

United States Court of Appeals for the Federal Circuit

2007-1485

MUNIAUCTION, INC. (doing business as Grant Street Group),

Plaintiff-Appellee,

v.

THOMSON CORPORATION (trading and doing business as Thomson Financial LLC
and Thomson Financial Municipal Group) and I-DEAL, LLC,

Defendants-Appellants.

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Appealed from: United States District Court for the Western District of Pennsylvania

Judge Gary L. Lancaster

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Appeal from the United States District Court for the Western District of Pennsylvania in
case no. 01-CV-1003, Judge Gary I. Lancaster.

DECIDED: July 14, 2008

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

GAJARSA, Circuit Judge.

This is a patent infringement case. Thomson Corporation and I-Deal, LLC (collectively “Thomson”) appeal from a final judgment, after a jury trial, that the asserted claims of U.S. Patent No. 6,161,099 (“the ’099 patent”) are not obvious, that Thomson willfully infringed the asserted claims of the ’099 patent, that Muniauction, Inc. is entitled to approximately \$77 million for lost profits damages enhanced for Thomson’s willful infringement, and that Thomson is permanently enjoined from continued infringement of the ’099 patent. Muniauction, Inc. v. Thomson Corp., 502 F. Supp. 2d 477 (W.D. Pa. 2007). Because claims 1, 9, 14, 31, 36, and 56 of the ’099 patent are obvious as a matter of law, the judgment of nonobviousness is reversed as to these claims.

Similarly, because Thomson does not infringe the remaining asserted claims as a matter of law, the judgment of infringement is reversed, and the remainder of the final judgment is vacated.

BACKGROUND

The '099 patent is directed to electronic methods for conducting “original issuer auctions of financial instruments.” '099 patent col.2 ll.49–50. Specifically, the '099 patent is directed to original issuer municipal bond auctions over an electronic network, e.g., the Internet, using a web browser. Id. at col.1 ll.13–15. In this type of auction, the municipality (“issuer”) offers its bonds to underwriters (“bidders”), who typically bid on and purchase the entire bond offering, i.e., all-or-none bidding, and thereafter resell individual bonds to the public. Id. at col.6 ll.11–13. A bond offering may be a package of debt instruments consisting of bonds having different principle amounts and having different maturity dates. Id. at col.6 ll.19–22. A bidder submits a price and a related interest rate represented by a coupon for each of the bonds differentiated by a respective maturity date. Accordingly, the best bid is determined according to the true interest cost (“TIC”) to the issuer based on the blended rates for each package of the aggregated submissions made by the bidder. Id. at col.6 ll.20–26, col.9 ll.4–55. In addition to all-or-none bidding, the '099 patent discloses maturity-by-maturity bidding by which a bidder may bid on less than the entire debt offering. Id. at col.5 ll.23–65, col.13 ll.31–33.

The '099 patent discusses many prior art electronic auction and trading systems, yet criticizes those systems as inapplicable to original issuer auctions of financial instruments. Id. at col.2 ll.49–60. The '099 patent also discusses the Parity® electronic

bid submission system, developed by 21st Century Municipals, Inc. for use in municipal bond auctions. “The PARITY bid submission system allows bidders who have previously obtained and installed appropriate software to electronically submit bids in an auction over a computer network.” Id. at col.3 II.4–7. The ’099 patent criticizes the Parity® system for three reasons. First, the prior art system requires bidders to obtain and install the Parity® software prior to participating in an auction over the computer network; second, the system “is designed to be used together with fax and other bid submission methods during an auction”; and third, the system operates as a sealed bid system in which the received bids are not evaluated and no feedback is provided to the bidders until the auction closes. Id. at col.3 II.4–12.

