United States District Court,
W.D. New York.

Elliot DAVIS,
Plaintiff.
v.
SPEECHWORKS INTERNATIONAL, INC,
Defendant.

No. 03-CV-0533S(F)

Sept. 29, 2006.

Arnold Weiss, Raichle Banning Weiss PLLC, Edward P. Yankelunas, Damon & Morey LLP, Buffalo, NY, Robert P. Greenspoon, William W. Flachsbart, Niro, Scavone, Haller & Niro, Chicago, IL, for Plaintiff.

Charles C. Swanekamp, Jaeckle Fleischmann & Mugel LLP, Buffalo, NY, Jack C. Schecter, Julia Huston, Lee Carl Bromberg, Lisa M. Tittemore, Bromberg & Sunstein LLP, Boston, MA, for Defendant.

DECISION AND ORDER

WILLIAM M. SKRETNY**, District Judge.**

I. INTRODUCTION

This is a patent infringement action involving a pattern recognition error reduction system disclosed by United States Patent No. 4,802,231 ("the '231 patent"), issued on January 31, 1989. The Plaintiff, Elliot Davis ("Davis"), holds title to the '231 patent. Davis commenced this action on July 14, 2003, alleging that Defendant SpeechWorks International, Inc. ("SWI") infringed the '231 patent in violation of 35 U.S.C. s. 271. Davis seeks compensatory damages and increased damages, pursuant to 35 U.S.C. s. 284, based on his allegation that SWI's infringement was willful and deliberate.

Currently before this Court are: 1) Davis' Motion for Partial Summary Disposition of Infringement (Docket No. 130); 2) Davis' Motion for Partial Summary Disposition of Willfulness (Docket No. 132); 3) SWI's Motion for Summary Judgment of Patent Invalidity (Docket No. 154); 4) SWI's Motion for Summary Judgment of Non-Infringement (Docket No. 157); and 5) Davis' Motion to Strike (Docket No. 162). FN1

FN1. The papers filed in connection with each motion are listed below. Where a portion(s) of a publicly filed document has been filed separately under seal, the sealed information is denoted in italics- *e.g.* memorandum (Docket Nos. 1, 5).
Davis' Motion-Infringement. Davis filed a supporting memorandum (Docket No. 199, *218*), Local Rule ("LR") 56.1 statement (Docket No. 200, *217*), LR 56.1 appendix (Docket No. 220, *223*), and reply memorandum (Docket No. 149). SWI filed an opposing memorandum (Docket No. 138), declaration of

Michael Phillips (Docket No. 139), response to LR 56.1 statement (Docket No. 140), LR 56.1 appendix (Docket No. 141), and surreply (Docket No. 196, *209*).
Davis' Motion-Willfulness. Davis filed a LR 56.1 statement (Docket No. 133), supporting memorandum (Docket No. 134), LR 56.1 appendix (Docket No. 136), and reply memorandum (Docket No. 148). SW I filed the declaration of Michael Phillips (Docket No. 139), a LR 56.1 appendix (Docket No. 141), response to LR 56.1 statement (Docket No. 142), and opposing memorandum (Docket No. 143).
SW I's Motion-Invalidity-SWI filed a *Markman* brief on claim construction (Docket No. 153), supporting memorandum (Docket No. 155), LR 56.1 statement (Docket No. 156), declaration of Richard M. Stern (Docket No. 193, *206*), declaration of Andrew Halberstadt (Docket No. 194, *207*), LR 56.1 appendix (Docket No. 195, *208*), and reply memorandum (Docket No. 181). Davis filed a memorandum opposing motion and Markman arguments (Docket No. 169), response to LR 56.1 statement (Docket No. 170), and LR 56.1 appendix (Docket No. 182, *186*).
SW I's Motion-Non-Infringement-SWI filed a Markman brief (Docket No. 153), supporting memorandum (Docket Nos. 191, 204), LR 56.1 statement (Docket No. 192, *205*), declaration of Richard M. Stern (Docket No. 193, *206*), declaration of Andrew Halberstadt (Docket No. 194, *207*), LR 56.1 appendix (Docket No. 195, *208*), and reply memorandum (Docket No. 198, *211*). Davis filed a response to LR 56.1 statement (Docket No. 176, *188V*), memorandum opposing motion and Markman arguments (Docket No. 177, *187*), and LR 56.1 appendix (Docket No. 182, *186*).
Davis' Motion to Strike-Davis filed a memorandum with exhibits (Docket No. 162) and reply memorandum (Docket No. 175). SWI filed an opposing memorandum with exhibits (Docket No. 197, *210*) and declaration of Catherine S. Swift (Docket No. 174).

II. BACKGROUND

A. Procedural History.

The foregoing motions were fully briefed on November 14, 2005. The Court heard extensive oral argument on these motions, as well as the parties related *Markman* arguments, on January 13, 2006. Thereafter, the parties attempted to mediate their dispute, but the Court was notified, on May 19, 2006, that the dispute could not be resolved. Accordingly, this decision follows.

B. The Disclosed Invention.

Generally, the '231 patent discloses a method and devices for reducing errors in automatic pattern recognition systems by creating independent error templates. (Docket No. 195, Ex. 1, referred to hereinafter as '231 patent, col. __:__.) Davis describes his invention in the context of a speech recognition system.

Davis claims to have invented a novel way of reducing errors in a pattern recognition system's processing of incoming information by first, determining those incoming patterns (referred to in the patent as "incoming pattern templates") that tend to be erroneously matched to patterns contained in the system (stored as "reference templates"), and then creating "independent error templates" that correspond to those erroneously matched patterns. In the preferred embodiment of a speech recognition system, the system compares incoming speech to both the reference templates (the system's vocabulary) and the independent error templates, and then either accepts or rejects the speaker's input depending upon whether it is most closely matched to a reference template (identified as a match) or an independent error template (discarded as a non-match).

The gravamen of Davis' motion for partial summary judgment on infringement is that SWI created a speech recognition system for its customer, Vodafone, that infringes through the use of "decoy words," which are

the same thing as Davis' patented "independent error templates." SWI contends that the Vodafone system does not infringe, but urges that the Court need not reach that issue because, as a threshold matter, the claim at issue was anticipated and/or obvious based upon prior art and is, therefore, invalid. The parties urge that claim construction is required for an analysis of both patent validity and infringement and so we start there after preliminarily considering Davis' motion to strike.

