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**Datasheet for the decision
of 28 August 2020**

Case Number: T 1080/15 - 3.5.04

Application Number: 10760099.1

Publication Number: 2482725

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Language of the proceedings: EN

Title of invention:
GENERATING COMPOSITE MEDICAL IMAGES

Applicant:
Koninklijke Philips N.V.

Headword:

Relevant legal provisions:

EPC Art. 54(1), 54(2), 56
RPBA 2020 Art. 13(1), 13(2)

Keyword:

Main request - novelty (no)
First, third, fifth, sixth auxiliary request, auxiliary
request IIIb - inventive step (no)
Auxiliary requests IIa and VII - admitted (no)

Decisions cited:

Catchword:



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Case Number: T 1080/15 - 3.5.04

D E C I S I O N
of Technical Board of Appeal 3.5.04
of 28 August 2020

Appellant: Koninklijke Philips N.V.
(Applicant) High Tech Campus 52
5656 AG Eindhoven (NL)

Representative: van Velzen, Maaïke Mathilde
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Decision under appeal: **Decision of the Examining Division of the
European Patent Office posted on 12 January 2015
refusing European patent application
No. 10760099.1 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman M. Paci
Members: B. Le Guen
G. Decker

Summary of Facts and Submissions

I. The appeal is against the decision to refuse European patent application No. 10 760 099.1, published as international application WO 2011/039672 A1.

II. The documents cited in the decision under appeal included the following:

D2: US 2008/0125639 A1

D5: Human translation of JP2002094772

III. The decision was based on the grounds that:

(a) the subject-matter of claim 1 of the main request and the fourth auxiliary request then on file was not new (Article 54(1) EPC) over the disclosure of document D5 and lacked inventive step (Article 56 EPC) in view of the disclosure of document D2

(b) the subject-matter of claim 1 of the first, third, fifth and sixth auxiliary requests then on file lacked inventive step (Article 56 EPC) in view of the disclosure of document D5

The second auxiliary request filed at the oral proceedings before the examining division was not admitted into the first-instance proceedings because claim 1 contained subject-matter which extended beyond the content of the application as filed (Article 123(2) EPC).

IV. The applicant ("appellant") filed notice of appeal.

With the statement of grounds of appeal, it requested that the decision under appeal be set aside and that a patent be granted on the basis of the claims of one of the seven requests filed with the statement of grounds of appeal and corresponding to the requests forming the basis of the impugned decision (statement of grounds of appeal, page 1, section I).

The appellant provided a basis for claim 1 of the second auxiliary request in the application as filed as well as arguments as to why the subject-matter of the claims of the seven requests was new and involved an inventive step.

- V. The board issued a summons to oral proceedings. In a communication under Article 15(1) RPBA 2020 (Rules of Procedure of the Boards of Appeal in the version of 2020, OJ EPO 2019, A63), annexed to the summons, the board gave its preliminary opinion that:
- (a) the subject-matter of claim 1 of the main request and the fourth auxiliary request was not new (Article 54(1) EPC) over the disclosure of document D5
 - (b) the subject-matter of claim 1 of the first, second, third, fifth and sixth auxiliary requests lacked inventive step (Article 56 EPC) in view of the disclosure of document D5 combined with common general knowledge
 - (c) claim 1 of the second and third auxiliary requests contained subject-matter which extended beyond the content of the application as filed (Article 123(2) EPC)
 - (d) claim 1 of all requests lacked clarity (Article 84 EPC)

VI. By letter dated 27 July 2020, the appellant maintained all the requests forming the basis of the decision under appeal and further filed seven additional claim requests labelled "auxiliary request Ia", "auxiliary request IIa", "auxiliary request IIIa", "auxiliary request IIIb", "auxiliary request Va", "auxiliary request VIa" and "auxiliary request VII". The appellant also filed amended description pages according to these requests.

It requested that the decision under appeal be set aside and that a patent be granted on the basis of the claims of one of the main request, the first auxiliary request, auxiliary request Ia, the second auxiliary request, auxiliary request IIa, the third auxiliary request, auxiliary request IIIa, auxiliary request IIIb, the fourth auxiliary request, the fifth auxiliary request, auxiliary request Va, the sixth auxiliary request, auxiliary request VIa and auxiliary request VII, in this order of preference.

VII. On 26 August 2020, a communication of the board was faxed to the appellant. In this communication, the appellant's attention was drawn to the established case law of the boards of appeal on the assessment of features relating to a presentation of information.

VIII. On 28 August 2020, oral proceedings were held before the board. As agreed by the appellant by letter dated 21 August 2020, the legally qualified member participated remotely via video conference.

During the oral proceedings, the appellant withdrew auxiliary request Ia, the second auxiliary request, auxiliary request IIIa, the fourth auxiliary request, auxiliary request Va and auxiliary request VIa.

