Case Number: T 0049/04 - 3.4.03
Application Number: 97935052.7
Publication Number: 0917698
IPC: G09B 17/00
Language of the proceedings: EN
Title of invention: Text processor
Patentee: Walker, Randall C.
Opponent: -
Headword: Text Processor/WALKER

Relevant legal provisions:
EPC Art. 52(1),(2),(3), 56

Keyword:
"Invention within the meaning of Article 52(1) EPC (yes)"
"Inventive step (yes)"

Decisions cited:
T 0641/00, T 0643/00, T 0258/03, T 0125/04

Catchword:
"Following T 643/00 rather than T 125/04, the presentation of natural language text on a display in a manner which improves readability, enabling the user to perform their task more efficiently, relates to how, ie by what physical arrangement of the text, cognitive content is conveyed to the reader and can thus be considered as contributing to a technical solution to a technical problem; reasons 4.5 to 4.7."
Case Number: T 0049/04 - 3.4.03

DECISION
of the Technical Board of Appeal 3.4.03
of 18 October 2005

Appellant:
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Decision under appeal:
Decision of the Examining Division of the
European Patent Office posted 31 July 2003
refusing European application No. 97935052.7
pursuant to Article 97(1) EPC.

Composition of the Board:
Chairman: R. G. O'Connell
Members: G. Eliasson
T. Bokor
Summary of Facts and Submissions

I. This is an appeal against the refusal of European patent application 97 935 052.7 on the ground that the requirement of inventive step was not met having regard to the prior art document


and the notorious practice of poetry.

II. In response to a communication from the board accompanying a summons to oral proceedings, the appellant applicant filed amended application documents.

III. In the appeal procedure, the following prior art document was cited:

D3: US 5 060 155 A.

IV. At oral proceedings before the board, the appellant applicant requested that the decision under appeal be set aside and that a patent be granted on the basis of the following documents:

Claims

1 to 15 filed during the oral proceedings

Description

pages 1, 2, 4 to 7 filed with letter of 23 February 2003,

pages 3a, 3b filed during the oral proceedings,
V. The independent claims 1 and 12 according to the above request read as follows (labelling introduced by the board; the emphasised features indicate the features which have been added during the appeal procedure):

"1. A method for enhancing text presentation from a machine readable **natural language** text based on reader specific parameters including at least the viewing field dimensions comprising:

(a) parsing said text into punctuation and parts of speech for extracting text specific attributes;

(b) storing said text specific attributes in relation to the parts of speech to produce an enriched text;

(c) applying primary folding rules followed by secondary folding rules to **said enriched text**, applied in order of a folding rule rank thereby dividing said text into text segments said folding rules having at least **said** punctuation attributes and parts of speech attributes as inputs and visual attributes as outputs;

(d) applying secondary folding rules until a limit is reached, this limit preferably being the minimum line length; and
(e) wherein the visual attributes include the displaying of the text segments in new lines;

(f) applying text segment horizontal displacement rules to said text segments to determine a horizontal displacement for each text segment, said horizontal displacement rules including parts of speech as inputs and visual attributes of horizontal displacement as outputs to produce an enhanced text; and

(g) displaying said enhanced text by cascading the text segments in lines down and across a display."

"12. A device for enhancing text presentation from a machine readable natural language text an enhanced text presentation based on reader specific parameters including at least text viewing field dimensions comprising:

(h) parsing means for parsing said text into punctuation and parts of speech for extracting text specific attributes;

(i) storing means for storing said text specific attributes in relation to the parts of speech to produce an enriched text;

(j) means for applying primary folding rules followed by secondary folding rules to said enriched text, applied in order of a folding rule rank thereby dividing said text into text segments said folding rules having at least said punctuation attributes
and parts of speech attributes as inputs and visual attributes as outputs;

(k) means for applying secondary folding rules until a limit is reached, this limit preferably being the minimum line length; and

(l) wherein the visual attributes include the displaying of the text segments in new lines;

(m) means for applying text segment horizontal displacement rules to said text segments to determine a horizontal displacement for each text segment, said horizontal displacement rules including parts of speech as inputs and visual attributes of horizontal displacement as outputs to produce an enhanced text; and

(n) means for displaying said enhanced text by cascading the text segments in lines down and across a display."

VI. In the decision under appeal, the examining division reasoned essentially as follows:

(a) There was no inventive solution to a technical problem which went beyond the mere application of an algorithm for formatting text. Reference was made to document D2 as an example of a method for enhancing text presentation having a parser and a set of rules which, applied to a machine readable text, caused the presentation of the text to change according to reader-specific parameters.
(b) The problem of having meaningful text segments was known, for example from poetry. The semantic and syntactic division of the text was a task done by the parser which gave weight to the words according to rules previously defined. The skilled person had to choose the rules, an obvious choice being the rules of grammar. The claimed subject matter was therefore no more than a method of segmenting a text according to user-defined rules and displaying it in a certain format in a manner well-known in the art of line breaking algorithms.

VII. The appellant applicant presented essentially the following arguments in support of his request:

(a) The present application addressed the problem of enhancing text presentation on a display. This problem was solved by dynamically formatting the text according to folding rules so that words were grouped together in accordance with the syntactic structure of the text.