III. MOTION TO STRIKE

Davis has moved to strike two documents submitted by SWI in support of its summary judgment motions, the Declaration of Andrew Halberstadt (Docket No. 194) and the translation of Sakoe Patent JP58-76892 ("Sakoe I") from Japanese to English (Docket Nos. 195, Ex. 8; 174, Ex. 3).

A. The Halberstadt Declaration.

According to Davis, the Halberstadt Declaration should be stricken because this individual was not identified, pursuant to Federal Rule of Civil Procedure 26(a)(1)(A) or in interrogatory responses, as an individual likely to have discoverable information. Davis does not contend that the Halberstadt Declaration introduces new material or that it contradicts sworn deposition testimony or declarations by other individuals who were disclosed. Nor does Davis identify any portion of its content as harmful or prejudicial. Davis does contend, however, that he was unable to timely make an informed decision about the need for Halberstadt's deposition, an opportunity that is now foreclosed to him.

SWI responds that its previously deposed Rule 30(b)(6) witness left the company in August 2005 and it "naturally appointed someone to take his place." However, SWI does not assert that the whereabouts of prior witness, Michael Phillips, Chief Technology Officer, is unknown, that he is otherwise unavailable, or that some other individual who was timely identified lacked sufficient knowledge to submit a declaration. SWI seeks to minimize its failure to disclose by characterizing the Declaration as a harmless substitution that contains the same information previously disclosed by Phillips in his deposition and earlier declaration. Finally, SWI claims that Halberstadt was identified by several other witnesses who were deposed and his name appeared on "a myriad of documents produced to Davis." Hence, it argues, Davis had sufficient information to evaluate the need for Halberstadt's deposition during discovery.

While this Court can discern no actual harm or prejudice to Davis were it to consider the Declaration, I am troubled by SWI's complete lack of justification for its failure to meet its obligation to provide full and complete disclosures in a timely manner, as well as the absence of any indication that it had no other source for this information but Halberstadt. Because of these failures, along with the fact that the Halberstadt Declaration appears to be a completely unnecessary redundancy, the Motion to Strike is granted as to the Halberstadt Declaration.

B. The Sakoe I Translation.

Davis objects to the translation submitted in support of SWI's invalidity argument, claiming that the "certification" on the cover of the document is inadequate to meet the rigorous standard for a translation under Rules 604 and 901 of the Federal Rules of Evidence. The certification was signed by a translation manager as opposed to the actual translator.

Though SWI argues that the certification it submitted is sufficient, it also filed the Declaration of Catherine S. Swift, the actual translator, in response. (Docket No. 174). In reviewing and confirming the document's

accuracy, Ms. Swift notes that the translation required three word substitutions and a phrase that inadvertently had been omitted from the original translation. *Id.* at para. 4, Ex. 3. At oral argument, Davis' counsel did not contest the sufficiency of Ms. Swift's Declaration or the accuracy of her amended translation.

Striking the translation in its entirety would be unduly draconian where the accuracy of the translation is not in dispute. Nevertheless, there is a need to avoid confusion regarding the documents under consideration on the pending motions. Therefore, the first translation, appearing at Docket No. 195, Ex. 8, is stricken as inaccurate. Davis' motion to strike is denied insofar as he seeks to preclude the revised translation certified by Ms. Swift and appended to her Declaration at Exhibit 3.

IV. CLAIM CONSTRUCTION

A. The Legal Standard.

"Claim interpretation requires the court to ascertain the meaning of the claim to one of ordinary skill in the art at the time of the invention." SmithKline Beecham Corp. v. Apotex Corp., 365 F.3d 1306, 1313 (Fed.Cir.2004). In construing the meaning and scope of patent claims, courts look to the claim language, the specification and the prosecution history, in that order. Phillips v. AWH Corp., 415 F.3d 1303, 1315-17 (Fed.Cir.2005). Courts first look to the words of the claims themselves and ascribe to them their ordinary and customary meaning. Digital Biometrics, Inc. v. Identix, Inc., 149 F.3d 1335, 1344 (Fed.Cir.1998). The "ordinary and customary meaning" is the meaning the term would have to a person of ordinary skill in the art in question at the time of the invention-that is, the date the patent application was filed. FN2 Phillips, 415 F.3d at 1313. It is understood that an inventor is typically a person skilled in the field to which the invention pertains and that the patent is intended to be read by others similarly skilled, as opposed to the public at large, lawyers or judges. *Id.* (citations omitted).

FN2. Here, the parties agree that one possessing ordinary skill in the art when the patent application was filed in 1987 would have a graduate degree from an accredited program in mathematics, science or engineering, and at least two years post-graduate experience in the filed of automatic speech recognition, or alternatively, an undergraduate degree in one of the foregoing technical fields and at least five years active experience in speech recognition. (Docket Nos. 156 para. 8; 170 para. 8.)

It is presumed that one skilled in the art reads a claim term not just within the context of the particular claim in dispute, but in the context of the entire patent, including the other claims and the specification. *Id.* Indeed, claims "must be read in view of the specification, of which they are a part," Markman v. Westview Instruments, 52 F.3d 967, 979 (Fed.Cir.1995) (en banc), *aff'd,* 517 U.S. 370, 116 S.Ct. 1384, 134 L.Ed.2d 577 (1996). The specification is highly relevant and is the single best guide to the meaning of a disputed term. Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996); Multiform Dessicants, Inc. v. Medzam, Ltd., 133 F.3d 1473, 1478 (Fed.Cir.1998) ("the best source for understanding a technical term is the specification from which it arose, informed, as needed, by the prosecution history").

Thus, "if the claim language is clear on its face, ... consideration of the rest of the intrinsic evidence is restricted to determining if a deviation from the clear language of claims is specified." Interactive Gift Express, Inc. v. Compuserve, Inc., 256 F.3d 1323, 1331 (Fed.Cir.2001). Where review of the specification reveals a special definition given to a claim term by the patentee that differs from its customary meaning, the inventor's definition governs. Vitronics, 90 F.3d at 1582 (Fed.Cir.1996). While the prosecution history is

less relevant to the meaning of the claim language than the patent document itself, it can provide information on how the inventor understood the invention and whether the inventor limited the invention during the course of prosecution, thereby narrowing its scope. Id. at 1582-83.