The appellant's final requests were that the decision under appeal be set aside and that a European patent be granted on the basis of the claims of the main request or, alternatively, on the basis of the claims of the following auxiliary requests in the following order of preference: the first auxiliary request, auxiliary request IIa, the third auxiliary request, auxiliary request IIIb, the fifth auxiliary request, the sixth auxiliary request and auxiliary request VII. If none of these requests could be granted, the appellant requested that the case be remitted to the department of first instance for further prosecution on the basis of the claims of auxiliary request VII.

At the end of the oral proceedings, the chairman announced the board's decision.

IX. Claim 1 of the main request reads as follows:

"Medical imaging system (10) for generating a composite medical view combining at least first and second image data, comprising:

- an image acquisition device (12);
- a data processing unit (14); and
- a display device (16);

wherein the image acquisition device is arranged to acquire (118) at least a first and a second image;

wherein the data processing unit is adapted

- to receive first image data of a first selected image (112) and second image data of a selected second image (114) from the image acquisition device (12);

- to register (120) the first and the second image data;
- to determine (122) a boundary connecting sector connecting adjacent boundaries of the first image and the second image;

characterized in that the data processing unit is adapted

- to generate (124) a separator on behalf of the image data of the boundary connecting sector; and
- to combine (126) image data of the first image and the second image with image data of the separator to a combined image data; and

wherein the display device (16) is arranged to display (130) the combined image comprising the first and second image and the separator;

wherein the separator visually decouples the first and second image."

X. Claim 1 of the first auxiliary request reads as follows:

"A medical imaging system (10) for generating a composite medical view combining at least first and second image data, comprising:

- an image acquisition device (12);
- a data processing unit (14); and
- a display device (16);

wherein the image acquisition device is arranged to acquire (118) at least a first and a second image;

wherein the data processing unit is adapted

- to receive first image data of a first selected image (112) and second image data of a selected second image (114) from the image acquisition device (12);
- to register (120) the first and the second image data;
- to determine (122) a boundary connecting sector connecting adjacent boundaries of the first image and the second image;
- to generate (124) a separator on behalf of the image data of the boundary connecting sector; and
- to combine (126) image data of the first image and the second image with image data of the separator to a combined image data;

wherein the data processing unit is further adapted to adapt the separator to the adjacent image data; wherein the separator is a line, and wherein the separator is shown in a colour not used in the first or second selected images; and

wherein the display device (16) is arranged to display (130) the combined image comprising the first and second image and the separator;

wherein the separator visually decouples the first and second image."

XI. Claim 1 of auxiliary request IIa reads as follows:

"A medical imaging system (10) for generating a composite medical view combining at least first and second image data, comprising:

- an image acquisition device (12);

- a data processing unit (14); and
- a display device (16);

wherein the image acquisition device is arranged to acquire (118) at least a first and a second image;

wherein the data processing unit is adapted

- to receive first image data of a first selected image (112) and second image data of a selected second image (114) from the image acquisition device (12);
- to register (120) the first and the second image data;
- to determine (122) a boundary connecting sector connecting adjacent boundaries of the first image and the second image;
- to generate (124) a separator representing the image data of the boundary connecting sector; and
- to combine (126) image data of the first image and the second image with image data of the separator to a combined image data;

wherein the data processing unit is further adapted to generate the separator such that the separator is a line, and

- in an image showing image information in a greyscale more bright relative to the back ground, the separator is shown in a greyscale more bright relative to the back ground, or
- in an image showing image information in a greyscale less bright relative to the back ground, the separator is shown in a greyscale less bright relative to the back ground;

and

wherein the display device (16) is arranged to display (130) the combined image comprising the first and second image and the separator."

XII. Claim 1 of the third auxiliary request reads as follows:

"A medical imaging system (10) for generating a composite medical view combining at least first and second image data, comprising:

- an image acquisition device (12);
- a data processing unit (14); and
- a display device (16);

wherein the image acquisition device is arranged to acquire (118) at least a first and a second image;

wherein the data processing unit is adapted

- to receive first image data of a first selected image (112) and second image data of a selected second image (114) from the image acquisition device (12);
- to register (120) the first and the second image data;
- to determine (122) a boundary connecting sector connecting adjacent boundaries of the first image and the second image;
- to generate (124) a separator on behalf of the image data of the boundary connecting sector; and
- to combine (126) image data of the first image and the second image with image data of the separator to a combined image data;

wherein the data processing unit is further adapted to adapt the separator to the adjacent image data; wherein

the separator is a line, and wherein the separator is shown in a colour not used in the first or second selected images; and

wherein the separator is differently adapted along its extension in relation to the adjacent image content, depending on image parameters comprising brightness and/or contrast and/or colours; and

wherein the display device (16) is arranged to display (130) the combined image comprising the first and second image and the separator;

wherein the separator visually decouples the first and second image."

