numbers. Id. col.4 ll.10-12, col.12 ll.48-51. To the extent that procedures like distance calculations are implemented or geographic criteria are applied, it is only to construct a database containing assignments of service locations telephone numbers to potential

callers, a step that is completed prior to any call. Nowhere do the patents characterize the routing instructions given to an LDC as a stored procedure, algorithm, or criteria to be used later during a call to determine an appropriate service location telephone number.

Statements made by the applicant during prosecution reinforce the conclusion that any calculations necessary for assigning service location telephone numbers to callers must be performed before any calls are placed. See Phillips, 415 F.3d at 1317 ("[T]he prosecution history can often inform the meaning of the claim language by demonstrating how the inventor understood the invention . . . ."). During prosecution of the original application that led to the Neville patents, the examiner rejected most of the claims as anticipated by a prior art patent to Finucane, et al. ("Finucane"). In response, the applicant distinguished Finucane on several grounds, one of which was that Finucane "requires . . . a computer [to] perform 'point of origin' to 'point of termination' calculations while a caller is on the line." J.A. 8572. The applicant contrasted this feature with his system, which "performs all such calculations prior to the call even being made and, in fact, prior to delivery of the data base to the Long Distance Carrier (LDC)." Id.

The examiner maintained his rejection during prosecution of a continuation application. In remarks accompanying an amendment in which he canceled all independent claims and added new claims, the applicant once again distinguished his invention from Finucane:

> The major difference [between the present invention and Finucane] is that with the present invention *all point of origin to point of termination calculations have already been performed* by determining in which response zone (client-defined polygon) the call originated, and to which

> corresponding terminating number the call should be routed. The results of these calculations are stored in a database at the service provider's location. *Thus, the present invention eliminates the need to perform on-line-calculations to determine the appropriate terminating number.*

J.A. 8626 (emphasis added). Thus Adept and Neville repeatedly characterized the invention as one in which all calculations necessary for assigning service location telephone numbers to callers are performed before any telephone calls are made.

Adept argues that it is improper to rely on these statements from the prosecution history because they are too ambiguous to serve as a "clear and unmistakable" disavowal of claim scope. See Omega Eng'g, Inc. v. Raytek Corp., 334 F.3d 1314, 1325-26 (Fed. Cir. 2003). Adept points out that the issued claims are quite different from those pending at the time the statements were made. Because there is no link between the applicant's arguments and the specific claim language at issue, Adept asserts, there can be no disclaimer.

The doctrine of prosecution disclaimer to which Adept refers is typically invoked to limit the meaning of a claim term that would otherwise be read broadly. See id. at 1324 ("[W]here the patentee has unequivocally disavowed a certain meaning to obtain his patent, the doctrine of prosecution disclaimer attaches and *narrows the ordinary meaning of the claim* congruent with the scope of the surrender." (emphasis added)); see also Rheox, Inc. v. Entact, Inc., 276 F.3d 1319, 1325 (Fed. Cir. 2002) (construing the broad term "calcium orthophosphate" to exclude monocalcium orthophosphate based on prosecution disclaimer although excluded compound was within the ordinary and accustomed meaning of the claim term); Southwall Techs., Inc. v. Cardinal IG Co., 54 F.3d 1570, 1576-77 (Fed. Cir. 1995) (holding that "sputter-deposited dielectric" could not be formed by a two-step process because patentee argued during prosecution that

it was formed by a one-step process). In this case, however, we do not consult the prosecution history for that purpose. We simply use it as support for the construction already discerned from the claim language and confirmed by the written description, i.e., that all calculations necessary to assign a service location telephone number to a potential caller are completed before any call is placed. Although the claims pending at the time of the quoted statements did not include the "assigning" limitation, the applicant was quite clear throughout prosecution that his invention performed calculations for assigning service location telephone numbers to callers prior to any call being placed. As is true of the written description, nothing in the prosecution history supports Adept's position that a stored algorithm constitutes an assignment of a service location to a caller.

Adept asserts that a claim construction requiring all calculations to be performed prior to any telephone calls cannot be correct because even its preferred embodiment performs some calculations during the telephone call. Specifically, Adept claims that when a call arrives, the Neville system must perform "lookup" calculations to retrieve from the database the service location assigned to the caller. Adept fails to recognize, however, that these lookup calculations are not part of the assigning step in the Neville patents—service location telephone numbers are assigned to callers when the database is created, i.e., before any calls take place. Under the correct claim construction, only calculations that are necessary to complete the assignment must be performed before any calls are made. As long as that requirement is met, the claims do not preclude any additional calculations during the telephone call.

