

# United States Court of Appeals for the Federal Circuit

03-1032

MEDICAL INSTRUMENTATION AND DIAGNOSTICS CORPORATION,

Plaintiff-Appellee,

v.

ELEKTA AB, ELEKTA INSTRUMENT AB, ELEKTA INSTRUMENTS, INC.  
and, ELEKTA ONCOLOGY SYSTEMS, INC.,

Defendants-Appellants.

Paul Adams, Peacock, Myers & Adams, P.C., of Albuquerque, New Mexico, argued for plaintiff-appellee. With him on the brief was Rod D. Baker and Stephen A. Slusher. Of counsel was Andrea L. Mays.

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Appealed from: United States District Court for the Southern District of California

Judge Robert H. Whaley

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DECIDED: September 22, 2003

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Before NEWMAN, CLEVINGER, and SCHALL, Circuit Judges.

Opinion for the court filed by Circuit Judge CLEVINGER. Dissenting opinion filed by Circuit Judge NEWMAN.

CLEVINGER, Circuit Judge.

Elekta AB, Elekta Instrument AB, Elekta Instruments, Inc., and Elekta Oncology Systems, Inc. (collectively "Elekta") appeal the judgment of the United States District Court for the Southern District of California, which denied Elekta's motion for judgment as a matter of law ("JMOL") that its products do not infringe United States Patents No. 5,099,846 ("846 patent")

and No. 5,398,684 ("'684 patent"). Med. Instrumentation & Diagnostics Corp. v. Elekta AB, No. 97-CV-2271 (S.D. Cal. Sept. 6, 2002) (Order denying JMOL). Elekta also appeals the district court's grant of partial summary judgment in favor of Medical Instrumentation and Diagnostics Corp. ("MIDCO") that the '846 and '684 patents are not invalid. Med. Instrumentation & Diagnostics Corp. v. Elekta AB, No. 97-CV-2271 (S.D. Cal. Nov. 5, 2001) (Order granting partial summary judgment of noninvalidity). Because the district court erred in its construction of the "converting means" limitation and noninfringement is conceded under the correct claim construction, we reverse the district court's denial of JMOL of noninfringement. We also reverse the grant of summary judgment of noninvalidity because Elekta brought forth sufficient evidence to raise a genuine issue of material fact as to the validity of the '846 and '685 patents. We thus remand the case to the district court on that issue, and for judgment in favor of Elekta on the infringement issue.

## I

MIDCO is the holder of the '846 and '684 patents, both of which relate to a system for planning surgical treatment using a presentation of images from multiple scanning sources. The '684 patent is a continuation of the application that matured into the '846 patent, and it is subject to a terminal disclaimer. The disclosure of both patents is particularly directed toward stereotactic surgery, which is a type of brain surgery that uses a three-dimensional coordinate system to locate the site on which the surgeon is to operate. Dorland's Medical Dictionary 1699 (29th ed. 2000).

Performing surgery on the human brain is extremely complex, and pre-surgical planning is especially important because any surgical exploration of a patient's brain is very risky. Therefore, it is very advantageous if, prior to surgery, a surgeon can map out exactly where the problem areas are by using techniques to "visualize" the patient's brain. Stereotactic surgical techniques allow the surgeon to "explore" the brain structures that cannot be seen from the

surface by determining their location using "a knowledge of their coordinates in space relative to known anatomical and topographical landmarks." '684 patent, col. 1, ll. 31-33. In order to avoid opening a patient's skull any more than is necessary, stereotactic surgery is essentially done "blind," using electrodes attached to certain target areas as landmarks. Id., col. 1, ll. 36-40. Although the location of the probes in the brain structures is very critical, it is difficult for the surgeon to conceptualize that location because the probe is out of sight and the position of the probe involves many complex angular variables. Id., col. 1, ll. 40-60.

The invention disclosed in the '846 and '684 patents attempts to enhance the surgeon's ability to conceptualize the structures inside the brain by combining stereotactic surgical techniques with various imaging technologies, including computerized axial tomography ("CT") and nuclear magnetic resonance ("NMR") scanning. The specification explains the goal as follows: "The present invention is primarily concerned with the use of computer-graphics techniques and scanning techniques for generating various composite images to better aid the stereotactic surgeon in localizing structures, such as subcortical structures, lesions, or abnormalities." Id., col. 2, ll. 31-36. The use of imaging techniques increases the resolution, which allows for direct rather than inferential identification of brain structures and therefore allows for more accurate performance of stereotactic surgery.

Both the '846 and the '684 patent describe a "method and apparatus for generating a video presentation of images from a variety of separate scanner imaging sources." '846 patent, col. 6, ll. 24-26; '684 patent, col. 6, ll. 25-27. The apparatus of the invention comprises a number of different structures that work together to create this presentation of images. The apparatus can acquire image data from different scanner sources, and then convert that image data into a selected digital format. To perform the conversion into the selected format, the apparatus takes the images from the different scanner sources and converts them into a format in which the images have the same number of pixels in the same arrangement (a one-to-one pixel

arrangement), which allows them to be readily compared to one another. The apparatus also stores the images and is capable of selectively recalling and displaying at least two of them on a single screen. The images on the screen may be independently manipulated, and preferably also shaped and sized so that they conform to one another, allowing for optimum comparison. Furthermore, the apparatus of the invention can also perform various comparison techniques on the images and use the images to determine stereotactic coordinates.

The preferred use of the apparatus of the invention is in stereotactic surgery, such as tumor biopsies, thalamotomies, and treatment of other neurological disorders. '684 patent, col. 9, ll. 62-68. Not only may it be used to assist the surgeon in accurate planning of such surgical procedures beforehand, but the preferred embodiment may also be used by the surgeon during a surgical procedure to view and compare images. An infrared beam touch screen interface allows the surgeon to communicate directly with the system in a sterile manner while the surgeon is performing a procedure. *Id.*, col. 10, ll. 10-17.

In 1997, MIDCO filed a patent infringement suit against Elekta in the United States District Court for the Southern District of California, alleging that Elekta's GammaKnife, GammaPlan, ScopePlan, and SurgiPlan products infringed the '846 and '684 patents. Elekta asserted affirmative defenses and counterclaims of noninfringement and invalidity. The only independent claims asserted by MIDCO in this litigation were claim 1 of the '684 patent and claim 9 of the '846 patent, both of which are apparatus claims. Claim 1 of the '684 patent reads as follows:

An apparatus for generating a presentation of images from a variety of imaging sources, the apparatus comprising:

- means for acquiring a plurality of images from a plurality of separate imaging sources;
- means for converting said plurality of images into a selected format;
- means for storing said plurality of images;

means for selectively recalling and displaying at least two images of said plurality of images

n a single display device;

means for manipulating at least one of said at least two images independently of the other image;

means for comparing at least two images;

means for determining stereotactic coordinates and performing volumetric determinations from said at least two images; and

means for determining distances and areas from said at least two images.

