



BL O/199/04

8th July 2004

PATENTS ACT 1977

APPLICANT Konami Corporation

ISSUE Whether patent application number
 GB0031126.6 is excluded from being patentable
 under section1(2)

HEARING OFFICER H J Edwards

DECISION

Introduction

- 1 Patent application number GB 0031126.6 entitled “Gaming machine and operation method therefor” was filed on 20 December 2000 in the name of Konami Corporation. The invention concerns a gaming machine which can simulate a race and can allow players to bet on the outcome. The application was published on 13 February 2002 as GB 2365171.
- 2 Following filing of the request for substantive examination three examination reports have been issued by the examiner which have all maintained that the invention was excluded from patentability by virtue of section 1(2) of the Patents Act 1977. The claims underwent various amendments and the agent has offered various arguments in reply to the patentability point, but the examiner did not feel that they overcame the objection. The matter therefore came before me at a hearing on 2 July 2004 at which the applicants were represented by Mr M Read and Ms O Johansson of Venner Shipley LLP. Matthew Cope attended for the Patent Office.

The invention

- 3 The machine of the present invention is able to model a horse race, dog race or the like, and allows bets to be placed on the outcome of the race, and it is the betting process that is central to the invention. Before the race a player is shown the odds for each horse and can place a stake on the horse he believes may win (or optionally on the horses which should come first and/or second). Internally the machine associates a probability of winning with each horse and when the race is run the outcome will depend on those probabilities. If a player has bet on the winning horse he will receive a payout which is the stake multiplied by the odds.
- 4 The machine needs to ensure that two constraints are met in the betting process:

(A) that the payout rate will statistically approach a predetermined target, in order that machine can be certain to retain a certain proportion of the bets placed;

(B) that the computed payouts will be in sufficiently round amounts not to cause currency-handling problems.

- 5 Constraint (A) is achieved by configuring a target payout rate in advance. The odds for each horse are then derived by dividing the target payout rate by the horse's probability of winning. Thus, to quote an example from the specification, a horse with a probability of winning of 50% will have odds of 1.7 if the target payout rate is set at 85%. However, the fact that the odds extend to some decimal places means that a payout on that horse would involve small amounts that would be difficult to dispense.
- 6 This brings us to constraint (B), which is the problem which the invention addresses. In essence the problem is solved by rounding the odds to a whole number (or predetermined number of places), so that the payouts will be similarly rounded. But doing this means that the payout rates would be wrong: in the above example, rounding the odds to 2 will produce a payout rate of $2 \times 50 = 100\%$. Betting on this horse would therefore statistically produce payouts approximating to the bet amounts. The invention therefore corrects the probability of winning for the horse to 42.5%, so that the original target payout rate $2 \times 42.5 = 85\%$ can be achieved. The correction in probability that has taken place ($50.0 - 42.5$) must now be added to that for the next horse (ie that with next lower probability of winning) in order that total probabilities are kept to 100%. Then the odds for that next horse are re-determined and rounded, its probability corrected in the same way, and so on until odds have been rounded, and probabilities corrected to maintain the target payout rate, for all horses. For the last horse, its correction in probability is allocated among all the horses in proportion to their corrected probabilities.
- 7 With that explanation the significance of the main claim which is now under discussion should be clear. This claim is claim 1 as filed with the agent's letter of 29 April 2004.

A gaming machine to be run by a machine operator, comprising:

bet input means to receive a bet placed by a bettor;

game processing means for executing game processing for a lottery, said game processing means including dividend determining means for determining a dividend to be paid to a bettor who has won the lottery with a predetermined probability, said lottery including a plurality of objects with predetermined probabilities of winning, and for indicating the dividend to the bettor, display means for providing an execution result executed by the dividend determining means to the bettor, and payout means to provide a payout credit to the bettor corresponding to the execution result, said dividend determining means comprising:

setting means for setting a target payout rate and the probability of winning of each of the objects and for setting odds on each of the objects based on the target payout rate and the probability of winning, the target payout rate being set so as to retain a predetermined portion of bets placed by bettors for the machine operator;

ordering means for arranging data corresponding to the objects in order of the probability of winning;

first correction means for approximately correcting the odds on the object in the highest place to odds with a predetermined number of digits, correcting the probability of winning of the object in the highest place based on the corrected odds, reflecting the difference between the uncorrected probability of winning and the corrected probability of winning of the object in the probability of winning of the object in the subsequent place, redetermining the odds on the object in the subsequent place based on the corrected probability of winning of the object in the subsequent place, and repetitively performing the whole processing for the object in all places; and

second correction means for approximately correcting the redetermined odds on the object in the last place to odds with a predetermined number of digits, redetermining the probability of winning based on the approximated odds, and again reflecting the difference between the probability of winning and the redetermined probability of winning at predetermined ratios in the probabilities of winning of all the objects, whereby to retain said predetermined portion of bets placed by bettors for the machine operator.