According to Adept, three dependent claims not asserted in the case should compel a different claim construction. In these claims—28, 40, and 52 of the '111 patent—the originating telephone number is that of a "non-stationary telephone, such as a mobile, cellular or transportable telephone." Adept contends that these mobile telephone claims require some sort of spatial calculation at the time of the call to determine the correct service location based on the caller's physical location and therefore would be impossible to practice under a claim construction such as the one we adopt.

We are not persuaded. As discussed, the plain language of the independent claims requires each potential caller to be assigned a service location telephone number before any call is placed. Since the mobile telephone claims depend from the independent claims, all potential mobile telephone callers must also be assigned a service location before a call is placed. Nothing in the language of the claims indicates otherwise. While the claims and the written description appear to contemplate that the assignment will be based on the caller's physical location at the time of the call, the written description does not teach a method for doing so. Significantly, the patents do not disclose the use of stored algorithms that could be used to assign service location telephone numbers during a call from either a mobile telephone or a fixed landline, and thus the written description does not support Adept's proposed construction.

Furthermore, it is not clear that the mobile telephone claims would be impossible to practice under the correct claim construction. Prior to any calls, a service location could be assigned to a mobile telephone based on, for example, a physical location associated with its NPA-NXX. Be that as it may, we need not resolve this question.

Even if the mobile telephone claims are rendered inoperative by a proper claim construction, preserving the validity of unasserted claims is an insufficient reason to ignore the meaning of the claims actually asserted in the case. See Intamin Ltd. v. Magnetar Techs. Corp., 483 F.3d 1328, 1337 (Fed. Cir. 2007).

In sum, based on consideration of the claims, the written description, and the remainder of the intrinsic evidence, we conclude that the trial court was correct in the first instance when it construed the "assigning" language to refer to "a designation made prior to the telephone call of the first parties." We must also recognize, however, what the assignment entails—the telephone number of a service location is assigned to the physical location or telephone number of each potential caller. As noted, this assignment must be made before any calls are placed. Thus, to the extent any calculations are needed to complete the assignment of service location telephone numbers to potential callers, they must be performed prior to any calls.

The trial judge modified the original claim construction by adding that the Neville patents "do not exclude calculations made during the telephone call." That statement is imprecise in the context in which it was presented, i.e., as part of the construction of the term "assigning," and allowed Adept to argue before the jury that calculations for completing the assigning step could be performed while a caller is on-line, an argument that is not consistent with the patented invention. Under the correct claim construction, assignment of service location telephone numbers to potential callers must occur prior to any calls, and thus any calculations necessary for completing that assignment must be performed before any telephone calls are placed.

B. Infringement

With the trial court's modified claim construction before them, the jury found that defendant Targus infringed the Neville patents, and the trial court subsequently denied a motion by Targus to grant, contrary to the jury's verdict, judgment as a matter of law in Targus's favor. The question before us is whether the trial judge erred in denying the motion. We review the trial court's denial of Targus's motion for judgment as a matter of law under the law of the regional circuit. z4 Techs., Inc. v. Microsoft Corp., 507 F.3d 1340, 1346 (Fed. Cir. 2007). Under Eleventh Circuit law, we review the denial of a motion for judgment as a matter of law without deference, reapplying the same standard applied by the trial court. Christopher v. Florida, 449 F.3d 1360, 1364 (11th Cir. 2006). Judgment as a matter of law is appropriate when there is no legally sufficient evidentiary basis for a reasonable jury to find in favor of the nonmoving party. Id. When a patent infringement verdict is based on an incorrect claim construction, we reverse the trial court's denial of a motion for judgment as a matter of law if no reasonable jury could have found infringement under the proper claim construction. Finisar Corp. v. DirecTV Group, Inc., 523 F.3d 1323, 1333 (Fed. Cir. 2008).

In the Targus system, the telephone numbers and locations of potential callers are maintained in a database. The system also includes a database for each system customer containing the telephone numbers of the customer's service locations along with their corresponding service areas. Those service areas are configured by the customer before any calls are placed and may be radius-based (a circle around the service location) or defined by polygonal regions around each service location. While the Targus system contains information relating to both potential callers and customer

service locations, it does not match a customer service location to a particular caller prior to any calls taking place. Instead, as described in the IntelliRouting Express User Guide, callers are assigned to a service location "on the fly" with each telephone call.

