Datasheet for the decision
of 20 June 2012

Case Number: T 2009/11 - 3.5.04
Application Number: 07022122.1
Publication Number: 1887806
IPC: H04N7/50, H04N7/26, H04N7/36
Language of the proceedings: EN
Title of invention: Moving picture prediction system
Applicant: MITSUBISHI DENKI KABUSHIKI KAISHA
Relevant legal provisions: EPC 1973 Art. 76(1), 111(1)
EPC Art. 123(2)
Keyword: Amendments - added subject-matter
Appeal decision - remittal to the department of first instance
Case Number: T 2009/11 - 3.5.04

DECISION
of the Technical Board of Appeal 3.5.04
of 20 June 2012

Appellant: MITSUBISHI DENKI KABUSHIKI KAISHA
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Decision under appeal: Decision of the Examining Division of the European Patent Office posted 14 April 2011 refusing European patent application No. 07022122.1 pursuant to Article 97(2) EPC.

Composition of the Board:
Chairman: F. Edlinger
Members: A. Dumont
B. Müller
Summary of Facts and Submissions

I. The applicant appealed against the decision by the examining division refusing European patent application EP 07 022 122.1, which is a divisional application of EP 04 026 174.5 (in the following the "parent application"), which, in turn, is a divisional application of EP 98 900 693.7 (the "grandparent application").

II. The examining division refused the present application on the ground that the subject-matter of the claims did not comply with Articles 76(1) EPC and 123(2) EPC.

III. In an annex to the summons to oral proceedings, the board expressed its provisional agreement with the examining division's findings in the decision under appeal. It further observed that, since the examining division had not decided on inventive step, the case might be remitted to the first-instance department for further prosecution, should the reasons for refusing the application be overcome.

IV. With a letter dated 21 May 2012, the appellant filed claim 1 of a main, first and second auxiliary request.

V. Oral proceedings before the board took place on 20 June 2012. The appellant filed claim 1 of a first auxiliary request during these oral proceedings, in reaction to a further objection raised by the board under Articles 76(1) EPC 1973 and 123(2) EPC.

VI. The appellant requested that the decision under appeal be set aside and that a patent be granted on the basis of claim 1 of the main request filed with letter of 21 May 2012, or of claim 1 of the first auxiliary
request submitted in the oral proceedings, or of claim 1 of the second auxiliary request filed with letter of 21 May 2012.

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

"A moving picture prediction method for predicting a moving picture to be implemented in an encoder, the moving picture prediction method comprising the steps of:
receiving a parameter representing a motion between an image to be predicted and one of a plurality of reference pictures each stored in one of a plurality of reference picture memories, a reference memory number representing a reference picture memory to be used for prediction, and information dynamically determining code allocation to the reference memory number based on frequency in use of the respective memories for prediction, and
generating a predicted image by using the reference picture memory to be used for prediction."

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

"A moving picture prediction and encoding method for predicting a moving picture to be implemented in an encoder including a plurality of reference picture memories for storing picture data of a plurality of reference pictures to be used for prediction, the moving picture prediction and encoding method comprising the steps of:
receiving a parameter representing a motion of a picture segment to be predicted and a reference memory number representing a reference picture memory to be used for prediction,
generating a predicted picture based upon the parameter by using the picture data of the reference picture memory to be used for prediction, dynamically determining code allocation to the reference memory number based on information about frequency in use of the respective memories for prediction and encoding the reference memory number according to the code allocation."

IX. The reasoning in the decision under appeal, in so far as it is relevant for the board's decision, may be summarised as follows.

The claims are directed to embodiment 11 described on pages 66 to 68, where reference memories are ranked based upon frequency in use for prediction, with ranks being updated dynamically during an encoding operation and the code allocation to a reference memory number being based upon the ranks of the respective memories used for prediction. Thus, a memory which is frequently used for prediction is allocated a short code to enhance coding efficiency (page 67, lines 15 to 19). The claims do not correspond directly to those of the grandparent application as filed. A generalisation beyond the concept of a dynamic ranking according to frequency in use constitutes added subject-matter, infringing both Articles 76(1) and 123(2) EPC.

X. The further objection by the board in the oral proceedings may be summarised as follows.

Embodiment 11 discloses an encoder, in which a prediction section receives two parameters (a motion parameter 4 and a reference memory indicator signal 25) and outputs a ranking information signal (90) to a distinct prediction information encoder (91). A moving
picture prediction method comprising the step of receiving a parameter representing a motion, a reference memory number and (as a third input signal) information dynamically determining code allocation based on frequency in use thus extends beyond the content of the application documents as originally filed.

XI. The appellant's arguments may be summarised as follows.

The amendments to the claims overcome the objections in the decision under appeal and in the summons to oral proceedings before the board.

