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**Datasheet for the decision
of 4 June 2020**

Case Number: T 1091/17 - 3.5.05

Application Number: 08868858.5

Publication Number: 2229644

IPC: G06F19/00

Language of the proceedings: EN

Title of invention:
METHOD AND APPARATUS FOR REFINING SIMILAR CASE SEARCH

Applicant:
Koninklijke Philips N.V.

Headword:
Clinical statistics/PHILIPS

Relevant legal provisions:
EPC Art. 52(2)(d), 56

Keyword:
Inventive step - (no) - mixture of technical and non-technical
features
Features relating to presentation of information
Presentation of information in diagnostic tasks

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Decisions cited:

G 0001/04, G 0003/08, T 0643/00, T 1143/06, T 1749/06,
T 1235/07, T 1741/08, T 1214/09, T 1562/11, T 0651/12,
T 1802/13, T 0336/14, T 0581/14, T 1442/16

Case Number: T 1091/17 - 3.5.05

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 4 June 2020

Appellant: Koninklijke Philips N.V.
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Decision under appeal: **Decision of the Examining Division of the**
                           European Patent Office posted on 14 December
                           2016 refusing European patent application No.
                           08868858.5 pursuant to Article 97(2) EPC.

Composition of the Board:

Chair   A. Ritzka
Members: E. Konak
               D. Prietzel-Funk

Summary of Facts and Submissions

I.   The appeal is against the examining division's decision
        to refuse the application on the grounds that the main
        request and auxiliary requests 1 to 4 lacked inventive
        step in view of the following document:

        D6: US 2001/043729 A1.

II.   With its statement setting out the grounds of appeal,
        the appellant requested that the decision be set aside
        and a patent be granted on the basis of one of the
        requests on which the contested decision was based. It
        requested oral proceedings as a further auxiliary
        measure.

III.   In its preliminary opinion issued in preparation for
        the oral proceedings, the board raised objections under
        Article 56 EPC in view of *inter alia* the following
        document mentioned in the examination proceedings:

        D2: T. Deserno et al., "Extended Query Refinement for
        Medical Image Retrieval", Journal of Digital Imaging,
        vol. 21, No. 3, pages 280-289

IV.   Oral proceedings were held before the board by video
        conference at the appellant's request.

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

        "A method of searching cases in a database, said method
        comprising:
        - a first step of performing similarity matching
        between an input case and cases in the database by

using a first matching criterion that includes at least one image-based feature to identify a set of cases similar to said input case, the at least one image-based feature including at least one of a shape of a tumor, texture of the tumor, and size change of the tumor;
- calculating statistics on features associated with the set of similar cases, wherein the statistics describe non-image-based clinical information and wherein the features associated with the set of similar cases are image-based and/or non-image-based features;
- presenting the set of similar cases and the statistics to a user;
- receiving a user input including a second matching criterion that includes at least one non-image-based feature derived from clinical information and is based on said statistics, said clinical information including at least one of relevant previous or current diseases, lifestyle facts, genetic profiles, family medical history, a physician's particular knowledge and information of the patient to be diagnosed or treated, weight, allergies, and vital statistics; and
- a second step of performing similarity matching between the input case and the set of similar cases by using said second matching criterion."

VI.   Claim 1 of auxiliary request 1 differs from claim 1 of the main request as follows (with text additions underlined):

"[...]
weight, allergies, and vital statistics, wherein the user input further comprises a numerical weighting value given to each feature in the second matching criterion; and

- a second step of performing similarity matching
between the input case and the set of similar cases by
using said second matching criterion and by calculating
a similarity metric by using the numerical weighting
values."

VII.   Claim 1 of auxiliary request 2 differs from claim 1 of
        auxiliary request 1 as follows (with text additions
        underlined):

        "[...]
        - a second step, performed after receiving user input,
        of performing similarity matching between the input
        case and the set of similar cases by using said second
        matching criterion and by calculating similarity metric
        by using the numerical weighting values,
        wherein the steps of performing similarity matching
        include calculating a similarity value for each case to
        be compared, for indicating the degree of similarity
        between the input case and the case to be compared."

