

**THIS OPINION WAS NOT WRITTEN FOR PUBLICATION**

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 36

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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**Ex parte** JULIA HIRSHBERG

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Appeal No. 1998-0650  
Application 08/548,794

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ON BRIEF

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Before HAIRSTON, FLEMING, and LALL, **Administrative Patent Judges**.

FLEMING, **Administrative Patent Judge**.

**DECISION ON APPEAL**

This is a decision on appeal from the final rejection of claims 1, 2 and 4 through 20, all of the claims pending in the present application. Claim 3 has been canceled.

The present invention relates to methods and systems for

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converting text to speech.

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Independent claim 1 is reproduced as follows:

1. A method for generating a statistical representation of intonational feature information for a text-to-speech system, the method comprising the steps of:

(a) annotating a set of predetermined text with intonational feature annotations to generate annotated text, the set of predetermined text being unrelated to speech, said annotating being performed by a human annotator;

(b) with a computer means, generating a set of structural information regarding the predetermined text;

(c) with the computer means, generating said statistical representations of intonational feature information based on the set of structural information and the intonational feature annotations; and

(d) storing said statistical representation for use in training a text-to-speech system.

The Examiner does not rely on any references.

Claims 1, 2 and 4 through 20 stand rejected under 35 U.S.C. § 101 as being directed to non-statutory subject matter.

Rather than reiterate the arguments of Appellant and the Examiner, reference is made to the brief and the Examiner's answer for the respective details thereof.

#### OPINION

After a careful consideration of the record before us, we

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will not sustain the 35 U.S.C. § 101 rejection of claims 1, 2  
and 4 through 20.

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With respect to the mathematical algorithm exception, the Federal Circuit in **State Street Bank v. Signature Financial**, 149 F.3d 1368, 47 USPQ2d 1596 (Fed. Cir. 1998) first identified the three categories that are not patentable--laws of nature, natural phenomena and abstract ideas. The opinion went on to note "a mathematical algorithm is unpatentable only to the extent that it represents an abstract idea" and is thus not "useful." **Id.** at 1600-01 n.4. Later in its opinion, the court returned to this issue: "[T]he mere fact that a claimed invention involves inputting numbers, calculating numbers, outputting numbers, and storing numbers, in and of itself, would not render it nonstatutory subject matter, unless, of course, its operation does not produce a 'useful, concrete and tangible result.'" **Id.** at 1602. In this case, the court stated that "the transformation of data, representing discrete dollar amounts, by a machine through a series of mathematical calculations into a final share price, constitutes a practical application of a mathematical algorithm . . . because it produces 'a useful, concrete and tangible result' . . ." **Id.** at 1601.

Significantly, the court concluded its analysis of the mathematical algorithm issue as follows: "The question of whether a claim encompasses statutory subject matter should not focus on which of the four categories of subject matter a claim is directed to . . . but rather on the essential characteristics of the subject matter, in particular, its practical utility." **Id.** With respect to the Freeman-Walter-Abele test, the Federal Circuit held the district court erred in applying it. According to the court, after **Diehr** and **Chakrabarty** were decided by the Supreme Court, the test had "little, if any, applicability to determining the presence of statutory subject matter." **Id.** at 1601.

Appellant's claim 1 recites a

method for generating a statistical representation of intonational feature information for a text-to-speech system, the method comprising the steps of: (a) annotating . . .; (b) with a computer means, generating a set of structural information regarding the predetermined text; (c) with the computer means, generating said statistical representations of intonational feature information based on the set of structural information and the intonational feature annotations; and (d) storing said statistical representation for use in training a text-to-speech system.

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Appellant discloses on pages 1 through 4 of the specification, that there is a need to assign appropriate intonation to the text so that the speech generated will have a quality of naturalness. Appellant discloses that intonation includes such features as variations in prominence, pitch range, intonational contour, and intonational phrasing. Appellant discloses a method of training a text-to-speech system that involves taking a set of predetermined text and having a human annotate it with intonational feature annotations. This results in annotated text. Next, the structure of the set of predetermined text is analyzed to generate information which is a statistical representation. The statistical representation may be repeatedly used to generate synthesized speech for new sets of input text without training the text-to-speech system further. We find that the claim language recited in Appellant's claim 1 recites subject matter that is a practical application of generating statistical representation of intonational feature information for use in training a text-to-speech system.

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We note that Appellant's claim 9 recites an apparatus for performing text-to-speech conversion of a set of input text and Appellant's claim 15 recites a method for performing text-to-speech conversion of a set of input text. We find that both of these claims are directed to the practical application of generating synthesized speech from text. Therefore, we find statutory subject matter.

We have not sustained the rejection of claims 1, 2 and 4 through 20 under 35 U.S.C. § 101. Accordingly, the Examiner's decision is reversed.

**REVERSED**

KENNETH W. HAIRSTON	)
Administrative Patent Judge	)
	)
	) BOARD OF PATENT
MICHAEL R. FLEMING	)
Administrative Patent Judge	) APPEALS AND
	)
	) INTERFERENCES
	)
PARSHOTAM S. LALL	)
Administrative Patent Judge	)

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DOCKET ADMINISTRATOR  
LUCENT TECHNOLOGIES INC.  
600 MOUNTAIN AVENUE  
MURRAY HILL, NEW JERSEY 07974-0636