If the meaning of a term or phrase to one skilled in the art is not apparent from the foregoing intrinsic evidence, courts may also look to "extrinsic evidence concerning relevant scientific principles, the meaning of technical terms, and the state of the art ." Innova/Pure Water, Inc. v. Safari Water Filtration Systems, Inc., 381 F.3d 1111, 1116 (Fed.Cir.2004). While useful in understanding the relevant art, extrinsic evidence is less significant than intrinsic evidence in determining the legally operative meaning of claim language. C.R. Bard, Inc. v. U.S. Surgical Corp., 388 F.3d 858, 862 (Fed.Cir.2004) (citation and quotation marks omitted).

B. Claim 8.

Claim 8, one of three independent claims in the '231 patent, FN3 is the focus of Davis' partial motion for summary judgment on infringement and also SW I's motions for summary judgment on invalidity and noninfringement. It reads as follows:

FN3. Claims 1 and 6 each claim a device, while Claim 8 claims a method.

8. In an automated pattern recognition system in which the characteristics of known patterns are stored as a series of reference templates to be compared against the characteristics of incoming unknown pattern templates, a method of reducing matching errors comprising the steps of:
(a) determining those incoming pattern templates which tend to be erroneously matched to reference templates;

(b) creating independent error templates which correspond to the incoming pattern templates which tend to be erroneously matched;

(c) comparing incoming pattern templates against the said reference templates and the said independent error templates;

(d) identifying the unknown pattern as a match whenever its template is most closely matched to a reference template; and

(e) discarding the unknown pattern as a non-match whenever its template is most closely matched to an independent error template.

SWI contends that the following terms require construction: **templates,** and more specifically, "reference templates," "incoming unknown error templates," and "independent error templates;" **determining;** and **whenever.** Upon reviewing the parties respective positions, it appears that only the meaning of "templates" and "determining" are actually in dispute. The construction of "determining" is central to SW I's invalidity arguments, while "templates" and "whenever" relate to the parties respective infringement/non-infringement arguments.
Both parties rely on the patent claim and specification in support of their proposed constructions. In addition, Davis relies on a portion of the prosecution history (Docket No. 182, Ex. D), and both parties have

retained experts who purport to have possessed ordinary skill in the art of pattern recognition systems when Davis filed his patent application in 1987 and who each advance proposed constructions for the terms at issue (Docket Nos. 141, Ex. 14 and 193 (Report and Declaration of Richard M. Stern, Ph.D. for SWI); Docket No. 182, Exs. Q and R (Report and Rebuttal Report of Gabriel Groner, Ph.D. for Davis)).

1. Determining-Claim 8(a)

(a). The Parties' Proposed Constructions.

Neither party contends that the word "determining" is a term of art in speech recognition or that any technical expertise is required to construe this word. Indeed, their experts agree that the word "determine" should be accorded its ordinary meaning in everyday speech; that is, to identify or ascertain, as after "consideration, investigation, or calculation." (Docket Nos. 182, Ex. Q at 7 (Groner) and 193 para. 39 (Stern).) Despite this apparent agreement, the parties do dispute the appropriate construction of this term as it applies to claim 8.

Although plaintiff patent holders typically advance the broadest possible construction of a claim term, here Davis contends that he expressly restricted the "determining" step of claim 8(a) to "consciously identifying actual sources of false-acceptance error." (*See* Docket Nos. 169 at 2, 8-9; and 182 Ex. D). In other words, Davis urges that the "determining" step requires prior observation of the occurrence of a specific matching error. Under this proposed construction, one could not meet the "determining" step by applying knowledge of error sources gained while working on other systems or by analyzing the research of others working in the field of speech recognition to identify incoming speech patterns that tend to cause errors.

SWI seeks a broader construction that is not limited to empirical observation of prior errors, but allows for analysis, computation and consideration of a variety of sources of information. In advancing this construction, SWI points to the "determining" and "creating" steps of claim 8, which both discuss "incoming pattern templates which **tend** to be erroneously matched" to reference templates ('231 patent, col. 8:63-67), and to the specification, which states that "[o]nce those words which are **potentially** a source of error are identified, their patterns can be intentionally introduced into the system as error templates ..." (Id., col. 3:6-8). Those modifiers, SWI argues, do not support a construction requiring specific observation of a prior error, which would result in a **known,** rather than a **potential,** erroneous match. FN4

FN4. SWI describes Davis' proposed construction of "determining" as the "has caused error" definition and its own proposed construction as the "can cause error" definition.

Davis contends that his narrower proposed construction is supported by the specification, which first teaches that the introduction of "random" error templates actually increases the number of false rejection errors and then directs the reader away from their use toward those error templates that are "consciously identified." In addition, he claims that he explicitly narrowed the scope of the "determining" step during prosecution. Davis' proposed construction is rejected for the reasons stated below.

(b). The Court's Construction.

With regard to the specification, "claim terms take on their ordinary and accustomed meanings unless the patentee demonstrated an intent to deviate from [such a] meaning ... by redefining the term or characterizing the invention in the intrinsic record using words or expressions of manifest exclusion or restriction,

representing a clear disavowal of the claim scope." Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1327 (Fed.Cir.2002). To act as his own lexicographer, a patentee must "define[ ] the specific terms used to describe the invention 'with reasonable clarity, deliberateness and precision.' " Id. at 1325 (quoting In re Paulsen, 30 F.3d 1475, 1480 (Fed.Cir.1994)). If he does not, there is a "heavy presumption" in favor of a term's ordinary meaning. Id. at 1327.

Davis argues that the following passage from the specification limits the scope of the claim 8 "determining" step because it teaches away from the use of "random" error templates:

In a speech recognition system which is designed to recognize a finite number of words through the mechanism of template matching, **the error rate can be dramatically reduced** by introducing one or more "Error Templates" which correspond to speech patterns that are not within the system vocabulary. Consider, for example, a system having a one-word reference vocabulary. If another word, randomly chosen, is introduced as an error template, then each word would have an equal chance of being matched to **a third, randomly chosen, incoming word.** As more randomly chosen error templates are introduced into the system, the probability (P) that an incoming word will match the reference word **decreases** proportionally as

$$P = \frac{1}{1\ NET}$$

where NET is the number of error templates.
Once those **words which are potentially a source of error** are identified, their patterns can be intentionally introduced into the system as error templates to shunt incoming words which would otherwise be mismatched.

