

Internal distribution code:

- (A) Publication in OJ
(B) To Chairmen and Members
(C) To Chairmen
(D) No distribution

**Datasheet for the decision
of 7 October 2008**

Case Number: T 0331/06 - 3.5.01

Application Number: 98942943.6

Publication Number: 1016014

IPC: G06F 17/60

Language of the proceedings: EN

Title of invention:

Order processing apparatus and method

Patentee:

Advanced Transaction Systems Limited

Opponent:

Deutsche Börse AG

Headword:

Order processing/ADVANCED TRANSACTION SYSTEMS

Relevant legal provisions:

-

Relevant legal provisions (EPC 1973):

EPC Art. 56

Keyword:

"Inventive step (no)"

Decisions cited:

-

Catchword:

-



Case Number: T 0331/06 - 3.5.01

D E C I S I O N
of the Technical Board of Appeal 3.5.01
of 7 October 2008

Appellant: Advanced Transaction Systems Limited
(Patent Proprietor) 58 St. Aldate's
Oxford OX1 1ST (GB)

Representative: Leeming, John Gerard
J.A. Kemp & Co.
14 South Square
Gray's Inn
London WC1R 5JJ (GB)

Respondent: Deutsche Börse AG
(Opponent) Neue Börsenstrasse 1
60487 Frankfurt am Main (DE)

Representative: Grünecker, Kinkeldey,
Stockmair & Schwanhäusser
Anwaltssozietät
Leopoldstrasse 4
80802 München (DE)

Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 4 January 2006
revoking European patent No. 1016014 pursuant
to Article 102(1) EPC 1973.

Composition of the Board:

Chairman: S. Steinbrener
Members: S. Wibergh
P. Schmitz

Summary of Facts and Submissions

- I. This is an appeal against the decision of the opposition division to revoke European patent No. 1 016 014.
- II. According to the decision, the subject-matter of claims 1 and 28 did not involve an inventive step over commonly known electronic trading systems.
- III. With the statement setting out the grounds of appeal dated 12 May 2006, the appellant requested that the decision be set aside and the patent be maintained either as granted (main request) or on the basis of a set of claims filed with the same letter and containing an amendment to claim 27 (auxiliary request 1). It was also requested to change the dependency of claim 9 by means of a correction.
- IV. The respondent requested the appeal to be dismissed since, in its view, the subject-matter of claim 1 as granted lacked novelty or in any case inventive step over the available prior art or common general knowledge.
- V. In a communication annexed to a summons to oral proceedings the Board set out its provisional opinion on the appeal. In the Board's view the decision under appeal was justified since, except for conventional storing and calculation steps, the method of claim 28 and the apparatus of claim 1 did not seem to bring about a technical effect.

- VI. By a letter dated 5 September 2008 the appellant submitted auxiliary requests 2 to 4.
- VII. Oral proceedings were held on 7 October 2008. The appellant demonstrated the invention by way of a simulation that highlighted the effects of the invention as compared with a traditional binary matching system. Towards the end of the hearing the appellant submitted a fifth auxiliary request.
- VIII. Claim 1 as granted (*main request*) reads:

"An apparatus for processing trading orders, said apparatus comprising a central server (10) connectable to a plurality of terminals (12) on which user orders are to be entered, wherein said central server comprises:

communication means (24) for receiving user orders from said terminals via a network;

and is characterised by:

first storage means (18) for storing received user orders as an array whose elements define a particular first resource ordered by a particular user;

second storage means (20) for storing an array of coefficients each representing the proportion of a particular order that is to be satisfied; and

processing means (22) for retrieving said orders from said first storage means, calculating an optimized set of values of said coefficients with respect to at least one predetermined, adjustable constraint and at least one predetermined, adjustable criterion, and storing said optimized coefficient values in said second storage means (20);

said communication means (24) also being for transmitting the processed orders and their respective coefficients."

IX. Claim 1 of *auxiliary request 1* remains unamended whereas formerly independent claim 27 is made dependent on claim 1.

X. *Auxiliary request 2* is to cancel claims 28 to 58 such that the claimed subject-matter defines only an apparatus.

XI. *Auxiliary request 3* is to change the word "resource" in claim 1 to "physical resource". Thus the first characterising feature becomes:

"... first storage means (18) for storing received user orders as an array whose elements define a particular first *physical* resource ordered by a particular user".

XII. *Auxiliary request 4* consists in adding the word "adapted" to the different "means" in claim 1:

"... communication means (24) *adapted* for receiving user orders...

... first storage means (18) *adapted* for storing received user orders...

... second storage means (20) *adapted* for storing an array of coefficients...

... processing means (22) *adapted* for retrieving said orders...

... said communication means (24) also being *adapted* for transmitting the processed orders and their respective coefficients".

