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**Datasheet for the decision
of 22 December 2021**

Case Number: T 0960/15 - 3.4.01

Application Number: 05779771.4

Publication Number: 1778353

IPC: A61N5/00, G06K9/00

Language of the proceedings: EN

Title of invention:

RADIOTHERAPEUTIC TREATMENT PLAN ADAPTATION

Patent Proprietor:

Koninklijke Philips N.V.

Opponent:

RaySearch Laboratories AB

Headword:

Radiotherapeutic treatment plan adaptation / Philips

Relevant legal provisions:

EPC Art. 56, 84, 100(a), 107, 114(2)

RPBA 2020 Art. 12(2), 13(1), 13(2), 24(1), 25(1)

Keyword:

Positive discretionary decision - legal basis for review (yes)
Positive discretionary decision - set aside (no)
Inventive step (main request, auxiliary requests I, IV') -
(no); (auxiliary request II') - effect not made credible
within the whole scope of claim
Claims - clarity - (auxiliary requests I, I', II, II', III,
III', IV) (no)
Amendment to appeal case (auxiliary requests I', I'', II'',
II''', III'') - suitability of amendment to resolve issues
raised (no)

Decisions cited:

G 0007/93, T 0677/08, T 1883/12, T 1209/05

Catchword:

The Boards of Appeal may review discretionary decisions. There are, however, limits on the extent of review that reflect the discretion accorded to the deciding body. In the present case, the Opposition Division decided to consider document D8 and the review of this decision is a primary object of the appeal proceedings (Article 12(2) RPBA 2020) - see Reasons 1 - 9.



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Case Number: T 0960/15 - 3.4.01

D E C I S I O N
of Technical Board of Appeal 3.4.01
of 22 December 2021

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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
11 March 2015 concerning maintenance of the
European Patent No. 1778353 in amended form.**

Composition of the Board:

Chair P. Scriven
Members: T. Zinke
C. Almberg

Summary of Facts and Submissions

I. An opposition was filed against the entirety of European Patent EP-B-1 778 353. Among the documents submitted in support were:

D1: Lu W. et al, "Automatic re-contouring regions of interest based on deformable registration and surface reconstruction", AAPM 46th Annual Meeting, Scientific Abstracts and Sessions, Medical Physics, Vol. 31(6), June 2004, 1845-1846;

D2: US-A-2002/0122530.

II. In its interlocutory decision, the Opposition Division decided that, account being taken of the amendments made by the patent proprietor during the opposition proceedings according to an eighth auxiliary request, the patent and the invention to which it related met the requirements of the EPC.

III. The Opposition Division announced its interlocutory decision at oral proceedings. As is common practise, it also announced decisions on a number of issues as the debate progressed. It is not necessary to reproduce them here, except to note that, after the announcement of a decision to the effect that claims 1 and 4 of auxiliary request II lacked clarity, the proprietor sought to file clarifying amendments to that request, and to others. The Opposition Division declined to admit further requests. (See section 6 of the minutes,

and, in particular, the correction issued to paragraph 6.5.)

- IV. Both the patent proprietor and the opponent appealed.
- V. With its notice of appeal, the opponent requested that the decision be set aside and the patent revoked.
- VI. With its statement of grounds, the proprietor requested that the decision be set aside and that the opposition be rejected, i.e. the patent be maintained as granted (main request); and filed claim sets for auxiliary requests I to IX and II', III', V' and VII'.
- VII. The main request and auxiliary requests I, II, III, V, VII and VIII were the same as the identically labelled requests before the Opposition Division. The remainder were new on appeal.
- VIII. The proprietor also requested the setting aside of the Opposition Division's decision to admit document D8:

D8: Weiguo Lu: "Motion detection and correction for image guided radiation therapy", Dissertation submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy (Medical Physics) at the University of Wisconsin - Madison - 2001.