Since language words fall into a finite number of sets, the **error templates should be chosen** from as great a variety of these sets as possible. The number of error templates may be reduced by combining them together in such a way as to retain in the composite a significant amount of the unique features of the individuals.

'231 patent, col. 2:54-3:18 (emphasis supplied).
First, this Court notes that the foregoing passage is of limited relevance to the extent Davis suggests that an error template "determined" by any means other than empirical observation is "random." A random occurrence is one without aim, reason or pattern. Such a definition does not comport with SWI's proposed construction of "determining," nor does it comport with any common understanding of either term.

Moreover, the passage on which Davis relies does not, as he contends, teach that the use of "random" error templates **increases** the number of false **rejection** errors. In Davis' example, a false **acceptance** error FN5 occurs when a randomly chosen incoming word is incorrectly matched to the reference vocabulary word. Based on the cited formula, the chance of such a false **acceptance** error occurring ***decreases*** continuously with the introduction of each additional **random** error template. Indeed, that is precisely what Davis posits in the introductory sentence; "**the error rate can be dramatically reduced**" (col.2:56-57).

FN5. The '231 patent uses the term "External Positive Substitution," defined as the error that occurs when "an incoming word that is external to the system's vocabulary erroneously matches to a vocabulary word." Col. 2:42-44.

Contrary to Davis' assertion in his opposing memorandum (Docket No. 169 at 5), this passage does not address false **rejection** errors FN6 at all; that is, where the incoming word is the same as the vocabulary word and should be recognized as a match, but is not. In sum, this passage does not, as Davis claims, teach away from the use of error templates that are created from any source of knowledge other than empirical observation.

FN6. The '231 patent uses the term "Non-Recognition," defined as the error that occurs when "an incoming word which is internal to the system's vocabulary does not match any vocabulary word." Col. 2"41, 49-51; Docket No. 169 at 7.

Reading the claims and specification as a whole, as this Court must, there are numerous other references that weigh strongly against narrowing the construction of "determining" as Davis suggests. For example, as highlighted above in the passage on which Davis relies, he speaks of identifying words which are **potentially** a source of error, thereby indicating that such identification is not limited to empirical observation of a **known** error. Similarly, Davis notes that language words fall into finite "sets" (something that he presents as a given and known in the art), and encourages the reader to **choose** error templates from a variety of sets. This, too, suggests a "determination" of sources of error based on something other or more than empirical observation.

A bit further in the specification, Davis explains that:

[I]n order to **generate** error templates to protect reference templates from the largest variety of non-matching words, it is **desirable** to have error templates which **deviate** from the reference template in a given **direction** and by a given **distance** in generalized **template space.** Since such a template **may not correspond to a known, or even utterable word,** it poses some problem as to how such a template may be **formulated.**

'231 patent, col. 5:24-32 (emphasis supplied). Concepts of direction and distance in template space, deviation, generation and formulation, do not remotely suggest the limitation on "determining" that Davis urges.

Having reviewed the patent in its entirety, this Court concludes that Davis did not act as his own lexicographer here, and that "determining" should be accorded the ordinary meaning advanced by SWI unless a limitation is apparent from the prosecution history.

The prosecution history consists of the complete record of the proceedings before the Patent and Trademark Office ("PTO") and includes the prior art cited during the examination of the patent. Phillips, 415 F.3d at 1317 (citation omitted). "[B]ecause the prosecution history represents an ongoing negotiation between the PTO and the applicant, ... it often lacks the clarity of the specification and thus is less useful for claim construction purposes. *Id*. (citing Inverness Med. Switz. GmbH v. Warner Lambert Co., 309 F.3d 1373, 1380-82 (Fed.Cir.2002)). Nevertheless, the prosecution history can inform the meaning of the claim by revealing, among other things, whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be. Vitronics, 90 F.3d at 1582-83.

This Court first notes that Davis has not made the entire prosecution history part of the record, but only the portion he believes will assist him on this question. Apparently, Davis' patent application initially was rejected by the PTO as being anticipated by three prior art references.FN7 Davis argues that in distinguishing his invention from one of those references, U.S. Patent No. 4,713,778 ("the Baker patent"), he expressly disclaimed any interpretation of the "determining" step that would cover "guessing, conjecture or speculation." (Docket Nos. 169 at 8-9; 182, Ex. D.)

FN7. Davis provides his response to the PTO's rejection, but not the underlying PTO communication.

This Court again points out that, "guessing, conjecture or speculation" is not the construction of "determining" advanced by SWI, nor does it comport with any common understanding of that term. The question then, is whether Davis limited the "determining" step of claim 8 so as to include only knowledge gained from empirical observation. In support of his argument, Davis provides his letter response to the PTO's rejection of his application and highlights certain phrases which he contends narrows the scope of the patent.FN8 (Docket No. 170 at 13-14.)

FN8. Davis directs the Court to two phrases, emphasized as follows:

... in accordance with the present invention, error templates corresponding to **erroneously matched features or words** are created and stored along with the usual reference templates ....; and

Thus, the Baker recognition system is more typical of the prior art approach in that it increases recognition accuracy by better defining patterns being looked for rather than defining those **patterns which cause errors,** as does the present invention.

In addition to the obvious concern over the unavailability of the complete prosecution history, this Court finds Davis' argument to be without merit. It is readily apparent from Davis' response to the PTO that he sought to distinguish his invention from the Baker patent on the ground that his uses error templates to improve speech recognition while the Baker patent does not. Based on this very rudimentary distinction-error templates versus no error templates-there was no need for Davis to describe in detail or distinguish how his error templates work, much less the manner in which they are "determined." This Court is unwilling to read a purported limitation that does not comport with the patent language from a generalized description of the invention that appears in a single, isolated communication with the PTO.

For all of the reasons stated, this Court finds that the intrinsic record does not reveal any special definition for the term "determining." Beyond that, the parties' experts agree that the term should be construed in its ordinary sense. FN9 Therefore, it is accorded its ordinary meaning here-to identify or ascertain, as after consideration, investigation, or calculation.

