United States Court of Appeals for the Federal Circuit

2008-1368, -1396

BLACKBOARD, INC.,

Plaintiff-Cross Appellant,

v.

DESIRE2LEARN INC.,

Defendant-Appellant.

2008-1548

BLACKBOARD, INC.,

Plaintiff-Appellant,

v.

DESIRE2LEARN INC.,

Defendant-Appellee.

Joel M. Freed and Michael S. Nadel, McDermott Will & Emery LLP, of Washington, DC, argued for plaintiff-cross appellant in appeal 2008-1368,-1396 and plaintiff-appellant in appeal 2008-1548. Of counsel in appeal 2008-1368,-1396 was Natalia V. Blinkova.

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Appealed from: United States District Court for the Eastern District of Texas

Judge Ron Clark

United States Court of Appeals for the Federal Circuit

2008-1368,-1396

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Appeal from the United States District Court for the Eastern District of Texas
in case no. 9:06-CV-155, Judge Ron Clark.

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DECIDED: July 27, 2009

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Before BRYSON and MOORE, <u>Circuit Judges</u>, and CUDAHY, <u>Senior Circuit Judge</u>.[*]

BRYSON, <u>Circuit Judge</u>.

Blackboard Inc. is the market leader in providing educational institutions with course management software that allows interaction between students and teachers over the Internet. Desire2Learn Inc. is Blackboard's primary commercial competitor. This appeal arises from an action by Blackboard against Desire2Learn for infringement of Blackboard's U.S. Patent No. 6,988,138 ("the '138 patent"), which claims an Internet-based educational support system and related methods.

The '138 patent is not the inventors' first work in the field of education-support software. In 1996, while they were college students, several of the same inventors developed a software product called CourseInfo 1.5, which allowed for online management of information relating to individual courses. In the CourseInfo system, each course had its own website, and students and instructors would log in to each course separately. In 1999, the inventors merged their company with Blackboard. Another prior art course management system, which was available by 1997, is the Serf system, developed by a professor at the University of Delaware. Like CourseInfo 1.5, the Serf system provided a way for students and teachers to interact through the Internet.

Upon issuance of the '138 patent, Blackboard filed an infringement action against Desire2Learn in the United States District Court for the Eastern District of Texas. After a <u>Markman</u> hearing, the district court entered partial summary judgment for

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[*] The Honorable Richard D. Cudahy, Senior Circuit Judge, United States Court of Appeals for the Seventh Circuit, sitting by designation.

Desire2Learn, holding claims 1-35 of the patent invalid for indefiniteness. The court then conducted a jury trial that addressed whether Desire2Learn had infringed claims 36-38 of the patent; Desire2Learn asserted by way of defense that those claims were anticipated and would have been obvious in light of prior art that predated the patent's priority date of 1999.

An important issue at trial was whether the asserted claims of the '138 patent required that a person using the claimed method be able to use a "single login" to access multiple courses and multiple roles in those courses. Blackboard touted its method as allowing a person to use a single login to obtain access to all the courses of interest to that person and to obtain different levels of access to the course materials depending on that person's role in each course. For example, Blackboard asserted that its claimed method would allow a graduate student who was a student in one course and a teacher in another to use a single login to obtain access to both courses and to obtain access to the materials for each course according to the graduate student's role in each.

At trial, Blackboard took the position that the method of claims 36-38 required that the user have the capacity to access multiple courses and multiple roles through a single login. Desire2Learn took the position that Blackboard's claims did not require such access through a single login, and that the claims were therefore invalid in light of the prior art. The jury found that claims 36-38 were neither anticipated nor obvious, and that Desire2Learn had infringed those claims.

Desire2Learn then filed motions for judgment as a matter of law ("JMOL"), contending that claims 36-38 were invalid for both anticipation and obviousness. The

court denied the motions. In so doing, the court agreed with Blackboard that the asserted claims required that the recited method permit access to multiple courses and roles through a single login.

In appeal No. 2008-1368, Desire2Learn argues that claims 36-38 are invalid in light of the prior art and that its system does not infringe those claims. In appeal No. 2008-1396, Blackboard cross-appeals from the district court's ruling, on summary judgment, that claims 1-35 are indefinite. In a separate appeal, No. 2008-1548, Blackboard appeals from the district court's denial of an award of costs related to certain discovery expenses.

I

Desire2Learn argues that two prior art references anticipate claims 36-38 as a matter of law. That argument turns on whether those claims contain a "single login" limitation. Blackboard asserts that the "single login" feature is the '138 patent's essential improvement over the prior art and is a part of every claim of the patent. According to Blackboard, under the prior art systems "[a] person could not be a student in one course and a teacher in another using one user name and password," whereas the '138 patent enables a person "to access all his roles in all his courses at once. With a single login and password, a person could be a student in one course and a teacher in another during one interaction with the system."