VIII.   Claim 1 of auxiliary request 3 differs from claim 1 of
        auxiliary request 2 as follows (with text additions
        underlined):

        "[...]
        and an iterative step of performing similarity matching
        between the input case and an updated set of similar
        cases by using an updated similarity matching criterion
        based on a further user input to retrieve cases similar
        to the user, wherein the result of search refinement in
        the iterative steps includes either moving cases
        entirely out from the set of similar cases or
        modulating the similarity rates for the set of similar
        cases based on the updated similarity matching
        criterion or a combination of both,

wherein the steps of performing similarity matching
include calculating a similarity value for each case to
be compared, for indicating the degree of similarity
between the input case and the case to be compared."

IX.   Claim 1 of auxiliary request 4 differs from claim 1 of
        auxiliary request 3 as follows (with text additions
        underlined):

        "A method of searching cases in a database, said method
        comprising:
        - a first step of performing similarity matching
        between an input case and cases in the database by
        using a first matching criterion that includes at least
        one image-based feature to identify a set of cases
        similar to said input case, the at least one image-
        based feature including at least one of a shape of a
        tumor, texture of the tumor, and size change of the
        tumor, wherein the cases in the database include a
        plurality of images classified according to different
        imaging modalities and wherein said first step of
        performing similarity matching comprises performing
        similarity matching between an input case and cases in
        the database for each imaging modality to identify a
        plurality of respective sets of similar cases by using
        said first matching criterion, and selecting cases that
        appear in at least two sets of said sets of similar
        cases, and to be used by said step of calculating
        statistics;
        [...]"

Reasons for the Decision

1.   Main request

1.1   The contested decision considered D6 to represent the
        closest prior art. As D6 is not related to iterative
        query refinement and therefore is not a very meaningful
        starting point for assessing the inventive step of the
        method according to claim 1 of the main request, it was
        not discussed any further in the appeal proceedings. In
        its preliminary opinion, the board informed the
        appellant that *inter alia* D2, cited in the search
        report, would be a more suitable starting point. The
        discussion at the oral proceedings was based entirely
        on D2.

1.2   At the oral proceedings, the appellant questioned the
        public availability of D2 at the priority date of the
        present application (27 December 2007). Although the
        first page of D2 stated that the online publication
        date was 12 May 2007, the article appeared in the
        September 2008 issue of the journal. The authors' list
        of publications on their websites also gave the date of
        publication as September 2008. During the course of the
        oral proceedings, however, the board was able to
        confirm at SpringerLink (https://link.springer.com/
        article/10.1007/s10278-007-9037-4), a reputable and
        reliable information source, that the article was
        indeed published on 12 May 2007. The appellant then did
        not further pursue its doubts.

1.3   D2 discloses an iterative method for querying medical
        images in a database in which initial queries are
        refined in subsequent iterations or interactive
        "loops". The queries can be based on a query image and
        involve content-based ("image-feature based" in the
        language of claim 1) retrieval (page 281, the paragraph
        bridging the left-hand and the right-hand columns; page
        282, left-hand column, first paragraph to right-hand

column, second paragraph; paragraph bridging pages 283 and 284).

1.4   Although the method of D2 presents the query results of the initial image query together with "relevance facts" which "justify why particular images satisfy the query" and are deemed to be "important for the user in attempting to redefine the query" (page 282, first paragraph under "Interface Functionality", last three sentences), as the appellant also noted at the oral proceedings these unspecified relevance facts seem to be based on image-based features and not on metadata associated with the images, in particular clinical information as in claim 1. However, the appellant's alternative interpretation that the sliders presented under each thumbnail in Figures 3 and 4, which the user can use to give relevance feedback, may be the "relevance facts" contradicts the explicit disclosure of D2 that "relevance facts" belong to the output of the method of D2 (page 283, right-hand column, first full paragraph and Figure 1, "output modules [relevance facts]").

1.5   Therefore, the board agrees with the appellant that D2 does not disclose calculating statistics on the basis of clinical information associated with the set of similar images, presenting these statistics to the user and receiving subsequent user input based on these statistics.

1.6   At the oral proceedings, the appellant emphasised in particular the fact that the method of claim 1 presents the calculated statistics together with the set of similar cases. In the appellant's view, the case law consistently distinguished between what is presented to the user (statistics) and how it is presented (together

with the set of similar cases). Since, in this case, presenting the statistics together with the similar cases involved how the information is presented rather than what is presented, it was not a presentation of information as such.

