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Datasheet for the decision of 23 September 2015

Case Number: T 1900/10 - 3.5.04
Application Number: 05757607.6
Publication Number: 1766989
IPC: H04N7/26
Language of the proceedings: EN

Title of invention:
METHOD AND APPARATUS FOR ADAPTIVE TRANSFORMS FOR COMPRESSION OF STREAMS

Applicant:
Nahava, Inc.

Headword:

Relevant legal provisions:
EPC 1973 Art. 83, 111(1), 113(1)
EPC 1973 R. 67

Keyword:
Sufficiency of disclosure - (yes)
Right to be heard - substantial procedural violation (no)
Reimbursement of appeal fee - (no)
Remittal to the department of first instance - (yes)

Decisions cited:
Catchword:
DECISION
of Technical Board of Appeal 3.5.04
of 23 September 2015

Appellant: Nahava, Inc.
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Decision under appeal: Decision of the Examining Division of the European Patent Office posted on 23 March 2010 refusing European patent application No. 05757607.6 pursuant to Article 97(2) EPC.

Composition of the Board:
Chairman B. Müller
Members: C. Kunzelmann
R. Gerdes
Summary of Facts and Submissions

I. The appeal is against the decision of the examining division to refuse European patent application No. 05 757 607.6 under Article 97(2) of the European Patent Convention (EPC).

II. The application was refused on the grounds of lack of disclosure (Article 83 EPC) of the described invention. The reasons for the decision do not make reference to any of the claims then on file.

III. The examining procedure may be summarised as follows:

In a first and only communication pursuant to Article 96(2) EPC 1973 the examining division raised objections of lack of clarity (Article 84 EPC), lack of novelty (Article 54(1) and (2) EPC) and lack of inventive step (Article 56 EPC). The reasons for the objections were given by reference to the International Preliminary Report on Patentability (IPRP). In the arguments relating to clarity, the communication's point 1.2 also stated that "By the reasons given in said IPRP, Item III, paragraph 2, the disclosure of the present application is not sufficient in the sense of Article 83 EPC, in order to enable an interpretation of said claims, which permits to make a well-defined technical sense out of their wording". (This paragraph of the IPRP comprised an objection that the description appeared "to use a wording, being generally non standard in the technical field of the invention and not proper with reference to subtile mathematical details and to features about the evolution of the encoding method and the nature of the transmitted compressed data". Understanding of these mathematical details and features appeared necessary for a full
understanding of the invention.) The appellant replied with a letter comprising arguments and amended claims. The examining division then issued a summons to oral proceedings, raising an objection under Article 123(2) EPC and maintaining its objections of lack of clarity, novelty and inventive step. The summons also comprised in point 3 the statement that "the description does not define these features in a sufficiently clear manner to make technical sense of the filed subject-matter." The appellant reacted with a reply comprising detailed arguments and amended claims. The oral proceedings before the examining division then took place on 21 January 2010. In the oral proceedings the appellant filed Annexes 1 and 2 to illustrate how the described invention functioned. At the end of the oral proceedings, the application was refused on the grounds of lack of sufficiency of disclosure.

IV. The applicant appealed and requested that the decision under appeal be set aside and that a European patent be granted. Oral proceedings were requested as a precaution. With the statement of grounds of appeal, the appellant filed claims according to a new main and first and second auxiliary requests as well as a declaration by the inventor. The declaration comprises background information about the invention.

The appellant also requested a refund of the appeal fee pursuant to Rule 103 EPC on the grounds that its right to be heard might have been infringed (Article 113(1) EPC.)
V. Claim 1 according to the main request reads as follows:

"An encoding method comprising:
inputting data to encode;
selecting a particular encoding transform from one or more encoding transforms each encoding transform being stored in a location associated with a location identifier, wherein a starting encoding transform in said location is the same starting encoding transform in a decoder;
encoding said data with said selected particular encoding transform;
outputting said location identifier corresponding to said selected particular encoding transform; and
outputting said encoded data."

