



## PATENTS ACT 1977

APPLICANT Warner Bros Entertainment Inc.

ISSUE Whether patent application GB1804452.9 is excluded under section 1(2)

HEARING OFFICER P Mason

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### DECISION

#### Introduction

- 1 Patent application GB1804452.9 is the national phase of PCT patent application PCT/US2016/056297 filed on 10<sup>th</sup> October 2016, having an earliest priority date of 9<sup>th</sup> October 2015. The PCT application was published as WO2017/062960 on 13<sup>th</sup> April 2017 and republished as GB2557152 on 13<sup>th</sup> June 2018.
- 2 The application relates to a method of controlling the pace of the display of scripted events by an immersive AR/VR output device, in which the pace of display is based upon sensor feedback of actions performed by a user of the immersive output device. If the pace of display falls below a minimum pace, the display may proceed to the next event even if no user input is detected.
- 3 The examiner considered that the invention relates to subject-matter excluded from patentability under section 1(2)(c) of the Patents Act 1977 ("the Act"), specifically to a program for a computer as such. She maintained an objection under section 1(2)(c) throughout the examination process, although detailed objections were deferred until an objection to a lack of inventive step was overcome by amendment and argument. The applicant has attempted to overcome the excluded matter objection through amendment and argument but has been unable to persuade the examiner that the invention has met the requirements of the Act.
- 4 A letter of 16<sup>th</sup> April 2021 from the applicant's attorney (Withers and Rogers LLP) included an amended claim set, arguments relating to the amended set of claims and a hearing request. The examiner provided a prehearing report setting out the issue to be decided on 6<sup>th</sup> May 2021. The applicant's attorney filed helpful and extensive arguments in response to the pre-hearing report on 20<sup>th</sup> June 2021 and asked that a decision be made based upon the papers on file.

- 5 The issue to be decided is whether the invention consists solely of a program for a computer, which the Act excludes from patentability under section 1(2)(c). In arriving at my decision I confirm that all papers on file have been considered.

### **The invention**

- 6 The invention relates to the pace of scripted events displayed by a virtual reality (VR) or augmented reality (AR) immersive device. VR is defined in the application as “simulating immersion in a 3D world”. VR has for some time been used in video game content and animated film content. In some types of virtual reality a user can navigate through a simulation of a 3D environment based upon a computer model of that environment, by controlling the orientation and position of a virtual camera which defines a viewpoint of a 2D scene that is displayed in 2D. In AR the display shows the user’s physical surroundings augmented by one or more digital objects or overlays.
- 7 VR and AR are usually displayed by headsets which show stereoscopic views to the user while blocking their peripheral vision, but they can also be displayed in other ways. VR/AR headsets often have motion sensors, tracking sensors and/or position sensors that detect positioning of the user’s head and adjust the display accordingly. The user may also wear other sensors which interact with the display to enhance the immersive experience.
- 8 VR and AR are used extensively in game play, where a user explores a modelled environment generated and displayed using real-time rendering. A rendering engine processes the data to display as the user controls one or more virtual cameras. VR and AR may also be used to tell a narrative story more like traditional theatre or cinema.
- 9 In order for a VR/AR user to be able to follow the narrative of a game or story, it is important that some essential scripted events happen in the right order. Other scripted events considered to be inessential can happen in any order. Essential and inessential scripted events can be grouped together (to form “event groups”). The application refers to essential events as “critical events” and inessential events as “optional events”. In order to maintain the narrative flow, *all* critical events in a group *must* be displayed prior to any events from a subsequent group.
- 10 The invention requires that scripted events should happen with a minimum pace so that a user maintains progress through the narrative. Pace is defined as the number of scripted events per unit time. If it is detected that the pace is less than the minimum pace for a sequence of scripted events, then sensory cues are provided via the VR/AR output device to cue a user action which will increase the pace. After each cue is provided it is determined whether to trigger the next scripted event. The next scripted event may be triggered even if there is no user action detected in response to the cue. The VR/AR display remains in an event group until all critical events have occurred *and* a particular time period has elapsed. The display may then proceed to the next event group.
- 11 The latest claims were filed on 16<sup>th</sup> April 2021. There are two independent claims, a method claim 1 and an apparatus claim 6. The claims differ in form but are substantially the same and will stand or fall together. Claim 1 is set out below:

