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Datasheet for the decision
of 23 July 2021

Case Number: T 0207/19 - 3.5.05

Application Number: 05252108.5

Publication Number: 1710667

IPC: G06F3/023

Language of the proceedings: EN

Title of invention:
Handheld electronic device with text disambiguation employing
advanced word frequency learning feature

Applicant:
BlackBerry Limited

Headword:
Text disambiguation for reduced keyboard/BLACKBERRY

Relevant legal provisions:
EPC Art. 56, 123(2)

Keyword:
Inventive step - (yes)
Amendments - added subject-matter (no)

Decisions cited:

Catchword:

Case Number: **T 0207/19 - 3.5.05**

D E C I S I O N
of Technical Board of Appeal 3.5.05
of 23 July 2021

Appellant: (Applicant)	BlackBerry Limited 2200 University Avenue East Waterloo, ON N2K 0A7 (CA)
Representative:	Murgitroyd & Company Murgitroyd House 165-169 Scotland Street Glasgow G5 8PL UNITED KINGDOM
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 13 September 2018 refusing European patent application No. 05252108.5 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chair	A. Ritzka
Members:	P. Cretaine
	D. Prietzel-Funk

Summary of Facts and Submissions

I.   This appeal is against the decision of the examining
        division posted on 13 September 2018 refusing
        European patent application No. 05252108.5. A main
        request and first to third auxiliary requests were
        refused for not fulfilling the requirements of
        Article 56 EPC having regard to the disclosure of:

        D1: WO 2004/091182.

        Furthermore, the main request and the second auxiliary
        request were found to contravene the
        requirements of Articles 123(2) and 84 EPC,
        respectively.

        D2: WO 2004/006079 was cited in the decision and

        D3: US 2004/155869 was cited in the European search
        report.

II.   Notice of appeal was received on 12 November 2018, and
        the appeal fee was paid on the same day. The statement
        setting out the grounds of appeal was received on
        8 January 2019. The appellant requested that the
        decision be set aside and that a patent be granted
        based on the main request or the first to third
        auxiliary requests on which the decision was based, all
        requests being re-filed with the statement setting out
        the grounds of appeal. Furthermore, the appellant
        requested that oral proceedings be held in the event of
        the main request not being allowed.

III.   A summons to oral proceedings was issued on

23 April 2021. In a communication pursuant to
Article 15(1) RPBA, sent on 28 May 2021, the board gave
its preliminary opinion that the main request and the
second and third auxiliary requests did not meet the
requirements of Article 56 EPC in light of the
disclosure of D1, D2 or D3. The first auxiliary request
did not meet the requirements of
Article 123(2) EPC. The objection under
Article 123(2) EPC, raised in the decision, against the
main request was not upheld by the board.

IV.   With a letter of response dated 23 June 2021, the
        appellant submitted a new first auxiliary request
        replacing the first auxiliary request on file and
        withdrew the second and third auxiliary requests. The
        appellant also provided further arguments with respect
        to the requirements of Article 56 EPC.

V.   Oral proceedings were held on 23 July 2021. The
        appellant withdrew the first auxiliary request. It
        requested that the decision under appeal be set aside
        and that a patent be granted based on the claims of the
        main request submitted with the statement setting out
        the grounds of appeal. The decision of the board was
        announced at the end of the oral proceedings.

VI.   Claim 1 according to the main request reads as follows:

        "A method of disambiguating a character input into a
        handheld electronic device (4), the handheld electronic
        device including an input (8) for inputting characters
        into the device, an output (60) for outputting
        characters, and a processor (16) for electronically
        processing characters, including a memory (20) having a
        plurality of objects stored therein, the plurality of
        objects including a plurality of language objects