XIII. *Auxiliary request 5 is based on a claim combining claims 1 and 27:*

"A system comprising an apparatus for processing trading orders...

said system further comprising computer terminal (12) comprising:

communication means (14) for receiving the processed orders and their respective coefficients from said apparatus; and

a device for triggering transfer of resources in accordance with the filled part of each order specified by the respective coefficient."

XIV. The appellant requested that the decision under appeal be set aside and that the patent be maintained as granted (main request) or as amended according to auxiliary request 1 (with an amended claim 27 as filed by letter dated 12 May 2006), or auxiliary request 2 (with claims 28-58 deleted), or auxiliary request 3 (with an amended claim 1 as filed by letter dated 5 September 2008) or auxiliary request 4 (with an amended claim 1 as filed by letter dated 5 September 2008) or auxiliary request 5 as filed during the oral proceedings before the Board. In addition, the appellant requested that claim 9 of all requests be corrected in accordance with the letter dated 12 May 2006.

XV. The respondent requested that the appeal be dismissed.

XVI. At the end of the oral proceedings the Board announced its decision.

Reasons for the Decision

1. *The invention*

The present invention relates to an apparatus and a method for optimising the allocation of resources based on received orders. As mentioned in the description (paragraphs [0001] to [0005]), systems exist in which a user submits orders which consist of a desired quantity of a given objective or resource which it is willing to exchange for a certain other quantity of another resource. The users can be financial traders offering to buy and sell resources or financial instruments, such as stocks or currencies, in exchange for other financial instruments. These systems suffer from several drawbacks. For example, the matching of orders is inefficient in that in a known binary matching system the size of the order must be matched so that a very large order may never be matched unless it is broken down into a number of smaller orders. The matching is also inefficient because in a binary matching system matches involving more than two instruments can not in general be found, which prevents optimal matches from being discovered. In a financial market this can lead to illiquidity. The invention aims at optimizing the flow of orders by using a mathematical method for improved order matching and enabling genuinely non-binary trades (description, paragraph [0120]).

The main request

2. *Novelty*

The appellant's main request is for maintenance of the patent as granted. The opposition division decided that the subject-matter of granted claim 1 is new. Although the respondent challenges this conclusion, the Board, noting that the reason for the revocation was lack of inventive step over commonly known electronic trading systems, will leave aside the question of novelty over the cited prior art documents and instead turn directly to the question of obviousness with respect to the commonly known (notorious) systems considered by the opposition division.

3. *Inventive step*

- 3.1 The appellant agrees with the opposition division that the invention is distinguished from the prior art by the characterising part of claim 1, ie
- first storage means for storing received user orders as an array whose elements define a particular first resource ordered by a particular user,
 - second storage means for storing an array of coefficients each representing the proportion of a particular order that is to be satisfied,
 - processing means for retrieving said orders from said first storage means, calculating an optimized set of values of said coefficients with respect to at least one predetermined, adjustable constraint and at least one predetermined, adjustable criterion, and storing said optimized coefficient values in said second storage means, and

- communication means for transmitting the coefficients.

- 3.2 The opposition division found that the processing pertained solely to a method of doing business whose technical implementation was obvious (see the decision under appeal, points 3.2 and 3.7). The invention therefore lacked an inventive step.
- 3.3 The appellant has argued that the invention is not of the "pen and paper" kind since it involves electronical equipment. The technical problem consisted in devising an apparatus that was capable of matching requests for resources when computer power was limited. The optimisation was not of a binary kind but global. It would be hindsight to regard this solution as simple. The opposition division's partition of the claim into technical and non-technical features was wrong. Allocating resources was technical, and the description mentioned several clearly technical examples, such as distribution of power and allocation of bandwidth. Optimisation was a technical field in which scientists and engineers were working. The EPC excluded mathematical algorithms from patentability, but the invention concerned applied mathematics, indistinguishable from engineering. The invention was in any case not a pure business method. It was possibly business-driven, but so were most inventions and companies.
- 3.4 The respondent has objected that the claim is unreasonably broad, covering also binary trades, and that the terms "coefficients", "constraints" and "criteria" are vague. What could have been a technical contribution was not claimed.

3.5 The Board first notes that claim 1 is directed to an "apparatus for processing trading orders", the apparatus comprising a central server connectable to a plurality of terminals on which user orders are entered. The word "trading" suggests a financial application, and indeed the described embodiment is of this kind. The description mentions other possibilities, such as "a computer scheduling system allocating computing resources to users or to jobs submitted by users; electricity generating plants offering to supply power to a distribution system at different costs and generated from different fuels; a computer processor allocating resources such as memory and I/O bandwidth to different internal processes or software applications" (paragraph [0002]). It would therefore be inappropriate to interpret "trading orders" too narrowly. On the other hand the claim is limited to a client-server kind of system. It does therefore not include automatic kinds of "trading" that might occur for example within electronic equipment (such as automatic allocation of frequencies over a communication channel). The trading orders must be assumed to be formulated by (human) users. Only the actual processing is performed automatically by the apparatus.