Accordingly, the invention of the ’099 patent provides an “integrated system on a single server” that allows issuers to run the auction and bidders to prepare and submit bids using a conventional web browser, without the use of other separate software. Id. at col.5 II.13–28. The system of the ’099 patent also allows issuers to monitor the progress of the auction and allows bidders to monitor their bid vis-à-vis the current best bid. Id. at col.12 I.60 to col.13 I.60. Claim 1 states:

In an electronic auction system including an issuer’s computer having a display and at least one bidder’s computer having an input device and a display, said bidder’s computer being located remotely from said issuer’s computer, said computers being coupled to at least one electronic network for communicating data messages between said computers, an electronic auctioning process for auctioning fixed income financial instruments comprising:

inputting data associated with at least one bid for at least one fixed income financial instrument into said bidder’s computer via said input device;

automatically computing at least one interest cost value based at least in part on said inputted data, said

automatically computed interest cost value specifying a rate representing borrowing cost associated with said at least one fixed income financial instrument;

submitting said bid by transmitting at least some of said inputted data from said bidder's computer over said at least one electronic network; and

communicating at least one message associated with said submitted bid to said issuer's computer over said at least one electronic network and displaying, on said issuer's computer display, information associated with said bid including said computed interest cost value,

wherein at least one of the inputting step, the automatically computing step, the submitting step, the communicating step and the displaying step is performed using a web browser.

Id. at col.14 l.41 to col.15 l.2.

The accused process has as its genesis the Parity® system discussed in the '099 patent. Originally introduced in 1992, Parity® allowed bidders using a modem to access bid calculation software on a central server over a proprietary computer network and input data to calculate a TIC for a given bid. Bidders could then submit a bid over the electronic network to a central server, which ordered the bids according to TICs and transmitted the bids to issuers' computers for display. In 1995, 21st Century Municipal modified Parity® to work with other bid calculation programs, including Thomson's BidComp software, originally introduced in 1988. In 1997, Thomson acquired Parity® from 21st Century Municipal and integrated the BidComp and Parity® products into a single system marketed as BidComp/Parity®. In 1998, Thomson modified BidComp/Parity® to allow issuers to view bids over the Internet using a web browser rather than over a proprietary computer network.

On June 1, 2001, Muniauction filed suit against Thomson, alleging that Thomson infringes method claims 1, 2, 9, 14, 18, 20, 24, 31, 32, 36, 40, 42, 46, and 56 of the '099

patent when it conducts auctions on its BidComp/Parity® system. After trial, a jury found that the asserted claims were not obvious and that Muniauction, Inc. was entitled to \$38,482,008 in lost profits damages for Thomson's willful infringement. On October 20, 2006, Thomson filed a motion for judgment as a matter of law ("JMOL") or a new trial, asserting, *inter alia*, that the claims of the '099 patent were obvious and that Thomson did not infringe the claims under the appropriate standard for joint infringement. On April 30, 2007, the Supreme Court issued KSR International Co. v. Teleflex Inc., which rejected a rigid application of this court's teaching-suggestion-motivation test for obviousness. 127 S. Ct. 1727, 1739 (2007). The district court considered KSR, but denied Thomson's motion in all respects, enhanced the damages award to \$76.9 million, awarded \$7.7 million in pre-judgment interest, and granted a permanent injunction against Thomson. The district court entered a final judgment on July 30, 2007, and Thomson filed a timely notice of appeal on August 1, 2007. Thomson also sought a stay of the injunction pending appeal.

While the appeal was pending, this court issued two opinions relevant to issues presented by this case. First, on August 20, 2007, In re Seagate Technology, LLC changed the standard of willful infringement from one akin to negligence to that of objective recklessness. 497 F.3d 1360, 1371 (Fed. Cir. 2007). Second, on September 20, 2007, BMC Resources, Inc. v. Paymentech, L.P. held that where steps of a method claim are performed by multiple parties, the entire method must be performed at the control or direction of the alleged direct infringer. 498 F.3d 1373, 1380–81 (Fed. Cir. 2007). This court thus granted Thomson's motion for a stay of the injunction pending appeal, concluding that Thomson had shown a likelihood of success on the merits

under BMC Resources. Muniauction, Inc. v. Thomson Corp., 07-1485, 2007 WL 2827915 (Fed. Cir. Sept. 28, 2007). We have jurisdiction over this appeal pursuant to 28 U.S.C. § 1295(a).