- IX. In its reply to the opponent's appeal, the proprietor filed further claim sets for auxiliary requests VIII', VIII'' and IX, the latter replacing auxiliary request IX as filed with the statement of grounds.
- X. Both parties requested oral proceedings.
- XI. The Board summoned to oral proceedings and issued its preliminary opinion according to Article 15(1) RPBA.
- XII. With its response to the Board's preliminary opinion, the proprietor filed claim sets for further auxiliary requests I', I'', II'', II''', III'', IV', V'', V''', V'''', VI', VIIa, VIII'a, VIII''a, and IX'.
- XIII. As confirmed at the start of oral proceedings, the ranking of the 30 requests was: the main request followed by auxiliary request I, I', I'', II, II', II'', II''', III, III', III'', IV, IV', V, V', V'', V''', V'''', VI, VI', VII, VII', VIII, VIIa, VIII', VIII'a, VIII'', VIII''a, IX and IX', in that order.
- XIV. During oral proceedings, the proprietor withdrew auxiliary requests V to IX' (cf. the above ranking).
- XV. Hence, the proprietor's requests at the end of the oral proceedings were that the decision under appeal be set aside and that the opposition be rejected, i.e. the patent be maintained as granted (main request); or that the patent be maintained according to one of auxiliary

requests I, I', I'', II, II', II'', II''', III, III', III'', IV or IV'.

XVI. The opponent's request at the end of oral proceedings was that the decision under appeal be set aside and the patent revoked.

XVII. Independent claim 1 of the main request (patent as granted) reads:

*A radiation therapy system for radiation therapy of a subject in accordance with a radiation treatment plan computed based on information representative of a tissue to be irradiated, the radiation therapy system comprising a means (40, 70, 72) for adjusting radiation treatment parameters of a previously selected radiation treatment plan based on treatment images to produce an adjusted treatment plan, wherein the previously selected treatment plan parameters are optimized from irradiated tissue contours generated from a planning image and the means (40, 70, 72) for adjusting comprises:
an images registration processor (70) for registering the treatment image with the planning image using an elastic deformation technique, wherein the planning image is deformed;
a contour update processor (72) for adjusting the irradiated tissue contours by deforming the contours in accordance with*

the deformation of the planning image, to conform to the treatment image; and a treatment plan parameter optimizing processor (40) for re-optimizing the treatment parameters from the adjusted contours.

XVIII. Independent claim 4 of the main request reads:

*A method of updating a radiation therapy plan comprising:
acquiring a treatment image;
registering the treatment image with a corresponding planning image using an elastic deformation technique, wherein the planning image is deformed; and
updating radiation therapy planning contours of tissue to be irradiated by deforming the contours in accordance with the deformation of the planning image.*

XIX. In auxiliary request I, as compared to the main request, claim 4 is amended by the addition of the features

*... [therapy plan,] wherein the radiation therapy plan comprises treatment parameters which have previously been optimized from irradiated tissue contours generated from a planning image, the method [comprising]
...
... [deformation of the planning image],
and*

re-optimizing the treatment parameters from the updated radiation therapy planning contours.

XX. In auxiliary request I', the first step of claim 4 is further defined, as compared to the main request, to read

*... [therapy plan comprising]
providing the radiation therapy plan to be updated, wherein the radiation therapy plan comprises treatment parameters which have previously been optimized from irradiated tissue contours generated from a planning image;
[acquiring ...]
(emphasis of further definition as compared to auxiliary request I by the Board).*

XXI. The claims of auxiliary request I'' are claims 1 to 3 of the patent.

XXII. In auxiliary request II, independent claim 1 is amended, as compared to claim 1 of the main request, to define the treatment images and the planning images as

... treatment images having a lower resolution ...

and

... planning images having a higher resolution ...

(emphasis by the Board).

Claim 4 is amended similarly.

XXIII. The claims of auxiliary request II' correspond those of auxiliary request I, with, however, the following addition in claim 1 (and a similar amendment to claim 4):

... wherein the treatment images have a lower resolution than the planning image ...

XXIV. The claims of auxiliary request II'' correspond to the claims of auxiliary request I', with, however, the following addition in independent claim 1 and a similar amendment to claim 4:

... wherein the treatment images have a lower resolution than the planning image

XXV. The claims of auxiliary request II''' are claims 1 to 3 of auxiliary request II'.

XXVI. Auxiliary request III corresponds to auxiliary request II, but amended by the following additions to claims 1 and 4 respectively:

1. ...[adjusted contours,] wherein the treatment image is not used to extract

information on radiation attenuation or tissue density.