XIII. Claim 1 of the auxiliary request IIIb reads as follows:

"A medical imaging system (10) for generating a composite medical view combining at least first and second image data, comprising:

- an image acquisition device (12);
- a data processing unit (14); and
- a display device (16);

wherein the image acquisition device is arranged to acquire (118) at least a first and a second image;

wherein the data processing unit is adapted

- to receive first image data of a first selected image (112) and second image data of a selected second image (114) from the image acquisition device (12);
- to register (120) the first and the second image data;

- to determine (122) a boundary connecting sector connecting adjacent boundaries of the first image and the second image;
- to generate (124) a separator representing the image data of the boundary connecting sector; and
- to combine (126) image data of the first image and the second image with image data of the separator to a combined image data;

wherein the data processing unit is further adapted to generate the separator such that the separator is a line having an extension and the separator is shown in a colour not used in the first or second selected images; and

wherein the separator line is adapted to the location on the display device to fulfil its function of hiding or reducing discontinuities along an interface between the first and second images due to a sensitivity of a user's eye, wherein the separator is differently adapted along its extension in relation to the adjacent image content, depending on image parameters comprising brightness or contrast or colours; and

wherein the display device (16) is arranged to display (130) the combined image comprising the first and second image and the separator;

wherein the separator visually decouples the first and second image."

XIV. Claim 1 of the fifth auxiliary request reads as follows:

"Medical imaging system (10) for generating a composite medical view combining at least first and second image data, comprising:

- an image acquisition device (12);
- a data processing unit (14); and
- a display device (16);

wherein the image acquisition device is arranged to acquire (118) at least a first and a second image;

wherein the data processing unit is adapted

- to receive first image data of a first selected image (112) and second image data of a selected second image (114) from the image acquisition device (12);
- to register (120) the first and the second image data;
- to determine (122) a boundary connecting sector connecting adjacent boundaries of the first image and the second image;

characterized in that the data processing unit is adapted:

- to generate (124) a separator on behalf of the image data of the boundary connecting sector; and
- to combine (126) image data of the first image and the second image with image data of the separator to a combined image data;

wherein the data processing unit is adapted:

- to determine a common image region of the first image data overlapping with the second image data and to

determine a common image region of the second image data overlapping with the first image data;

- to determine cutting data in common image region;
- to adapt the first image data by cutting the first image data according to the cutting data removing the overlapping region of the first image data;
- to adapt the second image data by cutting the second image data according to the cutting data removing the overlapping region of the second image data;
- to determine the cutting data as boundary connecting sector;
- to generate the separator adapted to the cutting data;

wherein the display device (16) is arranged to display (130) the combined image comprising the first and second image and the separator;

wherein the separator visually decouples the first and second image; and

wherein the image acquisition device is an X-ray acquisition device."

XV. Claim 1 of the sixth auxiliary request reads as follows:

"Medical imaging system (10) for generating a composite medical view combining at least first and second image data, comprising:

- an image acquisition device (12);
- a data processing unit (14); and
- a display device (16);

wherein the image acquisition device is arranged to acquire (118) at least a first and a second image;

wherein the data processing unit is adapted

- to receive first image data of a first selected image (112) and second image data of a selected second image (114) from the image acquisition device (12);
- to register (120) the first and the second image data;
- to determine (122) a boundary connecting sector connecting adjacent boundaries of the first image and the second image;

characterized in that the data processing unit is adapted

- to generate (124) a separator on behalf of the image data of the boundary connecting sector; and
- to combine (126) image data of the first image and the second image with image data of the separator to a combined image data; the data processing unit is adapted to displace the adapted first image data and the adapted second image data in relation to each other and to locate the separator such that the separator is located outside the adapted first image and outside the adapted second image;

wherein the display device (16) is arranged to display (130) the combined image comprising the first and second image and the separator;

wherein the separator visually decouples the first and second image; and

wherein the image acquisition device is an X-ray acquisition device."

XVI. Claim 1 of auxiliary request VII reads as follows:

"Medical imaging system (10) for generating a composite medical view combining at least first and second image data, comprising:

- an image acquisition device (12);
- a data processing unit (14); and
- a display device (16);

wherein the image acquisition device is arranged to acquire (118) at least a first and a second image;

wherein the data processing unit is adapted

- to receive first image data of a first selected image (112) and second image data of a selected second image (114) from the image acquisition device (12);
- to register (120) the first and the second image data;
- to determine (122) a boundary connecting sector connecting adjacent boundaries of the first image and the second image and having a form of a wedge;

characterized in that the data processing unit is adapted

- to generate (124) a separator representing the image data of the boundary connecting sector such that the separator is a line separating the first image and the second image and having a thickness being such that the wedge-formed boundary connecting sector is covered; and

- to combine (126) image data of the first image and the second image with image data of the separator to a combined image data; and

wherein the display device (16) is arranged to display (130) the combined image comprising the first and second image and the separator;

wherein the separator visually decouples the first and second image."

XVII. The arguments submitted by the appellant, as far as relevant to the present decision, may be summarised as follows.