'684 patent, col. 19, ll. 14-32. Claim 9 of the '846 patent is very similar, but it specifically claims only the use of brain images. '846 patent, col. 19, l. 55 – col. 20, l. 11.

After holding a Markman hearing, the district court issued an order construing the claims and a later order granting in part and denying in part Elekta's motion for clarification of the claim construction. Med. Instrumentation & Diagnostics Corp. v. Elekta AB, No. 97-CV-2271 (S.D. Cal. Apr. 4, 2001) (First claim construction order); Med. Instrumentation & Diagnostics Corp. v. Elekta AB, No. 97-CV-2271 (S.D. Cal. July 13, 2001) (Partial clarification of claim construction). The district court construed the claims by analyzing claim 1 of the '684 patent, concluding that the analysis for the '846 patent would be essentially the same. The parties do not dispute this treatment.

The district court construed the function of the "means for converting said plurality of images into a selected format" to be converting multiple acquired images into a particular selected digital format. The court then found that the structures corresponding to this function were the VME bus based framegrabber video display board, the computer video processor ("CVP"), and "[s]oftware routines for converting digital-to-digital known to those of skill in the art." The framegrabber and the CVP both perform only the conversion of analog data into the selected digital format, known as analog-to-digital conversion. The accused devices do not perform analog-to-digital conversion, but rather only perform digital-to-digital conversion using software. The patentee concedes that the accused devices do not have a framegrabber or

anything that could be considered an equivalent. The key dispute between the parties is whether the district court was correct in including software for digital-to-digital conversion as a corresponding structure for the converting means. If so, the judgment of infringement is correct; if not, that judgment is incorrect.

MIDCO filed a motion for partial summary judgment that its patents were not invalid, and the district court granted this motion. The case was then submitted to a jury, which found that the patents were infringed and awarded \$16 million in damages. The district court denied Elekta's motions for JMOL following the verdict.

Elekta now appeals to this court, arguing that the district court's claim construction was erroneous as to a number of claim terms, that JMOL of noninfringement should have been granted, and that the district court erred in granting partial summary judgment of noninvalidity. We have jurisdiction over this appeal pursuant to 28 U.S.C. § 1295(a)(1).

## II

We review the district court's denial of JMOL of noninfringement by reapplying the JMOL standard, under which we reverse the denial of the motion "only if the jury's factual findings are not supported by substantial evidence or if the legal conclusions implied from the jury's verdict cannot in law be supported by those findings." Cybor Corp. v. FAS Techs., 138 F.3d 1448, 1454 (Fed. Cir. 1998) (en banc).

Determination of infringement is a two-step analysis, with the first step being to ascertain the meaning and scope of the patent claims and the second step being to compare the properly construed claims to the allegedly infringing device. Markman v. Westview Instruments, Inc., 52 F.3d 967, 976 (Fed. Cir. 1995) (en banc), aff'd, 517 U.S. 370 (1996). The first step, construction of the claims, is a question of law subject to de novo review. Cybor, 138 F.3d at 1454. The second step, comparison of the claims with the accused device, is a question of fact. Bai v. L & L Wings, Inc., 160 F.3d 1350, 1353 (Fed. Cir. 1998).

We review the district court's grant of summary judgment de novo. Golan v. Pingel Enter., Inc., 310 F.3d 1360, 1367 (Fed. Cir. 2002).

## III

Elekta asserts that the district court made a number of errors in claim construction, but we will only focus on the construction of the "means for converting," as we find it to be dispositive of the infringement issue. There is no dispute that this limitation is written in means-plus-function form and falls under 35 U.S.C. § 112, ¶ 6. Section 112, paragraph 6 provides: "An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure . . . in support thereof, and such claim shall be construed to cover the corresponding structure . . . described in the specification and equivalents thereof." 35 U.S.C. § 112, ¶ 6 (2000). The first step in the construction of a means-plus-

function claim element is to identify the particular claimed function. Micro Chem., Inc. v. Great Plains Chem. Co., 194 F.3d 1250, 1258 (Fed. Cir. 1999). The second step in the analysis is to look to the specification and identify the corresponding structure for that function. Id. Under this second step, "structure disclosed in the specification is 'corresponding' structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim." B. Braun Med. Inc. v. Abbott Labs., 124 F.3d 1419, 1424 (Fed. Cir. 1997).

The district court construed the function for the "means for converting" limitation to be converting multiple acquired images into a particular selected digital format and the structures corresponding to this function to be the framegrabber, the CVP, and "[s]oftware routines for converting digital-to-digital known to those of skill in the art." Elekta asserts that the district court's inclusion of software for digital-to-digital conversion as corresponding structure was erroneous. According to Elekta, the only disclosed structures that the patents associate with the converting function are the framegrabber and the CVP. Elekta points out that, although some types of software are certainly disclosed in the specification, such software is clearly linked to other functions, such as the "means for manipulating" the images.

MIDCO argues that, in addition to the framegrabber and the CVP, the district court correctly found that software is also disclosed as corresponding structure for the converting function. It points to three places in the specification that it asserts expressly and adequately disclose software as corresponding structure for the conversion function: (1) the "Image Format Conversion" box in the block diagram of Figure 1, (2) the reference to "image format conversion" in the specification, '684 patent, col. 10, l. 28, and (3) the reference to "image editing" in the specification, id., col. 11, l. 43.

We conclude that the district court correctly construed the function of the "means for converting" to be converting the acquired images into a particular selected format. The district court also correctly found both the framegrabber and the CVP to be corresponding structures.

The specification clearly links these structures with the function of converting the acquired images into a selected format. See '684 patent, col. 16, ll. 4-6 ("[The VME bus based framegrabber video display board] is capable of converting a standard (RS-170) or non-standard video signal to a digital format which is stored in its memory."); id., col. 17, l. 65 – col. 18, l. 2 ("At the level of the computer video processor unit, the non-standard video signal is analyzed and converted by the system's signal processor and converted to a standard RS-170 video output which then is output to the VME bus based framegrabber display board."). However, the district court erred by identifying software as an additional corresponding structure for this limitation. There is nothing in the specification or prosecution history that clearly links or associates software with the function of converting images into a selected format.

The duty of a patentee to clearly link or associate structure with the claimed function is the quid pro quo for allowing the patentee to express the claim in terms of function under section 112, paragraph 6. Budde v. Harley-Davidson, Inc., 250 F.3d 1369, 1377 (Fed. Cir. 2001). Section 112, paragraph 6 was intended to allow the use of means expressions in patent claims without requiring the patentee to recite in the claims all possible structures that could be used as means in the claimed apparatus. O.I. Corp. v. Tekmar Co., 115 F.3d 1576, 1583 (Fed. Cir. 1997). However, "[t]he price that must be paid for use of that convenience is limitation of the claim to the means specified in the written description and equivalents thereof." Id. If the specification is not clear as to the structure that the patentee intends to correspond to the claimed function, then the patentee has not paid that price but is rather attempting to claim in functional terms unbounded by any reference to structure in the specification. Such is impermissible under the statute.

