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**Datasheet for the decision
of 6 October 2022**

Case Number: T 2191/18 - 3.5.03

Application Number: 13192291.6

Publication Number: 2871816

IPC: H04L29/08, G06F17/22,
G06F17/30, H04L12/26, G06F17/27

Language of the proceedings: EN

Title of invention:
Identifying properties of a communication device

Patent Proprietor:
51 Degrees Mobile Experts Limited

Opponent:
Afilias Technologies Limited

Headword:
Substring position/51 DEGREES

Relevant legal provisions:
EPC Art. 123(2)
RPBA 2020 Art. 13(2)

Keyword:

Added subject-matter - main request and 1st to 4th auxiliary requests (yes)

Admittance of requests after summons - 5th to 9th auxiliary requests - (no): no exceptional circumstances justified with cogent reasons

Decisions cited:

T 0752/16, T 0764/16



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Case Number: T 2191/18 - 3.5.03

D E C I S I O N
of Technical Board of Appeal 3.5.03
of 6 October 2022

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Decision under appeal: **Interlocutory decision of the Opposition
Division of the European Patent Office posted on
5 July 2018 concerning maintenance of the
European Patent No. 2871816 in amended form.**

Composition of the Board:

Chair K. Bengi-Akyürek
Members: J. Eraso Helguera
F. Bostedt

Summary of Facts and Submissions

I. This case concerns the appeal filed by the opponent ("appellant") against the interlocutory decision of the opposition division to maintain the opposed patent in amended form on the basis of the claims of a "first auxiliary request".

II. Oral proceedings before the board were held on 6 October 2022.

- The appellant requested that the decision under appeal be set aside and that the patent be revoked.
- The proprietor ("respondent") requested that the appeal be dismissed, i.e. that the opposed patent be maintained as amended according to the claims found allowable in the decision under appeal (**main request**), or according to the claims of any of **nine auxiliary requests**. The first to fourth auxiliary requests were filed with the reply to the statement of grounds of appeal, while the fifth to ninth auxiliary requests were filed with the reply to the board's communication under Article 15(1) RPBA 2020.

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

III. Claim 1 of the **main request** reads as follows:

"A computer-implemented method of generating information for use in identifying a property of a communication device, the method comprising:

receiving (302) training data (404) comprising a character string that identifies the communication device (10); and

identifying (304) one or more substrings within the character string;

determining (306) a character position at which each identified substring begins or ends within the character string;

characterised in that the method further comprises:

adding (308) an entry for each identified substring to a respective one of a plurality of data structures (800), each of the plurality of data structures being designated for storing substrings that begin or end at a different numbered character position counted from the first character of the character string, wherein each entry comprises an identified substring and a unique identifier, and wherein each entry is added to the data structure designated for storing substrings that begin or end at the character position at which that substring occurs;

defining a signature that identifies the communication device (10) by combining the unique identifiers of each of the entries that were added to the plurality of data structures (800);

associating (310) the signature with one or more profiles, wherein each profile includes a value of at least one property of the communication device; and

storing (312) the plurality of data structures (800), the signature, and data representing the association between the signature and the one or more profiles."

Claim 1 of the **first auxiliary request** reads as follows (board's highlighting indicating amendments vis-à-vis claim 1 of the main request):

"A computer-implemented method of generating information for use in identifying a property of a communication device, the method comprising:

receiving (302) training data (404) comprising a character string that identifies the communication device (10); and

identifying (304) one or more substrings within the character string;

determining (306) a character position at which each identified substring begins or ends within the character string;

characterised in that the method further comprises:

adding (308) an entry for each identified substring to a respective one of a plurality of data structures (800), each of the plurality of data structures being designated for storing substrings that either begin or end at a different numbered character position counted from the first character of the character string, wherein each entry comprises an identified substring and a unique identifier, and wherein each entry is added to the data structure designated for storing substrings that either begin or end at the character position at which that substring occurs;

defining a signature that identifies the communication device (10), wherein the signature comprises a reference to each of the entries that were added to the plurality of data structures, and wherein defining the signatures comprises combining the unique identifiers of each of the entries that were added to the plurality of data structures (800);

associating (310) the signature with one or more profiles, wherein each profile includes a value of at least one property of the communication device; and

storing (312) the plurality of data structures (800), the signature, and data representing the association between the signature and the one or more profiles."

