CASE REPORT:
AT & T CORP. V. EXCEL COMMUNICATIONS INC.

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TECHNICAL BACKGROUND[1]

Telephone subscribers have a choice among a number of long-distance (also called interexchange) service providers. Each subscriber chooses one long-distance service provider as his or her primary interexchange carrier ("PIC"); this is the provider who handles long-distance calls dialed using 1+ the number. Whenever a long-distance call is made, a message record is generated. This record typically includes the telephone numbers of the caller and the recipient, as well as the duration of the call. Message records are subsequently used by the long-distance service provider to generate its customers' bills.

U.S. Patent No. 5,333,184 ("the '184 patent"), held by AT & T, teaches a method for enhancing a message record by adding a PIC indicator. The value stored in the PIC indicator can be calculated in several ways. For instance, the PIC indicator may simply be a numerical code associated with the recipient's PIC. Alternatively, the PIC indicator may have a Boolean (true or false) value indicating whether the recipient's PIC is or is not a particular PIC; for instance, the indicator would be "true" if the recipient is an AT & T subscriber and false otherwise. In a third implementation, the PIC indicator is a Boolean value indicating whether the caller and recipient have the same PIC. A long-distance provider can use this information to bill callers at rates that

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1. This summary of the technology is taken from the court decisions in this case: *AT & T Corp. v. Excel Communications, Inc.*, 1998 WL 175878 (D. Del. 1998), and *AT & T Corp. v. Excel Communications, Inc.*, 50 U.S.P.Q. 2d 1447 (Fed. Cir. 1999).

depend on the PIC of the recipient. For instance, AT & T could offer its subscribers a discount on calls to other AT & T subscribers.

PROCEDURAL HISTORY

AT & T sued Excel Communications, Excel Communications Marketing, and Excel Telecommunications (collectively "Excel") for infringement of ten of the method claims of the '184 patent. Excel moved for summary judgment on the grounds that the '184 patent did not meet the statutory requirements for patentable subject matter under 35 U.S.C. § 101.

The U. S. District Court for the District of Delaware granted summary judgment for Excel.[2] The district court based its decision on the judicially created "mathematical algorithm" exception, under which claims directed to mathematical algorithms are generally considered invalid under Section 101. The court observed that in the claimed invention, "certain information that is already known within a telecommunications system … is simply retrieved for an allegedly new use"[3] and that in the generation of the PIC indicator, the substantive data remained the same despite being changed from an analog to a digital format.[4] Holding that a mere change in the data's format does not suffice to establish patentable subject matter, the court ruled that the asserted claims were unpatentable under Section 101.[5] AT & T appealed to the Court of Appeals for the Federal Circuit. While this appeal was pending, the Federal Circuit issued its decision in *State*

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2. *AT & T Corp. v. Excel Communications, Inc.*, 1998 WL 175878 (March 27, 1998).
3. *Id.* at *6.
4. *Id.*
5. *Id*. at *6–7.

Street Bank & Trust Co. v. Signature Financial Group, Inc,[6] which re-examined the patentability of mathematical algorithms.[7]

THE FEDERAL CIRCUIT'S ANALYSIS

The scope of patentable subject matter is established by 35 U.S.C. § 101, which states that "Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor … ."[8] Previous Supreme Court decisions have construed Section 101 very broadly, so that statutory subject matter "include[s] anything under the sun that is made by man."[9] However, the Court has established three exceptions: "laws of nature, natural phenomena, and abstract ideas" are all unpatentable.[10]

Courts have traditionally held that a mathematical algorithm as such is an abstract idea and therefore does not qualify as patentable subject matter.[11] However, according to the Federal Circuit, the term *algorithm* is ambiguous. "Any step-by-step process, be it electronic, chemical, or mechanical, involves an 'algorithm' in the broad sense of the term."[12] A broad proscription on the patentability of mathematical algorithms would undermine Section 101, which states that useful processes are patentable. Thus, in *AT & T v. Excel*, the Federal Circuit concluded that any judicial rule against patenting mathematical algorithms must be "narrowly limited to mathemati-

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6. 149 F.3d 1368 (1998).
7. See 50 U.S.P.Q. 2d at 1452 for the Federal Circuit's comment on the timing.
8. 35 U.S.C. § 101.
9. 50 U.S.P.Q. 2d at 1449, quoting *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980). (The Supreme Court was actually quoting the legislative record.)
10. 50 U.S.P.Q. 2d at 1450. The court cites *Diamond v. Diehr*, 45 U.S. 175, 182 (1981).
11. 50 U.S.P.Q.2d at 1450. The court cites *Diehr*; *Parker v. Flook*, 437 U.S. 584 (1978); *Gottschalk v. Benson*, 409 U.S. 63 (1972).
12. 50 U.S.P.Q. 2d at 1450. The court cites *State Street Bank*.

cal algorithms in the abstract."[13] Having rejected a categorical approach, the Federal Circuit attempted to determine at what point a mathematical algorithm becomes sufficiently non-abstract to be patentable.

The Federal Circuit based its decision on whether the algorithm is applied to achieve a useful, concrete, and tangible result without precluding other applications.[14] Applying this test to the facts in the case at bar, the Federal Circuit concluded that AT & T's claimed process was a useful application of Boolean algebra that did not attempt to preclude other applications of the Boolean principle. Therefore, "on its face the claimed process comfortably falls within the scope of Section 101."[15]

The Federal Circuit also rejected three tests that might be used to find the asserted claims unpatentable. First, the court refused to distinguish apparatus claims from method claims in a challenge to subject matter, stating that the scope of Section 101 is the same for both.[16] Second, the court denied that algorithm claims are patentable only if they include a "physical transformation" of subject matter,[17] holding instead that the presence of such a transformation is merely one way of demonstrating that an algorithm is being applied to produce a useful result, not an invariable requirement.[18] Third, the court rejected the *Freeman-Walter-Abele* requirement that a claimed mathematical algorithm must be limited by physical elements: in view of *Alappat* and

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13. 50 U.S.P.Q. 2d 1447, 1450.
14. *Id.* at 1450–51. In support of this test, the Federal Circuit discussed three cases: *Diamond v. Diehr*, 450 U.S. 175 (1981) (use of algorithm in a useful process that does not pre-empt other uses is patentable); *State Street Bank*, 149 F.3d 1368 (1998). (algorithm is patentable if it is applied to produce a "useful, concrete, and tangible result."); and *In re Alappat*, 33 F.3d 1526 (1994) (inquiry must focus on whether the claim is to an abstract idea or to a reduction of a mathematical concept to a practical application).
15. *Id* at 1452.
16. *Id* at 1451. Cited in support are Rader's concurrence in *Alappat* and the *State Street Bank* decision.

State Street Bank, "[w]hatever may be left of the [*Freeman-Walker-Abele*] test, if anything, this type of physical limitations analysis seems of little value."[19]

In light of its recent decisions, the Federal Circuit concluded that "the district court did not apply the proper analysis to the method claims at issue" and that if it had analyzed the claims correctly, it would have found them directed to patentable subject matter.[20] Therefore, the Federal Circuit reversed and remanded the case for further proceedings.

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17. Excel had raised this argument, citing *Diehr* in support of the position that a physical transformation is required.
18. See 50 U.S.P.Q. 2d at 1452.
19. 50 U.S.P.Q. 2d at 1453.
20. *Id* at 1454. The court notes that the claims are ultimately valid only if they satisfy the other statutory requirements.