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Datasheet for the decision
of 18 June 2019

Case Number: T 1072/11 - 3.5.01

Application Number: 03730973.9

Publication Number: 1512105

IPC: G06F17/60

Language of the proceedings: EN

Title of invention:
A METHOD AND A SYSTEM FOR IMPROVED TRADING OF COMBINATIONS AND
BAITS GENERATED THEREOF

Applicant:
Nasdaq Technology AB

Headword:
Matching unit comprising two computer entities directly
connected to a shared memory storing pre-calculated values/
NASDAQ

Relevant legal provisions:
EPC Art. 56, 111(1), 153(6)
EPC R. 63
PCT Art. 17(2)(a), Rule 13ter.1(c), Rule 39

Keyword:

Declaration of non-establishment of the International Search Report
No Supplementary European Search Report
Examination procedure - amendments relating to unsearched subject-matter
Inventive step - mixture of technical and non-technical features - common general knowledge - distinguishing features not notorious
Appeal decision - remittal to the department of first instance (yes)

Decisions cited:
T 2299/10, T 1411/08, T 1434/06, T 0258/03, T 0641/00, T 0042/90, T 0019/87

Case Number: T 1072/11 - 3.5.01

D E C I S I O N
of Technical Board of Appeal 3.5.01
of 18 June 2019

Appellant: (Applicant)	Nasdaq Technology AB 105 78 Stockholm (SE)
Representative:	Simonsson, Klas Johnny Nasdaq Technology AB ATT: IPR Department Tullvaktsvägen 15 105 78 Stockholm (SE)
Decision under appeal:	**Decision of the Examining Division of the European Patent Office posted on 18 November 2010 refusing European patent application No. 03730973.9 pursuant to Article 97(2) EPC.**

Composition of the Board:

Chairman	W. Chandler
Members:	M. Höhn
	Y. Podbielski

Summary of Facts and Submissions

I.   This appeal is against the Decision of the Examining
          Division of the European Patent Office posted on
          18 November 2010 refusing European patent application
          No. 03730973.9 on the ground of lack of inventive step
          (Article 56 EPC).

II.   In the statement setting out the grounds of appeal the
          appellant requested that the appealed decision be set
          aside and that a patent be granted on the basis of the
          main request or one of the first to third auxiliary
          requests, all submitted with the statement setting out
          the grounds of appeal. Oral proceedings were requested
          as an auxiliary measure.

III.   The subject-matter of claim 1 according to the main
          request reads as follows:

          "1. A matching unit (13) of an automated exchange, the
          matching unit (13) designed to receiving combination
          orders to be matched in a matching process, comprising
          a first computer entity (213) associated with a first
          computer processor, wherein the received combination
          orders are matched, characterized by
          - a second computer entity (211) within the matching
          unit, associated with a second computer processor,
          wherein matching data values required by the matching
          unit (13) in the matching process are calculated, and
          - a shared memory (215) directly connected to the first
          computer entity (213) and directly connected to the
          second computer entity (211), the shared memory (215)
          storing the calculated matching data values calculated
          by the second computer entity (211), for use by the
          first computer entity (213) in the matching process."

IV.   The appellant essentially argued that D1 disclosed an
        automated exchange system for receiving orders, but the
        contested decision was wrong in assuming that the
        entire automated exchange system of D1 comprising the
        remote terminals (including a dedicated CPU) and the
        Central Matching Controller (CMC) could be considered a
        closed and local matching unit. Rather the CMC of D1 as
        a central unit performed all steps of the actual
        matching and the distributed automated exchange system
        for receiving orders including remote terminals did not
        partake in the actual matching. The trader terminals in
        D1 only had the purpose of sending orders. The CMC of
        D1 constituted a closed and local entity for matching
        (see points 3.1.5 to 3.2.2 of the statement setting out
        the grounds of appeal). Furthermore, the matching of
        combination orders according to the invention implied
        that certain technical constraints that combined with
        the other technical features had to be accounted for by
        the skilled person when designing the claimed system
        (see point 3.2.7 of the statement setting out the
        grounds of appeal). The claimed subject-matter
        therefore involved an inventive step over D1.

V.   The appellant made a conditional request for oral
        proceedings. It requested oral proceedings "should the
        Board consider confirming the decision from the
        Examining Division and reject the application". Given
        that the Board's decision is to remit the case to the
        examining division for further prosecution, it does not
        fulfil the condition for the request. That request can
        thus be disregarded. The Board also saw no reason to
        appoint oral proceedings on its own motion, and this
        decision is thus issued in writing.