The board is aware of a few exceptional decisions of the boards of appeal (see T 1749/06, point 4.1.3, second sentence; T 651/12, page 16, first full sentence) expressing the view that the reference to *"presentations of information"* in Article 52(2)(d) EPC was meant to relate exclusively to the cognitive content of the presented information ("what is presented") and not to the manner in which it is presented ("how it is presented"). Nevertheless, this view has not been adopted by the mainstream case law in the course of legal development (cf. G 3/08, Headnote 4). The predominant view in the case law is what T 1235/07 (see point 11) calls the "wider view", according to which both what is presented and how it is presented are considered to be *"presentations of information"* (see T 1143/06, points 3.4, 3.5 and 5.4; T 1741/08, point 2.1.10; T 1214/09, point 4.8.1; T 1562/11, point 2.7, last paragraph; T 1802/13, page 10, first full paragraph).

This view has also been adopted by the European Patent Office for its practice (see Guidelines for Examination in the European Patent Office, November 2019 edition, G-II.3.7).

Therefore, the appellant's argument that the distinguishing features do not relate to presentations of information does not convince the board.

1.7   Irrespective of whether an invention relates to "what
        is presented" or "how it is presented", the test
        suggested in the case law to judge whether a
        presentation of information might <u>exceptionally</u> (see
        T 1741/08, point 3.3, last paragraph) contribute to the
        technical character of the invention is to assess
        whether it credibly assists the user in performing a
        technical task by means of a continued and guided
        human-machine interaction process (see T 336/14,
        Headnote and T 1802/13, page 10, second full
        paragraph).

1.8   A prerequisite for this test is the proper formulation
        of the technical task performed by the user. The
        appellant referred in its written submissions to a
        "medical task". This level of generality would not be
        sufficient since not every task performed in medicine
        is a technical task. Indeed an example given by the
        appellant ("if the statistics, e.g. show that seven out
        of eight retrieved cases belong to patients with
        cancer, then the user can derive that the case under
        evaluation might have something to do with cancer")
        illustrates this point. The example implies that the
        alleged technical task is a diagnostic task. However,
        besides technical tasks carried out mainly in the
        examination phase involving the collection of data,
        diagnosis involves tasks of a predominantly non-
        technical nature such as the deductive decision phase,
        which is a purely intellectual exercise (see G 1/04,
        point 6.4.1). The "medical task" in the appellant's
        example relates to the purely intellectual deductive
        decision phase and therefore cannot be accepted as a
        technical task.

1.9   The appellant then argued, in analogy to T 643/00 (see
        Catchword, second sentence), that searching and

retrieving medical cases stored in a database was the
relevant technical task. The board could accept this as
a suitable formulation. The question to be answered
then is whether the invention credibly assists the user
in performing this technical task by means of a
continued and guided human-machine interaction process.

1.10   In the appellant's view, the presentation of the
        calculated statistics together with the set of similar
        cases assisted the user (typically a physician) in
        performing the technical task of searching for a
        medical case more efficiently and reliably. This
        provided helpful information to guide the physician in
        concentrating their search and thus obtaining the
        desired case more quickly, which was a technical
        effect. The mere fact that mental activities on the
        user's part were involved did not necessarily render
        this effect non-technical (T 643/00, Catchword). The
        presentation according to claim 1 provided information
        to the physician in the form of a technical tool for an
        intellectual task that they had to master and hence
        contributed to the technical solution of the technical
        problem of an efficient search, retrieval and
        evaluation of cases.

        This argumentation relies heavily on the wording of
        T 643/00, point 17, but removes it from its proper
        context. The borrowed wording is preceded by the
        following text: "*the functions/steps of processing the
        images in a specific format, i.e. a predetermined
        plural number of images in a side-by-side manner at a
        low level of resolution, and allowing selection and
        display of an image at higher resolutions [provide
        information to the the user in the form of a technical
        tool for an intellectual task he has to master]*". It is
        thus clear that the deciding board in T 643/00 did not

give a carte blanche for deeming technical any
information that supports a user in performing a
technical task (see also T 1741/08, point 2.1.12, "*not
everything that supports a technical task has itself a
technical character*"). It made this statement for the
very specific case of a particular display technique
defined in terms of an objective technical criterion,
namely image resolution. This has also been the common
understanding in subsequent case law (see e.g.
T 1741/08, point 2.1.13; T 336/14, point 1.2.6;
T 581/14, point 16.19). The effect of image resolution
on the user is an objective physiological effect which
can qualify as a credible technical effect (see
T 1442/16, point 1.8, last paragraph), unlike the
effect of presenting clinical statistics in the case in
hand, which relies on a chain broken by semantic or
cognitive processing (see T 1741/08, point 2.1.6).
Therefore, T 643/00 does not help the appellant's case.