4. ... [planning image]; and re-optimizing treatment parameters of the radiation therapy plan from the updated contours, wherein the treatment image is not used to extract information on radiation attenuation or tissue density.

XXVII. Claim 1 of auxiliary request III' corresponds to that of the main request, with, however, the additions:

... [planning image], wherein treatment images have a lower resolution than the corresponding planning image [and] wherein [the means (40, 70, 72)] ...

... [adjusted contours], wherein the treatment image is not used to extract information on radiation attenuation or tissue density.

Claim 4 of auxiliary request III' is amended similarly and also by the further addition:

... re-optimizing treatment parameters of the radiation therapy plan from the updated contours.

XXVIII. In claims 1 and 4 of auxiliary request III'', as compared to auxiliary request III',

... wherein the treatment image is not used to extract information on radiation attenuation or tissue density

is replaced by:

... wherein the treatment image is not used to construct the contours, but, by using the deformation obtained from the registration of the treatment image with the planning image, the treatment image is only used to adjust the size, shape, orientation, position or another spatial aspect of the contour ...

XXIX. Claims 1 and 4 of auxiliary request IV corresponds to those of the main request, with, however, the following additions:

1. ... [adjusted contours], wherein the optimization process is omitted, if the registration process indicates stability of the irradiated region since a last treatment session.

4. ... [planning image]; and re-optimizing treatment parameters of the radiation therapy plan from the updated contours wherein the optimization process is omitted, if the registration process indicates stability of the irradiated region since a last treatment session.

XXX. In claims 1 and 4 of auxiliary request IV', as compared to auxiliary request IV, the term "optimization process" is replaced with "re-optimization process".

XXXI. The parties' arguments, in so far as they are relevant to the decision, are reproduced below, in the Reasons.

XXXII. In addition to D1, D2 and D8, this decision also refers to *Maintz*, which is mentioned in paragraph [0030] of the patent as describing *Some suitable registration techniques*:

Maintz & Viergever, "A survey of medical image registration", *Medical Image Analysis*, vol. 2(1), 1998, 1-36

Reasons for the Decision

Admission of document D8

1. In the run-up to the oral proceedings before the Opposition Division, the opponent introduced D8 as a new basis for attacking the patented invention's novelty and inventive step. During the oral proceedings, the opponent sought, and the proprietor disputed, the admission of D8. In that regard, the

parties appear to have debated, mainly, the relevance and the size of the document (minutes, points 5.7 to 5.9; appealed decision, point 6.1). The Opposition Division considered both these aspects and admitted D8 into the proceedings (appealed decision, points 6.1.1 and 6.2; minutes, point 5.10). The Opposition Division concluded that claim 4 of the first auxiliary request lacked novelty over D8 (appealed decision, point 7; minutes, points 5.11 and 5.12).

2. In the statement of grounds of appeal, while disagreeing with the Opposition Division's exercise of discretion primarily with regard to the document's relevance, the proprietor challenged the decision to admit it into the proceedings (page 6, point III, 1.1). The Board interprets this as a request that the Opposition Division's discretionary decision to admit D8 be set aside.
3. The admission of D8 lay within the Opposition Division's discretion under Article 114(2) EPC. When exercising this discretion, it enjoyed a certain degree of freedom; and the Board should normally not interfere in such a discretionary decision. In particular, it should not do so simply because, under the same circumstances, the Board itself would have decided differently. The Board should only overrule such a decision, if it concludes that the department that took it applied the wrong principles, took no account of the right principles, or exercised its discretion in an unreasonable way, thus exceeding the proper limits of its discretion (see, for example, G 7/93 *Late amendments* OJ EPC 1994 775, reason 2.6; T 677/08, *Payment Processing/SAP*, reason 4.3; T 1883/12, *No-spill drinking cup/Philips*, reason 3.1.2; *Case Law of the Boards of Appeal of the European Patent Office*, 9th

edition, IV.C.4.5.2, V.A.3.5.1 and V.A.3.5.4; and with particular reference to the review of a discretionary decision to admit a document into the proceedings, T 1209/05, *Refrigerator oil/NIPPON MITSUBISHI*, reason 2).