DISCUSSION

The denial of a JMOL motion is “a procedural issue not unique to patent law, which we review under the law of the regional circuit where the appeal from the district court normally would lie.” Riverwood Int’l Corp. v. R.A. Jones & Co., 324 F.3d 1346, 1352 (Fed. Cir. 2003). Under Third Circuit law, “[w]e exercise plenary review of an order granting or denying a motion for judgment as a matter of law and apply the same standard as the district court.” Lightning Lube, Inc. v. Witco Corp., 4 F.3d 1153, 1166 (3d Cir. 1993); see also Juicy Whip v. Orange Bang, 292 F.3d 728, 736 (Fed. Cir. 2002).

I. INVALIDITY

At trial and in its Motion for Judgment as a Matter of Law or for a New Trial (“JMOL Motion”), Thomson argued that the asserted claims were obvious over a proposed modification of the prior art Parity® system to incorporate the use of a web browser. Muniauction, 502 F. Supp. 2d at 491. In its denial of Thomson’s motion, the district court concluded that substantial evidence supported the jury’s verdict that Thomson had not proved the invalidity of the asserted claims of the ’099 patent by clear and convincing evidence. First, the district court concluded that “the jury could only reasonably have found that [Parity®] did not contain all of the elements found in the asserted claims of the ’099 Patent.” Id. Second, the court noted that the jury’s verdict

was supported by sufficient evidence of secondary indicia that the asserted claims were not obvious. Id. We disagree.

When reviewing the denial of a JMOL motion, “[t]his court reviews a jury’s conclusions on obviousness, a question of law, without deference, and the underlying findings of fact, whether explicit or implicit within the verdict, for substantial evidence.”

Dippin’ Dots, Inc. v. Mosey, 476 F.3d 1337, 1343 (Fed. Cir. 2007) (quoting LNP Eng’g Plastics, Inc. v. Miller Waste Mills, Inc., 275 F.3d 1347, 1353 (Fed. Cir. 2001)); accord PharmaStem Therapeutics, Inc. v. ViaCell, Inc., 491 F.3d 1342, 1360 (Fed. Cir. 2007) (citing Caver v. City of Trenton, 420 F.3d 243, 262 (3d Cir. 2005)). “Those factual underpinnings include the scope and content of the prior art, differences between the prior art and the claims at issue, and the level of ordinary skill in the art.” Dippin’ Dots, 476 F.3d at 1343 (citing Graham v. John Deere Co., 383 U.S. 1, 17–18 (1966)).

The first issue we address with respect to obviousness is the scope and content of the prior art—specifically whether the prior art exhibited every step of the methods claimed in independent claims 1 and 31 of the ’099 patent. Thomson argues that a bidding process employing the prior art Parity® system performed every step of the claimed methods other than a web browser. Because Muniauction’s expert conceded that bid submissions using Parity® performed every limitation of claims 1 and 31 as construed by the district court, other than a web browser, no reasonable juror could find to the contrary.

At trial and on appeal, the parties dispute whether bid submissions using the Parity® system performed the step of “automatically computing at least one interest cost value based at least in part on said inputted data” (the “automatic computation step”),

which appears in both independent claims 1 and 31. '099 patent col.14 ll.54–57, col.17 ll.1–5. The court noted that in the Notice of Allowability, the Examiner concluded that articles related to the trademark registration of Parity® and trade press releases supported the applicant's argument that Parity® did not perform the automatic computation step. Muniauction, 502 F. Supp. 2d at 491; see also Notice of Allowability, U.S. App. No. 09/087,574 at 2–3 (Aug. 24, 2000). However, the testimony of Muniauction's expert establishes that the Examiner's conclusion was incorrect under the district court's construction of the automatic computation step.