When a call comes into the platform, the Targus system determines the caller's approximate latitude and longitude based on the caller's ANI. The system then computes a rectangular area, referred to as a window key, around that latitude/longitude. Next the system identifies a list of candidate service locations whose service areas overlap the window key. For each candidate, the system performs a detailed spatial calculation, either a distance computation or "point-in-polygon" calculation, to determine whether the caller's location is within the service area. This results in a list of one or more service locations to which the call may be routed.

Thus the accused Targus services do not assign service location telephone numbers to potential callers before calls are placed. Because all calculations necessary to complete the assignment are performed in real-time while the caller is on the line, the Targus services do not satisfy the "assigning" limitations in the Neville claims. Under the correct claim construction, no reasonable jury could find that Targus infringes the asserted claims of Adept's patents. Accordingly, we reverse the trial court's denial of Targus's motion for judgment of non-infringement as a matter of law. In light of that result, we vacate the infringement damages award and the permanent injunction; we also vacate the trial court's judgment with respect to willfulness and attorney fees.

II. Targus Patents

A. Unasserted Claims

The jury found that all claims of the ’897 patent and ’131 patent were invalid, and the trial court entered judgment accordingly. Targus argues that the trial court erred because only claim 69 of the ’897 patent and claims 1 and 50 of the ’131 patent were asserted and at issue. Adept responds that all claims of the two patents were placed in issue by the declaratory judgment count in its complaint. If the evidence at trial proved that all the claims were invalid, Adept maintains, the trial judge properly entered judgment on the jury verdict.

We agree with Targus that the unasserted claims were not at issue, and thus the trial court erred. First, the scope of Adept’s complaint is less than clear. Adept requested a declaratory judgment with respect to the invalidity of Targus’s “asserted claims,” an apparent reference to Targus’s assertions of infringement against Adept and its customers prior to the filing of the lawsuit. (First Am. Compl. ¶¶ 57-58.) The complaint does not specify which claims fall into that category. In any event, a reference in the complaint is not sufficient to support a judgment that particular claims are invalid; the specific validity of those claims must have been at issue during the trial and actually litigated by the parties. Datascope Corp. v. SMEC, Inc., 776 F.2d 320, 327 (Fed. Cir. 1985).

Second, the parties’ Joint Final Pretrial Statement demonstrates that only claim 69 of the ’897 patent and claims 1 and 50 of the ’131 patent were at issue during the trial. In that document, the parties stipulated that the asserted claims of the ’897 patent and ’131 patent were claim 69 and claims 1 and 50, respectively. (Joint Final Pretrial

Statement 31.) Then, under the heading "Concise Statement of Issues of Fact and Issues of Law Which Remain for Determination by the Trial Court," the parties included the following two questions: "Are the asserted claims of the Shaffer-Moore patents valid?" and "Are the asserted Shaffer-Moore patents infringed, literally or under the doctrine of equivalents?" (Id. at 32-22.) There were no references whatsoever to the unasserted claims of the '897 patent and '131 patent.

Third, at trial, neither party presented evidence with respect to the unasserted claims. Adept's expert, Dr. Brody, expressly limited his validity analysis and opinions to claim 69 of the '897 patent and claims 1 and 50 of the '131 patent. (Trial Tr. 148-49, 184-85, 198-200, 208-10, 213, Oct. 16, 2006.) This is true with respect to both Adept's anticipation and obviousness contentions and its argument that the claims of the '131 patent were invalid due to an on-sale bar. Adept's argument that it was unnecessary for its validity expert to put forth a claim-by-claim analysis of the unasserted claims is simply incorrect. Under the patent statute, the validity of each claim must be considered separately. See 35 U.S.C. § 282 ("Each claim of a patent (whether in independent, dependent, or multiple dependent form) shall be presumed valid independently of the validity of other claims . . . ."); Schumer v. Lab. Computer Sys., Inc., 308 F.3d 1304, 1316 (Fed. Cir. 2002); Sandt Tech., Ltd. v. Resco Metal & Plastics Corp., 264 F.3d 1344, 1356 (Fed. Cir. 2001).