Regarding the main request, the appellant submitted that the expression "*visually decouples the first and second image*" (claim 1, last sentence) had to be interpreted as meaning that the differences in intensities between the first and second images were reduced. Document D5 did not disclose this effect. The dashed line disclosed in document D5 only had the function of indicating where the first and second images had been combined. Moreover, it did not stand out from the adjacent image data. Consequently, it did not act as a separator visually decoupling the first and second images.

Regarding the first auxiliary request, the appellant submitted that an objective technical problem formulated as "how to increase the visibility of the separator" contained a pointer to the solution. Increasing the visibility of the separator was only a means for reducing visual artefacts, i.e. it was part of the solution taught in the application. In any case, the person skilled in the art starting from document D5

would not have had any incentive to increase the visibility of the dashed line shown in Figure 9.

Regarding auxiliary request IIa, the appellant argued that it should be admitted into the appeal proceedings for the following reasons:

- (a) It was filed in response to an objection of added subject-matter raised for the first time in the board's communication with respect to the second auxiliary request.
- (b) There had been a change of representation after notification of the summons. The new representative could not have filed auxiliary request IIa earlier since he was not in charge of the case.

Regarding the third auxiliary request, the appellant argued that there were many ways of highlighting the dashed line shown in Figure 9 of document D5. The person skilled in the art would have had no incentive to choose the claimed solution, all the more since this solution led to greater computational complexity.

Regarding auxiliary request IIIb, the appellant argued that the person skilled in the art would have had no incentive to modify the dashed line shown in Figure 9 of document D5 such that it fulfilled the function of *"hiding or reducing discontinuities along an interface between the first and second images due to a sensitivity of a user's eye"*, as required by claim 1.

Regarding the fifth auxiliary request, the appellant submitted that claim 1 defined an alternative way of combining two images for generating a composite view. Document D5 did not contain any indication that would have led the person skilled in the art to the claimed subject-matter.

Regarding the sixth auxiliary request, the appellant argued that little image information was hidden by the dashed line in Figure 9 of document D5. Moreover, this information was of no medical value because it corresponded to the connecting sector. The person skilled in the art would not have expected the diagnostic of the practitioner to be improved by un hiding this information. In any case, they would not have changed the system of document D5 so that it was configured to place the dashed line between the combined images because this modification would have increased the computational complexity of the system.

Regarding auxiliary request VII, the appellant essentially argued that this request should be admitted into the appeal proceedings because it was a direct response to a clarity objection raised for the first time in the board's communication.

Reasons for the Decision

1. The appeal is admissible.
2. *The invention*
 - 2.1 The application relates to the generation of a composite medical view combining at least two medical images such as X-ray images. Medical images of different parts of a body region acquired separately may not perfectly connect at their contacting edges when they are combined together, a process also referred to as "stitching". Artefacts can therefore appear at their junction (description as filed, page 1, "*Background of the invention*").

- 2.2 To reduce the perception of these artefacts, the application proposes to insert a separator at the "boundary connecting sector" connecting the images (page 2, lines 4 to 22). In an embodiment, the separator may cover a gap or disturbing forms (page 3, lines 3 to 10; Figure 18; page 12, second full paragraph). Alternatively, the separator may replace a common image region identified in - and cut from - the two images after they have been registered (page 3, lines 15 to 25; Figure 17; paragraph bridging pages 11 and 12). In a further embodiment, a space may be created between the two registered images, after cutting the common image region or not, and the separator may be located in that space (paragraph bridging pages 3 and 4 and page 10, first full paragraph).
- 2.3 The separator may be a line, dotted or striped, thin or thick, straight, curved or of other geometric forms, whose brightness or colour may be adapted to the content (for example, brightness, contrast or colours) of the registered images (page 4, lines 16 to 31; page 9, lines 23 and 24; page 11, line 10; page 12, lines 13 to 15 and lines 25 and 26).
- 2.4 Irrespective of its contribution to the reduction of the perception of artefacts, the separator provides the user information about where two images have been stitched (page 2, lines 19 to 21).

3. *Main request, novelty (Article 54(1), (2) EPC)*

3.1 According to Article 54(1) EPC, an invention is to be considered new if it does not form part of the state of the art.

3.2 Document D5 discloses a medical imaging system (paragraph [0034]: "*means of radiographic image processor*") for generating a composite medical view combining at least first and second image data (paragraph [0055]). It comprises an image acquisition device (paragraph [0035]: "*radiographic image*"), a data processing unit (paragraph [0048]) and a display device (paragraph [0060]). The image acquisition device is arranged to acquire at least a first and a second image (Figure 3).

The data processing unit is adapted to (i) receive first image data of a first selected image and second image data of a selected second image from the image acquisition device (paragraphs [0035] and [0036]), (ii) register the first and second image data (paragraphs [0044] and [0045], [0048] to [0053]) and (iii) determine a boundary connecting sector connecting adjacent boundaries of the first image and the second image (paragraph [0040]: "*recognition of combination line*", and "paragraph [0042]: "*overlapping area end*").