FN9. Indeed, Davis' expert, Gabriel Groner, acknowledged that a "determination" "would have to include knowledge of **how** errors occur, but it may not necessarily have to include knowledge of specific errors." (Docket No. 195, Ex. 2 at 194.) (emphasis supplied).

Because the remaining disputed terms do not factor into the parties' validity arguments, this Court will move on to that analysis and will construe the remaining terms further herein, as necessary.

V. PATENT INVALIDITY

Courts presume that an issued patent is valid. 35 U.S.C. s. 282. Therefore, a defendant must establish invalidity by facts supported by clear and convincing evidence. *See, e.g.,* Beckson Marine, Inc. v. NFM, Inc., 292 F.3d 718, 725 (Fed.Cir.2002). Prior art may render a patent invalid due to either anticipation or obviousness.

A. Anticipation

A claim is anticipated under 35 U.S.C. s. 102 FN10 "if each and every limitation is found either expressly or inherently in a single prior art reference." Bristo-Myers Squibb Co. v. Ben Venue Labs, Inc., 246 F.3d 1368, 1374 (Fed.Cir.2001). "Under the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claims limitations, it anticipates ." In re Cruciferous Sprout Litig. 301 F.3d 1343, 1349 (Fed.Cir.2002) (quotation omitted).

FN10. Nowhere in its voluminous papers does SW I bother to articulate the statutory basis for its claim for relief. It appears from SW I's overall presentation, however, that it relies on 35 U.S.C. s. 102(b), which provides that:
A person shall be entitled to a patent unless-

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of the application for patent in the United States....

"Anticipation is a question of fact." Merck & Co., Inc. v. Teva Pharms. USA, Inc., 347 F.3d 1367, 1369 (Fed.Cir.2003). On summary judgment, courts draw all reasonable factual inferences in favor of the non-movant. Beckson Marine, 292 F.3d at 722 (citing Anderson v. Loberty Lobby, Inc., 477 U.S. 242, 255, 106 S.Ct. 2505, 91 L. ed.2d 202 (1986)). Thus, summary judgment on anticipation may be granted "only when the underlying factual inquiries present no lingering genuine issues." *Id.*

Here, SWI contends that every element of claim 8 of the '231 patent had already been fully disclosed in the prior art by no fewer than four separate references, each published more than one year before Davis filed his patent application: (1) Japanese patent application JP58-76892, listing Hiroaki Sakoe as inventor and published on May 10, 1983 ("Sakoe I"); (2) a paper entitled "Keyword Recognition Using Template Concatenation," presented by A .E. Higgins and R.E. Wohlford at the 1985 IEEE International Conference on Acoustics, Speech and Signal Processing ("Higgins"); (3) U.S. Patent No. 4,581,755, listing Hiroaki Sakoe as inventor and issued on April 8, 1986 (Sakoe II"); and (4) U.S. Patent No. 4,811,399, listing Blakely P. Landell and Robert E. Wohlford as inventors, issued on March 7, 1989 and claiming priority back to a previous filing date of December 31, 1984 ("Landell"). (Docket Nos. 193 para.para. 45, 55, 66, 76; 174, Ex. 3; 195, Exs. 9-11).

Davis does not dispute that each patent or publication qualifies as prior art. However, he argues that none anticipate because no prior art reference includes each and every element of claim 8. Davis' response relies,

in part, on his proposed, narrow construction of "determining," which has been rejected.

Before reviewing each reference in turn, it is helpful to identify those aspects of pattern recognition systems FN11 that Davis concedes were not novel in 1987:

FN11. Though Davis' patent is not limited to speech recognition, it is the preferred embodiment and this discussion is therefore presented in that context.

analyzing speech patterns through linear predictive coding, dynamic time warping or other methods already known in the art ('231 patent, col. 1:9-14, 25-46);
storing the features of known patterns (patterns the system is intended to recognize-the system's vocabulary) as reference templates (*Id.,* col. 1:14-17);

comparing the features of incoming, unknown speech to those of the stored templates (*Id.,* col. 1:16-20);

identifying the unknown speech as a "match" to the stored template to which its features most closely correspond (*Id.,* col. 1:21-24); and improving recognition and reducing errors by refining the features characteristic of the known patterns (the reference templates) to better distinguish them from closely related words (*Id.,* col. 1:53-57).

Davis' invention follows from the last point and claims a novel method for "dramatically" reducing errors in pattern recognition systems. Rather than refining the features of reference templates to better distinguish them from closely related words, Davis teaches that error templates can be created that correspond to unknown speech patterns (speech not within the system's vocabulary) that tend to be erroneously matched to the reference templates. *Id.,* col. 2:54-60; col. 8:57-68. Incoming speech can then be compared against both the stored reference templates and the error templates FN12 for purposes of finding the closest match. *Id.,* col. 3:64-4:2, 15-19, 27-39; col. 9:1-9. According to Davis, all that is needed to use the principles of his invention is the ability to create additional templates and designate them as error templates. *Id.,* 5:49-51.
FN12. The patent defines two types of error templates; independent and linked. Claim 8 claims only the independent error templates.

1. Sakoe I

Sakoe I discloses a method for reducing the rate of erroneous matches in speech recognition by creating "reference patterns for suppression."

Relying on the declaration of its expert, Richard M. Stern, SWI asserts that Sakoe I recognizes numerous sources of potential error in speech recognition, such as ambiguous or unclear speech, unnecessary speech, high breath sounds mixed with speech, or noise from an external source, teaches that reference patterns for suppression can be created for speech or noise that is different than, but resembles, a reference pattern for recognition, and that incoming speech can then be compared to the stored reference patterns for both recognition and suppression to reduce the number of matching errors. (Docket Nos. 155 at 6-9; 174, Ex. 3 at 2; 193 at para.para. 49-54.) Thus, according to SWI, every limitation of Davis' claim 8 is described in Sakoe I.

Davis, on the other hand, argues that: (1) Sakoe I creates one or more reference patterns for suppression for each reference pattern for recognition, while his patent does not; (2) Sakoe I reference patterns for suppression are similar to in-vocabulary words, while his error templates are created for out-of-vocabulary words; (3) Sakoe I never suggests using words that were actually "determined" to cause error, and thus the "determining" step is not met; and (4) deploying Sakoe I actually increases matching errors, contrary to the teachings of the '231 patent.FN13 Thus, according to Davis, Sakoe I does not disclose claim limitations (a) and (b) or the "reducing matching errors" requirement of its preamble.FN14

FN13. Here, Davis refers to the equation n/(n 1), found on page 5 of Sakoe I. (Docket No. 174, Ex. 3).