In this case, it is clear from the parties' pretrial statement and from the trial proceedings that the unasserted claims were neither litigated nor placed in issue during the trial. We therefore reverse the trial court's judgment of invalidity with respect to the

unasserted claims, i.e., all the claims of the '897 patent except claim 69 and all the claims of the '131 patent except claims 1 and 50.[9]

B. Asserted Claims

The jury also found all twelve of the asserted claims in the Moore-Shaffer patents invalid. Targus chose not to appeal the trial court's denial of its motion for judgment as a matter of law that the asserted claims are not invalid, and thus does not challenge on appeal the sufficiency of the evidence in support of the jury's verdict. Instead, Targus appeals only the trial court's denial of its motion for a new trial on the validity of these claims. Applying Eleventh Circuit law, we review the trial court's denial of a motion for a new trial for abuse of discretion. Hicks v. Talbot Recovery Sys., Inc., 196 F.3d 1226, 1242 (11th Cir. 1999). When a jury verdict is judged to be against the great weight of the evidence, the trial judge has authority to grant a motion for a new trial. Id.; Charles Alan Wright, Arthur R. Miller & Mary Kay Kane, Federal Practice and Procedure § 2806 (2d ed. 1995).

Targus argues on appeal that the jury's invalidity findings were "tainted" by the erroneous characterization of the Neville patents by Adept's expert, Dr. Brody. In particular, Targus complains that Dr. Brody repeatedly asserted that the Neville patents teach real-time spatial calculations of the sort used by Targus and claimed in some of the Moore-Shaffer patents. Because Dr. Brody testified that the asserted claims were either anticipated by the Neville patents or rendered obvious by the combination of the

[9] In light of this conclusion, we need not address Targus's additional argument that the trial court lacked jurisdiction to adjudicate the validity of the unasserted claims because there was no case or controversy with respect to those claims.

Neville patents and other prior art, Targus believes it is entitled to a new trial on the validity of the asserted claims.

We agree with Targus, but only in part. Targus requests on appeal a new trial on "whether the asserted claims of the Moore-Shaffer patents that concern 'on line calculations' are invalid." (Appellant's Reply Br. 22-23.) In its brief, Targus identifies only two asserted claims that involve on-line or real-time calculations—claim 46 of the '868 patent and claim 10 of the '810 patent. (Appellant's Br. 49-50.) Our review of the record confirms that those are the only asserted claims directed to Targus's real-time system. Our review further confirms that Dr. Brody's testimony with regard to the alleged real-time aspect of the Neville patents was directed to the validity of only those two claims and not to the other asserted claims.

As explained above in the discussion on the Adept patents, Dr. Brody's characterization of the scope of the Neville patent disclosure was mistaken. Furthermore, the primary if not the entire evidence on which the jury could have relied in finding claim 46 of the '868 patent and claim 10 of the '810 patent invalid was Dr. Brody's erroneous testimony. Under these circumstances, the trial judge should have granted the motion for a new trial with regard to these two claims because the great weight of the evidence in the record was against the jury's verdict. This does not preclude the possibility that other evidence produced at a retrial would be sufficient to establish invalidity.

The failure to have granted Targus's motion was an abuse of discretion; accordingly, we vacate the trial court's judgment that claim 46 of the '868 patent and claim 10 of the '810 patent are invalid, and remand for a new trial on their validity. We

affirm the trial court's judgment that the remaining asserted claims of the Moore-Shaffer patents are invalid.

III. Tortious Interference

In its suit against Targus, Adept claimed that, because Targus had asserted certain of its patent claims against some of Adept's customers, Targus had tortiously interfered with Adept's business relationships with those customers. This, according to Adept, entitled Adept to the state-law remedy available for such an unfair trade practice. Targus responded that the state-law remedy is preempted by the federal patent laws. The "preemption" issue can be stated thus: if a patentee attempts to enforce its patents against a competitor's customers, under what circumstances, if any, is the patentee protected from the usual standards regarding unfair trade practices, imposed by various state unfair competition laws, on the theory that the rights accorded a patentee to enforce the patent supersede the usual anti-competition rules? See Zenith Elecs. Corp. v. Exzec, Inc., 182 F.3d 1340, 1345-46 (Fed. Cir. 1999).

The answer to the question is now well-established. State tort claims against a patent holder, including tortious interference claims, based on enforcing a patent in the marketplace, are "preempted" by federal patent laws, unless the claimant can show that the patent holder acted in "bad faith" in the publication or enforcement of its patent. Id. at 1355; Hunter Douglas, Inc. v. Harmonic Design, Inc., 153 F.3d 1318, 1336-37 (Fed. Cir. 1998). As the Supreme Court said long ago, "Patents would be of little value if infringers of them could not be notified of the consequences of infringement, or proceeded against in the courts. Such action, considered by itself, cannot be said to be illegal." Virtue v. Creamery Package Mfg. Co., 227 U.S. 8, 37-38 (1913).