Claim 1 of the **second auxiliary request** reads as follows (board's highlighting indicating amendments vis-à-vis claim 1 of the main request):

"A computer-implemented method of generating information for use in identifying a property of a communication device, the method comprising:

receiving (302) training data (404) comprising a character string that identifies the communication device (10); and

identifying (304) one or more substrings within the character string;

determining (306) a character position at which each identified substring begins or ends within the character string;

characterised in that the method further comprises:

adding (308) an entry for each identified substring to a respective one of a plurality of separate data structures (800), each of the plurality of separate data structures being designated for storing substrings that begin or end at a different numbered character position counted from the first character of the character string, wherein each entry comprises an identified substring and a unique identifier, and wherein each entry is added to the data structure designated for storing substrings that begin or end at the character position at which that substring occurs;

defining a signature that identifies the communication device (10) by combining the unique

identifiers of each of the entries that were added to the plurality of separate data structures (800);

associating (310) the signature with one or more profiles, wherein each profile includes a value of at least one property of the communication device; and

storing (312) the plurality of separate data structures (800), the signature, and data representing the association between the signature and the one or more profiles."

Claim 1 of the **third auxiliary request** reads as follows (board's highlighting indicating amendments vis-à-vis claim 1 of the second auxiliary request):

"A computer-implemented method of generating information for use in identifying a property of a communication device, the method comprising:

receiving (302) training data (404) comprising a character string that identifies the communication device (10); and

identifying (304) one or more substrings within the character string;

determining (306) a character position at which each identified substring begins or ends within the character string;

characterised in that the method further comprises:

adding (308) an entry for each identified substring to a respective one of a plurality of separate trie data structures (800), each of the plurality of separate trie data structures being designated for storing substrings that begin or end at a different numbered character position counted from the first character of the character string, wherein each entry comprises an identified substring and a unique identifier, and wherein each entry is added to

the trie data structure designated for storing substrings that begin or end at the character position at which that substring occurs;

defining a signature that identifies the communication device (10) by combining the unique identifiers of each of the entries that were added to the plurality of separate trie data structures (800);

associating (310) the signature with one or more profiles, wherein each profile includes a value of at least one property of the communication device; and

storing (312) the plurality of separate trie data structures (800), the signature, and data representing the association between the signature and the one or more profiles."

Claim 1 of the **fourth auxiliary request** reads as follows (board's highlighting indicating amendments vis-à-vis claim 1 of the third auxiliary request):

"A computer-implemented method of generating information for use in identifying a property of a communication device, the method comprising:

receiving (302) training data (404) comprising a character string that identifies the communication device (10); and

identifying (304) one or more substrings within the character string;

determining (306) a character position at which each identified substring begins or ends within the character string;

characterised in that the method further comprises:

adding (308) an entry for each identified substring to a respective one of a plurality of separate trie data structures (800), each of the plurality of separate trie data structures being

designated for storing substrings that begin or end at a different numbered character position counted from the first character of the character string, wherein each entry comprises an identified substring and a unique identifier, and wherein each entry is added to the trie data structure designated for storing substrings that begin or end at the character position at which that substring occurs;

defining a signature that identifies the communication device (10), the signature being stored in a row of a table (802), wherein the row comprises the unique identifiers of each of the entries that were added to the plurality of separate trie data structures (800);

associating (310) the signature with one or more profiles, wherein each profile includes a value of at least one property of the communication device; and

storing (312) the plurality of separate trie data structures (800), the table in which the signature is stored, and data representing the association between the signature and the one or more profiles."

Claim 1 of the **fifth auxiliary request** is identical to claim 1 of the main request except for the deletion of "begins or" and the deletion of the two occurrences of "begin or".

Claim 1 of the **sixth auxiliary request** is identical to claim 1 of the first auxiliary request except for the deletion of "begins or" and the deletion of the two occurrences of "either begin or".

Claim 1 of the **seventh auxiliary request** is identical to claim 1 of the second auxiliary request except for the deletion of "begins or" and the deletion of the two occurrences of "begin or".

Claim 1 of the **eighth auxiliary request** is identical to claim 1 of the third auxiliary request except for the deletion of "begins or" and the deletion of the two occurrences of "begin or".

Claim 1 of the **ninth auxiliary request** is identical to claim 1 of the fourth auxiliary request except for the deletion of "begins or" and the deletion of the two occurrences of "begin or".