The requirement that a particular structure be clearly linked with the claimed function in order to qualify as corresponding structure is also supported by the requirement of 35 U.S.C. § 112, ¶ 2 that an invention must be particularly pointed out and distinctly claimed. B. Braun, 124

F.3d at 1424-25. "The requirement that the claims 'particularly point[] out and distinctly claim[]' the invention is met when a person experienced in the field of the invention would understand the scope of the subject matter that is patented when the claim is read in conjunction with the rest of the specification." S3, Inc. v. nVIDIA Corp., 259 F.3d 1364, 1367 (Fed. Cir. 2001). Although indefiniteness of the claims is not an issue in this case because the specification does disclose the framegrabber and CVP as corresponding structures for the function of converting images, a failure to associate software with the converting function is a failure to particularly point out and claim that particular structure as a means of performing the function. See B. Braun, 124 F.3d at 1425 ("Because Braun's specification does not adequately disclose the valve seat as structure that holds the disc firmly in place, Braun has failed to particularly point out and distinctly claim that particular means.").

In this case, even the district court acknowledged that the link between software and the converting function was not completely clear. The court stated that "the specification is not very explicit in its disclosures of a means for performing a digital-to-digital conversion." Nevertheless, the court concluded that because techniques for performing those conversions were known to those of skill in the art at the time the application was filed, a person of skill in the art would understand software to be a corresponding structure for the converting function. It is of course correct that to answer the question of whether the specification adequately describes and links structure that corresponds to the claimed function, we must look at the disclosure from the point of view of one skilled in the relevant art. Budde, 250 F.3d at 1376. MIDCO presented some evidence before the district court that a skilled programmer at the time of the application's filing could have written a program for digital-to-digital conversion of image size, and we have no reason to doubt that assertion. In discussing software programs in the medical imaging field, MIDCO's expert explained that "a software programmer having ordinary skill in the art . . . would be aware of the sources of routines, modules and even small programs . . . that could be incorporated into the larger program being developed. These programs were widely available

from well-known sources or available from other software developers. . . ." MIDCO then provided examples of programs for digital-to-digital image conversion (none of which are cited in the patents) that would have been available at the time the patent was filed.

However, that is not the correct inquiry. 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. See Atmel Corp. v. Info. Storage Devices, Inc., 198 F.3d 1374, 1380 (Fed. Cir. 1999) ("[I]nterpretation of what is disclosed must be made in light of the knowledge of one skilled in the art."); see also Omega Eng'g, Inc. v. Raytek Corp., Nos. 01-1546, 02-1478, slip op. at 28-29 (Fed. Cir. July 7, 2003) (explaining that statements from experts cannot be used to "rewrite the patent's specification" to create a clear link where the language in the specification provides none); Medtronic, Inc. v. Advanced Cardiovascular Sys., Inc., 248 F.3d 1303, 1313 (Fed. Cir. 2001) (finding particular structures not to be corresponding structures because "one skilled in the art would not perceive any clear link or association between these structures and the [recited] function of connecting adjacent elements together"). It is important to determine whether one of skill in the art would understand the specification itself to disclose the structure, not simply whether that person would be capable of implementing that structure. See Atmel, 198 F.3d at 1382 ("Fulfillment of the § 112, ¶ 6 trade-off cannot be satisfied when there is a total omission of structure. There must be structure in the specification."). Indeed, the requirement of looking to the disclosure to find the corresponding structure comes from section 112, paragraph 6 itself. 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.

Here, MIDCO's expert never pointed to any disclosure of structure for digital-to-digital conversion in the specification. Instead, when asked about digital-to-digital conversion in the

patents, he explained as follows: "The actual aspects of changing the digital format from one, for instance, number of pixels to another number of pixels, is not disclosed or discussed in the document, presumably . . . because it was well-known in the art and required no explanation."

We turn now to the three portions of the specification that MIDCO alleges to disclose software for digital-to-digital conversion as corresponding structure for the means for converting and MIDCO's other arguments as to where we may find the link between software and conversion. We conclude that there is nothing in the specification or prosecution history sufficient to disclose software that is clearly linked to the converting function.

#### A

The "Image Format Conversion" box in Figure 1 of both patents is not a depiction of structure. This figure is described as illustrating the steps of the preferred method of the invention, not the structure of the apparatus that is the subject of the asserted claims. '684 patent, col. 9, ll. 44-45. Because the figure does not describe structure at all, and there is no indication that one skilled in the art would understand it to do anything other than list the steps of the method, it cannot serve to clearly link software as a corresponding structure for the function of converting the images into a selected format.

This is not like the situation in Overhead Door Corp. v. Chamberlain Group, Inc., 194 F.3d 1261 (Fed. Cir. 1999), where we held that the district court erred in finding that the corresponding structure for the "memory selection second switch means" included only the mechanical switch embodiment shown in one of the figures of the patent and did not include the software embodiment illustrated by a flow diagram in a different figure. This court held that the software embodiment should also be included as an alternative corresponding structure. Id. at 1272. The software embodiment was clearly linked to the claimed function of the means

limitation. Id. First, expert testimony indicated that one of skill in the art would understand the relevant portions of the flow diagram to describe software operations for performing the claimed function. Id. Second, the prosecution history contained an explicit statement that the "switch means includes electronic as well as manual switches." Id. Therefore, the flow diagram figure of the patent at issue in Overhead Door would have been understood by one of skill in the art to clearly link a software embodiment to the recited function. In contrast, the "Image Format Conversion" box in Figure 1 of the patents in suit refers to the method claims rather than the apparatus claims at issue, and there is no evidence that it would be understood by one skilled in the art to refer to structure at all, let alone to software for digital-to-digital conversion.

That Figure 1 is not a depiction of structure at all is made even clearer by the fact that the patents include two figures actually depicting structure. Figure 2 of the patents in suit is a block diagram for depicting the preferred hardware of the invention. One of the blocks in Figure 2 is labeled "Computer Video Signal Processor," and the specification explains that in this component, the "scanning data, which is in various, typically non-standard formats, is convertible to a standard format in accordance with the invention." '684 patent, col. 10, l. 66 – col. 11, l. 1. The figure also has a block labeled "Central Processing Unit," and the specification explains that the "central processing unit (CPU) . . . preferably compris[es] hard disc storage, floppy disc storage, streamer tape storage, and a high-resolution frame grabber with a high speed graphics and video image processor." Id., col. 11, ll. 8-13. Figure 3 is a depiction of the preferred apparatus, and none of the numbered components of the figure refer to software. Therefore, the two structures clearly linked by the specification to the converting function are depicted in the figures of the patent, while software for digital-to-digital conversion is not. As noted above, the disclosed structures perform analog-to-digital conversion, but do not perform digital-to-digital conversion.