The law

- 8 The examiner has in his letters objected that claims of the present application relate to a method of doing business, to a method for playing a game, to a computer program and to a mathematical method. These objections are based on section 1(2) of the Act, the essential parts of which read:

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 literary, scientific theory or mathematical method;
- (b) ...
- (c) a scheme rule or method for performing a mental act, playing a game or doing business, or a program for a computer;
- (d) ...

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

- 9 This section of the Act corresponds to Articles 52(2) and (3) of the European Patent Convention (EPC). Section 130(7) of the Act provides that section 1 is so framed as to have, as nearly as practicable, the same effect as the corresponding provisions of the EPC. It is also well established that I am bound by decisions of the courts in the United Kingdom, and should have regard to decisions of the Boards of Appeal of the European Patent Office, at least insofar as they relate to the corresponding articles of the Convention.

- 10 That case law has produced a number of principles which are to be followed when considering issues under section 1(2):
- (1) Inventions must make a technical contribution or technical effect
 - (2) Inventions satisfying (1) will not be refused merely because they relate to a business method or other excluded category
 - (3) The assessment of inventions under (1) must go to the substance rather than the form of the invention claimed.

- 11 I believe the third principle is particularly relevant to the present case, as the claims are directed not to a method but to a gaming machine, and in addition the agent has drawn attention to various hardware aspects of the machine as it is, or could be, implemented. For that reason I cite two of the sources for that principle, the first being Fox LJ in the case of *Merrill Lynch's Application* [1989] RPC 561:

“...it seems to me clear, for the reasons indicated by Dillon LJ, that it cannot be permissible to patent an item excluded by section 1(2) under the guise of an article which contains that item – that is to say, in the case of a computer program, the patenting of a conventional computer containing that program.”

- 12 And *Fujitsu Limited's Application* [1997] 608 referring to the previous case of *Gale's application*:

"The Court of Appeal decided that ... the court should look at the claims as a matter of substance. It was both convenient and right to strip away, as a confusing irrelevance, the fact the claim was for "hardware". There is only one invention. The fact that it is claimed as a method, a way of manufacture or an apparatus having appropriate features is irrelevant."

The issues

- 13 Mr Read invited me at the hearing to use the problem and solution approach in analysing the substance of this invention, and I agree that that approach is useful in this case. Expressed in purely functional terms, the problem as set out in the specification is, when accepting bets on a race or lottery with competing objects having predetermined probabilities of winning, to be able to quote rounded-off odds while ensuring that payouts stay on target in the long run. The solution involves a computational process which demonstrates how odds for the different objects can be rounded-off in a step-wise process while adjusting corresponding probabilities to maintain the payout rate. Whether that is a complete statement of the solution is probably where the agent and the examiner would part company, and here I should deal with the arguments that have been advanced on the part of the applicant.
- 14 In correspondence prior to the hearing the agent has argued that the invention is a gaming machine in which improved technical means control its payout rate so as to achieve a target payout rate. This allows a predetermined portion of the bets placed to be retained with an improved accuracy for the machine operator. Amendments made to claim 1 have been concerned to establish the overall monetary aspects, viz on the income side, bets being

placed by a bettor, and on the output side, the imposition of a target payout rate that is set so as to retain for the machine operator a predetermined portion of bets placed.