FN14. Davis does not dispute that Sakoe I includes limitations 8(c), (d) and (e). This Court will review uncontested limitations in each prior art reference, but will discuss those limitations only to the extent that it appears there may be a question of fact as to their existence in the prior art.

Davis' contentions are unavailing. Starting with the preamble-the goal of reducing matching errors-Davis appears to have as much difficulty grasping the basic mathematical equation contained in the Sakoe I patent application as he does his own. Though the translation is a bit awkward, the math is clear. The probability that an erroneous recognition will **not** occur (will be "rejected") increases as the number of reference patterns for suppression increases; specifically, by n/(n 1), where "n" is the number of reference patterns for suppression. Said another way, the number of false acceptance errors decreases as the number of reference patterns for suppression increases. This is precisely what the '231 patent confirms at column 2, line 65 through column 3, line 5. Beyond that, Sakoe I expressly states that a purpose of the invention is to achieve a "reduced rate of erroneous recognition" and to "provide a speech recognition unit with a superior function for preventing erroneous recognition." (Docket 174, Ex. 3 at 2 and 3.) This, too, is precisely what Davis later claims to achieve when he speaks of reducing false acceptance errors.

The purported difference in the number of recommended suppression patterns/error templates is a "red herring" for the simple and obvious reason that the total number of templates or an optimum number of templates is not a claim 8 limitation and, therefore, has no bearing on the anticipation analysis. Though Davis argues that this is relevant to claim 8(b), all that is called for in the "creating" step is that the error templates correspond to patterns which tend to be erroneously matched; numerosity is not a factor.

Davis' attempt to differentiate Sakoe I on the ground that its reference patterns for suppression are similar to in-vocabulary words, while his error templates are created for out-of-vocabulary words, defies logic. If a suppression pattern is created for speech that is similar to, but different from, an in-vocabulary word, then it is created for an out-of-vocabulary word.

Finally, Davis makes much of the fact that Sakoe I sets forth an example in which reference patterns for suppression are created from words that are acoustically similar to the given reference patterns for recognition. Davis claims this demonstrates that Sakoe I "simply guesses" at its reference patterns for suppression, and that the "determining" step of 8(a) is absent. (Docket No. 169 at 11-12.) According to Davis, there is no indication that the Sakoe I patterns for suppression correspond to specific words that were actually determined to have caused errors. The obvious problem with this argument, of course, is that Davis attempts to draw a distinction based on a characterization of his patent that already has been rejected.FN15

FN15. Davis' repeated assertions that his error templates are intended to correspond only to **specific words** that have been **observed** to cause error is curious for at least three reasons: first, there is no such limitation in claim 8 ('231 patent, col. 8:57-9:9); second, the specification speaks of the desirability of creating error templates based on deviations in generalized template space and notes that such a template "**may not correspond to a known, or even utterable word**" (Id., col. 5:27-32); and third, as recently as 2002, Davis contended, as a basis for this litigation, that the '231 patent's error templates store **extraneous sound** and work particularly well for discarding sounds "such as coughs, sneezes, phone rings and the like." (Complaint, Ex. A.)

Beyond that, Davis points to nothing in Sakoe I or elsewhere in the record that supports his assertion that Sakoe was "just guessing." As Davis' own patent affirms, in typical speech recognition systems in 1987, the features of incoming speech were compared to stored reference templates and the incoming speech was identified as the reference template whose **characteristic features most closely corresponded** to the features of the incoming speech. '231 patent, col. 1:17-24. By 1987, it was common practice to refine the features of words that were intended to be recognized so as to better distinguish them from **closely related words.** Id., col. 1:53-57. In short, the '231 patent confirms that, by 1987, it was well-known in the art that closely related words with similar features tend to be erroneously matched and need to be distinguished from one another. Indeed, the acoustic similarity example that Davis criticizes in Sakoe I as a "guess" is precisely the type of false recognition error source Davis highlights with his "snow" erroneously matched to "blow" example. Id., 4:65-5:16.FN16

FN16. This argument is particularly curious where Davis submitted deposition testimony in opposition to SW I's motion which expressly confirms that Davis struggled for some time with errors caused by acoustically similar words, and goes on to state that his "eureka-type" moment occurred when he believed he had developed a novel way to distinguish between words like "fog, dog, hog" or "say, hey, weigh, Kay." (Docket No. 182, Ex. P at 24-29.)

Davis' implication that the acoustical matching errors commonly recognized in 1987 would not have been identified by Sakoe in 1983 is contradicted by the testimony of his own expert. During his deposition, Dr. Groner indicated that a person of ordinary skill in the art at the time of Sakoe I, such as Sakoe or himself, would think that the word "zoro" tends to be erroneously matched to "zero," thereby causing false acceptance.FN17 (Docket No. 195, Ex. 2 at 190.) Moreover, by specifying reference patterns for suppression that **resemble** the reference patterns for recognition as the means of avoiding erroneous recognition (Docket No. 174, Ex. 3 at 3), Sakoe I necessarily, if inherently, includes a determination that similar sounds or words tend to cause the very recognition errors the invention is designed to correct.

FN17. After tacitly conceding that the tendency for similar sounding words to cause error was known in the art prior to Davis' patent application, Groner goes on to distinguish Davis' patent on the ground that his "pinpoints things very carefully."

Significantly, this Court notes that Sakoe I does not limit its discussion of error sources to acoustic similarities. In addition to its inherent identification of acoustically similar words as sources of error, Sakoe I expressly identifies "noise from an external source" as a source of speech recognition error (*Id*. at 2) and suggests that storing "analysis patterns of typical noise as reference patterns for suppression" might be

another efficacious method for reducing error (*Id*. at 5-6). Thus, there is a "determination," not a "guess," as to an error source and a suggestion for a corresponding "error template." *See* Bristol-Myers Squibb, 246 F.3d at 1379 ("[A]nticipation does not require actual performance of suggestions in a disclosure. Rather, anticipation only requires that those suggestions be enabling to one of skill in the art.")