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

"An encoding method comprising:
inputting data to encode;
selecting a particular encoding transform from one or more encoding transforms each encoding transform being stored in a cache line associated with a corresponding cache line number, wherein a starting encoding transform in said cache line is the same starting encoding transform in a decoder;
encoding said data with said selected particular encoding transform;
outputting said cache line number corresponding to said selected particular encoding transform; and
outputting said encoded data."

Amendments with respect to claim 1 of the main request are in italics.
VII. Claim 1 according to the second auxiliary request reads as follows:

"An encoding method comprising:
inputting data to encode;
selecting a particular encoding transform from one or more encoding transforms each encoding transform being stored in a cache line associated with a corresponding cache line number, wherein a starting encoding transform in said cache line is the same starting encoding transform in a decoder and wherein said starting encoding transform is a baseline transform and a corresponding inverse baseline transform;
encoding said data with said selected particular encoding transform;
outputting said cache line number corresponding to said selected particular encoding transform; and
outputting said encoded data."

Amendments with respect to claim 1 of the main request are in italics.

VIII. Claim 15 of the main and the first and second auxiliary requests specify the corresponding decoding methods.

IX. The board issued a communication pursuant to Article 15(1) of the Rules of Procedure of the Boards of Appeal (RPBA), annexed to a summons to oral proceedings. It indicated its provisional opinion that the reasons for the decision did not persuade it that the requirements of Article 83 EPC 1973 were not met and that it intended to remit the case to the department of first instance for further prosecution. The board also indicated that it intended to refuse the request for reimbursement of the appeal fee.
X. With a letter of reply dated 18 August 2015 the appellant requested that the decision under appeal be set aside and that the case be remitted to the department of first instance for further prosecution. With a further letter dated 25 August 2015 the appellant withdrew the request for oral proceedings.

XI. The board then cancelled the oral proceedings.

XII. The reasons in the decision under appeal may be summarised as follows:

It was apparent from the description that the object of the application was an encoding method based on singular value decomposition (SVD) and the corresponding decoding method. An adaptive transform (AT) based either on discrete cosine transform (DCT) or on SVD was generated, stored and updated in the cache at the encoder and, with a lock-step mechanism, in a corresponding cache at the decoder. The basis vectors of the AT were generated using a matrix A referred to in paragraphs [0031] and [0033] of the description. The application failed to provide unambiguous answers to the following questions:
- How was lock-step achieved in updating the cache at the decoder, in particular at the initialisation stage of the encoding/decoding operation?
- The matrix A was defined in contradictory ways in paragraphs [0031] and [0033]. What were the contents of matrix A?
- What was stored in a cache line?
- What was the definition of a profile?
The answers to these questions were essential to a sufficiently clear and complete definition of the mechanisms underlying the present alleged invention.

XIII. The appellant's arguments concerning disclosure of the invention may be summarised as follows:

The written description (e.g. paragraphs [0031], [0033], [0043], [0044], [0087] to [0089] and [0090] to [0093]) comprised detailed instructions of how to perform at least one embodiment of the encoding procedure and the decoding procedure.

The questions given in the decision under appeal could be answered as follows:

- Lock-step was achieved by the encoder and the decoder initialising their caches identically, as described in figure 3, box 306 and figure 4, box 406, respectively, and subsequently independently applying the same operations to their respective caches.
- The two definitions of matrices A in paragraphs [0031] and [0033] were not contradictory.

The two matrices A described two related embodiments. The more general procedure of paragraph [0033] described a lossy compression scheme and reduced to the more specific embodiment of paragraph [0031] in certain conditions relating to lossless compression.
- Each cache line cached one pair of U and V matrices that resulted from the invocation of the adaptive transform procedure described.
- A profile was both matrix U and matrix V. A profile, or equivalently a cache line, was used to compute a measure of similarity with a given matrix A.
The appellant's arguments concerning the request for reimbursement of the appeal fee may be summarised as follows:

In reply to the first and only communication under Article 96(2) EPC 1973, it had made a bona fide attempt to overcome all objections, including that of lack of disclosure. The summons to oral proceedings maintained the objections as to clarity, novelty and inventive step but not that of lack of disclosure. The applicant thus thought that this objection had been overcome. It was not clear from the summons whether the examining division had actually considered the content of the applicant's reply. Also, in the oral proceedings the examining division had again pointed out that the invention could not work if the baseline transform was not sent to the decoder, despite the extensive explanations in writing as to how and why a transmission of the baseline transform from the encoder to the decoder was not required. In the oral proceedings, other objections of lack of disclosure had been raised on the basis of concerns regarding the matrix A, the initialisation and updating phases, the underlying mathematics allowing the decoder to obtain the necessary basis vectors to perform the inverse transform, and certain features shown in figure 3. These other objections had not been raised before. The applicant had been confronted with these issues at least for the first time during the oral proceedings, and would have required more time to completely resolve these complex technical questions than had been allotted by the examining division.
Reasons for the Decision

1. The appeal is admissible

2. **Main request: sufficiency of disclosure (Article 83 EPC 1973)**

2.1 According to Article 83 EPC 1973, "The European patent application must disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art." It is established case law that the invention referred to in Article 83 EPC 1973 is the claimed invention (see the Case Law of the Boards of Appeal of the European Patent Office, 7th edition 2013, points II.C.1 and II.C.4.1 to 4.4).

2.2 In the present case, the steps specified in claim 1 of the main request are all well within the capabilities of a person skilled in the art. Indeed, inputting data to encode is a common step of encoding methods. Also, the selection of a particular encoding transform from one or more (stored) encoding transforms does not involve any particular difficulties. The same is true for the feature that each of the encoding transforms is stored in a location associated with a location identifier. The feature that one of these (stored) encoding transforms is a starting encoding transform means essentially that one encoding transform is given a label "starting encoding transform". Similarly, in the decoder, there is one stored encoding transform which is labelled "starting encoding transform". The further step of encoding the input data with the selected particular encoding transform is commonplace. The same is true for the steps of outputting the location identifier corresponding to the selected
particular encoding transform and outputting the encoded data.

2.3 The objections raised in the decision under appeal do not refer to any feature of a claim. In particular the key questions identified in the decision under appeal need not be answered for carrying out the method steps of claim 1. For instance, it is undisputed that achieving lock-step in updating the cache at the decoder is an essential element of the described example, but the claimed encoding method does not specify updating anything. Similarly, while it is true that different matrices are labelled "matrix A" in the description, claim 1 does not refer to any matrix. The same holds true for the cache line and the profile.

2.4 A number of additional complications are present in the described example, such as the handling of errors in the case of lossy compression, or considering a sequence of blocks b0, b1, b2 instead of groups of m blocks, and updating the AT. Moreover, there are inconsistencies in the designation of the forward and backward transforms (U, V). However, these complications do not affect the coding method of claim 1.

2.5 In view of the above, the reasons given in the decision under appeal did not persuade the board that the application does not disclose the invention of claim 1 of the main request in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.
3. First auxiliary request: sufficiency of disclosure
(Article 83 EPC 1973)

In comparison with claim 1 of the main request, claim 1 of the first auxiliary request additionally specifies that the storing location associated with a location identifier is a cache line associated with a corresponding cache line number. Thus in respect of claim 1 of the first auxiliary request the question "What is stored in a cache line?" might be relevant. However, claim 1 makes it clear that a cache line stores an encoding transform. Since the storing of an encoding transform in a cache line per se is well within the capabilities of a person skilled in the art, the reasons given in the decision under appeal did not persuade the board that the application does not disclose the invention of claim 1 of the first auxiliary request in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

4. Second auxiliary request: sufficiency of disclosure
(Article 83 EPC 1973)

In comparison with claim 1 of the first auxiliary request, claim 1 of the second auxiliary request additionally specifies that the starting encoding transform is a baseline transform and a corresponding inverse baseline transform. It is clear from the application (see, e.g., paragraph [0025]) that a "baseline transform" is a pre-arranged transform agreed between the encoder and the decoder and may be, for instance, the identity transform. Defining such a baseline transform is also within the capabilities of a person skilled in the art. Thus the reasons given in the decision under appeal did not convince the board
that the application does not disclose the invention of claim 1 of the first auxiliary request in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

5. The other independent claims

5.1 The application comprises other independent claims. For instance, claim 15 of the main and the first and second auxiliary requests specifies decoding methods corresponding to the encoding methods. The only question discussed in the decision under appeal which is specific to decoding is that which relates to the way in which lock-step in updating the cache at the decoder is achieved.