The district court construed the automatic computation step as “calculating, without further action by the user, an interest cost value, representing borrowing cost associated with an original issue fixed income financial instrument, based at least in part on the information put into a bidder's computer in the previous step.” Muniauction, Inc. v. Thomson Corp., No. 01-CV-1003 at 15 (Aug. 11, 2006) (“Claim Construction Order”). The court also concluded that the automatic computation step was not claimed as being performed in a specific location—e.g., it “could be performed on the bidder's computer, where the bid data has been inputted, or, at some other location where the data has been transferred for the purpose of computation.” Id. at 10. On direct examination, Muniauction's liability expert, Don O'Neill, testified that Parity® “didn't do” the automatic computation step because bid calculations were performed using independent software on the bidder's computer, which were then transferred using a Parity® export file. On cross-examination, however, Mr. O'Neill clarified that his conclusion that Parity® did not perform the automatic computation step was based on the absence of “an automatically computing calculator” in the Parity® system. Mr. O'Neill further testified that Parity®

“did automatically compute a true interest cost” in the sense that bidders did not have to compute bids by hand and that Parity® re-did some of the computation done by the bidder’s software during bid preparation.

Only Mr. O’Neill’s testimony on cross-examination is relevant to the inquiry of whether the automatic computation step is disclosed by the prior art. When testifying on invalidity, “[a]n expert must ‘[compare] the construed claims to the prior art.’” Tivo, Inc. v. Echostar Comm’ns Corp., 516 F.3d 1290, 1311 (Fed. Cir. 2008) (second alteration in original) (quoting Helifix, Ltd. v. Blok-Lok, Ltd., 208 F.3d 1339, 1346 (Fed. Cir. 2000)). As discussed above, Mr. O’Neill explicitly stated that his original conclusion on direct examination was based on the absence of “an automatically computing calculator” from Parity®, a limitation not required by the claims. The district court specifically construed the automatic computation step as capable of being performed on the bidder’s computer, Claim Construction Order at 10, and Mr. O’Neill testified that this is exactly what happened when a user submitted a bid using Parity®. Accordingly, we conclude that substantial evidence does not support a finding that the submission of bids using Parity® lacked any element of independent claims 1 and 31 other than the use of a web browser.

Having ascertained the differences between the prior art Parity® system and the independent claims of the ’099 patent, we turn to the legal question of whether it would have been obvious to one of ordinary skill in the art to modify the Parity® system to incorporate conventional web browser functionality. Section 103 of Title 35 “forbids issuance of a patent when ‘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.” KSR Int’l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1734 (2007) (quoting 35 U.S.C. § 103). A central principle in this inquiry is that “a court must ask whether the improvement is more than the predictable use of prior art elements according to their established functions.” Id. at 1740. On the record before us, we answer this question in the negative and conclude that claims 1 and 31 of the ’099 patent are obvious as a matter of law.

When the ’099 patent’s application was filed on May 29, 1998, the use of web browsers was well known. Indeed, the written description of the ’099 patent itself identifies the invention as using “a conventional Internet browser,” ’099 patent, Abstract, and “conventional web browsing software,” id. at col.6 l.43. The use of “conventional” to modify “Internet browser” and “web browsing software” denotes a reference to web browsers in existence at the time of the alleged invention of the ’099 patent. See PC Connector Solutions LLC v. SmartDisk Corp., 406 F.3d 1359, 1363 (Fed. Cir. 2005) (concluding that term “conventional” is implicitly time dependent and construing “the literal scope of the claim limitations qualified by th[at] term[] as being limited to technologies existing at the time of the invention”). We therefore begin with an understanding that the modification of Parity® to incorporate web browser functionality represents a combination of two well known prior art elements to a person of ordinary skill in the art.

In our analysis of the obviousness of independent claims 1 and 31, we recognize our obligation to guard against any hindsight bias, see Graham v. John Deere Co., 386 U.S. 1, 36 (1966), but we note that the use of the internet and web browser technology

to conduct electronic auctions was well-established at the time the '099 patent application was filed. For example, U.S. Patent No. 5,794,219, filed on February 20, 1996,¹ discloses an online auction wherein bids are submitted using internet browsers such as Netscape. '219 patent Fig. 1, col.5 ll.14–30. Similarly, U.S. Patent No. 5,835,896, filed on March 29, 1996,² also discloses the use of the World Wide Web and a web browser to conduct on electronic auction. '896 patent Fig. 3, col.6 ll.23–38. Although neither the '219 patent nor the '896 patent specifically address original issuer auctions of financial instruments, “[w]hen a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one.” KSR, 127 S. Ct. at 1740. With regard to this case, a speech given in May of 1996 at a meeting of the Government Finance Officer’s Association (“GFOA”) explicitly addressed the desirability of using World Wide Web technology to distribute debt issue to consumers. Girard Miller, Technical Servs. Dir., GFOA, Speech at the 1996 General Session of the GFOA Conference (May 18–22, 1996). At a minimum, this speech suggests “the effects of demands known to the design community or present in the marketplace,” KSR, 127 S. Ct. at 1740, thereby indicating the obviousness of the claimed combination.