If the box in Figure 1 labeled "Image Format Conversion" actually referred to some structure instead of simply referring to a step in the claimed method, then the situation may well be different. In past cases, we have been generous in finding something to be a corresponding structure when the specification contained a generic reference to structure that would be known to those in the art and that structure was clearly associated with performance of the claimed function. For example, in Intel Corp. v. VIA Technologies, Inc., 319 F.3d 1357, 1366 (Fed. Cir. 2003), we found that the "core logic" modified to perform a particular program was adequate corresponding structure for a claimed function although the specification did not disclose internal circuitry of the core logic to show exactly how it must be modified. The core logic was described as structure in the specification, and the specification explained that it was the adapted core logic that was capable of performing the functions recited in the claim. Id. There was no need for a disclosure of specific circuitry in that case, just as here there would be no need for a disclosure of the specific program code if software were linked to the converting function and one skilled in the art would know the kind of program to use. However, in this case, the "Image Format Conversion" box does not refer to a type of structure, so it does not serve to link software to the converting function. It would be more like the situation in Intel if the box in Figure 1 were labeled as "Image Conversion Software" or if it at least appeared in a figure illustrating the components of the apparatus.

Similarly, in S3, Inc. v. nVIDIA Corp., 259 F.3d 1364, 1370-71 (Fed. Cir. 2001), we concluded that a "selector" was adequately disclosed as corresponding structure for the "means . . . for selectively receiving," although the electronic structure of the sensor and the details of its operation were not described. The selector referred to in the disclosure and drawings of the patent was clearly a type of structure, unlike the reference to "Image Format Conversion" in the '846 and '684 patents. There was testimony that the selector was a standard component well known in the art and that such standard components were usually represented in the same way that they were in the patent. Id. at 1370. There was also testimony that one skilled in the art

would "recognize that the selector as shown in the specification [was] an electronic device such as a simple multiplexer, whose structure [was] well known." Id. Unlike the evidence in the case before us, which fails to connect what is disclosed in the specification with the knowledge of one skilled in the art, the testimony in S3, Inc. showed that one of skill in the art would recognize that the specification clearly linked a particular structure to the claimed function. There is no indication in this case that one skilled in the art would understand the "Image Format Conversion" box to refer to software for the conversion function.

Budde v. Harley-Davidson, Inc., 250 F.3d 1369 (Fed. Cir. 2002), is yet another example of this line of cases. In Budde, we held that the district court correctly found that a patent disclosed adequate corresponding structure for a "status sensing means." Id. at 1381. Part of the function was to measure vacuum in the intake manifold, and the specification explained that "vacuum sensors are commercially available units which produce analog signals for the control unit." Id. (internal quotation marks omitted). The patent also contained a block diagram that included a box labeled "vacuum sensor." Id. We found that the specification's description of the vacuum sensor as a "commercially available unit" would have been understood by a person skilled in the art to disclose structure capable of performing the recited function. Id. at 1382. Unlike the specifications of the patents in suit, the specification in Budde disclosed a generic structure that was clearly linked to the claimed function.

Unlike the situations in our previous cases where we have found some link between a generic structural reference and a claimed function, there is nothing in this case to link the "Image Format Conversion" box of Figure 1 of the patents in suit to the function of converting images into a selected digital format.

## B

The second portion of the specification that MIDCO asserts discloses software for digital-to-digital conversion as corresponding structure for the means for converting is another reference to

"image format conversion." '684 patent, col. 10, l. 28. The specification explains as follows:

The method of the invention is illustrated in FIG. 1. The method of the invention comprises scanning 10 the patient's head or other body part(s); image acquisition 12 of the scans obtained; image format conversion 14 for all images so that they are converted into the same format; image storage 16; multiple image recall and display 18 of the images; and image manipulation and comparison 20.

Id., col. 10, ll. 25-32 (emphasis added). Again, this is simply a description of Figure 1, which, as discussed above, illustrates the method of the invention rather than the apparatus. There is no evidence that one skilled in the art would understand the phrase to refer to software for digital-to-digital conversion. Therefore, this reference to "image format conversion" also does not serve to clearly link software as a corresponding structure for the function of converting the images into a selected format.

### C

The third and final place in the specification that MIDCO points to as disclosing software as a corresponding structure for the means for converting is a reference to "image editing." '684 patent, col. 11, l. 43. The full passage of the specification reads as follows:

The division for image acquisition, enhancement, and manipulation includes modular software subroutines for: 1) image capture, storage, and archiving; 2) pixel analysis for an entire image or user-defined areas of interest; 3) zoom and pan functions; 4) contrasting and filtering images with functions for smoothing, sharpening, and pseudocoloring; 5) image comparisons; 6) image editing; and 7) various edge detection routines. . . .

Id., col. 11, ll. 36-44 (emphases added). Unlike the reference to "Image Format Conversion" in Figure 1 and the related discussion of "image format conversion" in the specification, this quoted portion of the specification describes software. However, there is no evidence that one of skill in the art would understand the use of the phrase "image editing" as a reference to the function of converting images into a selected digital format. The quoted passage is prefaced by the statement that "[s]oftware, provided in the CPU 34, is preferably structured on a multi-modular bi-divisional foundation, which comprises a division for image acquisition, enhancement and manipulation and a division for graphics and user specific functions." '684 patent, col. 11, ll. 32-36. If the patentee had wanted to link "image editing" to the function of converting images, all that would have been necessary was to add "conversion" to the list of divisions that the software contains. As it is actually written, there is nothing to indicate that conversion is one of the functions performed by the described software or that one skilled in the art would understand that the software described in the specification performs digital-to-digital image conversion. The reference to "image editing" in this discussion of software is insufficient to clearly link software to the converting function.

This portion of the specification clearly links software to the claimed functions of acquiring and manipulating the images and may therefore appropriately be considered a corresponding structure for those functions. However, MIDCO would have us hold that software is also a corresponding structure for the converting function, even though the reference to software is not clearly linked to the claimed converting function.

In the past, we have rejected similar attempts to include as additional corresponding structure for a particular function a structure that is disclosed in the specification but is not associated with the particular claimed function. In B. Braun, we held that, although the specification showed a valve seat, it was not corresponding structure for the recited function of holding the flexible disc against the triangular member to restrain sideways movement because there was no clear link between this structure and the function in the specification or prosecution history. B. Braun, 124 F.3d at 1425. We explained that "[t]his lack of association between the valve seat and the recited function is especially striking given the explicitly clear association provided between the transverse cross bar and the recited function." Id. That is quite similar to the situation in this case, where the specification clearly links the framegrabber and CVP to the converting function, but does not link software to that function, though software is disclosed in the specification.