Reasons for the Decision

1. MAIN REQUEST

Claim 1 of the **main request** comprises the following limiting features (outline used in the decision under appeal):

- (1a) A computer-implemented method of generating information for use in identifying a property of a communication device, the method comprising:
- (1b) receiving training data comprising a character string that identifies the communication device;
- (1c) identifying one or more substrings within the character string;
- (1d) determining a character position at which each identified substring begins or ends within the character string;
- (1e) adding an entry for each identified substring to a respective one of a plurality of data structures,
- (1f) each of the plurality of data structures being designated for storing substrings that begin or end at a different numbered character position counted from the first character of the character string,

- (1g) wherein each entry comprises an identified substring and a unique identifier,
- (1h) wherein each entry is added to the data structure designated for storing substrings that begin or end at the character position at which that substring occurs;
- (1i) defining a signature that identifies the communication device by combining the unique identifiers of each of the entries that were added to the plurality of data structures;
- (1j) associating the signature with one or more profiles, wherein each profile includes a value of at least one property of the communication device;
- (1k) storing the plurality of data structures, the signature, and data representing the association between the signature and the one or more profiles.

1.1 *Claim 1 - added subject-matter (Article 123(2) EPC)*

1.1.1 In point II.13.1.4 of the decision under appeal, the opposition division considered that the wording "begin or end" in **features (1f) and (1h)** had a basis in the application as filed. Page 33, lines 15 and 16, appeared to provide a clear basis for the use of the wording "begin or end", which was a clarification of the wording "occur" used in claim 1 as filed. In addition, the wording "begin or end" was narrower and more precise than the wording "occur". It could be understood from the wording on page 33, lines 15-18 as a whole that whether a substring "begins or ends at" was dependent on whether the substrings were processed from the last-character position to the first-character position or from the first-character position to the last-character position. From this wording, the opposition division concluded that all substrings were either processed one way or another, thereby excluding

the possibility of storing substrings that "begin at" and substrings that "end at" at the same time. The, in this respect, unclear wording of claim 1 should be interpreted in the light of the description.

- 1.1.2 The board does not find the opposition division's reasoning persuasive for the reasons set out below.

Claim 1 relates to a "computer-implemented method of generating information for use in identifying a property of a communication device". The method starts with receiving training data comprising a character string that identifies the communication, e.g. a "User-Agent" string, **(feature (1b))** and processes the training data so as to generate and store a plurality of data structures, e.g. "tries", a signature, and data representing the association between the signature and one or more profiles **(feature (1k))**. The generation of the claimed data structures requires, *inter alia*, determining a character position at which each identified substring *begins or ends* within the character string **(feature (1d))** and adding an entry for each identified substring to a respective one of the plurality of data structures **(feature (1e))**, each of the plurality of data structures being designated for storing substrings that *begin or end* at a different numbered character position counted from the first character of the character string **(feature (1h))**. The claim, however, does not include any particular limitation with respect to the direction in which the character string is to be processed when determining a character position at which each identified substring *begins or ends*.

Page 33, lines 15-18 of the application as filed, cited by the opposition division, explains that, in the

original application, the choice between "begin" and "end" is presented as being inherently related to the specific direction in which the character string is actually processed (emphasis added):

*"... It will be appreciated that 'a substring occurring at a character position' can mean that the substring **ends** or **begins** at that character position, **depending on whether the substrings were processed from the last character position to the first character position or from the first character position to the last character position**".*

This interpretation is consistent throughout the whole application as filed. For instance, in the embodiments where the data structure, i.e. the "trie", is structured from the last character, the ending position of each substring is determined (see page 30, lines 7 and 8):

"Every possible character position of the User-Agents in the training data will contain a data structure which relates a substring ending at that position to a unique substring ID."

By introducing "begin or end" without any link to a specific processing direction, present claim 1 also encompasses embodiments, which are not disclosed in the application as filed. For instance, the subject-matter of claim 1 also covers embodiments, where the processing in the data structure is done "from the first-character to the last-character position", yet the "end" position of each substring is determined and used in the trie construction. In other words, amending a teaching which represents two options ("begin" or "end") depending on two different conditions (i.e.

processing from the "first character" or from the "last character") to a teaching which represents the two options without any limitation as to the processing direction in fact presents the skilled reader with new technical information. This amounts to an *extension* rather than a *contradiction* that could justify - as stated by the opposition division - a limited interpretation of the claim "in the light of the description". Thus, the subject-matter of claim 1 extends to scenarios that are technically feasible and that do not contradict the teachings provided in the description. However, these scenarios are not directly and unambiguously disclosed in the application as filed.