Finally, the combination of known elements present in this case is quite similar to that in Leapfrog Enterprises, Inc. v. Fisher-Price, Inc., 485 F.3d 1157 (Fed. Cir. 2007). In Leapfrog, the court ruled that “[a]ccommodating a prior art mechanical device that

¹ Although the '219 patent did not issue until after the '099 patent was filed, it is prior art to the '099 patent under 35 U.S.C. § 102(e)(2)—“a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent.”

² The '896 patent is also § 102(e)(2) prior art to the '099 patent.

accomplishes [the goal of teaching a child to read phonetically] to modern electronics would have been reasonably obvious to one of ordinary skill in designing children's learning devices." 485 F.3d at 1161. The court reached this result based in part on its reasoning that "[a]pplying modern electronics to older mechanical devices has been commonplace in recent years." Id. The record in this case demonstrates that adapting existing electronic processes to incorporate modern internet and web browser technology was similarly commonplace at the time the '099 patent application was filed.

When there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to the anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under § 103.

KSR, 127 S. Ct. at 1742.

Muniauction argues, notwithstanding this trend, that the incorporation of web browser functionality into existing electronic prior art systems was nevertheless beyond the ability of a person of ordinary skill in the art at the time the '099 patent application was filed. In particular, Muniauction claims that a person of ordinary skill would not have known how to use a web browser to implement certain steps of methods claimed in the '099 patent. Thomson responds by noting that the '219 patent teaches the use of a web browser both to communicate information associated with a bid over an electronic network and to display information associated with a bid. In light of this teaching, we are not persuaded by Muniauction's argument that a person of ordinary

skill would not have known how to implement the communicating and displaying steps of the '099 patent with a web browser during the relevant time period.³

Under the foregoing analysis, we conclude that Thomson has clearly and convincingly established a prima facie case that claims 1 and 31 of the '099 patent are obvious as a matter of law. Accordingly, we turn to Muniauction's attempt to rebut this prima facia case with secondary considerations of nonobviousness.

In its denial of Thomson's JMOL motion, the district court noted that “[p]laintiff presented evidence of skepticism, legally appropriate praise, copying, and commercial success.” Muniauction, 502 F. Supp. 2d at 491. The district court ruled that the evidence presented by Muniauction on these secondary considerations was sufficient for the jury to have concluded that Thomson failed to prove obviousness by clear and convincing evidence. Id. We disagree for two reasons. First, at least some of the factors argued by Muniauction lack the requisite nexus to the claims. Second, to the extent that some of the factors arguably meet the nexus requirement, their relationship to the claims is simply too attenuated to overcome the strong prima facie demonstration by Thomson that the claims are obvious.

For us to accord substantial weight to the secondary considerations proffered by Muniauction, “[a] nexus between the merits of the claimed invention and evidence of

³ Because the '099 patent is itself silent regarding how to actually implement the methods claimed therein with a web browser, Muniauction's argument therefore might suggest that the claims present an enablement issue, rather than support a conclusion of nonobviousness. See, e.g., Sitrick v. Dreamworks, LLC, 516 F.3d 993, 999 (Fed. Cir. 2008) (“The ‘enablement requirement is satisfied when one skilled in the art, after reading the specification, could practice the claimed invention without undue experimentation.’” (quoting AK Steel Corp. v. Sollac, 344 F.3d 1234, 1238–39 (Fed. Cir. 2003))).