Independent claim 36 provides:

An [sic] method for providing online education method [sic] for a community of users in a network based system comprising the steps of:
a. establishing that each user is capable of having redefined [sic: "predefined"] characteristics indicative of multiple predetermined roles in the system and each role providing a level of access to and control of a plurality of course files;

b. establishing a course to be offered online, comprising
      i. generating a set of course files for use with teaching a course;
      ii. transferring the course files to a server computer for storage; and
      iii. allowing access to and control of the course files according to the established roles for the users according to step (a);
   c. providing a predetermined level of access and control over the network to the course files to users with an established role as a student user enrolled in the course; and
   d. providing a predetermined level of access and control over the network to the course files to users with an established role other than a student user enrolled in the course.

Claims 37 and 38 add further limitations that are not the principal focus of this appeal.

Claim 37 provides:

> The method of claim 36 wherein at least one of the course files comprises a course assignment, further comprising the steps of:
> e) the student user creating a student file in response to the course assignment; and
> f) the student user transferring the student file to the server computer.

Claim 38 provides:

> The method of claim 37 further comprising the steps of:
> g) the instructor user accessing the student file from the server computer;
> h) the instructor user reviewing the student file to determine compliance with the course assignment; and
> i) the instructor user assigning a grade to the student file as a function of the determination of compliance with the course assignment.

Blackboard makes several arguments in support of its contention that claims 36-38 require a person using the claimed method to be able to access multiple roles in multiple courses using a single login. First, Blackboard argues that the definition of the term "user" requires that access to multiple roles in multiple courses be achievable through a single login. Blackboard's argument is that the term "user" refers to an electronic user account, and that a user account is defined by a single user name and password combination; accordingly, for a "user" to be capable of "having predefined

characteristics indicative of multiple predetermined roles in the system" requires that the method allow access to multiple courses and roles through a single login.

In support of its definitional argument, Blackboard points out that the specification sometimes uses the word "user" in a manner that appears to refer to the electronic representation of a person in the system. The references to which Blackboard alludes employ a kind of shorthand, such as "Create User" and "Manage User," to describe the creation and manipulation of user entries and accounts, not the creation and manipulation of "users" themselves. For example, the "Create User" web page "allows creation of a user entry by entering personal information" and the "Manage User" web page "allows listing, modification, and/or removal of users" once "a user is created." '138 patent, col. 27, ll. 14-26.

Aside from those shorthand references, the specification repeatedly employs the term "user" in its ordinary sense to refer to an individual who uses the system. For example, the specification states: "Users (who may have one or several roles such as a student, instructor, teaching assistant (TA), or administrator) access and interact with education support system 100 via web browser 120." '138 patent, col. 7, ll. 58-61. See also, e.g., id., col. 3, ll. 26-28 (claimed system and methods "allow users to interact with a computer network-based education support system through means of a simplified, easy-to-use user interface"); id., col. 3, ll. 43-46 (claimed system "allows multiple types of users to access the features of the system as a function of their predefined role within the framework of the system (e.g., student, teacher, administrator)"); id., col. 4, ll. 19-20 ("The student user is provided with an access level to enable reading of course files associated with a course."); id., col. 5, ll. 39-46 ("[T]he student user creates a student

file . . . .   The instructor user accesses the student file . . . and the instructor user assigns a grade to the student file . . . ."). Thus, the specification makes clear that the word "user" refers to a flesh-and-blood person and not an electronic representation of that person.[1] In addition, the word "user" as employed in the claims is inconsistent with Blackboard's interpretation of "user" as referring to a "user account." For example, claim 1 refers to a "community of users," "user computers," and a "user of the system." Id., col. 30, ll. 19-22. Those uses clearly refer to a person rather than to an account. The use of the term "user" in claims 36-38 therefore does not establish that a single electronic account must be capable of providing access to multiple roles and courses through a single login.

Blackboard next contends that the phrase "capable of having predefined characteristics indicative of multiple predetermined roles in the system" in claim 36 requires that the claimed method include the "single login" capacity. As support for that argument, Blackboard notes that "the specification describes a user having the capability of assuming the 'several' or multiply assigned roles in the system." Blackboard also points out that the word "mixed" is used in the specification to indicate that a single user can have different roles with respect to different courses.