1.1.3 The respondent argued that "begin(s) or end(s)" constituted a mere replacement for the term "occur(s)" as it appeared in the original claims. Support for this replacement was found throughout the application as filed, in particular at page 27, lines 9-15 and page 41, lines 13 and 14. Furthermore, the expression "counted from the first character of the character string" used in **feature (1f)** was not to be conflated with any assumptions regarding the *processing* or the *processing direction*. Instead, it merely related to the manner in which "begin" and "end" were defined. This was apparent from the example of pages 27 to 28 and Table 16 of the application as filed, where reverse strings were used, i.e. the substrings were *processed* from the last-character position to the first-character position, yet the character position was *counted* from the first-character position, as evidenced by the row labelled "Position" in Table 16.

1.1.4 The respondent's arguments are not convincing. The embodiment of Table 16 constitutes no exception to the

disclosure of page 33, lines 15-18. Indeed, since the substrings are processed from the last-character position to the first-character position, the method specifically determines the character position at which each identified substring **ends**, e.g. position 33 in Table 16, cf. page 28, line 10 (emphasis added):

*"Table 16 contains four relevant parts of User-Agents, which all **end** at character position 33."*

and page 28, lines 20 and 21 (emphasis added):

*"Consider the strings 'Android 4.0.4' and 'droid 4.0.4' where both **end** at character position 33."*

Moreover, the disclosure of page 41, lines 13 and 14 constitutes a general conclusion inferred from comparative tests. The skilled person would not directly and unambiguously derive therefrom any specific alternative to the consistent teaching of page 33, lines 15-18 and the preceding detailed embodiments.

1.2 In view of the above, the main request is not allowable under Article 123(2) EPC.

2. FIRST TO FOURTH AUXILIARY REQUESTS

2.1 Claim 1 of the **first auxiliary request** contains all the limiting features of claim 1 of the main request, with "begin or end" being further amended to "either begin or end" in features (1f) and (1h) (cf. point III above).

2.2 Claim 1 of the **second to fourth auxiliary requests** also includes features (1f) and (1h) of claim 1 of the main request (cf. point III above).

2.3 Thus, the reasoning set out in points 1.1.2 and 1.1.4 above applies *mutatis mutandis* to claim 1 of each of the first to fourth auxiliary requests.

2.4 It follows that none of the first to fourth auxiliary requests is allowable under Article 123(2) EPC either.

3. FIFTH TO NINTH AUXILIARY REQUESTS

Claim 1 of the **fifth to ninth auxiliary requests** contains all the limiting features of claim 1 of the main request and first to fourth auxiliary requests, respectively, except for the deletion of "begins or" from feature (1d) and the deletion of "[either] begin or" from features (1f) and (1h).

3.1 *Admittance into the appeal proceedings (Article 13(2) RPBA 2020)*

3.1.1 The claims of the fifth to ninth auxiliary requests were filed after notification of the summons to the oral proceedings before the board.

3.1.2 The admittance of these claim requests is governed by Article 13(2) RPBA 2020, according to which any amendment to a party's appeal case is not taken into account unless there are exceptional circumstances, which have been justified with cogent reasons by the party concerned.

3.1.3 The respondent submitted the following arguments:

- (a) the respondent did not know that RPBA 2020 would enter into force when the reply to the statement of grounds of appeal was filed; this consideration should in particular be taken into account for a small and medium-sized enterprise (SME);
- (b) the opponent's claim interpretation was outlandish and it was not expected that the board would uphold the objection;
- (c) the board had altered the interpretation of the argument relating to the respective objection raised by the opponent under Article 123(2) EPC;
- (d) the amendment was minor, found strong literal basis in the application as filed, and readily addressed the objections raised.