Reasons for the Decision

Introductory remarks

1.   The application was refused based on lack of inventive
        step in view of D1 (US 6098051 A1), a publication
        introduced during the examination proceedings with the
        summons for oral proceedings before the first instance.
        However, no complete search for pertinent prior art was
        carried out before the first instance. The European
        Patent Office acting as International Searching
        Authority issued a declaration of non-establishment of
        the International Search Report under Article 17(2)(a)
        PCT and Rule 13ter.1(c) and 39 PCT, because the claims
        on file at that date related to subject-matter that did
        not require an international search under the PCT
        provisions. The applicant entered into the European
        phase before the European Patent Office on the basis of
        amended claims. No supplementary European Search Report
        was established. According to Article 153(6) EPC the
        declaration replacing the International Search Report
        took the place of the European Search Report in analogy
        to Rule 63 EPC.

        The present main request corresponds to a set of claims
        submitted during oral proceedings before the first
        instance as an auxiliary request adding further
        features. The Board has no indication that a systematic
        search for pertinent prior art has been carried out for
        the claimed subject-matter according to the present
        main request.

Main request

2.   Article 56 EPC - Inventive step

        The Board does not agree with the decision under appeal
        that the subject-matter of independent claims 1, 6, 11
        and 12 lacks an inventive step over the disclosure of
        D1.

2.1   The independent claims are directed to a mix of
        technical and non-technical features. The Board does
        not dispute that they appear in a technical context.
        Even the method can be considered to be performed by
        technical means, because it involves a first and second
        computer processor as well as a memory, i.e. means for
        processing and storing data and, therefore, has
        technical character. Accordingly, the claimed subject-
        matter is an invention in the sense of Article 52(1)
        EPC (see T 258/03 "Auction method/HITACHI").

2.2   However, the question of inventive step requires an
        assessment of whether the invention makes a technical
        contribution over the prior art. Features which do not
        make such a contribution cannot support the presence of
        an inventive step (see T 641/00 "Two identities/
        COMVIK", Headnote I).

2.3   The Board is not convinced by the appellant's argument
        that the matching of combination orders implied certain
        technical constraints that combined with the other
        technical features had to be accounted for by the
        skilled person when designing the claimed system (see
        point 3.2.7 of the statement setting out the grounds of
        appeal).

First of all, D1 deals with combination orders (see
e.g. column 3, lines 33 to 36 and column 4, lines 36
and 37). The alleged differences in the concept of how
to match such combination orders in comparison to the
claimed subject-matter are in the non-technical domain.
The concept of matching combination orders involves
constraints originating from the financial domain such
as that they have to be matched simultaneously (see D1,
column 4, lines 50 to 57). Those constraints are
provided by the financial expert to the technically
skilled person, a computer expert provided with the
complete description of the non-technical abstract
financial matching concept, for implementation.

2.4   D1 discloses the following technical features of
        claim 1:
        an automated exchange system for receiving orders to
        be matched, comprising
        - a first computer entity (see figure 1, central
        matching controller CMC) associated with a first
        computer processor (see column 6, lines 48-51; figure
        1), wherein received combination orders (see column 3,
        lines 33 to 36 and column 4, lines 36 and 37; see also
        column 4, lines 49 to 56 baskets of securities with
        corresponding profiles to be linked together) are
        matched;
        - a second computer entity (see figure 1, trader CPU
        10, 12 or 14) associated with a second computer
        processor (see column 6, line 64, computers or
        workstations) wherein data values (satisfaction
        density profile) required in the matching are provided
        (column 4, lines 49-61);
        - a memory (see figure 1, storage device 4) directly
        connected to the first computer entity.

2.5   D1 does not disclose the following features of claim 1:

- the second entity is located within the matching
unit,
- a calculation of matching data values required in the
matching process by the second computer entity,
- a shared memory directly connected to the second
computer entity and
- storing calculated matching data values calculated by
the second computer entity in the shared memory.

2.6   The underlying objective technical problem is
considered to be to implement the financial matching
concept in a way which improves real-time and latency
constraints in the matching unit.

2.7   The technical effect achieved by the claimed solution
is that data values required by the first computer
entity when performing matching operations are pre-
calculated by the second computer entity and are stored
for potential use.

