

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today
(1) was not written for publication in a law journal and
(2) is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte KATSUMI TAHARA

Appeal No. 96-0553
Application 08/020,993¹

HEARD: JULY 16, 1997

Before HARKCOM, Vice Chief Administrative Patent Judge, and
THOMAS and KRASS, Administrative Patent Judges.

THOMAS, Administrative Patent Judge.

DECISION ON APPEAL

Appellant has appealed to the Board from the examiner's
final rejection of claims 7 to 28, which constitute all the
claims remaining in the application.

¹ Application for patent filed February 22, 1993.

OPINION

After conducting a thorough study of the disclosed invention and that as reflected in the claims on appeal in conjunction with the respective positions of the appellant and the examiner and the detailed teachings and suggestions of the applied prior art, we will sustain the rejection only as to claims 7, 16 to 18, 27 and 28. We, therefore, reverse the rejection of the remaining claims 8 to 15 and 19 to 26.

From appellant's brief and reply brief and the arguments presented during oral hearing, it is apparent to us that the focus of the dispute between the appellant and the examiner concerns only the following language of representative independent claim 7 on appeal:

determining a correlation between one of said plurality of blocks of one of said frames of video data and a corresponding block of a preceding frame of video data;

setting a quantization width in accordance with said correlation.

Our study of prior art Figure 1 of Tanaka in conjunction with the respective four separate embodiments set forth in this reference for Tanaka's contribution beginning at Figure 3 through Figure 6 leads us to conclude that the above referenced language of claim 1 is necessarily met by the teachings and suggestions as

to the operation of the prior art Figure 1 to the extent that it is relied upon in Tanaka in conjunction with each of the respective embodiments.

We make reference to column 2, lines 20 to 33 and lines 53 through 57; column 3, line 49 through at least column 5, line 24 for a basic understanding of prior art Figure 1 as it applies to the claimed correlation feature. These portions of Tanaka indicate that all digitized television signals are divided into blocks, each of which is comprised of a rectangular array composed of MXN pixels arranged in M columns and N rows. All signals are processed in every embodiment including the prior art embodiment in Tanaka in a step-wise continuous manner on a block-by-block basis. It is noted that even in picture memory portion 54, which relates to the motion compensation feature of prior art Figure 1, this memory stores current frame information as well as previous frame information to affect that compensation. Although this compensation per se is not pertinent to the issues on appeal, we make mention of this memory 54 because it begins to set a proper context for later considerations. The discussion beginning at the bottom of column 3 as it pertains to prior art Figure 1 of Tanaka indicates that the quantization step-size Q_b is calculated on a continuous or regular basis on the basis of n

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Macro blocks. Although it is true as argued that the Bcont represents the amount of the code remained in the code memory 74 of Figure 1, which relates to a memory store for a frame of information to be transmitted out on terminal 89, the quantification is performed by using a predetermined step size with respect to a first to an (n-1)th Macro block. The entire transmission frame 87 is outputted through this code memory portion 74. This represents the transmission frame of information or the claimed preceding frame. The above noted portions also indicate that the value of n is chosen to be 12.

Although the examiner appears to rely upon portions of columns 19 and 20 as the primary basis for the examiner's statement of the rejection, this portion of the reference relates to the second embodiment described in Figure 4. However, corresponding locations are present with respect to the first embodiment in Figure 3 in earlier portions beginning at column 14. It is further noted that each of the respective four embodiments in corresponding Figures 3 through 6 essentially repeat everything that has been previously recited with respect to any earlier embodiment with variations in accordance with the variations in the respective figures.

The first introduction of the teaching value of the various disclosed embodiments of Tanaka himself is found with respect to Figure 3. We make reference to the following locations as the discussion in Tanaka relates to this first embodiment in Figure 3: column 14, lines 7 through 12; column 14, line 62 through column 15, line 53 and column 16, lines 31 through 42. The variance calculating portion 116 in Figure 3 is discussed beginning at the bottom of column 14. The so-called fineness of a respective block represented by the inputted television signal is determined by this circuit. Again, this indicates that the computations occur on a block-wise basis on incoming, new signal blocks for a new frame. The referenced portion at column 15 indicates to us that in the context of the first embodiment in Figure 3, it operates upon the prior art approach in prior art Figure 1 by means of the first quantization step-size computation portion 122 in conjunction with or feeding as an input signal 119 to the second quantization step-size computing portion 118. The variance calculating portion 116 also feeds this block 118 in Figure 3. Two outputs come from the block 118. One is wrongly argued by the examiner and correctly identified by appellant in the early portion of the reply brief; this relates to the quantization class determinations represented by signal 121.