The data processing unit is further adapted to (i) generate a separator on behalf of the image data of the boundary connecting sector (paragraphs [0061] and [0070] and Figure 9) and (ii) combine image data of the first image and the second image with image data of the separator to a combined image data (paragraphs [0055], [0061] and [0070], and Figure 9).

The display device is arranged to display the combined image comprising the first and second images and the separator (paragraph [0061] and Figure 9).

The dashed line shown in Figure 9 visually decouples the first and second images.

- 3.3 In view of the above, the board finds that document D5 discloses the combination of the features of claim 1.
- 3.4 In the statement of grounds of appeal (page 4, point V.a)), the appellant contended that the data processing unit disclosed in document D5 was adapted to generate a separator on behalf of the image data of the boundary connecting sector. The appellant argued that the separator of Figure 9 did not stand out from the adjacent image data and, consequently, did not act as a separator visually decoupling the first and second images, as specified by claim 1.

At the oral proceedings before the board, the appellant added that the expression "*visual decouples the first and second image*" of claim 1 (last sentence) had to be interpreted as meaning that the differences in intensities between the first and second images are reduced. Document D5 did not disclose this effect. The dashed line disclosed in document D5 only had the function of indicating where the first and second images had been combined.

- 3.5 The board does not find these arguments persuasive. The characteristic that the separator stands out from the adjacent image data is not a feature of the claim and, therefore, cannot be used to distinguish its subject-matter from the state of the art. In any case, the board notes that the separator shown in Figure 9 at

least partially stands out from the adjacent image data.

The board also notes that one of the advantages of the separator emphasised in the application as filed is that it indicates "*where two or more volume or segments are connected*" (page 2, lines 19 to 21). Thus, in the context of the application, the expression "*visually decouples the first and second image*" is also to be understood as meaning that the location where the first and second images have been combined is shown. As pointed out by the appellant, this is the primary function of the dashed line disclosed in document D5 (paragraphs [0061], [0070] and Figure 9).

- 3.6 In view of the above, the board comes to the conclusion that the subject-matter of claim 1 of the main request is not new over the disclosure of document D5.
4. *First auxiliary request, inventive step (Article 56 EPC)*
 - 4.1 According to Article 56 EPC, an invention is to be considered as involving an inventive step if, having regard to the state of the art, it is not obvious to the person skilled in the art.
 - 4.2 Claim 1 of the first auxiliary request differs from claim 1 of the main request in that it further stipulates that the data processing unit is adapted to adapt the separator to the adjacent image data and that the separator is a line shown in a colour not used in the first or second selected images.
 - 4.3 The board uses the "problem and solution approach" for assessing whether the invention claimed in claim 1

involves an inventive step (Case Law of the Boards of Appeal of the European Patent Office ("Case Law"), 9th edition 2019, I.D.2).

4.4 It is common ground that document D5 may be considered the closest state of the art in the context of this approach.

4.5 Document D5 discloses a separator which is a line (Figure 9 and paragraph [0061]: "*dashed line*").

Additionally, in document D5, the recognition of a combining position on the partial radiographic images is a prerequisite for generating the separator. Hence, the generation of the separator necessarily takes into account "the adjacent image data". Thus, document D5 discloses a data processing unit "further adapted to adapt the separator to the adjacent image data".

4.6 It is common ground that document D5 does not disclose that the separator is shown in a colour not used in the first or second selected images.

4.7 This difference has the effect that a better contrast is achieved between the separator and the adjacent first and second image data. Thus, the separator is more visible within the composite image.

At the oral proceedings before the board, the appellant submitted that the effect of highlighting the separator was technical. Although the board has doubts that this is indeed the case, it is not necessary to further consider this question because it does not affect the outcome of this decision. In the following, the effect of highlighting the separator is thus assumed, in the appellant's favour, to be technical.

- 4.8 The objective technical problem may thus be formulated as how to increase the visibility of the dashed line shown in Figure 9 of document D5.
- 4.9 At the oral proceedings before the board, the appellant submitted that the only function of the dashed line in document D5 was to indicate at which height two images had been combined. The whole line did not need to be visible to fulfil this function. Accordingly, the person skilled in the art starting from document D5 would not have had any incentive to increase the visibility of the line.
- 4.10 The board does not find these arguments persuasive. The function of the dashed line in Figure 9 of document D5 is to show where two images have been stitched (paragraph [0061]). It is obvious that the more visible the dashed line is, the better this function is fulfilled. The person skilled in the art starting from the system of document D5 would therefore have wanted to increase the visibility of the dashed line.

The images composed in document D5 are radiographic images. Such images are generally grey-level images. To increase the visibility of the dashed line, it is obvious to show it in a colour which is not a level of grey.