- 15 The agent confirmed that the improved manner of operation is implemented in the first and second correction means of claim 1, which are implemented in software. But he denied that the invention was a computer program as such, rather a gaming machine controlled by novel software which gives rise to an improved technical effect. The agent acknowledged the teaching of *Fujitsu Limited's Application* [1997] RPC 608, quoted above, but said that the present case was distinguished on the facts since the gaming machine itself gives rise to a technical contribution. The apparatus category of claim 1 was not irrelevant since it focused the claim on to the programmed hardware which gives rise to the technical contribution. At the hearing Mr Read acknowledged that I was bound by the Gale case but pointed out that the claim had been amended to specify the context, and had, as he said, "its feet on the ground".
- 16 The agent pointed out that gaming machines have been patented before, and cited GB 2 309 570 B. This patent is to a coin-operated gaming machine which accepts a plurality of denominations of a currency and pays out in multiples of the same denomination. The agent further cited an example of a coin-operated apparatus with a certain arrangement of trays, solenoids and other coin-handling integers, which was said to lie wholly within the scope of claim 1 as amended. The purpose of mentioning this apparatus was to show that a more hardware-based solution, albeit software-controlled, was possible within the scope of claim 1. At the hearing Mr Read emphasised that there were many inventions in coin validation, and asserted that the fact that an invention deals with money does not mean there is no technical content. He referred me to the EPO decision *SOHEI/General-purpose management system* [1996] EPOR 253 where the Board observed that the addition to a patentable system of features which would themselves be excluded did not exclude the resulting invention from being patentable. The fact that the present invention was directed to a gaming machine should accordingly not affect patentability.
- 17 For my part I can accept that there may be patentable inventions in the field of gaming machines, and I would not preclude from patentability any claimed invention simply on the ground that it dealt in some way with gaming, or handling money. But it is clear from the case law, as I have said, that I have to look beyond the form of the claimed invention, and consider the substance of the invention, and ask whether it is technical in character. What is critical is therefore where the boundary between form and substance is drawn. In this case Mr Read acknowledges that the nub of the invention lies in the first and second correction means of claim 1, but is clearly also placing reliance on the features which go to establish that a predetermined portion of bets placed are retained in the machine.
- 18 I believe I must take a more limited view of what the substance of this invention is. Above I offered a statement of the solution that is provided by this invention: I said that the solution involved a computational process which demonstrated how odds for the different objects can be rounded-off in a step-wise process while adjusting corresponding probabilities to maintain the payout rate. I think that this computational process is indeed the substance of the invention. Its essential character is readily apparent from an appraisal of the description that precedes the claims in this application, which description sets out in great detail over 62

pages the computational steps that are needed to effect the solution. Here are formulae defining parameters such as odds and probability of winning for each horse and for each type of betting covered, and tables illustrating how parameters are successively adjusted until the odds have finally been rounded off. The teaching of the invention is undoubtedly a computational routine, which takes an array of parameter values and adjusts those values according to specified rules which *inter alia* regard the target payout rate as a constant to be applied across the board. The parameters that are varied in the routine are the odds and the probability of winning relating to each horse and each type of betting. The start point of the routine is an array of values of odds and probabilities; the end point of the routine is a further array of adjusted values of odds and probabilities.

- 19 I do not regard the invention so characterised as having a technical character, not only because the routine is itself mathematical in nature, but also because the routine operates on values which have no significance beyond the imaginary race which is to be played out in the machine: they do not for example represent physical entities. As far as the return that is achieved for the machine owner goes, I do not consider this monetary aspect to comprise or confer a technical contribution: it is a commercial consideration which flows from the operation of the routine of the invention and does not elevate it to a technical matter.

Conclusion

- 20 The invention so characterised can validly be categorised as a method of doing business (in the sphere of the provision and operation by an operator of gaming machines which are programmed to provide an assured income from retained bets); or as a mathematical method (for adjusting the betting parameters); or as method for playing a game (the game rules being determined by the machine and being constrained to provide an assured retained income); or as a program for a computer (since the implementation of the computational routine is via software). All of these are excluded categories under section 1(2) of the Act, and since I have found no saving technical contribution it follows that the present application does not relate to an invention for the purposes of the Act.
- 21 Having gone to the substance of the invention I cannot see that any saving amendment of claim 1 can be possible, since the substance would remain unchanged. There are appendant claims, and also some amendments which Mr Read proffered at the hearing, but I do not think they can offer an avenue for meeting this objection. I will therefore not allow opportunity for amendment. I accordingly refuse this application under section 18(3) on the grounds that the claimed invention is excluded by section 1(2).

Appeal

- 22 Under the Practice Direction to Part 52 of the Civil Procedure Rules, any appeal must be lodged within 28 days.

H J EDWARDS

Deputy Director acting for the Comptroller