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Although correctly pointed out by appellant in the reply brief, this information has everything to do with the prediction error coding portion 130 and not the quantization portion 115. Even so it does indicate that processing within block 118 occurs in a block-wise manner with respect to the first quantization step-size computing data signal 119 with respect to each block so obtained from first quantization step-size computing portion 122. Thus, it is apparent to us that the determination of a broadly defined claimed correlation between one of the plurality of blocks of one of said frames of video data, which is the incoming frame of video data, and a corresponding block of preceded framed information of video data is met by the teachings of this reference as initially introduced in Figure 3. The preceding data is the data from the code memory 123 in Figure 3 as processed by the first quantization step-size computing portion 122 to yield a signal 119 feeding block 118. Overall, it is clear to us that the processing occurs on a corresponding block-by-block basis from the preceding frame that is to be transmitted and the current incoming frame that is being processed to be inputted to the picture memory portion 104 as well as into the code memory 123. The second quantization step-size signal 120 is

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essentially what corresponds to the setting operation of the above quoted portion of claim 1 to set the effective width of the quantization portion 115 in Figure 3.

As noted earlier, we do not agree with the examiner's reasoning beginning at page 3 of the answer relating to the quantization class information as corresponding to the key information of the first clause reproduced of claim 7 above. Notwithstanding this, the other positions advocated by the examiner in the statement of the rejection relied upon in the final rejection and the other reasoning in the responsive arguments portion of the answer appear to be pertinent to meet the issues raised by appellant in the brief.

Appellant appears to admit in the first sentence at the top of page 8 of the brief that there is interframe coded data present in a correlation sense between blocks in two successive frames. The position that "the amount of code in code memory 74 in Tanaka merely represents that code that has not yet been transmitted at a particular transmission rate at the time a block of video data is to be quantized, which primarily depends on the amount of code of one or more previous blocks of video data that have already been quantized" at the top of page 8 of the brief is misplaced. If this is so, it is also clear that because the

coding in Tanaka occurs in a step-wise block-by-block basis continuously, the corresponding remaining data of a given frame of memory to be transmitted that has not yet been transmitted also must correspond to the corresponding block of data of a frame that is currently being processed. Even if the data value within code memory portion 74 represents a total value of the remaining data to be transmitted, as is apparent from appellant's argument, such a broadly claimed correlation as set forth in the initially reproduced clause of claim 7 is still met by that understanding.

The variance data of the respective embodiments in Figures 3 through 6 of Tanaka relate only to incoming or currently processed video signals on a block-by-block basis. As to appellant's reply brief, the language apparently chosen by the examiner in the responsive arguments portion in the answer utilizes the terminology relating to "the first quantization step of the previously coded block", which we interpret to relate to the first quantization step-size calculating portion data signal. It is clear to us that the examiner considers the "previously coded block" as the information in the code memory 123 in Figure 3, data to be transmitted.

The arguments on page 4 of the reply brief are also misplaced in the context of our explanation of our understanding of the teachings and interrelationships in Tanaka between the prior art Figure 1 quantization of a first quantization step-size computing portion to each of the respective embodiments in Figures 3 to 6. Appellant goes on to submit that even if one were to construe Tanaka's first quantization step-size as corresponding to a previously coded block, such construction must be limited to a correspondence with an immediately preceding or adjacent block of coded video data. At oral hearing this understanding was focused upon to point out that the correspondence was with respect to an intermediately preceding block of the same frame. This understanding is not consistent with our understanding of the way each of the respective embodiments 1 to 4 operate in Figures 3 through 6 of Tanaka in conjunction with the respective portions of prior art Figure 1.

Finally, we note that with respect to the Figure 6 embodiment, the discussion at column 32, lines 11 through 21 indicates that quantization occurs with respect to luminance signal data of a corresponding color coding block. From the artisan's perspective, it is clear that for the overall system of Figure 6 to operate with initial quantization capabilities

of prior Figure 1, it must be on a corresponding block-by-block basis with respect to the frame being transmitted to the current frame being processed in the circuit in Figure 6. If this were not so, corresponding color problems would have been clearly evident to the viewer, a highly undesirable interpretation.

Since claim 18 corresponds in an apparatus format to method claim 7, claim 18 also falls with our understanding of claim 7. Similarly, since no arguments have been presented with respect to dependent claims 16, 17, 27 and 28, they also fall with their respect parent claims 7 and 18.

We reverse the rejection of all remaining claims as indicated earlier. We generally agree with appellant's arguments in the brief and reply brief as they apply to the specific recitation that the broad correlation of representative independent claim 7 is specifically recited in representative dependent claim 8 as being determined from a difference of powers between the corresponding blocks of the current and preceding frame. There is simply no such determination in any of the four embodiments in Tanaka from what we can discern. The noted portions the examiner relies upon clearly do not teach this as appellant points out. As we noted earlier, the variance of each of the

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respective embodiments of Tanaka does not relate to respective corresponding blocks of preceding and current frames but only the current frame blocks or adjacent blocks therewithin.

In view of the foregoing, the decision of the examiner rejecting claims 7 to 28 under 35 U.S.C. § 102 is affirmed only as to claims 7, 16 to 18, 27 and 28. Therefore, the decision of the examiner is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

GARY V. HARKCOM, Vice Chief)	
Administrative Patent Judge)	
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JAMES D. THOMAS)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
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