The issue in this case is whether Adept presented to the jury sufficient facts, if believed, that a reasonable jury could find for Adept on the issue of Targus's bad faith. This "bad faith" standard has objective and subjective components. Dominant Semiconductors Sdn. Bhd. v. Osram GmbH, 524 F.3d 1254, 1260 (Fed. Cir. 2008). The objective component requires a showing that the infringement allegations are "objectively baseless." Globetrotter Software, Inc. v. Elan Computer Group, Inc., 362 F.3d 1367, 1375 (Fed. Cir. 2004). The subjective component relates to a showing that the patentee in enforcing the patent demonstrated subjective bad faith. See id. Absent a showing that the infringement allegations are objectively baseless, it is unnecessary to reach the question of the patentee's intent. See id.

Infringement allegations are objectively baseless if "no reasonable litigant could realistically expect success on the merits." Prof'l Real Estate Investors, Inc. v. Columbia Pictures Indus., Inc., 508 U.S. 49, 60 (1993); see also GP Indus., Inc. v. Eran Indus., Inc., 500 F.3d 1369, 1374 (Fed. Cir. 2007); Globetrotter, 362 F.3d at 1375-76. To prove at trial that Targus's actions were objectively baseless, Adept was required to offer clear and convincing evidence that Targus had no reasonable basis to believe that its patent claims were valid or that they were infringed by Adept's customers. See Golan v. Pingel Enter., Inc., 310 F.3d 1360, 1371 (Fed. Cir. 2002). Because of the value placed on property rights, which issued patents share, see 35 U.S.C. § 261 ("[P]atents shall have the attributes of personal property."); Consol. Fruit-Jar Co. v. Wright, 94 U.S. 92, 96 (1876) ("A patent for an invention is as much property as a patent for land."); Kearns v. Gen. Motors Corp., 94 F.3d 1553, 1555 (Fed. Cir. 1996) ("By statutory and common law, each patent establishes an independent and distinct

property right."), and in light of the underlying jurisprudential basis for the bad faith standard, rooted as it is in Supreme Court cases and Constitutional principles, see Globetrotter, 362 F.3d at 1375-77, a party attempting to prove bad faith on the part of a patentee enforcing its patent rights has a heavy burden to carry.

The jury verdict was that Adept had proved its case. Targus appeals the trial court's denial of its motion for judgment as a matter of law, arguing that there was no clear and convincing evidence on which a reasonable jury could conclude its actions were objectively baseless. On the record before us, for the reasons we shall explain, we believe Targus is correct that Adept has not successfully carried its burden.

We first address the question of whether Targus could have had a reasonable belief that its patents were valid, beginning with the '897 patent. The main dispute regarding the validity of the '897 patent was whether Neville discloses a two-table embodiment, which would anticipate the claims of the '897 patent. While the preferred embodiment in Neville uses a single-table TNTTN database, one sentence in the written description states that "the correlational database may be relational or hierarchical," which implies that the database could have more than one table. '111 patent col.9 ll.50-51. The issue before us is not the validity *vel non* of the '897 patent, but whether the evidence was such that Targus could not have had a reasonable basis for believing that the patent was valid when it asserted the patent against Adept's customers.

Adept alleges that Targus knew the disclosure in the Neville patents anticipated the claims of the '897 patent, and that Targus misrepresented the scope of Neville to the PTO so that the '897 patent claims would survive the reexamination requested by Adept in 1999. Adept's argument sounds more like an allegation of subjective bad faith

on Targus's part, a question that is not at issue absent the predicate showing that the claims asserted by Targus were objectively baseless. Furthermore, none of the evidence cited in Adept's brief supports its theory that Targus acted deceptively. The evidence introduced at trial shows that many people, including the examiner who conducted the reexamination and even Adept's own patent attorney, understood Neville to disclose only a one-table system. Notably, Targus did not file suit against any of Adept's customers until after reexamination of the '897 patent had been completed. On this record, a reasonable jury could not have found by clear and convincing evidence that Targus lacked a reasonable basis to believe that the claims of the '897 patent were not anticipated by Neville.

Adept also asserts that Targus knew that Neville anticipated Targus's one-table claims—claim 1 of the '608 patent and claim 4 of the '982 patent. Targus argues that it reasonably believed Neville did not disclose the automated table-build process required by the Targus claims. This was a reasonable view, as evidenced by the opinion of Targus's expert at trial that Neville does not teach a fully automated system. The contrasting opinion of Adept's expert does not render Targus's position unreasonable. As with the '897 patent, we conclude that no reasonable jury could have found that Adept met its burden to show that there was no reasonable basis on which Targus could believe in the validity of its one-table claims.