5.2 In this respect, the appellant's arguments have convinced the board. In a first step, the encoder and the decoder initialise their caches identically. This is essentially part of the pre-arranged agreement between the encoder and the decoder. Indeed, figures 3 and 4 and paragraphs [0087] and [0090] make it clear that the last cache lines N-1 (of cache lines 0 to N-1) of both the encoder and the decoder are preloaded with the baseline transform and set to locked (steps 306 and 406). The other cache lines 0 to N-2 are set to invalid, see also paragraph [0043], step 3 of the encoding procedure and paragraph [0044], step 2 of the decoding procedure.

5.3 In the subsequent steps, the encoder and decoder independently apply the same operations to their respective caches. For instance, there must be a pre-arranged agreement between the encoder and the decoder as to which invalid cache line is to be selected if available or which unlocked cache line is selected as a
"victim" (see steps 328 and 428 in figures 3 and 4). Moreover, in the case of a "miss" the same block (the recovered block b^+.i in steps 330 and 430) is added to the respective selected cache line in the encoder and the decoder. In the case of a "hit" the same (inverse) transform (that stored in cache line k^+ of the encoder and of the decoder) is used to decode the block (see steps 334 and 434).

5.4 In particular, the first m blocks of data are encoded using the baseline transform and sent to the decoder (see paragraph [0033]). Thus the decoder is capable of decoding the encoded first m blocks of data using the inverse of the agreed baseline transform. The first m blocks of data are also subject to an agreed AT (such as a singular value decomposition SVD or an eigenspace decomposition ESD) at the encoder. The resulting pair of transforms U, V is stored in a cache line. Since the AT is agreed between the encoder and the decoder, the decoder can calculate the transforms U, V from the first m blocks in the same manner as the encoder (see figure 5). The incorrect step of "decoding said received encoded data with said created new transform" in claim 15 (which should refer to decoding with the starting transform, i.e. the baseline transform, see block 424 in figure 4) is not an Article 83 EPC 1973 issue.

5.5 The second m blocks of data are encoded using the baseline transform or the pair of transforms U, V which were determined on the basis of the first m blocks, depending on whether the baseline transform or the pair of transforms U, V is better suited for transforming the second m blocks ("miss" or "hit", see paragraphs [0035] to [0037]). The decoder receives the encoded blocks and the "hit" or "miss" designator and thus can
decode the encoded blocks using either the baseline transform (in the case of "miss") or the pair of transforms U, V (in the case of "hit", see paragraph [0044], points 3 and 4).

5.6 Essentially the same thing happens for further groups of m blocks. The relevant cache line (i.e. the one comprising the best suited transforms) is found by the encoder and the corresponding cache line index is transmitted together with the encoded blocks.

5.7 Thus, the board finds that the application discloses how lock-step between the encoder cache lines and the decoder cache lines may be achieved.

5.8 In view of the above, the reasons given in the decision under appeal did not convince the board that the application does not disclose the invention claimed in claim 15 of the main request, first auxiliary request or second auxiliary request in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

6. Analogous considerations apply to the other independent claims, which relate to a machine-readable medium, a system and an apparatus which are specified by a reference to other independent claims.

7. Remittal (Article 111(1) EPC 1973)

7.1 The board does not consider that the grant of a patent could be ordered on the basis of the claims filed with the statement of grounds of appeal. This is because full examination of the application, including the claims, as to patentability requirements has yet to be carried out. This is the task of the examining division
(see decision G 10/93 of the Enlarged Board of Appeal, OJ EPO 1995, 172, point 4 of the Reasons). In the present case, it is clear that a number of objections were raised in the first-instance proceedings against the patentability of the claims then on file. It is up to the examining division to consider whether these (or any other) objections need to be raised in view of the claims filed with the statement of grounds of appeal, even if the board decides the specific issue considered in the decision under appeal in favour of the appellant.

7.2 Thus the board decided to exercise its discretion under Article 111(1) EPC 1973 in remitting the case to the department of first instance for further prosecution.