Also, in Medtronic, Inc. v. Advanced Cardiovascular Systems, Inc., 248 F.3d 1303 (Fed. Cir. 2001), we rejected a similar attempt by a patentee to include, as additional corresponding structure for one function, structure that was not clearly linked to that function but was clearly linked in the specification to a different function. The claim limitation at issue in Medtronic was a "means for connecting adjacent elements together," and the patentee alleged that the specification disclosed multiple corresponding structures. Id. at 1311. The parties did not dispute that the helical windings were corresponding structure, as the specification clearly linked them to the function. Rather, the issue was whether the straight wire, hooks, and sutures were

also corresponding structure. Id. This court held that the windings were the only corresponding structure because, although the straight wire, hooks, and sutures were capable of performing the connecting function, neither the specification nor the prosecution history clearly linked or associated them with that function. Id. at 1312. In fact, similar to this case where software is described in the specification as performing other functions, the straight wire, hooks, and sutures were described in the specification as having the function of preventing overstretch of the formed coil. We concluded in Medtronic that "one skilled in the art would not perceive any clear link or association between [the straight wire, hooks, and sutures] and the function of connecting adjacent elements together." Id. at 1313. We reach a similar conclusion in this case: there is no evidence that one of skill in the art would perceive a clear link between software and the function of converting images into a selected digital format.

## D

In addition to the three specific places in the specification that MIDCO asserts link software to the function of digital-to-digital conversion, MIDCO also raises an additional argument to support the district court's judgment. MIDCO argues that its expert testimony that software programs for digital-to-digital conversion were known in the art, combined with the statement in the specification that "[o]ther programs used in practicing the invention, such as image manipulation programs, are either commercially available or within the skill of practitioners in the programming arts," '684 patent, col. 12, ll. 24-27, is sufficient for one skilled in the art to understand how the function of converting is performed and therefore enough to make software a corresponding structure. We disagree.

MIDCO relies on our decision in Atmel, where we found that, based on the knowledge of one skilled in the art, sufficient structure was disclosed for a high voltage generating means when "the specification plainly state[d] that 'known circuit techniques are used to implement high

voltage circuit 34. See On-Chip High Voltage Generation in NMOS Integrated Circuits Using an Improved Voltage Multiplier Technique, IEEE Journal of Solid State Circuits." Atmel, 198 F.3d at 1382. This case is different in at least two significant respects. First, the "known techniques" referred to in Atmel are quite clearly linked to the high voltage generating means. In the patents in suit, the references to commercially available software or software known in the art are not discussed in connection with the means for converting. Second, Atmel's expert had actually testified that the title of the article was enough to indicate to a person skilled in the art the precise corresponding structure contemplated by the specification. Id. There is no comparable evidence in this case to indicate that a person skilled in the art would actually understand from the specification that software for digital-to-digital conversion was structure that corresponded to the means for converting. This may be a different case if the specification contained a statement suggesting that digital-to-digital conversion can be performed by software programs known to those of skill in the art. A statement in the specification referring to the knowledge of those skilled in the art specific to the claimed function would put it closer to the lines we have drawn in other cases such as Atmel.

Another example of this type of situation is In re Dossel, 115 F.3d 942, 946 (Fed. Cir. 1997), which involved a claim for a "means for reconstructing." The Patent and Trademark Office found the claim to be invalid for failing to adequately disclose any corresponding structure for the reconstructing function. This court concluded that the specification sufficiently disclosed a computer as corresponding structure. Id. Although the specification did not use the term "computer," it described a structure that "receive[d] digital data, perform[ed] complex mathematical computations and output[] the results to a display," and we concluded that one of skill in the art of medical imaging would understand that a computer must be the structure to perform these functions. Id. at 946-47. Further, although no code that the computer would use to perform the functions was disclosed, the specification did explain that "known algorithms" could be used in the reconstruction process. Id. at 946.

In contrast to Dossel, the specifications of the '846 and '684 patents do not clearly link known software to the converting function. Although the specification refers to the use of software programs that "are either commercially available or within the skill of practitioners in the programming arts," '684 patent, col. 12, ll. 26-27, this statement in no way links software to the function of converting images into a selected format. There is no indication that it is referring to commercially available programs for conversion. Even if one skilled in the art would know that software is capable of performing the function of converting images into a selected format, there is nothing in the patents to suggest that it must be the structure that would perform the function in this invention. There must be something in the disclosure to indicate to the public that the patentee intends for a particular structure to correspond to a claimed function. It is not enough simply to list a certain structure in the specification; that structure must also be clearly linked to a claimed function in order to be a corresponding structure for that function. Furthermore, in this case, the specifications clearly describe the framegrabber and the CVP as performing the converting function, so, unlike Dossel, it is not necessary to find software to be corresponding structure to save the claim from being found invalid.

The circumstances of this case are quite similar to those in Texas Digital Systems, Inc. v. Telegenix, Inc., 308 F.3d 1193 (Fed. Cir. 2002). In Texas Digital, we held that the district court erred in its construction of "converter means" because "the court's description of the corresponding structure as 'including firmware, software, and/or hardware' has no basis in the specification." Id. at 1213. The specification had disclosed an inverter that was linked to the converting function, but Texas Digital Systems had argued that it presented expert testimony "that one of skill in the art would have appreciated that the converter means could be implemented in hardware, software, and/or firmware." Id. We concluded that the district court failed to properly perform the step of identifying the corresponding structure because, rather than looking to the specification, which is the proper place to look to determine what structure is disclosed that corresponds to the claimed function, it "identified a broad array of possible structures not mentioned anywhere in the specification." Id. In the case currently before us, software is mentioned in the specification, but it is mentioned nowhere in connection with the converting function. However, as in Texas Digital, there is other structure in the specification that is clearly linked to the converting function. Also, similar to the patentee in Texas Digital, MIDCO presented some evidence suggesting that a software program for digital-to-digital conversion would have been within the knowledge of one skilled in the art, but nothing to connect that testimony to what one of skill in the art would understand the specification to

actually disclose.

Finally, none of the other references to software in the specification that MIDCO has not specifically called to our attention serve to clearly link software to the claimed function of converting images into a selected digital format. The specification states that "[s]oftware usable with the apparatus hardware to practice and to carry out the desiderata of the invention is disclosed herewith." '684 patent, col. 12, ll. 14-16. Obviously, the specification itself does not disclose any software routine for digital-to-digital conversion, as MIDCO's expert even admitted. Additionally, the software routines that are appended to the patents do not deal with conversion. The specification explains what types of programs are included in the microfiche appendix, and none of the programs deal with conversion. Id., col. 18, ll. 48-57. The reference to "image manipulation programs" that are commercially available, id., col. 18, ll. 57-58, similarly does not link software to the converting function, but only to the manipulating function. Furthermore, the statement that "[t]he CPU controls all data inflow and outflow through its special software programs," id., col. 18, ll. 41-42, does not serve as a clear link between software and the converting function. There is nothing to indicate that this statement would be understood to refer to digital-to-digital conversion of images, especially since the statement appears right before the listing of appended software programs, which does not include a program for image conversion.