Blackboard's argument is answered by a close examination of the specification, which makes clear that the "single login" limitation is not present in each of the patent's claims. To begin with, the specification describes four embodiments of the invention,

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[1]   When the '138 patent refers to the electronic representation of the user in the specification, it typically uses the term "user account," not the term "user" alone. See '138 patent, col. 5, ll. 20-23; col. 22, ll. 3, 9; col. 26, line 23.

only one of which is described as containing the "single log-in" feature. '138 patent, col. 10, line 62, through col. 11, line 59. Another of the four embodiments is described as being "operated as a publicly available web site on the Internet, that may be accessed by anyone"; it allows "anyone on the web [to] create a course, enroll in a public course, etc. . . . . This provides for widespread dissemination of tools and utilities that enable anyone to generate his own course that can be taken by virtually any student." Id., col. 11, ll. 51-59. That description of the Internet-based embodiment nowhere suggests that the embodiment necessarily incorporates the "single log-in" feature.

Perhaps the strongest evidence that the single login feature is not a required limitation of claim 36 is provided by an examination of the relationship between claim 1 of the '138 patent and its dependent claims, claims 24 and 25. Claim 1 contains language that is identical to the language on which Blackboard relies in claim 36. Claim 1 provides, in part:

> A course-based system for providing to an educational community of users access to a plurality of online courses, comprising:
> a) a plurality of user computers, with each user computer being associated with a user of the system and with each user being <u>capable of having predefined characteristics indicative of multiple predetermined roles in the system</u>, each role . . . .

Claims 24 and 25 depend from claim 1. They provide:

> 24. The system of claim 1 wherein a user is required to enter a login sequence into a user computer in order to be provided with access to course files associated with that user.

> 25. The system of claim 24 wherein the user is provided with access to all courses with which the user is associated after entry of the logon sequence.

Claim 24 adds to claim 1 the requirement that the user enter a login sequence in order to obtain access to course files, and claim 25 adds the further requirement that,

after a single login, the user be provided with access to all of the course files and courses with which that user is associated. Yet the single login requirement is the very limitation that Blackboard asserts is inherently contained in the phrase "capable of having predefined characteristics indicative of multiple predetermined roles in the system" that appears in the claim from which claim 25 depends. Thus, claim 1 cannot be construed to afford access to all courses with a single login without making claim 25 redundant. That is powerful evidence that claim 36, which contains the same pertinent language as claim 1 ("capable of having predefined characteristics indicative of multiple predetermined roles in the system"), also does not require access to all courses with a single login. See Phillips v. AWH Corp., 415 F.3d 1303, 1315 (Fed. Cir. 2005) (en banc) ("[T]he presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim."); Yoon Ja Kim v. ConAgra Foods, Inc., 465 F.3d 1312, 1319 (Fed. Cir. 2006) (independent claim ordinarily does not include explicit limitations of a dependent claim); Versa Corp. v. Ag-Bag Int'l Ltd., 392 F.3d 1325, 1330 (Fed. Cir. 2004) (independent claim should not be construed in a manner that renders dependent claim superfluous).

Significantly, the specification states that a user "may be required to enter a login sequence into a user computer in order to be provided with access to course files associated with that user," and it adds that in such a case, the user "is then provided with access to all courses with which the user is associated after entry of the logon sequence." '138 patent, col. 4, ll. 52-56. That passage tracks the language of claims 24 and 25, and it is introduced by the phrase "may be required," which provides further

support for Desire2Learn's argument that the "single login" capacity is an optional feature of the claimed invention, not a limitation inherently found in all the claims.

Blackboard's third argument for why the claims require that a user have access to multiple courses through a single login is based on the language "according to the established roles for the users according to step (a)," which is found in step (b)(iii) of claim 36. The quoted language, however, does not support Blackboard's argument. While claim 36 requires that the method be capable of assigning multiple roles to a single user, nothing in the claim requires each user to gain access to all of those multiple roles with a single login. To the contrary, the most natural reading of the claim language is that access and control is provided according to the various roles a user might have, not that the user must be able to obtain access to those multiple roles with a single login.

Blackboard next invokes the prosecution history of the '138 patent, and in particular the examiner's somewhat cryptic remarks in two interview summaries concerning the "multiple roles" limitation. Referring to the applicant's distinction of two prior art references, the examiner stated that the references appeared not to "disclose multiple roles simultaneously associated with a particular system user," and that "multiple roles for user(s) was emphasized as a potential distinguishing feature [of the application]." Contrary to Blackboard's characterization, the examiner's statements appear to refer to enabling users to have multiple roles rather than a single role. The comments do not appear to refer to the capability of accessing these multiple roles after a single login. There is no dispute that the claims provide for multiple roles. Rather, the issue is whether those roles must be available after a single login. The examiner's

remarks did not even address this "single login" issue. Nor did the amendments that the applicants made to the claims during prosecution clearly provide that the claimed method had to have the capacity to allow access to multiple courses through a single login. The prosecution history thus does not provide support for Blackboard's contention that the single login feature was a necessary limitation of claims 36-38.