- 4.11 In the course of the appeal proceedings, the appellant submitted that, apart from increasing the visibility of the separator, showing it in a colour not used in the first or second selected images additionally led to:
(a) an increase in dynamic range (statement of grounds of appeal, page 6, lines 6 and 7)

- (b) a reduction of artefacts (statement of grounds of appeal, page 6, lines 7 to 15; reply dated 27 July 2020, page 8, lines 2 to 6)
- (c) more accurate image information being presented to the practitioner (statement of grounds of appeal, page 6, second paragraph)
- (d) a reduction of the likelihood that the practitioner mistakes the seam between the first and second images for a physical structure (effect emphasised at the oral proceedings before the board)

4.12 The board is not convinced that the additional effects put forward by the appellant can be considered credible technical effects. However, it is not necessary to further consider this question because, even if they were, they would be automatically achieved by increasing the visibility of the separator relative to the two adjacent images in D5. In other words, these effects would be bonus effects which could not render the claimed subject-matter inventive (see Case Law, I.D.10.8).

4.13 In view of the above, the board comes to the conclusion that the subject-matter of claim 1 of the first auxiliary request lacks inventive step in view of the disclosure of document D5 combined with common general knowledge.

5. *Auxiliary request IIa, admission (Article 13(2) RPBA 2020)*

5.1 According to Article 13(2) RPBA 2020, "*[a]ny amendment to a party's appeal case made after notification of a summons to oral proceedings shall, in principle, not be taken into account unless there are exceptional*

circumstances, which have been justified with cogent reasons by the party concerned".

5.2 Auxiliary request IIa was filed after notification of the summons to oral proceedings.

5.3 At the oral proceedings, the appellant argued that this request should be admitted into the appeal proceedings for the following reasons:

(a) It was filed in response to an objection of added subject-matter raised for the first time in the board's communication with respect to the second auxiliary request.

(b) There had been a change of representation after notification of the summons. The new representative could not have filed auxiliary request IIa earlier since he was not in charge of the case.

5.4 The board does not find these reasons cogent.

Regarding (a), the board notes that an objection of added subject-matter had already been raised in the decision under appeal (paragraph bridging pages 12 and 13). The objection raised in point 7 of the board's communication was a mere development of the objection originally raised by the examining division.

Regarding (b), it is established case law that a change of representative cannot as such qualify as an exceptional circumstance justifying the admission of a request in appeal proceedings (see Case Law, V.A. 4.8.2).

5.5 In view of the above, the board, using its discretion under Article 13(2) RPBA 2020, does not admit auxiliary request IIa into the appeal proceedings.

6. *Third auxiliary request, inventive step, Article 56 EPC*

6.1 Claim 1 of the third auxiliary request differs from claim 1 of the first auxiliary request in that it further stipulates that the separator is differently adapted along its extension in relation to the adjacent image content, depending on image parameters comprising brightness and/or contrast and/or colours.

6.2 In its letter of reply dated 27 July 2020, the appellant submitted that claim 1 had to be understood as meaning that at different locations along the separator line, the separator line was differently adapted based on the image content next to, i.e. adjacent to, the respective location along the separator line (page 19, lines 12 to 15, of the letter).

6.3 The board has doubts that this interpretation is the only technically sensible one. However, it does not judge it necessary to further consider this question because adopting the appellant's narrow interpretation does not affect the outcome of this decision.

6.4 Indeed, it is obvious, based on first principles, that the visibility of a line is increased by ensuring a sufficient contrast between this line and its background over the whole length of the line. Therefore, the person skilled in the art starting from document D5 wanting to increase the visibility of the dashed line of Figure 9 would have adapted the line locally based on the brightness and/or contrast and/or colours of the adjacent image data.

6.5 At the oral proceedings before the board, the appellant argued that there were many ways of highlighting the dashed line of Figure 9. The person skilled in the art would have had no incentive to choose the claimed solution, all the more since this solution led to greater computational complexity.

6.6 The board does not find this argument convincing. The fact that there are many possible solutions to a given problem does not mean that selecting one particular solution involves an inventive step. If each solution has only predictable advantages and disadvantages, it is merely an obvious solution among several obvious solutions among which the person skilled in the art would choose depending on the circumstances, for example, depending on whether more computational resources are available or not.

6.7 In view of this, the board comes to the conclusion that the subject-matter of claim 1 of the third auxiliary request lacks inventive step in view of the disclosure of document D5 combined with common general knowledge.

7. *Auxiliary request IIIb, inventive step (Article 56 EPC)*

7.1 Auxiliary request IIIb is admitted into the appeal proceedings because it was filed in reply to objections raised for the first time in the board's communication.

7.2 Claim 1 of auxiliary request IIIb is intended to better reflect the narrow interpretation of claim 1 of the third auxiliary request adopted by the appellant (see point 6.2 above). However, this interpretation has already been accepted by the board for the sake of argument when assessing whether the subject-matter of

claim 1 of the third auxiliary request involved an inventive step (see point 6.3 above).