4. There is, therefore, long-established jurisprudence setting out the Boards' powers to review discretionary decisions, and the limits on those powers that reflect the decisions' discretionary nature. This extends to a discretionary decision to admit a submission, such as D8.
5. Furthermore, since the proprietor was adversely affected by the admission of D8, which document was later found to anticipate the first auxiliary request, the proprietor was within its rights to direct its case to that aspect, or part, of the appealed decision (Article 107, first sentence, EPC).
6. Article 12(2) RPBA 2020 introduced a general definition of the nature and scope of the appeal proceedings in accordance with the established case law (see EPO OJ Supplement 2/2020, explanatory remark, page 33/65). Under this provision (which is applicable, see Article 25(1) RPBA 2020), D8 itself and the parties' cases in respect of its admission into the proceedings belong to "the requests, facts, objections, arguments and evidence on which the decision under appeal was based".
7. Hence, the Board is competent to review the Opposition Division's decision to admit D8, and such a review belongs to the primary object of these appeal proceedings.

8. It thus lay within the Opposition Division's discretion to disregard D8, or not. When reviewing the decision not to disregard it, the Board cannot identify any error in the principles applied, or not applied, by the Opposition Division, or anything unreasonable about it. On the contrary, the Opposition Division demonstrated the relevance it saw in D8, when considering it novelty-destroying in respect of the first auxiliary request. Furthermore, the Opposition Division apparently only needed to read some parts of the extensive D8 to verify its relevance (appealed decision, point 6.1.1).
9. Accordingly, the Board does not set aside the discretionary decision to admit D8, and will take account of this document.

Main request

10. The claims of the main request are those of the patent as granted. The Opposition Division held that claim 4 lacked novelty over document D1.
11. In writing and during oral proceedings in appeal proceedings, the proprietor argued that D1 did not disclose the following features of independent claims 1 and 4:
 - (a) In D1, the reference image was not used as a planning image.
 - (b) In D1, no deformation of the planning image was suggested and, consequently, no updating of contours in accordance with the deformation of the planning image.
 - (c) D1 only suggested a deformable registration technique, but not an elastic deformation.

12. With regard to feature (a), D1 discloses an "Automatic Re-contouring of Regions of Interest" (D1, Title), wherein contours of regions of interest in a reference image are used in order automatically to re-contour them in test images. D1 does not explicitly state that the "reference image" and the "test image" are used to generate or adapt a treatment plan, but deals with the method by which contours in the reference image can be used automatically to re-contour the test images. The starting point of D1, however, is that automatic re-contouring in treatment images could be used routinely to modify planning. Hence, the skilled person would easily understand that the disclosed re-contouring is actually used to modify treatment plans. In order to *modify* a treatment plan by re-contouring regions of interest, it is necessary that an initial plan exists and the only image that could be used for this initial plan is the reference image. Consequently, the reference image of D1 is the planning image of independent claims 1 and 4.
13. With regard to feature (b), the proprietor argued that in D1, the regions in the test image are re-contoured and, hence, the test image should be understood as the basis on which the treatment plan is modified. In contrast, in claims 1 and 4, the planning image (which corresponds to the reference image in D1) and its contours were deformed and these deformed, adjusted contours were used as the basis for an adapted treatment plan.
14. Firstly, it should be mentioned that, in both claims 1 and 4, the deforming of the planning image is defined as part of registering the planning image and the treatment image. In the patent specification (B1-document, column 6, lines 13 to 16) it is described

that *Preferably, the planning images are deformed to register with the treatment images, but deforming the treatment images to register with the planning images is also contemplated.* There is no indication in the patent specification that the registering step is more complicated using one transformation direction than the other. Hence, after deriving a deformation of an image in one direction (for instance, deforming the treatment image onto the planning image by adding respective displacement vectors), there is no hint at any difficulty in inverting the process, so that the transformation can work in the other direction (for instance, deforming the planning image onto the treatment image by subtracting the respective displacement vectors). It is also contemplated, in the patent specification, (B1, column 6, lines 17 to 21) *Once the images are registered, a contours update processor 72 deforms or otherwise updates the contours representing the malignant tissue and the one or more organs at risk in accordance with the deformation ..., i.e. only using the "deformation" without any reference to the image that is actually deformed.* Hence, the direction of transformation does not involve an inventive step.