secondary considerations is required in order for the evidence to be given substantial weight in an obviousness decision.” Ruiz v. A.B. Chance Co., 234 F.3d 654, 668 (Fed. Cir. 2000) (quoting Simmons Fastener Corp. v. Ill. Tool Works, Inc., 739 F.2d 1573, 1575 (Fed. Cir. 1984)). Put another way, commercial success or other secondary considerations may presumptively be attributed to the patented invention only where “the marketed product embodies the claimed features, and is coextensive with them.” Ormco Corp. v. Align Tech., Inc., 463 F.3d 1299, 1311–12 (Fed. Cir. 2006) (quoting Brown & Williamson Tobacco Corp. v. Philip Morris Inc., 229 F.3d 1120, 1130 (Fed. Cir. 2000)).

Muniauction claims, for example, that legally appropriate praise in the form of an “Innovations in American Government” award to the City of Pittsburgh for its use of the Muniauction system tends to rebut any *prima facie* showing of obviousness. The press coverage of the award in the record, however, focuses on the availability of maturity-by-maturity bidding in the Muniauction system, as compared to the conventional all-or-none bidding. Although both auction types are disclosed in the written description of the ’099 patent, see ’099 patent col.5 ll.23–65, col.13 ll.31–33, claims 1 and 31 include conventional all-or-none bidding, as well as maturity-by-maturity bidding. Thus, the 1999 award lacks the required nexus with the scope of the claims.⁴ In addition, the same press coverage of the Innovations in American Government award also demonstrates that the source of much of the skepticism was the large investment banks

⁴ We further note that our conclusion as to the nexus between this award and the claims is consistent with the long-established rule that “[c]laims which are broad enough to read on obvious subject matter are unpatentable even though they also read on nonobvious subject matter.” In re Lintner, 458 F.2d 1013, 1007 (CCPA 1972) (citing In re Mraz, 455 F.2d 1069, 1073 (CCPA 1972)).

who were advantaged by the existing all-or-none bidding system. This type of market-force skepticism also lacks the requisite nexus to the claimed invention. Finally, as to any remaining secondary considerations, the evidence is simply inadequate to overcome a final conclusion that independent claims 1 and 31 are obvious as a matter of law. Cf. Leapfrog, 485 F.3d at 1162 (“given the strength of the prima facie obviousness showing, the evidence on secondary considerations was inadequate to overcome a final conclusion that claim 25 would have been obvious”).

In addition to independent claims 1 and 31, Mr. O’Neill also testified that elements of certain asserted dependent claims were also performed when an electronic bid was submitted using the Parity® system. In particular, O’Neill testified that Parity® met the limitations of claims 9, 14, 36, and 56. Accordingly, these claims are also obvious under our analysis of independent claims 1 and 31. Because we do not reach a similar conclusion with respect to the remaining dependent claims—2, 18, 20, 24, 32, 40, 42, and 46—we must consider whether they are infringed by Thomson.

II. NONINFRINGEMENT

Turning to infringement of the remaining dependent claims, the only theory of infringement presented by Muniauction is that of so-called joint infringement. The law of this circuit is axiomatic that a method claim is directly infringed only if each step of the claimed method is performed. BMC Resources, Inc. v. Paymentech, L.P., 498 F.3d 1373, 1378–79 (Fed. Cir. 2007) (citing cases). With respect to the ’099 patent, the parties do not dispute that no single party performs every step of the asserted claims.

For example, at least the inputting step of claim 1 is completed by the bidder,⁵ whereas at least a majority of the remaining steps are performed by the auctioneer's system (e.g., Thomson's BidComp/Parity® system). The issue is thus whether the actions of at least the bidder and the auctioneer may be combined under the law so as to give rise to a finding of direct infringement by the auctioneer.