8. The appellant's request for reimbursement of the appeal fee

8.1 The appellant requests the refund of the appeal fee under Rule 103 EPC on the grounds that its right to be heard under Article 113(1) EPC might have been infringed (see section B of the statement of grounds of appeal).

8.2 It is Rule 67 EPC 1973 that applies to the present case, not corresponding Rule 103(1)(a) EPC 2000 (see T 630/08, at point 1, citing J 3/06, OJ EPO 2009, 170, point 3, and J 10/07, OJ EPO 2008, 567, point 7). On the same basis, Article 113(1) EPC 1973 is applicable. In substance, the transition from the EPC 1973 to the EPC 2000 did not change the two decisive criteria for such a reimbursement, namely that the appeal must be deemed to be allowable and that such reimbursement must be equitable by reason of a substantial procedural violation.
8.3 In the present case, the latter criterion is not met. The board finds that no substantial procedural violation occurred that breached the appellant's right to be heard under Article 113(1) EPC 1973 (whose wording is identical to that of Article 113(1) EPC). The reasons are as follows:

8.3.1 The appellant argued that it "simply required more time to completely resolve these complex technical questions than the time allotted by the Examining Division" (see point 9 of the statement of grounds of appeal). However, according to the uncontested minutes of the oral proceedings before the examining division (page 3, last two paragraphs and page 4), the appellant was given the requested time to consider the objections under Article 83 EPC raised by the examining division. In particular, according to the minutes there were two interruptions of over one hour each (10.35 until 11.46 hrs and 13.25 until 14.40 hrs) in which the representative had time to consider the examining division's objections, each interruption then being followed by discussions lasting about one hour. Moreover, the objections concerned only the disclosure in the application. Other documents did not need to be considered at that stage. Under these circumstances, the board finds that the representative was given adequate time to consider the objections.

8.3.2 The board also notes that the summons to oral proceedings (section 2 and point 3) left no doubt that the examining division saw essentially unresolvable problems in the application ("the description does not define these features in a sufficiently clear manner to make technical sense of the filed subject-matter"). Moreover, the appellant submitted to the examining
division, during the oral proceedings, previously prepared Annexes 1 and 2 to illustrate how the described invention functioned. In particular Annex 2 also indicates paragraphs of the application. The board can interpret this submission only in the sense that the applicant was aware, when preparing for the oral proceedings, that the examining division saw major problems with the disclosure of the described invention, even though it had referred to Articles 56 and 84 EPC as the relevant legal bases in the summons. It was clear from the summons that the applicant's reply to the first communication had not persuaded the examining division that all the raised objections had been overcome.

8.3.3 The appellant also emphasised the distinction between objections under Article 83 EPC and Article 84 EPC and stated that it had considered the objection under Article 83 EPC to have been overcome (see point B.4 of the statement of grounds of appeal). However, it is undisputed that both these articles had been (at least implicitly) referred to in the written phase of the first-instance proceedings. As discussed above, the summons to oral proceedings (section 2 and point 3) left no doubt that the examining division saw essentially unresolvable problems in the description of the application. In particular, some of the features objected to under Article 84 EPC were considered to be insufficiently disclosed in the description (see point 3 of the summons). Thus objectively there could have been no doubt that the examining division considered the description of the invention to be insufficient. Moreover, according to the undisputed minutes of the oral proceedings the examining division informed the appellant in those proceedings that an objection under Article 83 EPC would be raised if the
technical questions ultimately recited in the decision under appeal were not answered. Hence, the mere fact that the refusal was ultimately based on Article 83 EPC alone does not raise any problems under Article 113(1) EPC 1973.

8.3.4 In view of the above, the board does not see that any infringement of Article 113(1) EPC 1973 occurred in the first-instance proceedings. No other procedural violation, let alone a substantial one within the meaning of Rule 67 EPC 1973, has become apparent either.

8.4 Therefore, the appellant's request for reimbursement of the appeal fee is to be refused.
Order

For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the department of first instance for further prosecution.
3. The request for reimbursement of the appeal fee is refused.

The Registrar: The Chairman:

K. Boelicke B. Müller

Decision electronically authenticated