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EXAMINER
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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* RONALDUS FREDERIK JOHANNES HOLTHUIZEN and  
JOHAN MICHIEL DEN HARDER

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Appeal 2018-001507  
Application 14/114,997  
Technology Center 2600

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Before JOHN A. EVANS, JOHN P. PINKERTON, and  
NORMAN H. BEAMER, *Administrative Patent Judges*.

PINKERTON, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellants<sup>1</sup> appeal under 35 U.S.C. § 134(a) from the final rejection of claims 1–3 and 6–17, which constitute all of the claims pending in this application. We have jurisdiction under 35 U.S.C. § 6(b).

We reverse.

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<sup>1</sup> Appellants identify the real party in interest as Koninklijke Philips N.V. App. Br. 1.

## STATEMENT OF THE CASE

### *Introduction*

Appellants' disclosed and claimed invention generally relates to “a medical image system for, and a method of[,] displaying a set of views of three-dimensional (3D) image data.” Spec. 1:2–3.<sup>2</sup>

Claim 1 is illustrative and reproduced below (with the disputed limitations emphasized in italics):

1. A medical image system for enabling a user to navigate through a three-dimensional (3D) image of an anatomical structure, the system comprising:

a display configured to simultaneously display a set of three views of the 3D image defined by an associated set of three respective mutually orthogonal planes intersecting the 3D image wherein each view is associated with one of the three mutually orthogonal planes and displays the other two planes of the three mutually orthogonal planes as lines while the associated mutually orthogonal plane is not shown; and

a computer programmed to:

obtain a further set of three respective mutually orthogonal planes intersecting the 3D image corresponding to a spatial configuration indicated in a navigation command performed in one view of the three views and comprising dragging a line representing one of the two mutually orthogonal planes represented as a line to input a rotation of the plane represented by the dragged line around an intersection point between the plane represented by the dragged line and the other

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<sup>2</sup> Our Decision refers to the Final Action mailed Dec. 23, 2016 (“Final Act.”); Appellants’ Appeal Brief filed May 23, 2017 (“App. Br.”) and Reply Brief filed Nov. 28, 2017 (“Reply Br.”); the Examiner’s Answer mailed Oct. 5, 2017 (“Ans.”); and, the original Specification filed Oct. 31, 2013 (“Spec.”).

plane of the two mutually orthogonal planes represented by a line; and

derive a further set of three view of the 3D image defined by the further set of three respective mutually orthogonal planes by:

(i) *determining a spatial difference between a first plane of the further set of three mutually orthogonal planes associated with a first view of the further set of three views and a reference plane of a reference view defined by the reference plane and having a reference anatomical orientation of the anatomical structure,*

(ii) *adjusting a rotation of the first view in the first plane of the further set of three mutually orthogonal planes in dependence on the spatial difference for more closely aligning an anatomical orientation of the anatomical structure in the first view of the further set of three views to the reference anatomical orientation in the reference view; and*

(iii) adjusting the second view and the third view of the further set of three views in dependence on the adjusted rotation of the first view of the further set of three views.

App. Br. 17–18 (Claims App’x).

*Rejections on Appeal*

Claims 1–3, 6–8, 11, 12, and 15–17 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over “Interactive Multidimensional Display of Magnetic Resonance Imaging Data” by Derek Ney et al. (“Ney”), Yanof et al. (US 5,734,384; issued Mar. 31, 1998) (“Yanof”), and Bailey et al. (US 7,061,484 B2; issued June 13, 2006) (“Bailey”).

Claim 9 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Ney, Yanof, Bailey, and Stefani et al. (US 2005/0113664 A1; published May 26, 2005) (“Stefani”).

Claim 10 stands rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Ney, Yanof, Bailey, and “Image-Based Visual Hulls” by Wojciech Matusik et al. (“Matusik”).

Claims 13 and 14 stand rejected under pre-AIA 35 U.S.C. § 103(a) as being unpatentable over Ney and Bailey.

### ANALYSIS

The dispositive issues<sup>3</sup> raised by Appellants’ arguments are whether the combination of Ney, Yanof, and Bailey teaches or suggests

(i) determining a spatial difference between a first plane of the further set of three mutually orthogonal planes associated with a first view of the further set of three views and a reference plane of a reference view defined by the reference plane and having a reference anatomical orientation of the anatomical structure,

(ii) adjusting a rotation of the first view in the first plane of the further set of three mutually orthogonal planes in dependence on the spatial difference for more closely aligning an anatomical orientation of the anatomical structure in the first view of the further set of three views to the reference anatomical orientation in the reference view

as recited in claim 1, and as similarly recited in claim 13.

The Examiner finds that the combination of Ney and Yanof discloses “displaying three mutually orthogonal slices, but do[es] not address rotation of the image within the plane to align the image to a reference view orientation.” Ans. 2. The Examiner finds that Bailey teaches “it is advantageous to ‘limit the effect of rotation by orienting the curved

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<sup>3</sup> Although Appellants’ arguments in the Briefs raise other issues, we do not address them because our decision of these issues is dispositive.

