DECISION of 5 March 1997

Case Number: T 0333/95 - 3.5.1
Application Number: 88480023.6
Publication Number: 0309373
IPC: G06F 15/72

Language of the proceedings: EN

Title of invention: Interactive animation of graphics objects

Applicant: Interactive Business Machines Corporation

Opponent:

Headword: Interactive animation/I.B.M.

Relevant legal provisions: EPC Art. 52(2) & (3), 56, 111(1)

Keyword: "Inventive step - (yes)"
"Contribution to the field not excluded from patentability"

Decisions cited:

Catchword:
Case Number: T 0333/95 - 3.5.1

DECISION of the Technical Board of Appeal 3.5.1 of 5 March 1997

Appellant: Interactive Business Machines Corporation Old Orchard Road Armonk, N.Y. 10504 (US)

Representative: Tubiana, Max Compagnie IBM France Département de Propriété Intellectuelle 06610 La Gaude (FR)

Decision under appeal: Decision of the Examining Division of the European Patent Office posted on 11 November 1994 refusing European patent application No. 88 480 023.6 pursuant to Article 97(1) EPC.

Composition of the Board:
Chairman: P. K. J. van den Berg Members: R. Randes G. Davies
Summary of Facts and Submissions

I. European patent application No. 88 480 023.6, filed on 30 August 1988 claiming priority of 21 September 1987 and published under No. 0 309 373, was refused by a decision of the Examining Division dated 11 November 1994.

II. The reason for the refusal was that the subject-matter of independent claim 1 of the set of five claims filed on 27 September 1994 lacked an inventive step having regard to the prior art documents:

D1: J. Wilhelms, "Toward Automatic Motion Control", IEEE COMPUTER GRAPHICS AND APPLICATIONS, IEEE Society Press, volume 7, No. 4, April 1987, pages 11 to 12,


III. On 4 January 1995 the applicants filed a notice of appeal against this decision and paid the appeal fee on the same day. A statement setting out the grounds of appeal was filed on 21 March 1993. The appellants requested that a patent be granted on the basis of newly filed claims 1 and 2. In case the Board considered refusing said request, oral proceedings were requested.

IV. In a communication dated 19 July 1996, the rapporteur expressed the preliminary opinion that certain parts of claim 1 appeared to be unclear and it was said to be
questionable whether the claim met the requirements of Article 123(2) EPC. However, would said deficiencies be remedied or the objections overcome by supporting arguments, it was hinted at that the contested decision might be set aside.

V. With a letter filed on 27 November 1996, the appellants filed a new set of claims 1 to 3 and argued that all objections made by the rapporteur had been removed. Claim 1 as filed reads:

"A method of interactively creating an animated display on a computer graphics screen (10) of one or a plurality of predefined graphics objects (60) of a graphics object display stored in a memory, said graphics objects being hidden, shown, redefined, placed or moved owing to a current cursor (50) on a background;

said method characterized in that it comprises the steps of:

- selecting one of said graphics objects (60) from said graphics objects display on said graphics screen;

- making said graphics objects (60) the current cursor (50) under the control of a pointing device (40) so as to perform the move operations; and

- recording said graphics objects operations in a command list."
Thus the appellants request the decision to be set aside and a patent granted on the basis of said cited claim 1, dependent claims 2 and 3, description pages 1 and 3 to 16 as originally filed and pages 2, 2a and 2b filed on 27 September 1994 and, moreover, drawing sheets 1 to 6 as originally filed.

Reasons for the Decision

1. The appeal is admissible.

2. Amendments

The Board notes that present claim 1 is significantly shorter than the claim filed with the grounds of appeal and also shorter than the refused claim. The prior art portion of claim 1 includes the starting point of the invention as described in the introductory part of the description and appears to give an appropriate identification of that prior art. The characterizing portion of claim 1 has been delimited to describe the move operation of the method of interactively creating an animated display.

It appears to the Board that the wording of claim 1 now is clear and, moreover, that claim 1 meets the requirements of Article 123(2) EPC. Thus, it has now been made clear that a graphics object (a sprite) itself can be made the cursor. The Board also agrees that the last feature of the claim can only mean that said recording is performed automatically by the computer, since the method claimed is an interactive method. Therefore, it is also implicitly understood that said operation might be played back at a later time. The method, identified in the characterizing portion of claim 1, thus, relates to the move
operation, which is a separate operation clearly
distinguished from the other operations described in
the original application documents and thus the
restriction of claim 1 to this feature is admissible
with regard to Article 123(2) EPC.