15. Secondly, for adapting the treatment plan, the original contours of the planning image have to be deformed in order to match the contours of the (actual) treatment image. Hence, the direction of transformation of the contours was straightforward and the choice does not involve an inventive step.

16. The proprietor further argued that, while deforming the planning image and not the treatment image, it would be possible to use treatment images of lower resolution while at the same time keeping a high-resolution

planning image as the basis for adapting the treatment plan.

17. However, none of the independent claims define the resolution of the planning and treatment images. Hence, the alleged advantage is not obtained over the whole breadth of the claim, and, consequently, can not support an inventive step.
18. With regard to feature (c), D1 only mentions "deformation" not "elastic deformation". According to the *Maintz*, "elastic" means "mapping lines onto curves" (*Maintz* lines 4 to 5 of section 5.1.), as distinct from rigid, affine, and projective transformations. In the human body, tissue moves and changes shape, as was common general knowledge. The person skilled in the art would have chosen an elastic deformation in order to follow the movement of tissues more precisely than is possible with rigid, affine or projective transformations.
19. Hence, the subject-matters of claims 1 and 4 lack an inventive step in view of document D1 and the skilled person's common general knowledge (Articles 100(a) and 56 EPC).

Auxiliary request I

20. In auxiliary request I, claim 1 is identical to claim 1 of the main request. It lacks inventive step for the reasons given above.

Auxiliary requests I' and I''

21. Auxiliary requests I' and I'' were filed in response to the Board's preliminary opinion and after notification of the summons to oral proceedings. In both, claim 1 is identical to that of the main request, and the lack of inventive step applies. Hence, neither request is admitted into the appeal proceedings, as neither is suited to overcoming objections already raised (Article 13(2) RPBA 2020, under which the criteria of Article 13(1) RPBA 2020 may be applied).

Auxiliary request II

22. In auxiliary request II, amendments were made, inter alia, to the effect that treatment images have a lower resolution and the planning image a higher. The Opposition Division did not allow this request (decision, "Second auxiliary request", section 8.2), since the relative terms "lower" and "higher" were considered unclear, because an unambiguous reference was missing. In the statement of grounds (in particular, in section 2.1.2), the proprietor argued that the person skilled in the art would construe the patent with "a mind willing to understand", and understand that "the treatment images have a lower resolution than the planning image".
23. As already pointed out in the Board's preliminary opinion (section 5.2), claims should be formulated in as clear a way as possible. As stated by the Opposition Division, the proprietor's formulation is open to interpretations different from the clear wording "the treatment images have a lower resolution than the planning image", which was readily available. The

adoption of ambiguous wording means that claims 1 and 4 lack clarity (Article 84 EPC).

Auxiliary request II'

24. Auxiliary request II' addresses the clarity of lower and higher resolution in auxiliary request II.
25. This request is admitted into the appeal proceedings, as a straightforward solution to the clarity issue in auxiliary request II, although it could have been filed before the Opposition Division.
26. After the Opposition Division had announced its decision regarding this point of clarity, the proprietor sought to file amended versions of claims 1 and 4, so that they would explicitly state that the treatment images had lower resolution than the planning image (minutes section 6.5, as amended by letter of 4 May 2015).
27. The Opposition Division did not give reasons for not admitting a request with the amendment under discussion, beyond noting that *The opponent objects to filing a further new auxiliary request by pointing to the number of pending requests and the late stage of the procedure.* (minutes, section 6.5 both before and after correction).
28. Auxiliary request II' was filed with the statement of grounds, so that in appeal proceedings no "late stage of the proceedings" is present, that might prevent the opponent (or the Board) dealing thoroughly with the request. The Board takes the view that the amendment

rather simplifies the appeal than complicates it.