Finally, Blackboard contends that Desire2Learn waived the argument it is now making as to the proper construction of claims 36-38 and therefore has lost the right to challenge the validity of those claims on the ground that they do not incorporate a "single login" requirement. The question of waiver is a difficult one in this case because Desire2Learn did not consistently and clearly present its current argument about the absence of the "single login" requirement throughout the proceedings before the district court. Nonetheless, after close examination of the trial proceedings, we conclude that Desire2Learn made its present argument with sufficient timeliness and clarity that it should not be charged with having waived its validity challenge; for the reasons set forth in more detail below, we therefore reject Blackboard's several waiver arguments.

Blackboard argues that the position Desire2Learn's counsel took during a colloquy at the Markman hearing was inconsistent with Desire2Learn's current position, and that Desire2Learn should therefore be charged with having waived its argument as to the "single login" limitation. While it is true that Desire2Learn's counsel at one point in the Markman hearing took a position different from the position Desire2Learn later took at trial, the trial court did not rely on Desire2Learn's position in construing the claim, but instead construed the claim language in a manner different from the construction proposed by either party.

The dispute at trial over the "single login" issue arose from the trial court's construction of the term "user." In an order entered shortly before trial, the court rejected both parties' proposed constructions of that term. Blackboard proposed that "user" be defined to mean "the user's identity or account in the system," while Desire2Learn proposed that "user" be defined to mean "a physical user that interacts with the system." The court defined the term to mean "a person who interacts with the system and who accesses the system by logging on with a user name and password, and then keys in information."

At trial, Blackboard's expert testified that under the court's definition, "a physical person is going to access the system by logging on with a single user name and password." Desire2Learn objected that a single login was not part of the court's construction. Later, Desire2Learn objected again when the expert testified that the '138 patent "provid[es] the mechanism by which a single user can have multiple roles in multiple courses on a single logon."

On rebuttal, Blackboard's expert again testified that the court's definition of the term "user" required that a user be able to obtain access to multiple courses with a single login. Desire2Learn again objected, arguing that Blackboard was improperly "taking the court's construction and now confining it to a single user name and password when the court's construction does not do that." The trial court overruled the objection and allowed the testimony. Under the circumstances, we believe Desire2Learn made its position on that issue clear sufficiently in time to not mislead its adversary or the court, and that counsel's remarks at the Markman hearing did not waive that argument.

Blackboard separately argues that Desire2Learn waived its "single login" argument by acquiescing in the trial court's instruction in response to a question from the jury at trial. The events at trial developed as follows: During deliberations, the jury sent the court a question in which it asked, "In your definition, does using 'a' user name and password = single logon?" Counsel for Desire2Learn urged the court to respond to the jurors' question by telling them that a single login capacity was not required by claim 36. Counsel for Blackboard argued that the court should tell the jurors that single login capacity was required. The court resisted altering the instructions that had already been given and proposed to instruct the jury that it should consult the instructions the court had already provided. At that point, Desire2Learn suggested a minor modification in the court's instruction, which the court declined to accept. The court then instructed the jury as follows: "The court has provided definitions that you must use. Please refer to the jury instructions for guidance as to the meaning of words that are not specifically defined." Although Blackboard argues that Desire2Learn waived its validity arguments by acquiescing in the substance of the court's answer to the jury's question, we disagree. Desire2Learn made its legal position with respect to the "single login" requirement sufficiently clear to the trial court, and the trial court made clear that it was not going to instruct the jury in accordance with Desire2Learn's position. Desire2Learn's subsequent further minor suggestion regarding the court's answer to the jury's question did not constitute an abandonment of its previously stated substantive objection.

After the jury returned its verdict, which included a finding that claim 36 was not invalid, Desire2Learn filed a motion for JMOL. The court denied the motion. In so

doing, the court made clear that it interpreted claim 36 as incorporating a "single login" limitation, i.e., the capacity to access multiple courses and roles through a single login. The court explained:

> The remainder of step (a) of Claim 36 describes allowing that "person" with that "user name and password" to have "multiple roles" with access to "a plurality of course files." This is what Blackboard described as giving a single user access to multiple roles and multiple courses with a single login.

We do not interpret the sequence of events surrounding the jury's question and the court's JMOL decision as constituting a waiver of Desire2Learn's position with respect to the "single login" issue or its right to challenge the jury's verdict in a post-trial JMOL motion. Desire2Learn made its legal position with respect to the "single login" requirement sufficiently clear to the trial court, and the trial court, in its JMOL opinion, made it clear that it rejected Desire2Learn's position.