3. Novelty

D1 discloses different aspects and features of the
animation techniques known at the time of the
publication of that document. Therefore, those features
are necessarily not known in combination. Both
"interactive" and "scripted" motion control for
computer animation are discussed. Among the interactive
motion control methods is "path specification"
(page 12, right hand column, lines 22 to 30), where the
path to be taken by an object must be defined, and may
be "interactively created by using dials or a tablet to
pick positions in a displayed world. These positions
can then be used to define smooth curved paths along
which objects move during the animation". The main
subject of the paper, how to automate motion control of
complex articulated objects, is not relevant to the
simple application of the present invention. It is
noted that D1 does not disclose that the user may
directly move the graphics objects (make the graphics
object a cursor) on a screen.

D2 discloses a graphics system making possible simple
animation through manipulation of its colour palette.
All drawing, editing and animation are done, and
commands given, by a pen and tablet (page 151, second
column, lines 9 to 11). There is a menu of picture
editing operations which can be invoked (page 151,
column 2, line 22 to column three, line 1 and
Figure 2). These operations include, copying,
overlying, combining and changing the colour of objects
or areas in the picture. The object to be animated is
drawn on the screen at up to ten different places. Initially, all the views of the objects are hidden by setting the colour table so that each view of the object displays a colour identical to the background colour. The objects are thus "hidden". The animation effect is then created by manipulating the colour table definitions so as to turn on and reveal the hidden objects in sequence and hence give a very crude animation (page 154, line 5 to page 155, left hand column, line 7).

The Board also takes into account the teaching of


which document, apparently, was not commented on in the proceedings before the Examining Division, but which was mentioned in the European Search Report.

This document discloses a system for analysing film and video-tape sequences by animating objects on the same screen as is used for display of the film (cf. Figure 2). The object is selected from a table and the movement of it can be simulated and recorded by a pointer. The animation can be played back and altered, whereas the parameters of the process can be adjusted (cf. the bridging paragraph of columns 1 and 2 on page 712). However, it must be noted that despite the broad phrasing of this document, it only actually discloses the manipulation of one type of graphics object, an expanding wave front (cf. Figure 1). The user may identify the centre of the wave front in the film with a pen, specify that an expanding circle should be placed at that point and then by means of the
pen follow the wave front over a period of time. The pen movement is thereby recorded as the user moves it and the "kinegram", the animation in the form of a wave front, may be viewed in its own right (page 712, column 1, lines 12 to 14).

Thus, none of the cited documents disclose the features of claim 1. The subject-matter of claim 1, therefore, is novel.

4. Inventive step

Moreover, the Board is of the opinion that the subject-matter of claim 1 also has an inventive step.

4.1 At first sight it appears that document D2 discloses features of the precharacterizing portion of claim 1 and that it teaches that graphics objects can be selected from a display.

However, D2 does not at all teach a move animation which could be compared to the one of the invention. This is not surprising, since the teaching of D2 is mainly aimed at making it possible also for people having no experience of videographic media to create drawings and graphics. Moreover, while this document discloses "hiding" an object in a picture by setting its colour, this is not the same as hiding a sprite in the application. In fact, the "objects" referred to (cf. D2, e.g. page 152, line 18) would appear to be objects in the subjective sense that the creator of a picture intends an area to depict an object. Therefore, this kind of animation does not concern the kind of animation which is aimed at by the invention, i.e. in reality a video game having graphics objects moving
across the display in real time (see the introductory part of the description of the application under "Description of the Prior Art"). In fact, this document does not appear to disclose a teaching that could be considered as a starting point of the invention.

4.2 To the Board, instead, it appears that the starting point of the invention should be considered to be the prior art in the form of video games as has been explained in the introductory part of the present application. The objective problem to be solved is seen in designing a method for providing a display interface which allows an operator interactively and in a simple way to define sequences of operations, including move operations, to be performed on graphics objects ("sprites" cf. the published application, the bridging paragraph of columns 1 and 2), thereby using a cursor as placement device.

4.3 The Board notes that D3 is the only document which apparently discloses that continuous recording of an animation movement, in this case performed and simulated by a pen, is known. However, this document is concerned with a quite different technique, i.e. analyses of natural processes recorded on film. During running of the film which is projected on the screen the user may follow a point in the moving image with the pen. This application is thus totally different from the starting point of the invention and the skilled man would not have turned to this document to find a solution to his problem.