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1. A method by an immersive output device, the method comprising:  
providing, by a processor, a data signal configured for the immersive output device, wherein the data signal provides one of an augmented reality (AR) output or a virtual reality (VR) output when processed by the immersive output device;  
controlling by a pace controller a pace of scripted events defined by a narrative in the one of the AR output or the VR output, based on sensor feedback indicating actions performed by a user of the immersive output device;  
detecting that the pace is less than a minimum pace defined for a sequence of the scripted events, and providing sensory cues via the immersive output device for cueing at least one user action for increasing the pace, based on the detecting; and  
determining after each providing of sensory cues whether to trigger the next scripted event,

wherein:

the pace of scripted events means a measure of how many scripted events occur per unit time;

the scripted events comprise a chain of event groups, each event group comprising one or more critical events and optional events and wherein either:

critical events are designated to occur in a particular order; or

multiple critical events can occur in any order, so long as all of the critical events in a group occur prior to any event from a subsequent group;

play remains in an event group until all critical events have occurred and a particular time period has elapsed; and

once the event group's time is passed, play proceeds to the next event group.

## The law

- 12 The examiner has raised an objection that the invention is not patentable because it relates to one or more of the categories of subject-matter which are not considered to be inventions under the Act. This 'excluded matter' is set out in section 1(2) of the Act:

*1(2). It is hereby declared that the following (among other things) are not inventions for the purposes of this Act, that is to say, anything which consists of –*

*(a) a discovery, scientific theory or mathematical method;*

*(b) a literary, dramatic, musical or artistic work or any other aesthetic creation whatsoever;*

*(c) a scheme, rule or method for performing a mental act, playing a game or doing business, or a program for a computer;*

*(d) the presentation of information;*

*but the foregoing provision shall prevent anything from being treated as an invention for the purposes of this Act only to the extent that a patent or application for a patent relates to that thing as such.*

13 The Court of Appeal's judgement in *Symbian*<sup>1</sup> tells us that in order to determine whether an invention falls solely within the any of the exclusions listed in section 1(2), the four-step test set out in its earlier judgement in *Aerotel*<sup>2</sup> must be used. The four steps are:

- (1) properly construe the claim(s);
- (2) identify the actual (or alleged) contribution;
- (3) ask whether it falls solely within the excluded subject-matter;
- (4) check whether the actual or alleged contribution is actually technical in nature.

14 The fourth step of the test is to check whether the contribution is technical in nature. In paragraph 46 of *Aerotel* it is stated that applying this fourth step may not be necessary because the third step should have covered the question. I shall consider whether the contribution is excluded alongside the question of whether the contribution is technical in nature, meaning I will consider the third and fourth steps of *Aerotel* together.

### **Argument and analysis**

#### *Step 1 - Properly construe the claim*

15 To facilitate the claim construction analysis, the latest claim has been divided into five sections (i) – (v) below.

The claim provides a method by an immersive output device, the method comprising,

- i) providing, by a processor, a data signal configured for the immersive output device, wherein the data signal provides one of an augmented reality output or a virtual reality output when processed by the immersive output device; controlling by a pace controller a pace of scripted events defined by a narrative in the one of the AR or VR output based on sensor feedback indicating actions performed by a user of the immersive output device,
- ii) detecting that the pace is less than a minimum pace defined for a sequence of the scripted events, and providing sensory cues via the immersive output device for cueing at least one user action for increasing the pace, based on the detecting,
- iii) determining after each providing of sensory cues whether to trigger the next scripted event,
- iv) wherein the pace of scripted events means a measure of how many scripted events occur per unit time, the scripted events comprise a chain

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<sup>1</sup> *Symbian Ltd. v Comptroller-General of Patents* [2008] EWCA Civ 1066

<sup>2</sup> *Aerotel Ltd v Telco Holdings Ltd and Macrossan's Application* [2006] EWCA Civ 1371

of event groups, each event group comprising one or more critical events and optional events and wherein either, critical events are designated to occur in a particular order, or multiple critical events can occur in any order, so long as all of the critical events in a group occur prior to any event from a subsequent group,

- v) play remains in an event group until all critical events have occurred and a particular time period has elapsed, and once the event's group time is passed, play proceeds to the next event group.