3.6 The fundamental question is what technical problem the claimed invention solves. The Board cannot agree with the appellant that any kind of optimisation is of a technical nature. Optimisation methods that employ mathematical algorithms and are susceptible of being performed by a computer should be excluded "as such" from patentability by virtue of Article 52(2),(3) EPC

if no bearing on technical applications is apparent. A computer performing such an algorithm, although in itself a technical device, brings about no further technical effect - ie an effect beyond the inevitable internal workings of the computer - as long as its output is nothing more than a presentation of the calculated data.

3.7 In the present case the optimisation routine operates on "user orders" defining "resources" ordered by a user. It calculates coefficients "representing the proportion of a particular order that is to be satisfied". The claim is not limited to orders of financial instruments, but encompasses such orders. This is in the Board's view clearly a pure business application. The calculation of the coefficients is not a solution to a technical problem. It is rather aimed at matching buyers and sellers of a resource, which is a common business objective.

3.8 It does not matter that the invention is not of the "pen and paper" kind since the invention does not modify the (technical) server and terminals that are being used. Nor is it relevant that the optimisation is global rather than binary since *no* kind of optimisation, however ingenious, could in the present context serve to solve a technical problem. The skilled person can be taken to be a team consisting of an expert on financial systems and a mathematician, neither of whom is technically skilled. This is so even if real-world mathematicians might, as a consequence of their training, have considerable engineering skills, for example in the field of computers. What matters are

only the skills actually required to devise the invention.

3.9 The demonstration at the oral proceedings before the Board showed that the invention recognised more transactions possibilities than an ordinary binary system. The Board can however not see that this changes anything with regard to the technicality of the problems solved.

3.10 The opposition division therefore correctly concluded that the calculation of optimised coefficients was a step of a business method. It follows that the technical problem is only the implementation of this method on a server by providing corresponding means, which was undisputedly obvious. Thus, the apparatus of claim 1 lacks an inventive step (Article 56 EPC 1973).

Auxiliary requests 1 and 2

4. Since these requests also concern claim 1 as granted, they are refused for the same reasons as the main request.

Auxiliary request 3

5. According to auxiliary request 3 the word "physical" is inserted before "resource" in claim 1. The limitation to physical resources is said to be based on the references to non-financial applications in the description (see point 3.5 above). Even if this support was sufficient for the purposes of Article 123(2),(3) EPC - which the respondent denies - the Board finds that the character of an apparatus for

"processing trading orders", requiring that users enter orders on terminals, does not depend on the kind of "resources" being ordered. The trade is still a trade, and the object of the trade is still a property right. Thus, the technical problem does not change. This request is therefore also refused for the same reasons as the main request.

This conclusion might not be valid for the "computer processor allocating resources such as memory and bandwidth to different internal processes or software applications" mentioned in the description as a possible application for the invention, but for the reasons already given (see point 3.5) the Board finds that claim 1 does not cover such a computer, let alone is limited to it.

Auxiliary request 4

6. According to this request the word "adapted" is inserted before each of the five "means". The appellant has explained that the purpose of the amendment is explicitly to exclude the interpretation that the means are merely "suitable for" the indicated functions. However, since neither the respondent nor the Board understand the claim in this way, the amendments make no difference. Auxiliary request 4 must therefore also be refused.

Auxiliary request 5

7. The respondent has argued that auxiliary request 5 should not be admitted since it was submitted only at the oral proceedings before the Board and claim 1 was

not clearly allowable under Article 84 EPC 1973 and Article 123(2),(3) EPC. The Board nevertheless decides to admit the request since a combination of claim 1 and 27 was already the object of auxiliary request 1. The respondent's attention was therefore drawn to this amendment even though claim 27 at that time was a dependent claim.

8. The Board agrees with the respondent that claim 1 is obscure in that it refers to a computer terminal first as connectable to the claimed system and then as part of it. Although this objection could probably be removed by amendment, a fundamental deficiency is that the additional features do not modify the technical problem. The claim now includes a "device for triggering transfer of resources in accordance with the filled part of each order specified by the respective coefficient". The transfer is however merely a reflection of the change in ownership.

9. Thus, also the appellant's fifth and last auxiliary request must be refused. It follows that there is no need to decide on the appellant's request to correct claim 9.

Order

For these reasons it is decided that:

The appeal is dismissed.

The Registrar:

The Chairman:

T. Buschek

S. Steinbrener