MPR image in the orientation most appropriate for the standard orthogonal MPR closest to itself” because “clinical orientations can be used at all times, which avoids confusion for users such as radiologists.” *Id.* at 2–3 (citing Bailey 16:65–17:2). The Examiner also finds that the term “closer” is defined as “being in proximity in space or time,” so the term “closest” would be interpreted by a person of ordinary skill in the art to “correspond to the most proximate in space (or time).” *Id.* at 4 (citing <http://www.dictionary.com/browse/closest> (definition accessed 9/29/17)). Thus, the Examiner further finds that Bailey’s use of the term “closest” requires the determination of a minimum spatial difference. *Id.* Regarding the adjusting limitations of claim 1, the Examiner finds they are taught by the modification of Ney in view of Bailey, rather than Bailey alone:

That is, Ney and Yanof disclose displaying three mutually orthogonal slices, but do not address rotation of the image within the plane to align the image to a reference view orientation, and the mapping finds it would have been obvious to modify Ney’s system to incorporate the oblique view orientation rotation taught by Bailey, col 16, line 65 - col 17, line 12, lines 34-56, i.e. the **full** citation, describes snapping the displayed MPR image to the reference orientation “closest to itself”, and giving additional examples with respect to an underlying flat MPR (which is analogous to Ney’s oblique slice) being rotated to its closest standard reference orientation. The rejection explicitly states (pages 9-11) that Bailey teaches that in order to assist the user in interpreting the images, the image should be rotated and/or mirrored to correspond to the reference view orientation.

*Id.* at 5.

Regarding Appellants' argument that the examiner has provided no affirmative evidence for inherency, the Examiner finds as follows:

While the examiner has conceded that Bailey does not disclose the means of determining which reference orientation is the "closest", the examiner has repeatedly noted that **Bailey uses the result** of determining which reference orientation is the "closest", making it **inherent** that Bailey determines which reference orientation has the minimum spatial difference, i.e. is the "closest", in order to select it as the reference orientation for display. Rather than address the basis of inherency put forth by the examiner, based on full citation of Bailey describing determining the "closest" reference view orientation, col 16, line 65 - col 17, lines 12, 34-56, Appellant's remarks attack a strawman argument, asserting that Bailey "might" use other means, **without** explaining how such an interpretation of Bailey is consistent with Bailey's description of determining a "closest" reference view orientation to the MPR image.

*Id.* at 7.

Appellants argue that the Examiner has not provided "a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." App. Br. 10 (citing MPEP § 2112(IV)); *see also* Reply Br. 4. Appellants also argue there are numerous ways by which Bailey may identify the standard orthogonal MPR (multi-planar reformatting) that is closest to the curved MPR image that do not require determining a spatial difference between the curved and the standard orthogonal MPR views. Reply Br. 4–6; App. Br. 10–11.

We are persuaded by Appellants' arguments that the Examiner erred. The Federal Circuit has explained that the concept of inherency in the patentability analysis was originally rooted in anticipation and "must be

limited when applied to obviousness.” *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1195 (Fed. Cir. 2014); *see also Honeywell Int’l Inc. v. Mexichem Amanco Holdings S.A. de C.V.*, 865 F.3d 1348, 1354–55 (Fed. Cir. 2017) (cautioning that “the use of inherency in the context of obviousness must be carefully circumscribed.”). The Federal Circuit has further explained that:

A party must . . . meet a high standard in order to rely on inherency to establish the existence of a claim limitation in the prior art in an obviousness analysis—the limitation at issue must necessarily be present, or the natural result of the combination of elements explicitly disclosed by the prior art.

*PAR Pharm.*, 773 F.3d at 1195–96. Thus, inherency “may not be established by probabilities or possibilities.” *Id.* at 1195 (quoting *In re Oelrich*, 666 F.2d 578, 581 (CCPA 1981)). “‘The mere fact that a certain thing may result from a given set of circumstances is not sufficient’ to render the result inherent.” *Millennium Pharms., Inc. v. Sandoz Inc.*, 862 F.3d 1356, 1367 (Fed. Cir. 2017) (quoting *Oelrich*, 666 F.2d at 581).

As Appellants argue, they noted in the Appeal Brief two ways by which Bailey may identify the standard orthogonal MPR that is closest to the curved MPR image that do not require determining a spatial difference between the curved MPR view and the standard orthogonal MPR view. Reply Br. 4–5; *see also* App. Br. 10–11. In the Reply Brief, Appellants note that column 9, lines 37–55, of Bailey disclose that “the standard MPR plane to which the curved MPR view is ‘most similar’ (which can be reasonably understood as ‘closest’) is the standard MPR plane which is ‘curved’ to generate the curved MPR view,” which again does not require determining a

spatial difference between the standard MPR and the curved MPR view.

Reply Br. 6.

Thus, applying the Federal Circuit’s guidance on inherency here, we determine the Examiner has not shown that “determining a spatial difference between a first plane and a reference plane” is “necessarily present” or “the natural result flowing from” the disclosure of Bailey cited by the Examiner (Bailey, col 16, line 65 – col 17, line 12, lines 34–56). *See PAR Pharm.*, 773 F.3d at 1195 (internal citation omitted). As Appellants also argue, and we agree, because Bailey does not fairly teach or suggest determining a spatial difference between a first plane of the further set of planes and a selected reference plane, the combination of Bailey, Ney, and Yanof cannot disclose “adjusting a rotation” of the first view in the first plane of the further set of planes “in dependence on the spatial difference.” App. Br. 7–8.

Therefore, on this record, we determine that a preponderance of the evidence does not support the Examiner’s underlying factual findings and legal conclusion of obviousness regarding the disputed limitations of claim 1, which are recited in similar, commensurate form in independent claim 13. Accordingly, we do not sustain the Examiner’s rejections of claims 1 and 13, and dependent claims 2, 3, 6–12, and 14–17, under 35 U.S.C. § 103(a).

## DECISION

We reverse the Examiner’s decision rejecting claims 1–3 and 6–17 for obviousness under 35 U.S.C. § 103(a).

REVERSED