We therefore reject Blackboard's argument that Desire2Learn waived its right to challenge the construction of claims 36-38 of the '138 patent. On the merits, we hold that those claims do not contain a "single login" limitation and that the district court's contrary interpretation of the claim language in its JMOL ruling was error.

II

Desire2Learn argues that if claims 36-38 of the '138 patent do not require that a person using the claimed method be able to access multiple roles in multiple courses using a single login, then the claims are anticipated and rendered obvious by two references in the prior art, CourseInfo 1.5 and Serf.

At the outset, Blackboard argues that Desire2Learn waived its right to file a JMOL motion as to obviousness because it failed to make a sufficient motion for JMOL

during trial to preserve its right to make a JMOL motion after trial. See Fed. R. Civ. P. 50(a). Curiously, Blackboard argued in its brief that Desire2Learn waived its obviousness argument, but it did not argue that the waiver applied to Desire2Learn's anticipation argument, even though Desire2Learn's motions with respect to both issues were essentially identical. In any event, we hold that under governing Fifth Circuit precedents Desire2Learn's Rule 50(a) motions on both anticipation and obviousness were sufficient to preserve Desire2Learn's right to make a JMOL motion after trial.

Rule 50(a)(2) requires the moving party, when moving for JMOL before the case is submitted to the jury, to "specify the judgment sought and the law and the facts that entitle the movant to the judgment." In this case, Desire2Learn made its motion under Rule 50(a) for judgment on both anticipation and obviousness, but immediately after counsel stated the subject matter of each motion, the district court responded, "I will take that under—I will reserve my ruling on that" (as to anticipation), and "I will reserve my ruling on that" (as to obviousness).

Although Desire2Learn's motions were cursory, the context in which the motions were made, including the district judge's prompt statement that he would take both motions under advisement, make clear that no more was necessary to serve the purposes of Rule 50(a), i.e., to alert the court to the party's legal position and to put the opposing party on notice of the moving party's position as to the insufficiency of the evidence. See MacArthur v. Univ. of Tex. Health Ctr., 45 F.3d 890, 897 (5th Cir. 1995). That is particularly true in light of the Fifth Circuit's practice of liberally construing the rule. See Navigant Consulting, Inc. v. Wilkinson, 508 F.3d 277, 288-89 (5th Cir. 2007). The motion in this case was made shortly after an extended discussion of the evidence

relating to anticipation and obviousness, and it is clear from the context that neither the court nor Blackboard's attorneys needed any more enlightenment about Desire2Learn's position on those issues. See Guilbeau v. W.W. Henry Co., 85 F.3d 1149, 1160-61 (5th Cir. 1996).

On the merits, we agree with Desire2Learn that claims 36-38, as properly construed, are invalid for anticipation as a matter of law by CourseInfo 1.5 and Serf. As Desire2Learn points out, Blackboard's trial expert identified only one difference between the system and methods of the '138 patent and the prior art systems, the "single login":

> Q. Now, is that different from the prior art, doctor?
> A. Yes, it is. The prior art that we talked about before, the CourseInfo 1.5 and Serf, those systems, a user had to have a login for each one of the roles. So, for example, in Serf, as we saw from [its inventor], if a user wanted to be a student in one course and an instructor in another, that user was going to require two separate logins. That was the old way . . . . The patent describes the new way.
> Q. And the new way is a user logs on with a user name and password and gets access to all of their roles in all of their courses?
> A. That's correct.
> Q. And that's the new way in this invention?
> A. Yes, it is. That's the new way in the Blackboard patent.

The expert added that he concluded that Serf did not teach all the steps of claim 36 because the "single login" feature was not present in Serf.

Blackboard asserts that in addition to the absence of a "single login" capacity, there is another difference between the prior art systems and the patent claims at issue. According to Blackboard, the prior art references do not allow a user to have access to "multiply assigned" roles, such as that of a student and a non-student, as required by steps (c) and (d) of claim 36. The district court construed the phrase "establishing that each user is capable of having predefined characteristics indicative of multiple predetermined roles in the system" to mean "establishing that discrete roles and their

associated characteristics to which a user can be multiply assigned are set in advance within the system." That construction requires the capability to assign multiple roles to a single user. The prior art systems clearly enable that capability; for example, under the prior art systems a single user can create two accounts, one as an instructor and another as a student.

The Serf Administrator Guide also discloses that users who are assigned to the roles of student and non-student have access to and control over course files. Blackboard's only argument for why the discussion in the Serf guide does not anticipate claim 36 is that Serf does not teach that multiple courses are "available during a single access." As we have held, however, claim 36 does not contain a "single login" limitation. Therefore, Serf's teaching that a single user can access multiple roles, even if it required the user to do so through separate logins, anticipates claim 36 of the '138 patent.