(100), that may be constructed, identified or otherwise interpreted from one or more linguistic characters to generate text, and a plurality of frequency objects (104) for indicating the relative frequency within a relevant language of occurrence of the language objects, each of at least a portion of the language objects being associated with a frequency object, the input including a plurality of input members (28,34), each of at least a portion of the input members having a plurality of characters (48) assigned thereto, the method comprising:

detecting an initial ambiguous input (204) including an actuation of at least one of the input members (28, 34) having a plurality of characters (48) assigned thereto;

determining that a first language object corresponds with the initial ambiguous input;

determining that a second language object corresponds with the initial ambiguous input;

determining that a first frequency object is associated with the first language object and has a first frequency value;

determining that a second frequency object is associated with the second language object and has a second frequency value;

determining that the first frequency value is relatively greater than the second frequency value;

outputting an initial output including an initial default output and an initial variant output, the first language object forming at least a portion of the initial default output and the second language object forming at least a portion of the initial variant output;

detecting a delimiter input for identifying the end of a contiguous sequence of characters, that selects the second language object from at least a portion of the initial variant output;

detecting a subsequent ambiguous input comprising the
actuation of at least one input member having a
plurality of linguistic elements assigned thereto that
is entered after the initial ambiguous input and the
delimiter input that selects the second language
object, the subsequent ambiguous input being the same
as the initial ambiguous input;
determining that said first language object corresponds
with the subsequent ambiguous input;
determining that said second language object
corresponds with the subsequent ambiguous input;
determining that said first frequency object is
associated with said first language object and has the
first frequency value;
determining that said second frequency object is
associated with said second language object and has the
second frequency value;
outputting a subsequent output including a subsequent
default output and a subsequent variant output, said
first language object forming at least a portion of the
subsequent default output and said second language
object forming at least a portion of the subsequent
variant output;
detecting a delimiter input that selects the second
language object from at least a portion of the
subsequent variant output;
determining that the subsequent ambiguous input was a
first of any inputs to the handheld electronic device
subsequent to the initial ambiguous input, that was the
same as the initial ambiguous input; and
assigning to the second language object a new frequency
object having a frequency value greater than the
frequency value of the first frequency object."

The main request comprises a further independent claim
(claim 5) directed to a corresponding handheld
electronic device.

Reasons for the Decision

1.   Article 123(2) EPC

        In the decision under appeal, the objection was raised
        that the following feature of claim 1, as amended in
        the examination, added subject-matter: "determining
        that the subsequent ambiguous input was a first of any
        inputs to the handheld electronic device subsequent to
        the initial ambiguous input, that was the same as the
        initial ambiguous input". According to this feature, in
        combination with the feature of "the subsequent
        ambiguous input being the same as the initial ambiguous
        input" further up in claim 1, the subject-matter of
        claim 1 related to the case wherein one and the same
        ambiguous input sequence is entered twice in a row with
        selection of the second language object for each of the
        two identical input sequences, uninterrupted by any
        other input sequence or any other selection. According
        to the decision, the above-mentioned feature of claim 1
        excluded any intermediate inputs, even if they were not
        the same as the initial ambiguous input. This
        contradicted the disclosure of paragraphs [0150] to
        [0152] of the description, wherein a user may enter a
        different input sequence between the first and the
        second identical ambiguous input sequences, and
        nevertheless promote the lower frequency word with its
        second selection of the second language object.

        However, the board does not agree with this
        interpretation of claim 1 by the examining division. In

that respect, claim 1 recites that the subsequent
ambiguous input is the first of any inputs that is <u>the
same</u> as the initial ambiguous input and for which the
second language object has been selected (see the
feature "detecting a delimiter input that selects the
second language object..."). This does not - contrary
to the assessment contained in the decision - preclude
other intermediate ambiguous inputs that are not the
same as the initial ambiguous input. However, claim 1
also makes it clear that there can be no intermediate
same ambiguous inputs with the first language object
selected, as required by paragraph [0151] of the
description.

Therefore, the skilled person is not presented with any
new information, and the feature "without in the
meantime having entered the same sequence and accepted
the default" of paragraph [0151] is in fact implicit in
the claim wording.

For these reasons, the board is satisfied that the main
request meets the requirements of Article 123(2) EPC.