Davis' speculation that Sakoe I "simply guesses" at reference patterns for suppression is not consistent with a plain reading of Sakoe I or the understanding of one of ordinary skill in the art more than one year before Davis' filing date. Therefore, this Court concludes that Sakoe I anticipates claim 8 of the '231 patent.

2. Higgins

The Higgins paper is directed to keyword recognition ("KWR"), a particular type of speech recognition system that attempts to recognize specific keywords within a stream of speech. (Docket Nos. 182, Ex. Q at 11; Docket No. 193 para. 56.) Higgins investigated the factors responsible for the difference in error rates between KWR and connected speech recognition ("CSR") and reported that template-concatenation (templates linked together in a sequence) can lower the error rate in KWR systems with unrestricted input speech. (Docket No. 195, Ex. 9 at 1233.)

As with Sakoe I, Davis urges that Higgins does not include claim limitations 8(a) and (b). SWI contends that 8(a) is met because Higgins identified non-keyword speech that tended to be misrecognized as keywords and addressed this problem by using "filler templates" that "can match arbitrary speech utterances." (Docket No. 155 at 10). According to SWI's expert, Stern, Higgins had no reason to model six non-keyword function words in particular (the, of, for, at, to *and* from), except to match input patterns that otherwise tend to cause error. (Docket No. 193 para. 59.) SWI's argument with respect to 8(b) is essentially the same.

SWI's own concatenation of unrelated phrases culled from the Higgins paper is not sufficient to persuade this Court that Higgins anticipates the '231 patent. In seeking to explain, and perhaps correct, the difference in error rates between two types of speech recognition systems, Higgins experimented with a limited vocabulary of one hundred (100) words, including twenty-five (25) keywords and seventy-five (75) non-keywords. (Docket No. 195, Ex. 9 at 1234). Higgins constructed keyword templates to match the keywords and "filler templates" to "match the rest of the input speech." *Id*. at 1233. Higgins constructed his filler templates in a variety of ways-directly modeling non-keywords, dividing non-keywords into segments roughly equal to their syllables, and cluster averaging the various syllables. *Id*. at 1234. It is clear that Higgins was attempting to construct his filler templates in such a way that they covered all of the acoustic space not occupied by the keyword templates. *Id*. at 1233-35. Higgins expressly modeled the six function words identified above not because they tend to cause error in and of themselves, but because "they can be concatenated together in the greatest number of ways to match **any** given input utterance." *Id*. at 1234 (emphasis supplied).

This Court, therefore, concludes that Higgins does not anticipate claim 8 of the '231 patent because it does not determine incoming patterns which tend to be erroneously matched to reference/keyword templates and does not teach that error/filler templates should correspond to those incoming patterns that tend to be erroneously matched. In short, claim limitations 8(a) and 8(b) are absent.

3. Sakoe II

Sakoe II discloses a voice recognition system where a voice pattern of a word to be recognized is stored as

a "positive reference pattern," voice patterns of words similar to but different from the positive reference word are stored as "negative reference patterns," and incoming speech is compared to both and the degree of similarity analyzed. (Docket No. 195, Ex. 10, at SW 039904 (abstract).) "[A]ccording to the invention, it is possible to greatly reduce the possibility of erroneous operation in speaker confirmation." *Id.,* col. 3:68-4:2.

The parties' arguments with respect to Sakoe II are essentially the same as for Sakoe I, with SWI urging that one of ordinary skill in the art would conclude that each and every limitation of claim 8 is met, and Davis contending that claim 8's preamble requirements and limitations (a) and (b) are not anticipated by Sakoe II.

Davis seeks to attach some significance to the fact that Sakoe II is written in the context of speaker confirmation, not speech recognition. (Docket No. 169 at 17.) This purported distinction is of no relevance where voice recognition, and more specifically, speaker confirmation, is within the realm of pattern recognition system(s) called for in the claim 8 preamble.

Davis' primary argument here is that creating negative reference patterns from voice patterns of words similar to but different from those intended to be recognized comes no closer to meeting the "determining" step than did Sakoe I, and thus, limitations 8(a) and (b) are not met. This Court disagrees and finds that the determining step exists in Sakoe II. For essentially the reasons stated above, this Court concludes that one of ordinary skill in the art of pattern recognition more than one year prior to Davis' filing would understand that, by specifying the use of similar words as negative reference patterns and identifying the words "fujisan, fujesan *and* fujison" as negative reference patterns for the word "fojison," Sakoe had, in fact, determined that such acoustically similar words are a type of incoming pattern that tends to be erroneously matched to the reference pattern. (Docket No. 195, Ex. 10, Abstract and col. 2:48-55.) This conclusion is buttressed by Sakoe II's discussion of the pattern comparator, the purpose of which is to measure the degree of dissimilarity between incoming speech and both the positive and negative reference patterns so as to better distinguish between them and increase recognition accuracy of the incoming speech. (*Id.,* Abstract and col.3:17-50.) In other words, the limitation, together with the purpose and goal of the invention, compels the conclusion that the former effects the latter. A source of matching error is determined and corresponding negative reference patterns are created to effect the goal of reducing false matching errors.

As with Sakoe I, the existence of the determining and creating steps is also expressly set forth in the patent. Sakoe II is concerned with, among other things, an imposter who speaks the correct password and is then falsely accepted as a registered speaker. *Id.,* col. 1:35-39. Sakoe II teaches that acoustically similar words used as negative reference patterns can reduce the incidence of imposter acceptance by accounting for differences in tone among speakers. *Id.,* col.3:50-56. Thus, a source of error is expressly determined (same word accepted even when it sounds slightly different), and negative reference patterns (similar sounding words) corresponding to the error source are used to "exactly reject[ ]" the imposter. *Id.* Accordingly, this Court concludes that claim limitations 8(a) and (b) are found in Sakoe II.

Finally, Davis contends that selecting acoustically similar words, without regard to which **specific words** cause errors is not what the '231 patent teaches. Though this argument has been addressed above, there are two points that bear repeating. First, claim 8 uses the term "pattern templates," not "words." Second, claim 8 and the specification make clear that one need only determine patterns that "tend to be erroneously matched" and are "potentially a source of error;" there is no requirement for certain knowledge based on empirical observation. *See also,* Groner, Docket No. 195, Ex. 2 at 194. While Davis may, in hindsight, wish to narrow the scope of the '231 patent, repetitious arguments inconsistent with the patent's plain language

will not accomplish that end.