## E

In addition to there being nothing in the specification to clearly link or associate software with the function of converting images, there is also nothing in the prosecution history to provide this link. During prosecution of the '846 patent, the applicant prepared a chart to distinguish the claims over the Umemura reference. One of the points of comparison in the chart was whether the system was "Solely an A/D [analog-to-digital] Conversion System." In the column labeled "Present Invention" the applicant marked "no," while in the column for Umemura the applicant

marked "yes." This may indicate that the applicant intended for the invention to cover digital-to-digital conversion, although the framegrabber and the CVP only perform analog-to-digital conversion. However, it is not sufficient to provide a clear link of software for digital-to-digital conversion to the claimed function of converting images into a selected digital format. There is no reference to software in that portion of the prosecution history, and there is nothing to suggest that one of skill in the art would know from that table that software must be the structure to perform the conversion.

#### F

We therefore conclude that the district court erred in identifying software as a corresponding structure for the means for converting because the specification and prosecution history fail to clearly link or associate software with performance of the converting function. The requirement that structure must be clearly linked or associated with the claimed function is the quid pro quo for the convenience of claiming in functional terms. See Budde, 250 F.3d at 1377. MIDCO is attempting to avoid its part of the section 112, paragraph 6 bargain by asserting as corresponding structure for the converting function a structure that is not linked to that function in the specification or prosecution history. In order for the claims to serve their proper function of providing the public clear notice of the scope of the patentee's property rights, we cannot allow a patentee to claim in functional terms essentially unbounded by any reference to what one of skill in the art would understand from the public record. The scope of a claim under section 112, paragraph 6 therefore must be limited to structures clearly linked or associated with the claimed function in the specification or prosecution history and equivalents of those structures. Here, the only two structures that are clearly linked to the converting function are the framegrabber and the CVP. Because MIDCO has conceded that the accused devices do not contain these structures or their equivalents, we reverse the judgment of infringement, and remand for entry of judgment in favor of Elekta on the issue of infringement.

To be sure, the patentee clearly and emphatically selected the framegrabber and the CVP as structure that corresponds to the claimed converting function. And equally to be sure, one of ordinary skill in the art could have written the software program to achieve digital-to-digital conversion. So, it may be tempting to say that this patentee should not be required to turn square corners when it comes to disclosing structure in the specification that is clearly linked to the claimed conversion function. Why not simply require the patentee to disclose some structure for conversion, such as the framegrabber or CVP, and then permit the patentee to claim infringement by some other structure, such as software, so long as one of ordinary skill in the art could have written the software program to perform the claimed function? The reason, of course, is because the statute itself requires disclosure of corresponding structure in the specification, and that disclosure must clearly link the disclosed structure to the claimed function with which it is associated. The public should not be required to guess as to the structure for which the patentee enjoys the right to exclude. The public instead is entitled to know precisely what kind of structure the patentee has selected for the claimed functions, when claims are written according to section 112, paragraph 6. This is precisely the point we emphasized in Atmel, where we stated:

All one needs to do in order to obtain the benefit of [§ 112, ¶ 6] is to recite some structure corresponding to the means in the specification. . . . The requirement of specific structure in § 112, ¶ 6 thus does not raise the specter of an unending disclosure of what everyone in the field knows that such a requirement in § 112, ¶ 1 would entail. If our interpretation of the statute results in a slight amount of additional written description compared with total omission of structure, that is the trade-off necessitated by an applicant's use of the statute's permissive generic means term.

Atmel, 198 F.3d at 1382.

The established rules in our case law on section 112, paragraph 6 that structure corresponding to the claimed function must be disclosed in the specification with clear linkage between the structure and the claimed function serve worthy goals. Such rules are intended to

produce certainty in result. Precision in claiming is not an unreasonable price to pay to gain the benefits of claiming in functional terms under section 112, paragraph 6.

#### IV

Elekta also challenges the district court's grant of summary judgment that the patents are not invalid. Summary judgment is only appropriate if the evidence fails to create a genuine issue of material fact. Fed. R. Civ. P. 56(c). Furthermore, all factual inferences are to be drawn in favor of the nonmoving party. Anderson v. Liberty Lobby, Inc., 477 U.S. 242, 255 (1986). Anticipation is a question of fact, Atlas Powder Co. v. Ireco, Inc., 190 F.3d 1342, 1346 (Fed. Cir. 1999), and obviousness is a question of law based on underlying facts, McGinley v. Franklin Sports, Inc., 262 F.3d 1339, 1349 (Fed. Cir. 2002). When looking at this proffered evidence of invalidity, it must be kept in mind that issued patents enjoy a presumption of validity, and therefore the evidence to show invalidity must be clear and convincing. Schumer v. Lab. Computer Sys., 308 F.3d 1304, 1315-16 (Fed. Cir. 2002).

Elekta's expert testimony in this case is not of the type that we have found to be insufficient as a matter of law to raise a genuine issue of invalidity in the past. Rather than leaving the trial judge to "search through lengthy technologic documents for possible evidence," Biotec Biologische Naturverpackungen v. Biorcorp, Inc., 249 F.3d 1341, 1353 (Fed. Cir. 2001), Elekta's expert quoted the particular portions of the references that were relevant for each of the claim limitations. Furthermore, the expert did not simply make a conclusory statement that, in his opinion, the claims were invalid. See id. ("It is well established that conclusory statements of counsel or a witness that a patent is invalid do not raise a genuine issue of fact."). Rather, for each claim limitation, he connected it with disclosures in the prior art that he believed taught each particular limitation.

Elekta brought forth numerous references as prior art that allegedly either anticipated or

rendered obvious the claimed invention. The district court found all the references insufficient to raise a genuine issue of material fact and therefore granted summary judgment that the patents are not invalid. We conclude that Elekta presented sufficient evidence to survive a motion for summary judgment of noninvalidity, and therefore we reverse the district court's summary judgment grant.

Elekta argued that the patents were anticipated by the Kall/Kelly reference, which was noted in the prior art section of the patents during prosecution. MIDCO argues that this reference fails to disclose the "means for selectively recalling and displaying at least two images . . . upon a single display device." Elekta argues that this reference does in fact teach the means for selectively recalling and displaying when it says: "The surgeon may, at any time, review any of the imaging data by displaying and manipulating the CT, MR, and DSA images simultaneously on three independent monochrome monitors or in pseudocolor on the color monitor." The district court concluded that the reference is "ambiguous" on this point and therefore creates no genuine issue of material fact. However, Elekta presented expert testimony that the Kall/Kelly reference does teach the recalling and displaying limitation, and one of the authors of the reference also testified that Elekta's expert interpreted it correctly.