29. Hence, auxiliary request II' is admitted into the appeal proceedings (Article 12(4) RPBA 2007). This does not mean the Opposition Division was wrong to decline to admit it. The circumstances are different.
30. In order to discuss inventive step of claims 1 and 4 of auxiliary request II', it is appropriate to start from document D8, which, besides the features disclosed in document D1, also discloses an elastic deformation (see feature (c), above, and D8: Abstract, section: "Deformable registration", page iv) and a planning image (see feature (a) above, D8: glossary, page xxvii). As D8 discloses that the target image or the planning image might be deformed (D8: page 243), feature (b) above is at least obvious from document D8.
31. The proprietor saw a further difference in that D8 focused on another way of using deformable image registration, i.e. keeping a "basis" image for (for example) calculating a dose that is given to a particular voxel of this "basis" image and deforming an actual image taken during a fraction of the therapy in order to "sum up" the doses in the "basis" image. It might then be envisaged to use this "basis" image to optimize further radiation therapy steps. In order to apply a deformable registration for that purpose, there would be no need for updating contours for deriving an updated treatment plan.
32. However, as pointed out by the Opposition Division (decision, reasons, section 7.2.1), in D8 the use of deformable registration is not restricted to dose calculation. Its use for updating regions of interest (comprising its "contours") between a planning and a

fraction image is disclosed, for instance, in the paragraph on page 267 and in Figure 8-14, and the use of deformable image registration "to setup the treatment beam" (which is comprised by "re-optimizing treatment parameters", as currently claimed) is envisaged on page 174, lines 3 to 6.

33. Another argument provided by the proprietor seems to rely on the moment in time when the treatment image is taken (cf. statement of grounds, section 1.2.3), i.e. that previous treatment images (of previous fractions) are used in D8, instead of using the current treatment image. There is, however, nothing in the claims 1 and 4 that specifies whether a "current" or a "previous" treatment image is used.
34. Consequently, the only feature that might possibly establish an inventive step of claims 1 and 4 compared to document D8 is the added feature: *wherein the treatment images have a lower resolution than the planning image.*
35. Following the well-established problem-solution approach, the technical effect of this feature has to be found.
36. The proprietor argued that the technical effect of this feature was - as in the patent specification - that imaging systems might be used that were less complicated, less time-consuming, and which might expose the patient to less radiation.
37. In this regard, the patent specification describes (paragraph [0034], for instance:

This enables the second imaging system 60 to be a low-cost, low resolution imager that rapidly acquires the one or more treatment images. Moreover, the second imaging system 60 can employ a non-radiation based imaging modality such as ultrasound or magnetic resonance, since the treatment images are not used to extract information on radiation attenuation or tissue density for calibrating the treatment plan.

38. However, neither claim 1 nor claim 4 actually defines a particular imaging system that would ensure corresponding technical effects. Neither different imaging modalities, nor different exposure times, nor any algorithm that would reduce the time for the patient is defined. Only the resolutions of the planning and the treatment images are compared. For instance, it is not excluded that the low-resolution treatment image is obtained by reducing the resolution of an originally high-resolution treatment image, thereby failing to achieve any of the alleged technical effects. Further, since no details of the registration method are given, it remains open whether a time saving occurs given that an additional step (e.g. up-sampling) is necessary in order, somehow, to manage images with different resolutions during registration.
39. While it is possible that some methods and systems that fall under the claim wording do actually achieve the alleged technical effects, an effect that is not credibly obtained throughout the entire range covered by the claims cannot be relied upon when defining the objective technical problem (Case Law of the Boards of Appeal of the European Patent Office, 9th edition,

2019, I.D.4.3).

40. The Board, therefore, cannot accept the technical effect proposed by the proprietor. For its own part, the Board has not been able to identify any more viable effect.

41. As is well-established in the Boards' jurisprudence, a positive assessment of inventive step can be based only on those elements and aspects of the invention in respect of which a technical effect can be established (Case Law of the Boards of Appeal of the European Patent Office, 9th edition, 2019, I.D.9.1.5). Since here, no technical effect has been established for the "resolution"-feature, it can not be taken into account for the evaluation of inventive step.

42. Hence, the subject-matter of claim 1 lacks an inventive step (Article 56 EPC).

43. Further, the addition made to claim 4

... wherein the radiation therapy plan comprises treatment parameters which have previously been optimized from irradiated tissue contours generated from a planning image ...

is unclear (Article 84 EPC) as to whether "which have been previously optimized from irradiated tissue contours generated from a planning image" implies a step of *previously optimizing parameters* as part of the claimed method or not.