CourseInfo 1.5 also anticipates claim 36. CourseInfo provided "multiply assigned" roles by allowing a student or an instructor to create different logins for different courses. Although it required separate logins, CourseInfo allowed a user to have access to multiple courses and multiple roles. There was nothing to prevent a single user from entering the system as an instructor in one course and a student in another. The users would be assigned discrete roles that were set in advance, thus satisfying all the limitations of claim 36.

With respect to the limitations of steps (c) and (d) of claim 36, the CourseInfo manual specifically demonstrates how to predetermine a level of access and control

both for student and non-student users. For example, the manual specifies that "a professor will have access to the overall grade book while the student will not."

The inventors of the '138 patent conceded at trial that in CourseInfo both instructor and student users could perform the limitations described in dependent claims 37 and 38, thus meeting those claims' limitations. Claim 37 adds the requirement that the student user create a student file in response to the course assignment and transfer the student file to the server computer. Claim 38 adds the requirement that the instructor user access the student file from the server computer, review the student file to determine compliance with the course assignment, and assign a grade to the student file.

One of the inventors of CourseInfo and the '138 patent acknowledged that the additional limitations found in claims 37 and 38 were performed by the CourseInfo prior art:

> Q. Isn't it true . . . that CourseInfo ILN 1.5 allowed a user to put any files, such as an assignment file, in a particular area throughout the system?
> A. Yes. The CourseInfo 1.5 product allowed the instructor to place in a document or an assignment, as you said, anywhere within specific areas, not any area, within the system.
> Q. And isn't it true that CourseInfo ILN 1.5 allowed the creation of a new document, say a student was responding to a test that was posted up by an instructor?
> A. Yes, it did allow for that capability.
> Q. And isn't it true that CourseInfo ILN 1.5 allowed the user, after responding to the test, to then post that answer back to the file area such that the instructor could view it?
> A. Yes, it did have that capability, as well.
> Q. And isn't it true that CourseInfo ILN 1.5 then allowed the instructor to grade the student's responses to the test?
> A. Yes, I believe it did have that functionality.

In an effort to support the judgment in its favor, Blackboard relies on the district court's observation that Desire2Learn's expert witness on invalidity was ineffective at

trial. Based on the court's observation, Blackboard contends that the jury was entitled to ignore the expert's testimony in its entirety. However, it is not necessary to rely on the testimony of Desire2Learn's witness to conclude that claims 36-38 are invalid. Instead, once the claims are properly construed, the conclusion of anticipation is dictated by the testimony of Blackboard's own witnesses and the documentary evidence that was presented to the jury. Based on that evidence, and in the absence of a "single login" requirement in claims 36-38, it is clear that the prior art contains every limitation of those claims.

<center>III</center>

In its cross-appeal, Blackboard challenges the district court's ruling that claims 1-35 of the '138 patent are invalid for indefiniteness. The district court held that the specification contained insufficient structure to support one of the means-plus-function limitations found in claim 1 and, by incorporation, in dependent claims 2-35. Blackboard does not contest the district court's ruling that claims 1-35 all rise and fall together.

Limitation (b) of claim 1 contains four "means-plus-function" clauses. It provides:

> b) a server computer in communication with each of the user computers over a network, the server computer comprising:
> means for storing a plurality of data files associated with a course,
> means for assigning a level of access to and control of each data file based on a user of the system's predetermined role in a course;
> means for determining whether access to a data file associated with the course is authorized;
> means for allowing access to and control of the data file associated with the course if authorization is granted based on the access level of the user of the system.

Because that limitation is written in "means-plus-function" form, it covers only "the corresponding structure . . . described in the specification and equivalents thereof." 35 U.S.C. § 112, ¶ 6.

Before the district court, Blackboard asserted that the structure that performs the recited "means for assigning" function is "a server computer with an access control manager and equivalents thereof." On appeal, Blackboard again argues that the structure that performs that recited function is the server computer's software feature known as the "access control manager" or "ACM." The entirety of the description of the access control manager in the specification is contained in a single paragraph, which reads as follows:

> Access control manager 151 creates an access control list (ACL) for one or more subsystems in response to a request from a subsystem to have its resources protected through adherence to an ACL. Education support system 100 provides multiple levels of access restrictions to enable different types of users to effectively interact with the system (e.g. access web pages, upload or download files, view grade information) while preserving confidentiality of information.

The district court found the disclosure of structure described in that paragraph to be inadequate to satisfy section 112, paragraph 6, as it failed to describe "how the levels themselves are assigned to the data files in the first place."