In BMC Resources, this court clarified the proper standard for whether a method claim is directly infringed by the combined actions of multiple parties. The court's analysis was founded on the proposition that direct infringement requires a single party to perform every step of a claimed method. 498 F.3d at 1380 (concluding that this requirement derived directly from 35 U.S.C. § 271(a)); see also NTP, Inc. v. Research in Motion, 418 F.3d 1282, 1317–18 (Fed. Cir. 2005) (holding that users of accused system could not infringe method claims in the United States because one step of the method was performed in Canada). Yet the court recognized a tension between this proposition and the well-settled rule that "a defendant cannot thus avoid liability for direct infringement by having someone else carry out one or more of the claimed steps on its behalf." Id. at 1379. Accordingly, where the actions of multiple parties combine to perform every step of a claimed method, the claim is directly infringed only if one party exercises "control or direction" over the entire process such that every step is attributable to the controlling party, i.e., the "mastermind." Id. at 1380–81. At the other

⁵ The inputting step of claim 1 requires "inputting data associated with at least one bid for at least one fixed income financial instrument into said bidder's computer via said input device." Although we conclude that claims 1 and 31 are invalid as a matter of law, we will, for convenience, confine our infringement analysis to these independent claims. A conclusion of noninfringement as to the independent claims requires a conclusion of noninfringement as to the dependent claims. See, e.g., Monsanto Co. v. Syngenta Seeds, Inc., 503 F.3d 1352, 1359 (Fed. Cir. 2007).

end of this multi-party spectrum, mere “arms-length cooperation” will not give rise to direct infringement by any party. Id. at 1371.

Under BMC Resources then, the issue of infringement in this case turns on whether Thomson sufficiently controls or directs other parties (e.g., the bidder) such that Thomson itself can be said to have performed every step of the asserted claims. In its denial of Thomson’s JMOL motion, before BMC Resources issued, the district court purported to apply the standards of On Demand Machine Corp. v. Ingram Industries, Inc., 442 F.3d 1331 (Fed. Cir. 2006). The district court read that case as requiring a connection less than “direct control,” and thus found that “[t]here was sufficient evidence for the jury to have found the required connection between defendants, the bidders to whom they charge a fee for their services, and the issuers for whom they facilitate auctions, under the appropriate legal standards as set forth in the instructions.” Muniauction, 502 F. Supp. 2d at 492. The jury instruction on joint infringement read as follows:

Consider whether the parties are acting jointly or together in relation to the electronic auction process. Are they aware of each other's existence and interacting with each other in relation to the electronic auction process? Is there one party teaching, instructing, or facilitating the other party's participation in the electronic auction process? These are the types of questions that you should ask in making your decision on this issue. If you find that there is a sufficient connection between Thomson and the bidders and the issuers that used Thomson's process, then you could find Thomson liable for direct infringement.

However, this court in BMC Resources explicitly affirmed a reading of On Demand as “not in any way rely[ing] on the relationship between the parties.” 498 F.3d at 1380. Moreover, none of the questions identified by the jury instruction are relevant to whether Thomson satisfies the “control or direction” standard of BMC Resources. That

Thomson controls access to its system and instructs bidders on its use is not sufficient to incur liability for direct infringement.

Under BMC Resources, the control or direction standard is satisfied in situations where the law would traditionally hold the accused direct infringer vicariously liable for the acts committed by another party that are required to complete performance of a claimed method. 498 F.3d at 1379; accord Int'l Rectifier v. Samsung Elecs. Co., 361 F.3d 1355, 1361 (Fed. Cir. 2004) (reversing district court's ruling that Samsung violated a permanent injunction prohibiting infringement in the United States on the grounds that Samsung did not control or participate in the extraterritorial activities of a third party such that the acts of the third party were not attributable to Samsung). In this case, Thomson neither performed every step of the claimed methods nor had another party perform steps on its behalf, and Muniauction has identified no legal theory under which Thomson might be vicariously liable for the actions of the bidders. Therefore, Thomson does not infringe the asserted claims as a matter of law.

CONCLUSION

Because we conclude that claims 1, 9, 14, 31, 36, and 56 are obvious, the judgment that these claims are valid is reversed. Because we conclude that claims 2, 18, 20, 24, 32, 40, 42, and 46 are not infringed, the infringement judgment is also reversed. Finally, given our holdings on invalidity and noninfringement, we need not consider Thomson's remaining arguments presented on appeal. Accordingly, the remainder of the district court's judgment is vacated.

REVERSE-IN-PART AND VACATE-IN-PART

COSTS

Costs to Thomson.