3.1.4 These arguments are not persuasive:

- As to argument (a), the board notes that the revised version of the RPBA entered into force on 1 January 2020 (cf. Article 24(1) RPBA 2020). Pursuant to Article 25(1) RPBA 2020, this revised version shall apply to any appeal case pending on that date. In the present case, the exception mentioned in Article 25(3) RPBA 2020, which relates to Article 13(2) RPBA 2020, does not apply since the summons was notified *after* the date of entry into force of the RPBA 2020. It follows that Article 13(2) RPBA 2020 indeed applies to the present case. Moreover, it goes without saying that the applicability of Articles 12 and 13 RPBA 2020 does not depend on whether or not a party is an SME. Hence, SMEs cannot benefit from any procedural advantages in appeal proceedings beyond those provided for in the law (such as the reduction of the appeal fee under Article 2 RFees, item 11).

- As to argument (b), according to the established jurisprudence, it is irrelevant for the applicability of Article 13(2) RPBA 2020 whether or not a board's preliminary opinion issued under Article 15(1) RPBA 2020 deviates from the conclusions drawn in the appealed decision. In consequence, prior to the announcement of the final decision in appeal proceedings, a party has always to be prepared for an opinion adverse to that party (see e.g. T 752/16, Reasons 3.4; T 764/16, Reasons 3.3.2).

Moreover, the amendment "begin(s) or end(s)" in claim 1 had already been controversially discussed throughout the opposition proceedings. Indeed, the then proprietor had filed at least one additional auxiliary request (the then "second auxiliary request", corresponding to the present first auxiliary request) including *inter alia* a reformulation of this amendment in features (1f) and (1h) as "either begin or end". Moreover, when examining the issue of added subject-matter raised by the appellant in the statement setting out the grounds of appeal, the board cannot be limited to the evaluation of the appellant's arguments in this respect. The board must also consider the basis for the amendment provided by the opposition division in its reasons for the decision under appeal and by the respondent in its reply to the statement of grounds of appeal. However "outlandish" the claim interpretation in the statement setting out the grounds of appeal might have been, it could indeed be reasonably expected, on an objective basis, that the board could regard this amendment eventually as an unallowable extension.

- As to argument (c), the fact that the board formulated its own preliminary assessment of the *existing* objection in view of the reasons for the decision under appeal and of the arguments provided by the parties cannot *per se* amount to "exceptional circumstances" within the meaning of Article 13(2) RPBA 2020.

- As to argument (d), the board disagrees with the respondent's characterisation of the amendment carried out in the fifth to ninth auxiliary requests. Even though the amendment entails the deletion of the alternative "begin(s)" from a claim request filed during the opposition proceedings and found allowable by the opposition division, the board recalls that neither "begin(s)" nor "end(s)" were present in the original claims. It follows that this deletion cannot be equated with the elimination of one of many alternatives already present in the *original* claims. Rather, the basis for the replacement of the originally claimed "occur(s)" by "end(s)" ought to be re-assessed anew during oral proceedings for the first time in the appeal proceedings. At the very least, and given that the fifth to ninth auxiliary requests were filed only one week before the oral proceedings, this course of action is manifestly detrimental to procedural economy. Furthermore, the respondent has failed to demonstrate that the deletion of "begin(s)" would *prima facie* overcome the issues arising from the lack of any *processing direction* in the claim and already identified in the board's preliminary opinion. On the contrary, in spite of determining a character position at which each identified substring *ends* within the character string, claim 1 of these auxiliary requests does

not require a *processing* from the last-character position.

3.2 Accordingly, none of the fifth to ninth auxiliary requests could be admitted into the appeal proceedings (Article 13(2) RPBA 2020).

4. Since there is no allowable claim request, the appeal must be dismissed.

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:



B. Brückner

K. Bengi-Akyürek

Decision electronically authenticated



Beschwerdekammern

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Case Number: T 2191/18 - 3.5.03

D E C I S I O N
of the Technical Board of Appeal 3.5.03
of 14 October 2022
correcting an error in the decision
of 6 October 2022

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Decision under appeal:

Interlocutory decision of the Opposition
Division of the European Patent Office posted on
5 July 2018 concerning maintenance of the
European Patent No. 2871816 in amended form.

Composition of the Board:

Chair: K. Bengi-Akyürek
Members: J. Eraso Helguera
F. Bostedt

In application of Rule 140 EPC, the sentence in point 4 of the reasons of the decision dated 6 October 2022 is hereby replaced as follows:

"Since there is no allowable claim request, the appeal must succeed."

The Registrar:

The Chair:



B. Brückner

K. Bengi-Akyürek

Decision electronically authenticated