It is well settled that "if one employs means-plus-function language in a claim, one must set forth in the specification an adequate disclosure showing what is meant by that language." In re Donaldson Co., 16 F.3d 1189, 1195 (Fed. Cir. 1994) (en banc). If the specification does not contain an adequate disclosure of the structure that corresponds to the claimed function, the patentee will have "failed to particularly point out and distinctly claim the invention as required by the second paragraph of section 112," which renders the claim invalid for indefiniteness. Id.

As an example of the operation of the access control manager, Blackboard explains that

the access control manager assigns an access and control level for the quiz file based on a user's course role by creating an access control list. The access control list created by the access control manager associates user roles with the levels for course data files. For example, it might provide that teachers can create, view, and edit a quiz, while students can only submit a completed quiz.

But that is not a description of structure; what the patent calls the "access control manager" is simply an abstraction that describes the function of controlling access to course materials, which is performed by some undefined component of the system. The ACM is essentially a black box that performs a recited function. But how it does so is left undisclosed.

The specification contains no description of the structure or the process that the access control manager uses to perform the "assigning" function. Nor has Blackboard ever suggested that the "access control manager" represents a particular structure defined other than as any structure that performs the recited function. In fact, before the district court, counsel for Blackboard defined the term "access control manager" in precisely those terms. He stated, "We suggest that the corresponding structure for [the function of assigning a level of access to and control of each data file] is the access control manager. That's not really a revolutionary thought. The access control manager manages access control." Counsel also stated of the access control manager that "the name of it pretty much describes what it does. It assigns a level of access to and control of a user's role in a course." Blackboard's expert made clear that he did not regard the term "access control manager" as limited even to software. He stated, "Although the access manager in Figure 1 is described as software, there is nothing in the '138 patent specification that would limit the performance of the access manager's functions to software; one of ordinary skill in the art would know that hardware could be

used." In other words, the access control manager, according to Blackboard, is any computer-related device or program that performs the function of access control.

In Aristocrat Technologies Australia Pty Ltd. v. International Game Technology, 521 F.3d 1328, 1331 (Fed. Cir. 2008), we addressed the question whether a general reference to "a standard microprocessor-based gaming machine with appropriate programming" constituted a sufficient disclosure of structure to support a claimed function in a means-plus-function claim. We concluded that it did not. First, we explained that "[t]he point of the requirement that the patentee disclose particular structure in the specification and that the scope of the patent claims be limited to that structure and its equivalents is to avoid pure functional claiming." Id. at 1333. Without so limiting a claim, we noted, "the patentee has not paid the price but is attempting to claim in functional terms unbounded by any reference to structure in the specification." Id. (citations omitted). We then applied those teachings to the patentee's assertion that a reference to a general purpose computer could satisfy that standard. We noted that "any general purpose computer must be programmed" and pointed out that relying on such general structure is equivalent to saying "that the function is performed by a computer that is capable of performing the function." Id. at 1334. We also considered and rejected the patentee's assertion that language describing when the computer would perform the function at issue constituted a sufficient description of the structure for performing the function. Such language, we explained, "describes an outcome, not a means for achieving that outcome." Id.

In Net MoneyIN, Inc. v. VeriSign, Inc., 545 F.3d 1359 (Fed. Cir. 2008), we again addressed a patentee's argument that reference to a computer provides sufficient

structure for a claim drafted in means-plus-function form. In Net MoneyIN, the computer was not a general purpose computer; the patentee contended that the reference to a "bank computer" provided sufficient structure to support the function of "generating an authorization indicia in response to queries containing a customer account number and amount." Id. at 1365. The patentee argued that "a person skilled in the art would know that such a computer would be programmed to compare account data and amount data to those data structures and generate an authorization indicia if credit were available." Id. at 1366-67. We rejected that argument and explained that when a computer is referenced as support for a function in a means-plus-function claim, there must be some explanation of how the computer performs the claimed function:

> To avoid purely functional claiming in cases involving computer-implemented inventions, we have consistently required that the structure disclosed in the specification be more than simply a general purpose computer or microprocessor. Because general purpose computers can be programmed to perform very different tasks in very different ways, simply disclosing a computer as the structure designated to perform a particular function does not limit the scope of the claim to the corresponding structure, material, or acts that perform the function, as required by section 112 paragraph 6. Thus, in a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm. Consequently, a means-plus-function claim element for which the only disclosed structure is a general purpose computer is invalid if the specification fails to disclose an algorithm for performing the claimed function.