(b) Document D2 was not concerned with the syntactic structure of the text to be edited. The words were treated as boxes where the only relevant parameter was the width of the box.

(c) The method of document D3 required complex calculations to generate a tree representation of the grammar of a sentence. In contrast, the present invention did not require a complete analysis of the grammar of a sentence. The folding rules simplified the calculation.
Reasons for the Decision

1. The appeal is admissible.

2. Amendments and Clarity (Articles 123(2) and 84 EPC)

Claim 1 comprises the features of claims 1, 7 to 9, 11, 12 and 16 as filed with the added specification that the machine readable text is in a natural language (cf application as filed, page 2, lines 6 to 20; Figures 3 to 9). Independent claim 12 comprises the corresponding features in terms of a device. Dependent claims 2, 3, 5 to 10 correspond, respectively, to claims 2, 3, 10, 16, 17, 19, 21, and 22 as filed. Claim 4 corresponds to claims 4 to 6 as filed, claim 11 to claims 23 to 25 as filed, claim 13 to claim 22 as filed. Claims 14 and 15 are based, respectively, on page 20, lines 30 to 35 and Figure 6 of the application as filed.

The board is furthermore satisfied that the claims are clear. The claims therefore meet the requirements of Articles 123(2) and 84 EPC.

3. Invention within the meaning of Article 52(1) and (2) EPC

It follows from the terms used in claim 1 ("machine readable natural language text", "parsing said text", "storing said text ... to produce an enriched text", "displaying ... across a display") that the method steps are to be implemented on a computer although this is not explicitly specified in the claim. Therefore the method of claim 1 meets the criteria set out in
T 258/03 (Auction method/HITACHI OJ EPO 2004, 575) (cf headnote) for being an invention within the meaning of Article 52(1) EPC. This applies a fortiori to the subject matter of independent device claim 12.

4. Inventive step

4.1 The present application relates to a method and an apparatus for enhancing the presentation of a text in a natural language on a (computer) display. The problem addressed by the application is that most people, when given the choice, prefer to read a text in print rather than on a conventional computer screen (cf application page 1, lines 32 to 36). The main reason for this is that text presentation on a computer screen is unsatisfactory compared to what is possible on a print medium because of the screen's lower resolution and contrast.

Starting from a conventional computer system, the technical problem addressed by the present invention thus may be seen in providing a technical tool for enhancing natural language text presentation on a computer display.

4.2 The device according to independent claim 12 solves the above problem by displaying the text in shorter text segments on separate lines according to predefined rules: primary and secondary folding rules determine the division of the text into text segments and horizontal displacement rules determine the amount of horizontal displacement (indent) for each text segment. Since the folding rules, as well as the horizontal displacement rules, have parts of speech attributes as
inputs, the segmenting of the text, in contrast to the line breaks made by a conventional word-processor, is determined at least in part by the syntactic structure of the text.

4.3 The claimed device thus aims at enabling the user to read a natural language text faster. Since the act of reading a natural language text belongs to the category "schemes, rules and methods for performing mental acts" (Article 52(2)(c) EPC), which are not to be regarded as inventions within the meaning of Article 52(1) EPC, the present invention inherently has non-technical aspects. The term "non-technical" as used here refers to subject matter which relates to things which are not to be regarded as inventions within the meaning of Article 52(1) EPC.

4.4 Following the principles set out in T 641/00 - 3.5.01 (Two identities/COMVIK OJ EPO 2003, 352), when an invention consists of a mixture of technical and non-technical features, the non-technical features cannot support the presence of inventive step (headnote I). For the assessment of inventive step of the present claims, it is therefore necessary to investigate whether the claimed subject matter contains any "non-technical features".

4.5 In T 643/00 - 3.5.01 (Searching image data/CANON 16 October 2003, not published in OJ EPO), it was held that: "an arrangement of menu items (or images) on a screen may be determined by technical considerations. Such considerations may aim at enabling the user to manage a technical task, eg. searching and retrieving images
stored in an image processing apparatus, in a more efficient or faster manner, even if an evaluation by the user on a mental level is involved. Although such evaluation per se does not fall within the meaning of "invention" pursuant to Article 52 EPC, the mere fact that mental activities are involved does not necessarily qualify subject matter as non-technical since any technical solutions in the end aim at providing tools which serve, assist or replace human activities of different kinds, including mental ones" (reasons 16).

4.6 It is instructive to compare this decision with T 125/04 (Assessment system/COMPARATIVE VISUAL ASSESSMENTS 10 May 2005, not published in OJ EPO) also decided by Technical Board of Appeal 3.5.01 albeit in a different composition. The latter concerned a comparative visual assessment system for aiding a user in selecting a desired product by representing relevant product aspects, such as maintenance expenses or quality of engineering, as a string of vectors. The horizontal length of a vector was proportional to the score attributed to the component, and the angle the vector formed with the horizontal indicated the importance of the component for the user's choice; reasons 2.