4.4 As has been said above, D1 mentions methods for "path specification". However, it is nowhere explained in detail how said specification is performed. D1, thus, discloses that a "path" may be interactively created by picking positions in a displayed world, "these positions can then be used to define smooth, curved
paths along which objects move during the animation" (cf. D1, page 12, right hand column, lines 26 to 30). How said positions are chosen, how frequently and in which way they have to be input has not been disclosed in the document. The Board does not try to suggest, how said steps of the methods of D1 were to be performed in detail; this does not appear to be of any interest, because such suggestions apparently would only be speculations as long as no additional pertinent prior art is available. It is also noted that D1 does not mention operations such as showing, hiding and placing.

In any case D1, entirely lacks the concept of creating an animation by the user manipulating the graphics object on screen and the system automatically recording those manipulations for later playback.

4.5 In particular, there is not revealed in D1 or anywhere else in the cited prior art that a graphics object itself is made the cursor. This feature, however, must very much simplify the performing of an operation on the object concerned; this is in particular true for the move operation. The Board does not at all agree with the opinion of the Examining Division that this feature would be self-evident (cf. page 3 of the decision, second paragraph). Instead, having regard to the cited prior art, one could well imagine that the operator might click on the object, click on a number of points on the path it is to take and then give a "move" command, whereupon the processor would interpolate a smooth path for the object and move it along this path.

4.6 It appears to the Board that rather than the user creating a list of commands (which may be in the form of positions to be past), which are then executed to produce the animation, the animation according to the invention is produced by the operator "showing" the
computer what he wants, by selecting a graphics object on the screen and moving or selecting another operation to be performed on it. The computer automatically records the operation which therefore can be used for playback later on. The Board can see no hint in the cited prior art that would point in the direction of the invention. Instead the solution does appear to solve the problem in an elegant way, thereby minimizing and simplifying the design effort of the operator and giving him a tool that helps him to control in detail the development of an animation during all phases of its creation.

Therefore, the subject-matter of claim 1 is not obvious and thus has an inventive step (Article 56 EPC).

5. Patentability

In the communication of the Board, the opinion was expressed that the invention might be excluded from patentability by the provisions of Articles 52(2) and (3).

However, the Board has come to the conclusion that present claim 1 defines an invention which involves a contribution to the field not excluded from patentability. Thus, it appears that the second characterizing feature, i.e. "making said graphics object the current cursor" is clearly of a technical character. In fact, it appears that the claimed method uses a new input device including a graphics object, which can be moved around the display as a cursor under the control of the pointing device. This new input device, indeed, appears to decrease both the necessary mental and physical effort of the operator, since the direct movement of the graphics object, obviously, does not need the concentration necessary when the operation must be performed by means of a normal cursor.
Moreover, the Board notes that the input device used by the method automatically records the manipulations performed by the operator and creates a command list which makes it possible to play back the operations performed by the operator. Thus, it appears that the used input means, indeed, also functions as a "programming means", in that its physical operations are transferred to a memory in the form of a program. The function of the "programming means" which interprets the physical movements of the cursor (in the form of a graphics object) into a programming language also implies a technical activity and must be considered to be within the borders of the technical field not excluded from patentability.

Thus the Board has come to the conclusion that at least some of the features of the characterizing part have a technical character. Since it is an accepted interpretation of Articles 52(2) and (3) EPC that an invention may consist of a mix of features, which consists partly of technical features and partly of features excluded from patentability, it does not appear to be necessary to investigate whether, or to what extent, the programming by the "programming means" and the data treatment connected thereto, as well as the possible play-back function included in the method, are contained within a field not excluded from patentability.

6. Remittal

At first sight, it appears to the Board that claims 2 and 3 may be acceptable dependent claims. However, the Board finds that claim 2 includes some errors which should be amended. Apparently, the word "invisible"
(line 9 of the claim) should be "visible" (cf. Figure 2, reference numerals 111 and 112). Moreover, there are some obvious typing errors in the claim which should be amended.

Furthermore, the introductory part of the description has not been adapted to the new set of claims (cf. the statement of grounds of appeal, last paragraph). The Board also notes that in the last paragraph of the description the word "spirit" has been used which word should, according to the EPO Guidelines, be objected to (The Guidelines, Chapter III-4.3a).

To complete the examination and to put right the mentioned deficiencies the Board remits the case to the first instance (Article 111(1) EPC.

7. Oral proceedings

Since the case is remitted to the first instance, oral proceedings need not be held (see under III above).
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 on the basis of claim 1 with particular attention being paid to the deficiencies mentioned in point 6 above.

The Registrar: M. Kiehl

The Chairman: P. K. J. van den Berg