Id. at 1367 (citations omitted). Because there was no disclosed algorithm in that case, we held that the claims were invalid for lack of a sufficient recitation of structure. Id.; see also Finisar Corp. v. DirecTV Group, Inc., 523 F.3d 1323, 1340-41 (Fed. Cir. 2008) ("Simply reciting 'software' without providing some detail about the means to accomplish the function is not enough.").

Blackboard argues that the specification in this case contains more disclosure of the structure that performs the access control functions than did the specifications in Aristocrat and Net MoneyIN. It points to the sentence in the specification that states, "Education support system 100 provides multiple levels of access restrictions to enable different types of users to effectively interact with the system (e.g. access web pages, upload or download files, view grade information) while preserving confidentiality of information." '138 patent, col. 9, ll. 40-45. That sentence, however, merely states that the access control manager enables different types of users to interact with the system in a manner that preserves confidentiality (i.e., it works as intended). Like the specification in Aristocrat, that language "simply describes the function to be performed." 521 F.3d at 1334. It says nothing about how the access control manager ensures that those functions are performed. As such, the language "describes an outcome, not a means for achieving that outcome." Aristrocrat, 521 F.3d at 1334.

Blackboard argues that the process of putting together control lists through software is well known to a person of ordinary skill in the art because access control lists "have been around for a long time and everyone of ordinary skill in the field of this invention would know how to construct one given the understanding conveyed in the specification about the entry of files into the system, and which roles have access to which types of files." That argument, however, conflates the definiteness requirement of section 112, paragraphs 2 and 6, and the enablement requirement of section 112, paragraph 1. The fact that an ordinarily skilled artisan might be able to design a program to create an access control list based on the system users' predetermined roles goes to enablement. The question before us is whether the specification contains

a sufficiently precise description of the "corresponding structure" to satisfy section 112, paragraph 6, not whether a person of skill in the art could devise some means to carry out the recited function.

Blackboard's argument that a person skilled in the art could readily fashion a computer-based means for performing the "assigning" function is the same as the argument that we rejected in Medical Instrumentation & Diagnostics Corp. v. Elekta AB, 344 F.3d 1205 (Fed. Cir. 2003). There, the patentee sought to overcome a finding of indefiniteness by relying on expert testimony that a software programmer with ordinary skill in the pertinent art would be aware of programs that could be used to perform the recited function. The court explained, however, that the expert's testimony was not directed at the correct inquiry. The court stated:

> The correct inquiry is to look at the disclosure of the patent and determine if one of skill in the art would have understood that disclosure to encompass software for digital-to-digital conversion and been able to implement such a program, not simply whether one of skill in the art would have been able to write such a software program. . . . It is not proper to look to the knowledge of one skilled in the art apart from and unconnected to the disclosure of the patent.

344 F.3d at 1212 (emphasis in original).

Blackboard's argument also parallels the argument that was rejected in Net MoneyIN, i.e., that the recitation of structure was sufficient because a person skilled in the art would know how to program a bank computer to generate "an authorization indicia." 545 F.3d at 1367. A patentee cannot avoid providing specificity as to structure simply because someone of ordinary skill in the art would be able to devise a means to perform the claimed function. To allow that form of claiming under section 112, paragraph 6, would allow the patentee to claim all possible means of achieving a

function. See Atmel Corp. v. Information Storage Devices, Inc., 198 F.3d 1374, 1380 (Fed. Cir. 1999) ("consideration of the understanding of one skilled in the art in no way relieves the patentee of adequately disclosing sufficient structure in the specification").

That ordinarily skilled artisans could carry out the recited function in a variety of ways is precisely why claims written in "means-plus-function" form must disclose the particular structure that is used to perform the recited function. By failing to describe the means by which the access control manager will create an access control list, Blackboard has attempted to capture any possible means for achieving that end. Section 112, paragraph 6, is intended to prevent such pure functional claiming. Aristocrat, 521 F.3d at 1333. We thus agree with the district court that the '138 patent discloses insufficient structure to perform the function of "assigning a level of access to and control of each data file based on a user of the system's predetermined role in a course."

IV

In summary, we affirm the district court's decision that claims 1-35 are invalid as indefinite. Because we hold that under the proper construction of claim 36, claims 36-38 are anticipated as a matter of law, we reverse the district court's failure to grant JMOL on that issue. We do not reach Desire2Learn's assertion that claims 36-38 are obvious. We also do not address the parties' contentions with respect to infringement of those claims. Based on our rulings in appeals No. 2008-1368 and 2008-1396, Blackboard's appeal in No. 2008-1548, which pertains to the award of costs in the district court, is dismissed as moot.

Each party shall bear its own costs for these appeals.

<u>AFFIRMED IN PART, REVERSED IN PART, and DISMISSED IN PART</u>.