- 16 The examiner construed section (i) as '*controlling by a controller the progression of the scripted events from one to the next based on sensor feedback and according to a narrative ruleset*' noting that "the description at paragraph 50 indicates that the output data is made up of content segments (416), which are individual portions of VR or AR data providing the scripted events. These are arranged into a narrative output by a content map (414) which maps a narrative ruleset (412) to the specific content segments (416). The pace is controlled by a pace controller which outputs content, receives sensor input, and determines whether another event has been triggered or whether to force the pace by triggering the next event....The scripted events are defined at paragraph 11 as an independent, continuous narrative sequence."
- 17 The applicant also referenced paragraph 50 and construed the portion as "*controlling by a pace controller a data signal for an immersive output device based upon sensor feedback that indicates actions performed by a user of the immersive output device and providing a data signal to the immersive output device*"
- 18 The application is clear that it is the pace of display of scripted events by an immersive output device which is controlled by the pace controller and the pace is based upon sensor feedback indicating actions performed by a user of the immersive output device. I construe section (i) as *controlling, by a pace controller, the pace of display of scripted events in a data signal for an immersive output device based upon sensor feedback that indicates actions performed by a user of the immersive output device.*
- 19 The applicant and examiner agree that section (ii) should be construed as "when a pace of the sequence of scripted events falls below a minimum pace sensory cues are provided indicating an action the user should take to increase the pace". However, this portion should also be construed to make clear that it is the pace of *the display of* scripted events by the immersive output device falling below a minimum that triggers the provision of the cues.
- 20 Section (iii) is clear and requires "determining after each providing of sensory cues whether to trigger the next scripted event" and this is construed as "determining after each providing of sensory cues whether to trigger *the display of* the next scripted event".
- 21 The examiner and applicant agree that section (iv) may be partially construed as "within the narrative/structure of the game, the scripted events are organised into a structure of event groups, each event group comprising a critical and an optional event". The other part requires that either critical events are displayed in a particular

order or all critical events of an event group are displayed prior to the display of an event from a subsequent group.

22 Finally, with regard to section (v) the applicant notes that paragraphs 53, 47 and 48 refer to the situation when all critical events have occurred and state that the processor may initiate a termination sequence, arguing that the claim should be construed to include this feature. I disagree. While the termination sequence is described it is not claimed. This section is construed to make clear that once all of the critical events of an event group have been displayed *and* a particular time period has elapsed, the immersive output device proceeds to display an event from the next event group.

23 The claim as construed reads:

A method by an immersive output device, the method comprising,

providing, by a processor, a data signal configured for display by the immersive output device, wherein the data signal provides one of an AR or VR output when processed by the immersive output device;

controlling, by a pace controller, the pace of display of scripted events in a data signal for an immersive output device based upon sensor feedback, the sensor feedback indicating actions performed by a user of the immersive output device,

detecting that a pace of display of the sequence of scripted events falls below a minimum pace and providing cues indicating an action the user could take to increase the pace;

determining after each provided cue whether to trigger the display of the next scripted event;

wherein, the scripted events are organised into a structure of event groups, each event group comprising a critical and an optional event and either, the critical events are displayed in a particular order, or, all critical events of an event group are displayed prior to the display of an event from a subsequent group; and

once all critical events of an event group have been displayed and a particular time period has elapsed the immersive output device proceeds to display an event from the next event group.

*Step 2 – Identify the actual (or alleged) contribution*

24 Paragraph 43 of *Aerotel* suggests that the contribution can be assessed from the point of view of the problem to be solved, how the invention works and what the advantages are, stating “What has the inventor really added to human knowledge perhaps sums up the exercise”. Knowledge of the prior art plays a role in assessing

the contribution, and as Lewison J noted<sup>3</sup>, the examiner should have some notion of the state of the art. This does not necessarily mean however that the contribution is defined by what is new and inventive in the claim.

- 25 In paragraph 27 of the arguments dated 30<sup>th</sup> June 2021, the applicant states that the main difference between claim 1 and the prior art is that regardless of the user's behaviour a core narrative comprising all critical events is always provided, even if the user does not trigger any event, because the system forces a minimum pace of events. I agree.
- 26 Certain advantages of the invention and problems to be solved are stated in the application as filed:
- i) paragraph 8, enabling the delivery of narrative content delivered using AR or VR equipment (paragraph 8). Paragraph 44, which states "Narrative storytelling is traditionally based on a fixed chain of events" and "new method of organising VR and AR content to provide a narrative experience without eliminating the feeling of being immersed in an environment and be able to look and move around it are needed".
  - ii) paragraph 54 states "Scene transformations may create challenges for immersive content generally... sudden scene transformations or changes of viewpoint may be overly disorienting for the immersed viewer. Accordingly, narrative content may need to be edited differently so as to manage scene and camera angle transitions appropriately for immersive output" and "In a pace control process, such transitions should likewise be managed. Generally scene changes or forced viewpoint changes should be associated with event group boundaries. Events within a group may be selected to occur within the same scene or the same position of the scene" and "When pacing calls for forcing an event, control of the viewpoint by the user may be temporarily overridden, and the user's focus guided to the position of the scene where the event is to occur".
- 27 After full consideration, I consider the contribution to be:

A method of controlling the pace of the display of scripted events by an immersive AR/VR output device, the scripted events being organised into event groups, each comprising a critical event and an optional event and either the critical events must be displayed in a particular order or all critical event of an event group are displayed prior to the display of an event from a subsequent group; the pace of display being based upon sensor feedback of actions performed by a user of the immersive output device; detecting that a pace of display of the sequence of scripted events falls below a minimum pace and providing cues indicating an action the user could take to increase the pace and determining after each provided cue whether to trigger the display of the next scripted event; and once all critical events of an event group have been displayed and a particular time period has elapsed the immersive output device proceeds to display an event from the next event group.