1.11   The appellant was not able to convince the board that
        the distinguishing features of claim 1 of the main
        request produced a technical effect. Therefore, claim 1
        of the main request does not involve an inventive step
        (Article 56 EPC).

2.   Auxiliary request 1

2.1   Claim 1 of auxiliary request 1 has the additional
        feature that the user input for the second matching
        criterion includes numerical weights given to each
        feature, with these weights being used in the
        calculation of the similarity metric.

2.2   The appellant argued that this specific interplay of
        mathematical concepts strengthened the technical
        effects alleged beforehand, namely efficiency and speed

of case retrieval. However, since the appellant was not
able to convince the board that the distinguishing
features of claim 1 of the main request provided any
credible technical effect, the additional features of
claim 1 of auxiliary request 1 cannot rely on them for
their technical effect. The description merely mentions
these additional features as advantageous alternatives
(see page 4, third paragraph or page 11, penultimate
paragraph), but the application as filed does not even
hint at their possible effects.

2.3   Therefore, the reasons for finding a lack of inventive
        step in claim 1 of the main request apply equally to
        claim 1 of auxiliary request 1 (Article 56 EPC).

3.   Auxiliary request 2

3.1   Claim 1 of auxiliary request 2 has the additional
        feature whereby performing similarity matching includes
        calculating a similarity value for each case to be
        compared, for indicating the similarity between the
        input case and the case to be compared.

3.2   The board raised the objection that it was common
        general knowledge in the field of image retrieval that
        similarity matching involved the calculation of a
        similarity value, noting that this was also disclosed
        in D2, page 280, right-hand column, lines 13 to 15. In
        response, the appellant argued that that disclosure was
        related to background on content-based image retrieval
        and that there was no suggestion in D2 that the system
        of D2 did the same. However, even if this
        interpretation were to be accepted for the sake of
        argument, implementing similarity matching in the
        system of D2 – exactly as D2 acknowledges is done in
        the relevant art – would not involve an inventive step.

3.3   Therefore, claim 1 of auxiliary request 2 does not
        involve an inventive step (Article 56 EPC).

4.   Auxiliary request 3

4.1   Claim 1 of auxiliary request 3 has the additional
        feature of iteratively performing similarity matching
        between the input case and an updated set of similar
        cases using an updated similarity matching criterion
        based on a further user input, including either moving
        cases entirely out from the set of similar cases or
        modulating the similarity rates for the set of similar
        cases based on the updated similarity matching
        criterion or a combination of both.

4.2   The board asked the appellant at the oral proceedings
        how this feature differed from the disclosure of D2,
        Figure 3 (corresponding text on page 285, right-hand
        column, first full paragraph), in which the set of
        similar images is displayed with sliders which the user
        can use to give relevance feedback for the next
        iteration of query refinement. The appellant had no
        comment to make.

4.3   Therefore, claim 1 of auxiliary request 3 does not
        involve an inventive step (Article 56 EPC).

5.   Auxiliary request 4

5.1   Claim 1 of auxiliary request 4 has the additional
        feature that the cases in the database include a
        plurality of images classified according to different
        imaging modalities. Similarity matching is performed
        between the input case and cases in the database for
        each imaging modality, and those cases that appear in

at least two sets of similar cases are selected for calculating the statistics.

5.2   It is notoriously known that medical images are acquired through different imaging modalities. It is thus obvious to take this into account when searching for medical cases. As to the feature of calculating statistics on the basis of cases that appear in at least two sets, the appellant could not point to any effect supported by the description.

5.3   Therefore, claim 1 of auxiliary request 4 does not involve an inventive step (Article 56 EPC).

6.   Thus, the appeal is not allowable.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar: The Chair:

A. Chavinier-Tomsic   A. Ritzka

Decision electronically authenticated