Claim 1 of the main request should be interpreted as relating to a method in which three pieces of information ("parameter representing a motion" "reference memory number" and "information dynamically determining code allocation") are received for prediction. The latter information corresponds to the ranking information (90) received by an encoder (91) as shown in figure 19. In the context of the present application, the disclosure of the claimed method should be understood broadly as also receiving the ranking information in the receiving step, although this step is carried out in an encoder (91) which, in figure 19, is distinct from the prediction section which receives the other pieces of information.

Reasons for the Decision

1. The appeal is admissible.

2. Main request
2.1 According to the description (page 26, lines 8 to 23), an encoder comprises several distinct sections, in particular a memory area comprising a plurality of reference picture memories (16, 17, 18 in figures 1 and 19), a prediction picture generation section which implements a prediction system, and a variable-length encoder/multiplexer (19 in figures 1 and 19).

2.2 It is common ground that the "parameter representing a motion", the "reference memory number" and the "information dynamically determining code allocation to the reference memory number" according to claim 1 respectively correspond to the motion parameter (4), the reference memory indicator signal (25) and the ranking information (90) disclosed in embodiment 11 and shown in figure 19.

2.3 It is further common ground that the ranking information (90) is output by the memory update unit (15b; included in the prediction section) and received in the prediction information encoder (91) included in the distinct variable-length encoder/multiplexer (19), for encoding and insertion into the outgoing bit stream (21). Hence, in the board's view, the ranking information (90) is a result ("resultant ranking information 90" on page 67, lines 3 and 4) of the prediction method, rather than a piece of information received and used for prediction in the encoder.

2.4 The application as filed does not generally disclose a step of receiving the ranking information in the method for predicting a moving picture implemented in an encoder. Taking into account his general knowledge, a skilled person would distinguish between picture prediction and (variable-length) encoding of side-
information such as ranking information within an encoder.

2.5 As a result, the step of claim 1 consisting in receiving, in a moving picture prediction method implemented in an encoder, information dynamically determining code allocation to the reference memory number based on frequency in use of the respective memories for prediction is not disclosed in the application documents as originally filed.

2.6 Amended claim 1 of the main request thus infringes Article 123(2) EPC, and the main request is not allowable.

3. First auxiliary request

3.1 The description in the present application is identical to the description in both the parent and the grandparent applications, whereas the claims as originally filed in these three applications are substantially different and non-overlapping.

3.2 The examining division objected to the generalisation beyond the concept of a dynamic ranking according to frequency in use, as described in relation to embodiment 11. Amended claim 1 according to the first auxiliary request states that code allocation to the reference memory number is dynamically determined based on information about frequency in use of the respective memories for prediction, and that the reference memory number is encoded according to the code allocation. This is disclosed in relation to embodiment 11, where memories are ranked based upon frequency in use, or synonymously based upon memory use count, and where the
memory number is encoded, or allocated a code, based upon the ranks (see page 66, lines 11 to 23).

3.3 The description (page 19, lines 9 to 18) further discloses that the code length is based on the rank of a memory, which is based in turn on the number of times it is used. Code allocation is thus not necessarily limited to allocating a short code to a high-rank, frequently-used memory as disclosed on page 67, lines 15 to 19.

3.4 As a result, claim 1 according to the first auxiliary request overcomes the objection of added subject-matter in the decision under appeal.

3.5 Claim 1 according to the first auxiliary request relates to a prediction and encoding method, the method comprising the step of receiving a parameter representing a motion and a reference memory number representing a reference picture memory to be used for prediction. This is disclosed in the description, where these two pieces of information (4, 25) are received for prediction.

3.6 The step of receiving, in a prediction method, information dynamically determining code allocation to a reference memory number, found above to constitute added subject-matter, has been deleted. Instead, claim 1 according to the first auxiliary request states that information about frequency in use of the respective memories is used for determining code allocation and encoding the reference memory number according to the code allocation based on the frequency in use. This is disclosed in the description (see sections 3.2 and 3.3 above).
3.7 As a result, claim 1 according to the first auxiliary request also overcomes the objection raised against claim 1 of the main request.

3.8 In conclusion, the amendments to claim 1 of the first auxiliary request are directly and unambiguously disclosed in the description (and figures) of the present application as filed, and consequently also in the identical descriptions of the parent and grandparent applications. As a result, the subject-matter of amended claim 1 does not extend beyond the content of the present application as filed, or beyond the content of the earlier applications, so that Articles 76(1) EPC 1973 and 123(2) EPC are complied with.

4. Remittal to the first instance

The examining division has not carried out a complete examination of the application, in particular as to novelty and inventive step. In view of this the board exercises its discretion in accordance with Article 111(1) EPC 1973 in remitting the case to the first instance for further prosecution.
Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance for further prosecution.

The Registrar: 

The Chairman:

K. Boelicke 
F. Edlinger

Decision electronically authenticated