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<sup>3</sup> AT&T Knowledge Venture/CVON Innovations v Comptroller General of Patents [2009] EWHC 343 (Pat), paragraph 8.

*Steps 3 & 4 - Whether the actual or alleged contribution falls solely within the excluded matter and check whether it is actually technical*

*Program for a computer*

- 28 It is clear that the contribution is put into effect by a rendering engine, which is a data processing device suitably programmed. The computer program is run on conventional data processing hardware.
- 29 To assist in determining whether the contribution relates solely to a program for a computer, the examiner used the signposts to technical contribution set out in *AT&T/CVON*<sup>4</sup> and by the Court of Appeal in *HTC/Apple*<sup>5</sup>. These are:
- i) whether the claimed technical effect has a technical effect on a process which is carried on outside the computer;
  - ii) whether the claimed technical effect operates at the level of the architecture of the computer; that is to say whether the effect is produced irrespective of the data being processed or the applications being run;
  - iii) whether the claimed technical effect results in the computer being made to operate in a new way;
  - iv) whether the program makes the computer a better computer in the sense of running more efficiently and effectively as a computer;
  - v) whether the perceived problem is overcome by the claimed invention as opposed to merely being circumvented.
- 30 These signposts are useful guidelines only, providing a list of some of the factors that can indicate whether a contribution may be technical. The examiner considered that signposts (i)-(iv) did not help to identify a technical contribution and the applicant has not disagreed. I agree with this analysis.
- 31 With regard to signpost (v), the applicant argues that the invention overcomes a number of technical problems and therefore has a technical effect:
- a) forcing a minimum pace until the completion of narrative play ensures that the reproduction of the narrative will not surpass a predetermined time.
  - b) limiting the amount of time that a user can remain in an event group can reduce the likelihood of disorientation or nausea, without affecting the delivery of the core narrative.
  - c) forcing a minimum pace until completion of narrative play reduces the likelihood of wasting resources.
  - d) forcing a minimum pace until completion of the narrative despite a lack of user input enables a user lacking in ability to provide an input or to provide

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<sup>4</sup> AT&T Knowledge Venture/CVON Innovations v Comptroller General of Patents [2009] EWHC 343 (Pat)

<sup>5</sup> HTC Europe Co Ltd v Apple Inc [2013] EWCA Civ 451



the correct input to experience the whole of the core narrative irrespective of their ability.

- e) grouping and ordering the scripted events ensures that the content provided to a user when the user is in a position to experience minimum disorientation or nausea by the triggering of the scripted event.

- 32 The efficient display of scripted events of a narrative is not considered to be a technical contribution and so (a) does not identify a technical contribution. Similarly, forcing the pace of scripted events of a narrative is considered to reduce the waste of resources only by circumventing the non-technical problem of a slow game or story, so (c) does not assist in identifying a technical contribution.
- 33 Enabling all users to experience the full narrative irrespective of their ability is very helpful, but it does not overcome a technical problem and so (d) does not assist. *Limiting* the time a user can remain in an event group to reduce the likelihood of disorientation or nausea, as stated in (b), appears to be the opposite of the problem described in paragraph 54 of the application as filed, in which too quick a scene change or viewpoint change was said to be disorientating. Finally, it is argued that a technical effect can be derived from grouping and ordering scripted events to ensure that the content provided to a user minimises disorientation or nausea; however this feature is not part of the contribution of the invention. Further it is described only very briefly and with insufficient technical detail in the description.
- 34 None of the signposts point to any technical contribution and the other arguments raised do not lead us to a technical contribution. I therefore consider that the invention is excluded as a program for a computer.
- 35 For completeness I confirm that I have also considered the dependent claims and the the specification as a whole. I have been unable to identify anything which would shift the contribution beyond a computer program as such.

### **Conclusion**

- 36 Having carefully considered all of the arguments and papers on file, I am of the view that the invention falls solely within the computer program exclusion.
- 37 I therefore find that the invention claimed in GB1804452.9 is excluded by section 1(2)(c) as a program for a computer as such. I therefore refuse the application under section 18(3).

### **Appeal**

- 38 Any appeal must be lodged within 28 days after the date of this decision.

**Peter Mason**

Deputy Director, acting for the Comptroller