According to D1, however, there are structural and
functional differences. Regarding the structure of the
claimed solution D1 discloses neither incorporating the
second computer entity in the matching unit, nor a
shared memory directly connected to both computer
entities. According to D1, a memory (database 4 in
figure 1) is only connected to the matching unit CMC.
The trader terminals 10, 12 and 14 are separate from
the CMC and each comprise a CPU since they are personal
computers or workstations (see D1, column 6, line 64).
Regarding the function in D1, the trader CPUs are for
entering satisfaction density profiles (see D1, e.g.
column 11, line 10). Such satisfaction density profiles
cannot be considered to correspond to matching data.

There are no calculations with regard to performing matching operations. Rather, satisfaction density profiles in D1 correspond to orders (sell or buy) which are merely entered and transmitted to the CMC where all the matching operations are performed. Hence, no pre-calculated matching data values are provided by the trader CPUs. Furthermore, the memory in D1 is only for storing satisfaction density profiles, i.e. the orders, but not for storing pre-calculated matching data values.

With regard to the objective technical problem posed, D1 handles complex combination orders by creating a connection matrix which is used for performing matrix manipulations on each of the different sub-orders/legs of the combination order before being able to actually match such orders (see D1, column 4, lines 37 onwards, calculation of mutual satisfaction cross product profiles for every buy/sell profile which are matched in order and matching trades are aggregated by the CMC). Regarding the complexity of operations and real time constraints, D1 merely suggests using fast computers with a single processor (see D1, column 6, line 52, supercomputer). The Board therefore concurs with the appellant's arguments (see e.g. point 5.2.1.5 of the statement setting out the grounds of appeal).

2.8   Even if one were to follow the argumentation in the contested decision that it was obvious for the skilled person in view of D1 and the common general knowledge to make use of a multiprocessor system with a centralised architecture (see point 10.5 of the decision), the functional differences identified above would still remain. In the Board's view, the subject-matter of claim 1 is therefore not rendered obvious by the disclosure of D1 alone.

Similar arguments apply, *mutatis mutandis*, for corresponding independent claims 6, 11 and 12.

3.   The Board is aware of computer processors comprising a coprocessor as well as first and second level cache memory, which have been used for special tasks already before the priority date of the present application, including improving processing power and dealing with real time constraints. However, the Board is not convinced that this has been notorious knowledge of the skilled person. Therefore a look into the prior art is necessary.

3.1   As has already been outlined above (see point 1), no Search Report was established for the application and D1 was introduced during substantive examination with the summons for oral proceedings before the first instance. Since a corresponding set of claims for the subject-matter of the present main request has been presented only at a later stage during oral proceedings before the first instance, i.e. at the end of the first instance proceedings, there is no indication that a systematic search for pertinent prior art has been carried out for the present set of claims.

3.2   However, according to the jurisprudence of the Boards an additional search for pertinent prior art may be dispensed with only if the technical features of the claims are considered to be "notorious", i.e. generic and so well known that they cannot reasonably be refuted (see T 1411/08 of 6 June 2011, point 4; T 2299/10 of 31 March 2014, point 4.5).

In the Board's judgment, the aforementioned distinguishing features (see points 2.5 and 2.8) go

beyond the mere notorious knowledge (for example the commonly encountered use of a computer, a network, an electronic database) and cannot be considered "notorious". In particular, it is not considered to be notorious knowledge to use a second computer entity within a first computer entity both directly connected to a shared memory which stores pre-calculated data.

3.3   Thus, present claim 1 cannot be definitively assessed for inventive step without knowledge of the relevant documented prior art. Thus, the main request requires a search for relevant prior art. Hence the matter must be remitted for an additional search and further examination.

4.   According to Article 111(1) EPC the Board may exercise any power within the competence of the examining division (which was responsible for the decision under appeal) or remit the case to that department for further prosecution. It is thus at the Board's discretion whether it examines and decides the case or whether it remits the case to the department of first instance. As it appears necessary for a further search to be carried out, the Board considers that in the present case remittal is the more appropriate course of action.

        Since the decision can be taken on the basis of the main request, the Board does not have to deal with the first to third auxiliary requests.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the examining division for further prosecution.

The Registrar: The Chairman:

T. Buschek   W. Chandler

Decision electronically authenticated