2.   Inventive step - Article 56 EPC

2.1   Prior art

        D1 discloses a method for editing the word database of
        a mobile terminal having a reduced keyboard and a text
        disambiguation system. Each word is inserted into the
        database by the user, associated with a priority
        specified by the user, by using a connection with a
        computer (see from page 2, line 16, to page 3, line
        10). As a result of a disambiguation performed on an
        input sequence corresponding to an intended word, a
        sequence of candidate words is presented to the user in

the order according to their associated priorities in
the database. The user may change, at any time, the
priority associated with a word, in particular when the
user is not satisfied with the ranking of words
presented as a result of a disambiguation on a specific
input sequence (see from page 4, line 26, to page 5,
line 8).

D2 discloses a disambiguation system for ideographic
Korean syllables on a reduced keyboard. Upon
disambiguation of an input sequence, symbol variants
are presented to the user in groups having decreasing
priorities and the symbol variants in each group being
sorted by frequency of use of the symbol variants (see
from page 2, line 18, to page 3, line 6, and page 13,
lines 15 and 16). Upon selection of a variant by the
user, its frequency of use is updated (see page 33,
lines 13 to 19).

D3 discloses a system for automatically correcting a
"sloppy" text input, of which the ambiguity might be
due to errors in touching a small-sized physical
keyboard or virtual keyboard, and not a reduced
keyboard, displayed on the screen of a portable device.
The system of D3 is configured to calculate distance
values between each location of the keyboard contacted
by the user for providing a key input and the known
position of a group of keys. The system is further
configured to determine candidate words stored in the
memory and to rank the candidate words using a matching
metric algorithm that is based on the calculated
distance values and the frequencies of use stored in
association with the candidate words. Thus, D3 is not a
disambiguation system adapted to a reduced keyboard.

2.2   It was common ground during the oral proceedings that
       D2 was the closest prior art to the subject-matter of
       claim 1. Indeed, D2 discloses an automatic adjustment
       of priorities of the stored candidate words, whereas D1
       discloses a manual adjustment performed off-line and D3
       does not work with a reduced keyboard.

       D2 is based on a gradual frequency adjustment occurring
       each time a user selects one of the stored words in
       preference to other words.

       Claim 1 differs from the disclosure of D2 by the
       feature of determining that a subsequent ambiguous
       input is a first of any inputs to the handheld
       electronic device subsequent to an initial ambiguous
       input, for which the second language object has been
       selected, and which is the same as the initial
       ambiguous input, and for which the second language
       object was also selected, and, in response, assigning
       to the second language object a new frequency object
       having a frequency value greater than the frequency
       value of the first frequency object. In other words,
       the system of claim 1 defines an upgrading of the
       frequency of a word when this word is forced twice in a
       row by a user without there being an instance of the
       word not being forced between these two forced
       instances. The user thus has a direct influence over
       which word is presented first the next time the same
       ambiguous input is entered.

       The board agrees with the appellant that, based on
       these distinguishing features, the objective technical
       problem can be defined as how to improve the frequency
       adaptation of D2.

The appellant plausibly argued that the solution of claim 1 results in a deterministic adjustment, which is quicker than the statistical adjustment of D2, and which in certain text entry circumstances with repetition of the same word also provides a more accurate reflection of the user's wish to select this word.

The board agrees with the appellant that the skilled person would not be incited by D2 to change from a statistical approach of the frequency adjustment to a deterministic approach. Moreover, a combination of the statistical approach of D2 with the deterministic approach of D1, even if considered by the skilled person, would not lead to the subject-matter of claim 1, because D1 is merely a manual off-line system.

For these reasons the board holds that the subject-matter of claim 1, and of the corresponding system claim 5, involves an inventive step having regard to the prior art on file. Claims 2 to 4 and 6 to 8 are dependent claims and, as such, also meet the requirements of Article 56 EPC.

Order

For these reasons it is decided that:

1.   The decision under appeal is set aside.

2.   The case is remitted to the examining division with the
        order to grant a patent based on claims 1 - 8 of the
        main request submitted with the letter setting out the
        grounds of appeal, and the description and drawings to
        be adapted.

The Registrar: The Chair:

K. Götz-Wein   A. Ritzka

Decision electronically authenticated