Additionally, claim 1 of auxiliary request IIIb specifies that the separator line is adapted to the location on the display device "*to fulfil its function of hiding or reducing discontinuities along an interface between the first and second images due to a sensitivity of a user's eye*".

7.3 Unlike the appellant, the board considers that this function is automatically achieved by the dashed line - as a bonus effect - when it is modified according to the principles set out under point 6.4 above with the aim of increasing its visibility (see also point 4.12 above).

7.4 Therefore, the board comes to the conclusion that the subject-matter of claim 1 of the auxiliary request IIIb also lacks inventive step in view of the disclosure of document D5 combined with common general knowledge.

8. *Fifth auxiliary request, inventive step (Article 56 EPC)*

8.1 It is established case law that inventive step cannot be acknowledged on the basis of a foreseeable disadvantageous modification of the closest state of the art that is not compensated by any unexpected technical advantage (Case Law, I.D.9.19.1).

8.2 The system of claim 1 of the fifth auxiliary request differs from the system of claim 1 of the main request in that the image acquisition device is an X-ray acquisition device and in that the data processing unit is adapted to:

- determine a common image region of the first image data overlapping with the second image data and to determine a common image region of the second image data overlapping with the first image data
- determine cutting data in the common image region
- adapt the first image data by cutting the first image data according to the cutting data removing the overlapping region of the first image data
- adapt the second image data by cutting the second image data according to the cutting data removing the overlapping region of the second image data
- determine the cutting data as a boundary connecting sector
- generate the separator adapted to the cutting data

8.3 The device disclosed in D5 acquires radiographic images. It is known that such images are acquired by the use of X-rays.

8.4 Moreover, the data processing unit in the system of document D5 is adapted (using the wording of claim 1) to:

- determine a common image region of the first image data overlapping with the second image data and to determine a common image region of the second image data overlapping with the first image data (paragraphs [0039] to [0047])
- determine cutting data in a common image region (paragraph [0051])
- adapt the first image data by cutting the first image data according to the cutting data removing the overlapping region of the first image data (ibid.)
- determine the cutting data as a boundary connecting sector (paragraph [0061], Figure 9)

- generate the separator adapted to the cutting data (ibid.)

8.5 It is common ground that document D5 does not disclose removing the overlapping region from **both** of the stitched images (see impugned decision, page 15, lines 17 to 22 and statement of grounds of appeal, page 10, lines 12 to 16).

8.6 Cutting out the overlapping region from the two images has the clear disadvantage that a part of the object of interest is removed. Thus, information potentially relevant to the practitioner is lost. The board cannot identify any unexpected technical advantage compensating for this loss. In particular, the board fails to see how cutting out the overlapping region from both images increases the accuracy or the dynamic range of the image information (statement of grounds of appeal, page 10, lines 3-9). Removing information necessarily has the opposite effect.

Therefore, like the examining division (impugned decision, page 16, first paragraph), the board finds that the system of claim 1 is the result of a foreseeable disadvantageous modification of the system of document D5 that is not compensated by any unexpected technical advantage.

8.7 In its letter dated 27 July 2020 (page 28, point 11.2.1, first paragraph) and at the oral proceedings before the board, the appellant did not indicate any unexpected technical advantage being the result of the distinguishing feature. It merely stated that claim 1 defined an alternative way of combining two images.

8.8 In view of the above, the board arrives at the conclusion that the subject-matter of claim 1 of the fifth auxiliary request lacks inventive step in view of the disclosure of document D5 combined with common general knowledge.

9. *Sixth auxiliary request, inventive step (Article 56 EPC)*

9.1 The system of claim 1 of the sixth auxiliary request differs from the system of claim 1 of the main request in that the image acquisition device is an X-ray acquisition device and in that the data processing unit is adapted to displace the adapted first image data and the adapted second image data in relation to each other and to locate the separator such that the separator is located outside the adapted first image and outside the adapted second image.

9.2 The image acquisition device in the system of document D5 is also an X-ray acquisition device.

9.3 Moreover, the data processing unit in the system of document D5 is adapted to displace the adapted first image data and the adapted second image data in relation to each other (see for example Figure 7 and paragraph [0050]).

9.4 It is common ground that document D5 does not disclose that the separator is located outside of the adapted first and second images (see impugned decision, page 16, last sentence and statement of grounds of appeal, pages 10 and 11, paragraph h)).

- 9.5 This difference has the effect that no information is hidden by the separator. Thus, more information potentially relevant to the practitioner is presented.
- 9.6 At the oral proceedings before the board, the appellant formulated the objective technical problem as how to modify the system of document D5 so that physical structures can be more reliably detected in the composite image.
- 9.7 The board accepts this problem formulation for the sake of argument because it does not affect the outcome of this decision.
- 9.8 Indeed, it is obvious that a line presented on top of the composed images hides image information from the practitioner. A practitioner wishing to improve the reliability of their diagnostic would want to be presented with the maximum amount of image information. Placing the line between the images is an obvious way of fulfilling this wish.
- 9.9 In its reply dated 27 July 2020 (point 13.2.1 on pages 32 and 33) and at the oral proceedings before the board, the appellant argued that little image information was hidden by the dashed line in Figure 9 of document D5. Moreover, this information was of no medical value because it corresponded to the sector where images were stitched. The person skilled in the art would not have expected the diagnostic of the practitioner to be improved by un hiding this information. In any case, they would not have changed the system of document D5 so that it is configured to place the dashed line between the combined images because this modification would have increased the computational complexity of the system.