MIDCO argues that the district court was correct in concluding that the reference is too vague and argues that there is insufficient structure disclosed in the reference, citing Scripps Clinic v. Genentech, Inc., 927 F.2d 1565, 1576-77 (Fed. Cir. 1991), for the proposition that a witness may only testify about what a reference would teach one of skill in the art, but cannot "fill gaps in the reference" by supplying information that is entirely absent. However, Elekta's experts simply testified about what the Kall/Kelly reference would teach one of skill in the art, referring to specific parts of the reference. The question of what a reference teaches and whether it describes every element of a claim is a question for the finder of fact. Advanced Display Sys. v. Kent State Univ., 212 F.3d 1272, 1283 (Fed. Cir. 2000). The district court concluded that the

Kall/Kelly reference was "ambiguous," which suggests to us that the issue of exactly what the reference teaches is something that should have been resolved by the jury. The district court improperly usurped the role of the jury in finding that the reference failed to raise a genuine issue of material fact.

The district court also concluded that Elekta had not presented sufficient evidence to create a genuine issue of material fact on the issue of obviousness, and granted summary judgment on this ground as well. According to the district court, Elekta did "provide[] sufficient evidence from which a jury could find that each element, viewed individually, would be obvious to a person skilled in the prior art," but failed to make a clear showing that it would have been obvious to one of skill in the art to combine the various references into a single system. Although the ultimate determination of obviousness is a legal conclusion, "[t]he presence or absence of a motivation to combine references in an obviousness determination is a pure question of fact." In re Gartside, 203 F.3d 1305, 1316 (Fed. Cir. 2000). The suggestion or motivation to combine references does not have to be stated expressly; rather it "may be shown by reference to the prior art itself, to the nature of the problem solved by the claimed invention, or to the knowledge of one of ordinary skill in the art." Beckson Marine, Inc. v. NFM, Inc., 292 F.3d 718, 728 (Fed. Cir. 2002).

The district court explained that MIDCO's invention "seems to center around combining stereotaxy with composite images." It is the motivation to combine these two elements that is critical. Elekta's expert's declaration quotes from several prior art articles that expressly discuss the combination of stereotaxy with computer imaging technologies. For example, one reference explains that "[s]tereotaxy is the surgery of the hidden. The need to visualize the hidden is the reason why simulation by computer graphics technology is necessarily becoming part of this discipline." Additionally, the declaration of Elekta's expert suggested that the papers written by Fraas/McShan also provided such a motivation to combine. Elekta actually argues that these

papers should be treated as a single reference and, as a single reference, it anticipates the patents. However, even if treated as multiple references, there is an issue of fact as to whether the appearance of teachings about image combination and stereotactic treatment planning in the same bound volume discussing a comprehensive system of treatment planning would provide one of skill in the art with a motivation to combine the teachings. We therefore conclude that the district court erred in finding that Elekta failed to demonstrate the existence of an issue of material fact on obviousness.

## V

Because software is not clearly linked in the specification or prosecution history to the claimed function of converting images into a selected format, the district court's identification of software as a corresponding structure for the "means for converting" was erroneous. The only corresponding structures for that means are the framegrabber and the CVP, and the accused devices concededly do not contain these structures or equivalents thereof. We therefore reverse the judgment that Elekta's products infringe the '846 and '684 patents, and hold that Elekta is entitled to JMOL of noninfringement.

Additionally, we reverse the district court's grant of summary judgment of noninvalidity because Elekta presented sufficient evidence to create a genuine issue of material fact on anticipation and obviousness. The case is remanded to the district court.[\[1\]](#)

COSTS

No costs.

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

# United States Court of Appeals for the Federal Circuit

03-1032

MEDICAL INSTRUMENTATION AND DIAGNOSTICS CORPORATION,

Plaintiff-Appellee.

v.

ELEKTA AB, ELEKTA INSTRUMENT AB, ELEKTA INSTRUMENTS, INC.  
and, ELEKTA ONCOLOGY SYSTEMS, INC.,

Defendants-Appellants.

NEWMAN, Circuit Judge, dissenting.

This thoroughly tried case produced not only several careful and well-considered opinions by the district court, but a month's trial to a jury. The majority now negates the rulings of the district court and the findings of the jury, and rules that digital-to-digital conversion by software is not within the scope of the disclosed "conversion." I cannot agree.

The patent specification describes every function that is included in the claims, and includes a microfiche appendix containing the software for the functions that are unique to the patented invention. The specification states that these computer-managed functions are conducted by software. Both sides testified that software routines for digital-to-digital conversion are within routine skill. The majority has created inappropriate conditions for computer-based inventions; conditions that are, nonetheless, met. Grounds of overturning the results of trial have not been shown.

**I**

The invention is a computer-implemented system that aids in brain surgery by providing the superposition and manipulation of images from various sources, thereby enhancing precision in visualizing the brain. The claims include the clause: "means for converting said plurality of images into a selected format." This clause is the focus of the majority opinion, and is the ground on which the claim is held not infringed.

The majority holds that "the district court erred by identifying software as an additional corresponding structure for this limitation," my colleagues finding that software is not disclosed in the specification. However, the specification states that the claimed functions are performed by software. Claims 8 and 30 of the '846 patent are specific to the use of software. E.g.:

8. The invention of claim 1 wherein all said means are software-programmable.

The district court correctly found that software procedures for digital-to-digital conversion were well known to persons skilled in the field. The panel majority states that "we have no reason to doubt" this finding, but also holds that it is irrelevant. The majority states:

However, that is not the correct inquiry. 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 teach 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.

Maj op. at 12. The majority is not correct. The patent specification need not "teach software" and the writing of routine programs in order to teach how to practice the described method. It suffices if one of skill in the art "would have been able to write" a standard program of digital-to-digital conversion. If one of skill in the programming art would have been able to write such a program without undue experimentation, the statutory requirements are met. See, e.g.,

Minnesota Mining and Manufacturing Co. v. Chemque, Inc., 303 F.3d 1294, 1301 (Fed. Cir. 2002) (enablement requires that the disclosure teach how to carry out the claimed invention without undue experimentation).

The specifications of both the '684 and the '846 patents, at column 11:37-43 and column 11:38-44 respectively, state that "image editing" is performed by "modular software subroutines." The district court found that "the specification is clear that digital data acquired via an Ethernet connection or magnetic transport media must be converted to a common format." In evidence were several publicly available routines for digital-to-digital procedures, including a Programmer's Manual from the commercial purveyor ITEX. Midco states that the Programmer's Manual contained "routines for changing the number of pixels in an image data file." Midco's expert explained: "The actual aspects of changing the digital format from one, for instance, number of pixels to another number of pixels, is not disclosed or discussed in the document, presumably . . . because it was well-known in the art and required no explanation." It is not clear whether the majority opinion finds its fatal flaw in the description or the enablement requirement, for compliance with both was established at trial, and is supported by the evidence at trial.