4.6.1 Whereas the conclusion was drawn in T 643/00 that an arrangement of menu items or images on a screen may be determined by technical considerations, it was held in T 125/04 that, in general, the task of designing diagrams was non-technical, even if the diagrams arguably conveyed information in a way which a viewer
may intuitively regard as particularly appealing, lucid or logical; reasons 4.5.

4.6.2 These somewhat divergent conclusions from the two decisions T 643/00 and T 125/04 appear to stem from the different assessment of the features relating to the arrangement of images and diagrams, respectively. In T 643/00 the functions and steps of processing the images in a specific format and allowing selection and display of an image at higher resolutions were considered to provide information to the user in the form of a technical tool for an intellectual task he had to perform, and therefore contributed to the technical solution of the technical problem of an efficient search, retrieval and evaluation of images; reasons 17. In T 125/04 on the other hand the features corresponding to the representation of the respective relevant product features as a string of vectors were considered to be non-technical on the grounds that only the information conveyed by the images was relevant. These features had to do with how this content was represented. Thus, unlike the situation in T 643/00, no information was provided about the computer system itself, such as the location where the data were stored; reasons 4.8.

4.6.3 The present board differs at this point from the conclusions drawn in T 125/04. Firstly, the board concurs with the view expressed in T 643/00 that technical aspects cannot be ruled out in the design and use of a graphic interface. Furthermore, the board finds that a feature which relates to the manner how the "cognitive content", such as images, is conveyed to the user can very well be considered as contributing to
a technical solution to a technical problem. This would in particular be the case when, as the situation was in T 643/00, this particular manner of conveying the information enables the user to perform their task more efficiently; T 643/00, reasons 17.

For these reasons, the board is also unable to subscribe to the ratio of T 125/04 which posits that the task of designing diagrams is basically non-technical even when the diagrams convey information in a way which a viewer may regard as particularly lucid and logical.

4.6.4 Hence the board finds it more appropriate to apply the ratio of T 643/00 to the present case.

4.7 Applying the above to the present case, the board judges that the means for analysing the text and dividing it into text segments relates to the physical arrangement of the overall image structure of the displayed text with a view to solving a technical problem, namely to improve the text presentation, i.e. readability, on a display. Therefore, the board concludes that the claimed features, viewed as a whole, do not relate to a non-invention listed in Article 52(2) EPC as such.

4.8 It follows from the above that in the present case the display of the text is also not to be considered as intended to create an aesthetic effect. Hence, the comparison made in the decision under appeal with poetry must fail (cf item VI(b) above). The division of a poem into text segments is dictated by the aesthetic effect it is intended to induce in the reader. Indeed
the poetic device of enjambment is an example of a line break which deliberately breaks a syntactical unit - thus hindering readability - for aesthetic effect. Furthermore, the line breaks and indentations are inserted by the poet himself and therefore form an integral part of the artistic creation. The claimed device on the other hand breaks up the text into lines without involving the author of the text.

4.9 Document D2 discloses a method for dividing the text of a paragraph into lines having approximately equal lengths in a word processor for type setting (cf summary).

As pointed out by the appellant, the method of document D2 does not address any syntactic structure in the text to be divided into lines. The words in the text are treated as "sealed and locked" boxes where the content of the box is not relevant; the only relevant parameter is the width of the box (cf page 1121, penultimate paragraph). Since the claimed device applies folding rules using parts of speech attributes as input (claim 12, item (j); claim 1, item (c)), the division of the text in text segments is based on the syntactic structure of the text. Therefore, the board agrees with the appellant that the skilled person would not get any suggestion from document D2 which would lead him towards the claimed device.

4.10 A method of parsing and analyzing natural language text is known from document D3 (cf abstract). The purpose is to generate a graphic representation of each sentence where all ambiguities of the sentence are represented in a single tree structure.
Since document D3 is solely concerned with representing the analysis of the text in a graphical form, the board judges that the skilled person faced with the problem of enhancing the text presentation on a display would not consider this document at all.

4.11 As the board sees it, the present invention both exploits and copes with technical aspects specific to a screen display, viz evanescence and limited viewing window, to provide an enhanced natural language text presentation which would be wildly impractical and indeed practically useless on a permanent print medium because of the volume constraints. For this reason the notorious use of indenting in poetry, inscriptions and posters for aesthetic effect on permanent media fails, in the judgement of the board, to provide a plausible suggestion to the person skilled in the art to implement a systematic syntax-based indentation of a text stream on an evanescent medium with a limited viewing window.

4.12 For the above reasons, in the board's judgement, the subject matter of independent claim 12 involves an inventive step within the meaning of Article 56 EPC.

4.13 Since the method of claim 1 carries out all the apparatus functions of the device of claim 12, the subject matter of claim 1 involves an inventive step for the same reasons.
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 on the basis of

Claims

1 to 15 filed during the oral proceedings;

Description:

pages 1, 2, 4 to 7 filed with letter of 23 February 2003;

pages 3a, 3b filed during the oral proceedings,

page 3 filed with letter of 19 September 2005,

pages 8 to 28 as originally filed;

Drawings:

Figures 1, 3 to 11 as originally filed,

Figure 2 filed with letter of 23 February 2003.

Registrar

C. Eickhoff

Chair

R. G. O'Connell