NOTE: This disposition is nonprecedential.

United States Court of Appeals for the Federal Circuit

FUZZYSHARP TECHNOLOGIES INCORPORATED,
Plaintiff-Appellant,

v.

3DLABS INC., LTD.,
Defendant-Appellee.

2010-1160

Appeal from the United States District Court for the Northern District of California in Case No. 07-CV-5948, Judge Saundra Brown Armstrong.

Decided: November 4, 2011

MATTHEW G. MCANDREWS, Niro, Haller & Niro, of Chicago, Illinois, argued for plaintiff-appellant.

JONATHAN D. BAKER, Skadden, Arps, Slate, Meagher & Flom LLP, of Palo Alto, California, argued for defendant-appellee. With him on the brief was MICHAEL D. SAUNDERS.

Before BRYSON, O'MALLEY, and REYNA, *Circuit Judges*.

PER CURIAM.

Fuzzysharp Technologies Inc. appeals from a summary judgment invalidating several of its patent claims as encompassing unpatentable subject matter. The district court based its ruling on this court's adoption of the "machine-or-transformation test" in the en banc decision in *In re Bilski*, 545 F.3d 943 (2008). The Supreme Court subsequently disapproved of this court's exclusive reliance on the machine-or-transformation test to determine patentability. *Bilski v. Kappos*, 130 S. Ct. 3218 (2010). In light of the Supreme Court's decision in *Bilski*, we vacate the district court's ruling and remand to the district court for claim construction and further proceedings to apply the pertinent intervening decisions of the Supreme Court and this court.

I

The objective of three-dimensional computer graphics technology is to create two-dimensional images that depict three-dimensional scenes. For example, a computer could store a representation of a teapot as a two-dimensional object, accounting only for attributes such as the teapot's outline and color. Any depictions of that two-dimensional representation would fail to account for three-dimensional attributes of the teapot such as its convexity. On the other hand, a computer could store a three-dimensional representation of the teapot. Because conventional viewing technology is capable of displaying only two dimensions, three-dimensional computer graphics technology would use various techniques such as shading and lighting to depict the three-dimensional attributes of the teapot in a two-dimensional image.

Several three-dimensional objects together compose a scene. A scene including the teapot might include three different objects representing the teapot—its spout, its body, and its handle. Any scene can be observed from different positions and different orientations for each position. Only a portion of each object can by viewed from a given position and orientation (collectively referred to in the patents in suit as a "viewpoint"). For example, only a portion of the spout, a portion of the body, and a portion of the handle of the teapot can face a single viewpoint. The patents refer to each portion as a "surface"; each surface can be projected onto a plane perpendicular to the viewpoint orientation. The two-dimensional rendering of the three-dimensional teapot can be presented on such a projection plane.

Some surfaces will be partially or completely concealed by other surfaces closer to the viewpoint. From one viewpoint, the handle surface of the teapot may partially obscure the body surface and the body surface may completely obscure the spout surface. If hidden surfaces such as the spout can be detected and then ignored in the remaining calculations, it will take less time to render a scene. One way to detect hidden surfaces is to perform a pixel-by-pixel comparison of surfaces in the projection plane. That method of comparison requires projecting each surface onto the plane and determining for each pixel which surface projecting onto that pixel is closest to the viewpoint. In the teapot example, that method of comparison would require evaluating which surface is the closest for every pixel even though the handle surface is always closer than the body surface, which in turn is always closer than the spout surface. Because that approach can be computationally intensive, it is desirable to group calculations together if some

surfaces are always visible (such as the handle) or always hidden (such as the spout).

Fuzzysharp owns several patents relating to an improved method of hidden surface detection that works off the principle that some surfaces are always visible and other surfaces are always hidden. In 2007, Fuzzysharp brought a district court action against 3DLabs Inc., Ltd., asserting United States Patent No. 6,172,679 ("the '679 patent") and United States Patent No. 6,618,047 ("the '047 patent"). Those patents originate from the same application and have the same written description. They disclose a "method of reducing the complexity of hidden surface removal in 3D graphics systems." '679 patent, abstract. The method described in the specification decreases the complexity of hidden surface detection by employing what are described as "fuzzy regions" and "non-fuzzy regions." *Id.*, col. 8, ll. 62-67. In a general sense, a fuzzy region is the portion of a surface that faces *any* viewpoint in a group of viewpoints. A non-fuzzy region is the portion of a surface that faces *every* viewpoint in a group of viewpoints. The fuzzy region is the union of the surface portions, and the non-fuzzy region is the intersection of those portions.

The patents recognize that the fuzzy region of a surface can be difficult to compute because "the viewpoints can have any orientation and be anywhere in the viewpoint bounding box." *Id.*, col. 8, ll. 49-51. Instead, the method described in the patents calculates the fuzzy region on the projection plane.

The projection plane is divided into grid cells that are used to represent the fuzzy and non-fuzzy regions of each surface for a particular bounding box of viewpoints. Once those regions are known, methods disclosed in the specifi-

cation can be used to calculate surface visibility for all viewpoints in the bounding box based on those regions. The method for finding invisible surfaces generally begins with surfaces close to the viewpoint, which are preferably large and must be opaque. Once the non-fuzzy regions of those surfaces are known, the grid cell approximations of those regions can be used to find hidden surfaces. If another surface is farther away from the viewpoint and the fuzzy extent of that surface falls entirely within the approximated non-fuzzy region of the closer surface, then the farther surface is invisible to all viewpoints in that bounding box. In the teapot example, there will be some bounding box of viewpoints for which the portion of the body surface that faces all the viewpoints in the box obscures the portion of the spout surface that faces any viewpoint in the box. Once the fuzzy calculations are completed for that bounding box of viewpoints, the spout surface can be ignored in future calculations because it has already been determined to be hidden. The specification discloses a similar method for using fuzzy regions to determine which surfaces are always visible. Both methods employ particular devices, such as "fuzzy buffers" or z-buffers to perform some of the calculations, but none of those devices are recited in the asserted claims.