The specification included the full details of those programs that are unique to the invention, including 8 sheets of microfiche, with 65 frames per sheet. The specification stated:

Software usable with the apparatus hardware to practice and to carry out the desiderata of the invention is disclosed herewith.

The program listings in the microfiche appendix are directed to the programmed interface to computer video processor; an electrophysiological maps program, an anatomical maps program, a probe placement program, a stereotactic frame calibration program, an icon layout program and a touchscreen control program. These programs are unique to the invention. Other programs used in practicing the invention, such as image manipulation programs, are either commercially available or within the skill of practitioners in the programming arts.

'846 patent, 12:15-28. The panel majority appears to understand that the software programs it says are lacking are "commercially available or within the skill of ordinary practitioners," but holds that that does not suffice. Precedent is clearly contrary. For decades the rule and practice has been that such software need not be included in the specification. Over thirty years ago this court's predecessor endorsed this format, stating in In re Ghiron, 442 F.2d 985, 991 (CCPA 1971), that "if such a selection would be 'well within the skill of persons of ordinary skill in the art,' such functional-type block diagrams may be acceptable and, in fact, preferable if they serve in conjunction with the rest of the specification to enable a person skilled in the art to make such a selection and practice the claimed invention with only a reasonable degree of routine experimentation." See Creo Products, Inc. v. Presstek, Inc., 305 F.3d 1337, 1347 (Fed. Cir. 2002) ("To the extent that [Plaintiff-Appellant] contends that additional structure is required for completely performing the function of 'rotating each cylinder,' we consider such structure to be implicit in the disclosure of the '368 patent. Under our case law interpreting §112, ¶6, knowledge of one skilled in the art can be called upon to flesh out a particular structural reference in the specification for the purpose of satisfying the statutory requirement of definiteness.")

The majority's finding that the use of software was not disclosed has led the court to find non-infringement under §112 ¶6. Now requiring that more must be recited than that the computerized conversion is run by software, it is far from clear what my colleagues are requiring. Is this court now requiring a five-foot-shelf of zeros and ones? These patent documents, drawn by and for professionals in the field, fully explained at trial, have not been shown to be deficient. Experts for both sides agreed that the programming for digital-to-digital conversion was routine. Elekta's expert testified: "There are numerous and varied routines and algorithms available for moving, altering and manipulating digital data." The claimed

conversions are all performed by software, analog to digital or digital to digital as appropriate, as is recognized in the specification.

As the appellate tribunal, our obligation is to determine whether the jury verdict could have been reached by a reasonable jury, on the correct law and supported by substantial evidence -- not to strain for ways to reject the verdict. See Lavender v. Kurn, 327 U.S. 645, 653 (1946) ("Only when there is a complete absence of probative facts to support the conclusion reached does a reversible error appear. But where, as here, there is an evidentiary basis for the jury's verdict, the jury is free to discard or disbelieve whatever facts are inconsistent with its conclusion. And the appellate court's function is exhausted when that evidentiary basis becomes apparent, it being immaterial that the court might draw a contrary inference or feel that another conclusion is more reasonable.")

The evidence at trial was directly concerned with the description of the conversion step and how it was conducted. The district court ruled that "the jury had ample uncontroverted evidence that the software in the accused products fulfills the elements of the patents as construed by the Court." There was substantial evidence supporting the jury verdict. From my colleagues inappropriate reversal of that verdict I must, respectfully, dissent.

## II

The panel majority, having found noninfringement, nonetheless remands for determination of the issue of validity. However, with this court's decision, the case is over. I agree of course that Cardinal Chemical Co. v. Morton International, Inc., 508 U.S. 83 (1993), requires the Federal Circuit to review validity when (as here) the district court decided validity. But Cardinal Chemical does not require the parties and the district court to continue to litigate when the controversy has ended. This is not a matter of discretion on remand; the case is over.

The issue before the Court in Cardinal Chemical was whether a finding of noninfringement by the Federal Circuit was "a sufficient reason for vacating a declaratory judgment holding the patent invalid." The Court determined that "even after affirming the finding of noninfringement" the Federal Circuit has jurisdiction to review an appeal from a declaratory judgment of invalidity, and ruled: "The Federal Circuit's practice is therefore neither compelled by our cases nor supported by the 'case or controversy' requirement of Article III." Id. at 99. The Court rejected the Federal Circuit's practice of routinely vacating a district court's judgment on the issue of validity after an appellate ruling of noninfringement, stating that the interests of the public, the alleged infringer, and the patentee, all require appellate review of a decision on the merits of a counterclaim on the issue of validity. The Court "acknowledge[d] that factors in an unusual case might justify [the Federal Circuit's] refusal to reach the merits of a validity determination -- a determination which it might therefore be appropriate to vacate. A finding of noninfringement alone, however, does not justify such a result." Id. at 102.

In this case, the district court on summary judgment decided Elekta's defenses on the issues of validity. Medical Instrumentation and Diagnostics Corp. v. Elekta AB, No. CV-97-2271 (S.D. Cal. Nov. 5, 2001) (Order). On appeal to this court, Elekta argues that the district court usurped the jury's function, and the panel majority apparently agrees, for they now send the matter back for trial, stating that "the district court erred in finding that Elekta failed to demonstrate the existence of an issue of material fact on obviousness."

I agree that the issue of validity is not ripe for appellate review. But on remand there remains no continuing controversy between the parties. Perhaps this is, as contemplated in Cardinal Chemical, a case in which a validity determination warrants simple vacatur. Surely it is inappropriate for the appellate court to propose that the parties may continue to litigate in the district court, after noninfringement has been found on appeal.

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[1] The dissent questions our remand for further adjudication on the validity issue. We do not remand on the ground of necessity under Cardinal Chemical Co. v. Morton International, Inc., 508 U.S. 83 (1993). As explained above, Elekta challenges the summary judgment sustaining the validity of the patent claims in suit, asserting entitlement to a trial on the validity issue. The plaintiff patentee does not oppose the remand on the ground of mootness of the validity issue, and instead only asserts correctness of the summary judgment. Whether, in the light of our decision of noninfringement, any controversy remains between the parties sufficient to warrant further litigation on the validity issue is not a matter on which we are informed by the parties. The district court on remand can decide whether a live controversy over

validity remains.

On the issue of whether the patent discloses structure that corresponds to the digital-to-digital conversion function, we simply hold that the patent does not disclose software as clearly linked to performance of digital-to-digital conversion. While it is true that one of ordinary skill in the pertinent art would know that software can perform the specified conversion function, the law requires that the specification disclose the means for conversion. In this case, nothing in the specification clearly links software to performance of digital-to-digital conversion.