Regarding the '131 patent, Adept argues that Targus knew it was subject to an on-sale bar based on work that Targus did for Federal Express, and that Targus actively concealed that information from the PTO. The record indicates, however, that Targus reasonably believed that that work was experimental, even if ultimately the jury in this

case may have found otherwise. Furthermore, during prosecution of the application that led to the '131 patent, Targus submitted a declaration to the PTO detailing the development and testing of the FedEx system. Under these circumstances, no reasonable jury could find that Adept proved by clear and convincing evidence that Targus lacked a reasonable basis for believing that the claims of the '131 patent were not subject to the on-sale bar.

With respect to Targus's other patents, Adept alleges that the examiner was led astray so that he failed to consider Neville in combination with Riskin or other references, even though Neville and Riskin and multiple other references were before him. Yet Adept cites no evidence demonstrating that Targus knew its claims were invalid for obviousness or showing that Targus somehow caused the examiner not to combine prior art references. On this record, no reasonable jury could have found that a belief by Targus that its patents were valid had no reasonable basis.

We must also consider whether there was a basis for Targus to reasonably believe that Adept's customers infringed the Targus patents. Adept essentially argues that Targus could not have had a reasonable basis for asserting its patents against Adept's customers because Targus did not succeed at trial on its infringement claims against Adept. Courts, however, "must 'resist the temptation to engage in *post hoc* reasoning by concluding' that an ultimately unsuccessful 'action must have been unreasonable or without foundation.'" Prof'l Real Estate, 508 U.S. at 60 n.5 (quoting Christiansburg Garment Co. v. EEOC, 434 U.S. 412, 421-22 (1978)); see also Dominant, 524 F.3d at 1261 & n.6 (citing Prof'l Real Estate, 508 U.S. at 60 n.5). Thus

the result of Targus's infringement claims in this case is not dispositive of whether Targus's claims against Adept's customers were reasonable.

Targus presented evidence that it reasonably believed Adept's customers were infringing the Targus patents. For instance, Adept admitted that the database it provided to two of its customers was in the same format as the database used in the Targus system. Also, Targus did not assert its claims against another Adept customer until after Targus's in-house counsel had prepared claim charts explaining Targus's infringement theories. Adept has not cited any contradictory evidence that was introduced at trial. On this record, no reasonable jury could find by clear and convincing evidence that Targus had no reasonable basis for believing that Adept's customers were infringing its patents.

Adept's tortious interference claim with respect to its customer Allstate Motor Club ("AMC") was based on Targus's infringement claim against its own customer, Vail Systems. In providing routing services to AMC, Vail used data received from AMC, which included a database that Allstate had received from Adept. After learning about this arrangement through discovery in this case, Targus believed that Vail infringed its patents and filed claims against Vail, which subsequently sought indemnification from AMC. While Adept alleges that Targus and Vail colluded to pressure AMC, Adept fails to cite evidence showing that Targus's belief that Vail infringed its patents was unreasonable. As with Targus's infringement allegations against Adept's customers, no reasonable jury could find that Adept met its burden to show that Targus lacked a reasonable basis for believing that Vail infringed its patents.

In sum, we conclude that there is not clear and convincing evidence on which a reasonable jury could find that Targus acted in bad faith by asserting objectively baseless patent infringement allegations. Thus Adept's state-law tortious interference claim is preempted by federal patent law. The trial judge erred in denying Targus's motion for judgment as a matter of law on this claim, and we therefore reverse the trial court's judgment.

CONCLUSION

We reverse the trial court's judgment of infringement of the Neville patents. Accordingly, we vacate the infringement damages award and the permanent injunction; we also vacate the trial court's judgment with respect to willfulness and attorney fees.

We reverse the trial court's judgment of invalidity with respect to the unasserted claims of the '897 patent and '131 patent. We vacate the trial court's judgment that claim 46 of the '868 patent and claim 10 of the '810 patent are invalid and remand for a new trial on the validity of those claims. We affirm the invalidity judgment with respect to the remaining patent claims asserted by Targus against Adept.

We reverse the trial court's judgment on Adept's tortious interference claim and vacate the accompanying award of compensatory and punitive damages.

AFFIRMED-IN-PART, REVERSED-IN-PART, VACATED-IN-PART, and REMANDED

DYK, Circuit Judge, concurs in the result.