Fuzzysharp asserted claims 1, 4, and 5 from the '679 patent and claims 1 and 12 from the '047 patent. The parties agreed to constructions for most of the terms in those claims. For the disputed terms, the district court applied Fuzzysharp's proposed construction in evaluating 3DLabs' summary judgment motion on patentable subject matter. The district court resolved the case in response to that motion by invalidating all the asserted claims based on its conclusion that they do not satisfy the "machine or transformation" test, i.e., they do not involve the use of a

particular machine, and they do not result in the transformation of an article to a different state.

II

The district court properly held that all of the asserted claims fail the machine-or-transformation test. We agree with the court's analysis of that issue, although we recognize that in the aftermath of the Supreme Court's decision in *Bilski*, failure to satisfy the machine-or-transformation test no longer ensures that the subject matter of a claim will be deemed unpatentable.

Fuzzysharp has acknowledged that none of the claims result in the transformation of an article into a different state. Instead, it argues that its claims are tied to a particular machine because they require the use of a computer. Fuzzysharp relies, for example, on claim 12 of the '047 patent, which recites the following method:

> 12. A method of reducing a step of visibility computations in 3-D computer graphics from a perspective of a viewpoint, the method comprising:
>
> computing, before said step and from said perspective, the visibility of at least one entity selected from 3-D surfaces and sub-elements of said 3-D surfaces, wherein said computing step comprises:
>
> employing at least one projection plane for generating projections with said selected set of 3-D surfaces and said sub-elements with respect to said perspective;

> identifying regions on said at least one projection plane, wherein said regions are related to the projections associated with said selected 3-D surfaces, said sub-elements, or bounding volumes of said 3-D surfaces or said sub-elements;
>
> updating data related to said regions in computer storage; and
>
> deriving the visibility of at least one of said 3-D surfaces or said sub-elements from the stored data in said computer storage; and
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> skipping, at said step of visibility computations, at least an occlusion relationship calculation for at least one entity that has been determined to be invisible in said computing step.

In order to satisfy the machine-or-transformation test, "the use of a specific machine [in a claim] must impose meaningful limits on the claim's scope." *In re Bilski*, 545 F.3d at 961, citing *Gottschalk v. Benson*, 409 U.S. 64, 71-72 (1972). In claim 12, the recitation of general-purpose computer storage could encompass any number of disparate structures, including hard drives, CD-RWs, and flash memory modules. Although the lack of structural attributes is not always dispositive under the machine-or-transformation test, we find it relevant in this case. The references to a computer in claim 12 impose only two limitations: the machine must be able to compute, and it must be able to store data. Those functions are essentially synonymous with the term "computer" and thus add little or nothing to simply claiming the use of a general purpose computer. The recitation of computer functions in the claim thus does not confine the preemptive effect of the claim because the underlying method has "no sub-

stantial practical application except in connection with a digital computer." *Benson*, 409 U.S. at 71. Those limitations are therefore not "meaningful limits" on the claim's scope.

Fuzzysharp argues that some of its unasserted claims are tied to particular hardware in the form of z-buffers and other specific pieces of computer hardware, *e.g.*, '679 patent, claim 32, and that those claims "confirm that the methods of the Asserted Claims operate on and in the environment of computer graphics hardware systems." In addressing questions of patentable subject matter, however, we assess each claim independently. There is no basis for looking to other claims except to the extent that they inform the meaning of the challenged claims through claim differentiation. Fuzzysharp argues that this court looked to elements recited in unasserted claims in *Research Corp. Technologies, Inc. v. Microsoft Corp.*, 627 F.3d 859 (Fed. Cir. 2010). In fact, however, the court in that case concluded that the asserted claims were patent-eligible without looking to unasserted claims and then simply noted that elements recited in unasserted claims "confirm this court's holding that the invention is not abstract." *Id.* at 869. That statement did not change the long-standing rule that each claim must be limited to patentable subject matter. *See, e.g.*, *Bilski*, 130 S. Ct. at 3231 (analyzing claims separately); *O'Reilly v. Morse*, 56 U.S. (15 How.) 62 (1853) (same); *see also* 35 U.S.C. § 282 (claims are independently presumed valid). Indeed, if it were sufficient to satisfy section 101 that some claims in the patent are patent eligible, independent claims could avoid section 101 scrutiny altogether as long as they were paired with dependent claims that were patent eligible.

Based on our en banc decision in *Bilski*, the district court understandably concluded that the failure of the

asserted claims to satisfy the machine-or-transformation test resolved the issue of unpatentability. Because the Supreme Court in *Bilski* held that failing to satisfy the machine-or-transformation test does not necessarily render claims unpatentable, the basis for the district court's decision is no longer sound. Moreover, we conclude that under the Supreme Court's decision in *Bilski* and our own more recent precedents, the patent eligibility of at least one of the asserted claims turns on questions of claim construction that the district court did not have the opportunity to address. Because the parties have not briefed those claim construction issues, we leave the task of construing the claim limitations in question to the district court. *Wavetronix LLC v. EIS Elec. Integrated Sys.*, 573 F.3d 1343, 1355 (Fed. Cir. 2009) ("Although claim construction is a question of law, we generally refuse to construe claims in the first instance.") We therefore vacate the judgment of the district court and remand to that court for further proceedings.

Each party shall bear its own costs for this appeal.

VACATED AND REMANDED