9.10 The board does not find these arguments persuasive. The appellant's statement about the value of the image information is speculative. The use of a dashed - not a full - line in Figure 9 of document D5 indicates that the underlying image information has at least some medical value. Thus, the practitioner might wish to unhide it. Moreover, as discussed in relation to the fifth auxiliary request (section 8 above), the fact that a particular modification of the state of the art would have foreseeable technical disadvantages cannot form the basis of an inventive step if these disadvantages are not compensated by any unexpected technical advantage. That more image information is presented when the dashed line is placed between the composed images can clearly not be considered as an unexpected technical advantage.

9.11 In view of the above, the board comes to the conclusion that the subject-matter of claim 1 of the sixth auxiliary request does not involve an inventive step in view of the disclosure of document D5 combined with common general knowledge.

10. *Auxiliary request VII, admission (Article 13(1), (2) RPBA 2020)*

10.1 According to Article 13(1) RPBA 2020, "*[a]ny amendment to a party's appeal case after it has filed its grounds of appeal or reply is subject to the party's justification for its amendment and may be admitted only at the discretion of the board. ... The board shall exercise its discretion in view of, inter alia, the current state of the proceedings, the suitability of the amendment to resolve the issues which were admissibly raised by the board, whether the amendment*

is detrimental to procedural economy, and, in the case of an amendment to a patent application or patent, whether the party has demonstrated that any such amendment, prima facie, overcomes the issues raised by the board and does not give rise to new objections".

- 10.2 Auxiliary request VII was filed by letter dated 27 July 2020, i.e. after the appellant had filed its statement of grounds of appeal and after notification of the summons to oral proceedings. Its admission is thus at the board's discretion within the framework set out in Article 13(1), (2) RPBA 2020.
- 10.3 The independent claims of auxiliary request VII relate to the embodiment disclosed in Figure 18 and the last full paragraph of description page 12 of the application as filed. This embodiment was never claimed. It is unclear to the board whether it was searched. In any case, it was not examined and does not represent a converging development of the subject-matter claimed in any of the higher-ranked auxiliary requests.
- 10.4 The auxiliary requests filed by the appellant during the first-instance proceedings already went in different directions. Claim 1 of the first to fourth auxiliary requests forming the basis for the decision under appeal focused on the difference of contrast between the separator and the image data. Claim 1 of the fifth auxiliary request, instead, focused on the embodiment of Figure 17. Claim 1 of the sixth auxiliary request, instead, focused on the embodiment disclosed on page 10, lines 13 to 22, of the description as filed.

10.5 The embodiment of Figure 18 appears to be one of the few, if not the only one, that has not been claimed during the first-instance proceedings. The board finds that if the appellant considered that this embodiment was non-obvious in view of the state of the art, such that it could have served as a fallback position for the grant of a patent (see point 15.3 on pages 36 and 37 of the appellant's letter dated 27 July 2020), it should have sought a decision of the examining division on auxiliary request VII. Admitting this request in the appeal proceedings would force the board either to give a first ruling on fresh subject-matter not examined in the first-instance proceedings or to remit the case to the department of first instance, which would be at odds with the principle of procedural efficiency.

10.6 At the oral proceedings before the board, the appellant argued that auxiliary request VII was a direct response to the clarity objection relating to the expression "on behalf of" raised for the first time in the board's communication. The appellant realised that the embodiment of Figure 18 was the only one which could clarify the technical meaning of that expression. Moreover, auxiliary request VII had been filed more than one month before the oral proceedings before the board and related to features which were clearly not disclosed in document D5.

The appellant further submitted that the embodiment of Figure 18 should have been searched by the search examiner because it was covered by the original independent claims.

10.7 The board does not find these reasons cogent. Although an objection raised for the first time by the board may

qualify as an exceptional circumstance justifying the admission of a request, it does not give the appellant carte blanche to amend the claims at wish. The amendments should, as a rule, remain within the framework of the embodiments that have been examined by the first-instance department.

10.8 In view of the above, the board, exercising its discretion under Article 13(1),(2) RPBA 2020, does not admit auxiliary request VII into the appeal proceedings. Consequently, the request of the appellant for remittal to the first-instance department for further prosecution on the basis of the claims of this request need not be considered.

11. Since none of the appellant's requests is allowable, the appeal is to be dismissed.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:



A. Voyé

M. Paci

Decision electronically authenticated