For the reasons stated, this Court finds that Sakoe II, U.S. Patent No. 4,581,755 anticipates claim 8 of the '231 patent.

4. Landell

Landell discloses an apparatus and a method for detecting the endpoints of speech that is intended to be recognized. (Docket No. 195, Ex. 11, col. 2:5-19.) Landell was concerned with the errors that occur when non-speech sounds, such as lip smacks and tongue clicks, are processed together with speech that is intended to be recognized such that the incoming speech is not matched to the corresponding stored reference template. *Id.,* col. 1:50-60. To address such non-recognition (false rejection) errors, Landell calls for creating templates for the extraneous non-speech sounds that are the cause of false rejection error and then comparing incoming speech against both the speech templates and non-speech templates. *Id.,* col. 2:10-17. According to Landell, this approach allows the system to detect the switch from a non-speech sound to a speech sound, thereby decreasing the number of false rejections. *Id.,* col. 2:17-19.

In its initial memorandum, SWI states that claim 8(a) and (b) are met because the only reason Landell would model extraneous sounds is to match patterns that otherwise tend to cause errors. (Docket No. 155 at 15).

Davis argues that whereas his limitations 8(a) and 8(b) are specifically directed to identifying the source of false acceptance errors (sounds outside the system's vocabulary are erroneously **accepted** as a match), Landell speaks to an entirely different problem; identifying the source of false rejection errors (sounds that are in the vocabulary and should be matched are erroneously **rejected).** Thus, according to Davis, Landell does not call for determining incoming patterns which tend to erroneously match reference templates, nor does it call for the creation of templates corresponding to those incoming patterns.

SWI does not address this obvious distinction between sources and types of error in its reply. Though false acceptance and false rejection may very well be different sides of the same coin, they are different. Determining the cause of a non-match is not the same as determining the cause of a false match. Because neither 8(a) nor 8(b) of the '231 patent is found either expressly or inherently in Landell, this Court concludes Landell does not anticipate claim 8 of the '231 patent.

B. Obviousness

A patent claim is invalid for obviousness "if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art." 35 U.S.C. s. 103(a). The obviousness inquiry is a question of law that requires specific factual findings, including "the scope and content of the prior art, the level of ordinary skill in the field of the invention, the differences between the claimed invention and the prior art, and any objective evidence of non-obviousness...." SIBIA Neurosciences v. Cadus Pharm. Corp ., 225 F.3d 1349, 1355 (Fed.Cir.2000) (citing Graham v. John Deere Co., 383 U.S. 1, 17-18, 86 S.Ct. 684, 15 L.Ed.2d 545 (1966)). "The relevant inquiry for determining the scope and content of the prior art is whether there is a reason, suggestion, or motivation in the prior art or elsewhere that would have led one of ordinary skill in the art to combine the references." Ruiz v. A.B. Chance Co., 234 F.3d 654, 664 (Fed.Cir.2000) (citations omitted). The inspiration to combine prior art references must also offer a "reasonable expectation of success." In re O'Farrell, 853 F.2d 894, 904 (Fed.Cir.1988).

In addition to its anticipation argument, SWI urges that claim 8 of the ' 231 patent is rendered obvious by each of the four prior art references discussed above. It goes on to list three additional prior art references and concludes, without discussion, that they too compel such a finding. SWI devotes less than one page of its principal memorandum to its obviousness "analysis." (Docket No. 155 at 21-22.) The gravaman of its argument is that because obviousness is obvious to SWI and its expert, a person of ordinary skill in the art, it should be equally obvious to the Court.

Davis characterizes SW I's obviousness argument as an afterthought, and contends that he cannot rebut with objective indicia of non-obviousness a defense that has not been articulated in the first instance. (Docket No. 169 at 21-24.)

SWI does not address Davis' position in its reply, and therefore appears to concede that it has not sufficiently presented and briefed its obviousness defense. Even assuming SWI did not intend to make such a concession, this Court agrees with Davis and declines to consider what SWI has not attempted to articulate.

VI. INFRINGEMENT AND WILLFULNESS

Patent invalidity is an affirmative defense to infringement. Perricone v. Medicis Pharm. Corp., 432 F.3d 1368 (Fed.Cir.2005). Having found that claim 8 of the '231 patent is anticipated by Sakoe I and Sakoe II, this Court grants SW I's motion for summary judgment of non-infringement and denies Davis' motions for partial summary disposition of infringement and willfulness.

VII. CONCLUSION

For the reasons stated, Defendant SpeechWorks International Inc.'s Motions for Summary Judgment of Invalidity and Non-Infringement relative to claim 8 of the '231 patent are granted, Plaintiff Elliot Davis' Motion to Strike is granted in part and denied in part, and Plaintiff's Motions for Partial Summary Disposition of Infringement and Willfulness are denied.

Although this Decision and Order relates solely to claim 8, and Plaintiff contends that Defendant infringes in other ways that will be presented during trial (Docket No. 199 at 1, n. 2), the additional purportedly infringing modes all appear to relate to "method" claim 8, and not to "device" claims 1 and 6. Because there appears to be no further basis for dispute, this action is dismissed in its entirety.

ORDERS

IT HEREBY IS ORDERED, that Plaintiff's Motion to Strike (Docket No. 162) is GRANTED in Part and DENIED in Part, consistent with the foregoing decision.

FURTHER, that Plaintiff's Motion for Partial Summary Disposition of Infringement (Docket No. 130) is DENIED.

FURTHER, that Plaintiff's Motion for Partial Summary Disposition of Willfulness (Docket No. 132) is DENIED.

FURTHER, that Defendant's Motion for Summary Judgment for Patent Invalidity (Docket No. 154) is GRANTED.

FURTHER, that Defendant's Motion for Summary Judgment for Non-Infringement (Docket No. 157) is GRANTED.

FURTHER, that Plaintiff's case is Dismissed in its entirety.

FURTHER, that the Clerk of the Court is directed to take the necessary steps to close this case.

SO ORDERED.

W.D.N.Y.,2006.
Davis v. SpeechWorks Intern., Inc.

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