44. Auxiliary request II' is, therefore, not allowable.

Auxiliary requests II'' and II'''

45. Auxiliary requests II'' and II''' were filed in response to the Board's preliminary opinion and after notification of the summons to oral proceedings. In both cases, claim 1 remains as in auxiliary request II' and the same arguments with regard to inventive step apply. Hence, neither is admitted into the appeal proceedings, since neither is suited to overcoming the objections already raised (Article 13(2) RPBA 2020, under which the criteria of Article 13(1) RPBA 2020 may be applied).

Auxiliary request III

46. In auxiliary request III, the same definitions with regard to the resolutions of images appear as in auxiliary request II. As stated above, the formulations "lower" and "higher" resolution, without explicitly referring to what they are "lower" or "higher" than, result in a lack of clarity (Article 84 EPC). Thus, this request is not allowable for the same reasons as for auxiliary request II.

Auxiliary request III'

47. Auxiliary request III' corresponds to auxiliary request II' with the additional feature:

... wherein the treatment image is not used to extract information on radiation attenuation or tissue density.

48. The additional feature is unclear (Article 84 EPC). Firstly, with regard to system claim 1, it is unclear, how the "non-use" - which (if anything) is a method step - could actually restrict the claimed system. Secondly, there is no reference to radiation attenuation or tissue density in the rest of the claim. As pointed out by the opponent in its reply to the proprietor's appeal (section: auxiliary request III', pages 5 to 6), due to its negative limitation, it is left open, whether radiation attenuation and tissue density are normally needed or not for the system to work, and if they are, where they come from. Thus, this request is not allowable.

Auxiliary request III''

49. Auxiliary request III'' was filed in response to the Board's preliminary opinion and after notification of the summons to oral proceedings. According to Rule 13(2) RPBA, such an amendment shall, in principle, not be taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.
50. The proprietor argued that exceptional circumstances were present, since, in the preliminary opinion, the Board addressed the issue of clarity of the negative limitation in auxiliary request III' (see above) for the first time.
51. While it is correct, that the Board addressed this issue for the first time in its preliminary opinion and that the Opposition Division did not deal with this issue, the proprietor was aware of the problem, since the opponent discussed the matter in 2015, in its reply

to the proprietor's appeal (section: auxiliary request III', pages 5 to 6). There was ample time for the proprietor, before the summons was notified, to react to the opponent's argumentation. Thus, no exceptional circumstances are at hand, let alone any cogent reasons that justify them.

52. Further, the proprietor has provided no arguments as to why a method step clearly limits the device or as to how it helps with inventive step.
53. Hence, it is not apparent that the amendment, prima facie, overcomes the issues raised by the opponent or by the Board.
54. Auxiliary request III'' is therefore not admitted into the appeal proceedings (Article 13(2) RPBA 2020, under which the criteria of Article 13(1) RPBA 2020 may be applied).

Auxiliary request IV

55. Claims 1 and 4 of auxiliary request IV lack clarity (Article 84 EPC), since the added feature

... wherein the optimization process is omitted, if the registration process indicates stability of the irradiated region since a last treatment session.

includes an unclear reference to "the optimization process" that lacks an antecedent in the claim. As a consequence, this request is not allowable.

Auxiliary request IV'

56. This request was filed in response to the Board's preliminary opinion and after notification of the summons to oral proceedings. The amendment in auxiliary request IV' overcomes the problem with auxiliary request IV by referring to the "re-optimization" process, which the claims do define. Since no other new issues were introduced, the Board exercises its discretion to admit auxiliary request IV' into the appeal proceedings (Article 13(2) RPBA RPBA 2020, under which the criteria of Article 13(1) RPBA 2020 may be applied).
57. However, the added feature "re-optimizing treatment parameters of the radiation therapy plan from the updated contours" does not establish an inventive step, starting from document D1 or from D8, in combination with common general knowledge or with document D2, in particular paragraph [0021] of the latter, which states: *... if the deviations between the new plan and the already approved plan are within a previously defined tolerance range, then a re-evaluation and approval of the plan [...] may be omitted.*
58. It would have been obvious for a skilled person, at the time, only to optimise when there is a need for optimisation.
59. Hence, claims 1 and 4 of auxiliary request IV' lack an inventive step (Article 56 EPC).

Conclusion

60. Since none of the requests on file is allowable, the patent must be revoked.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The patent is revoked.

The Registrar:

The Chair:



D. Meyfarth

P. Scriven

Decision electronically authenticated