United States District Court,
W.D. Texas, Austin Division.

BOARD OF REGENTS OF THE UNIVERSITY OF TEXAS SYSTEM,
Plaintiff.
v.
BENQ AMERICA CORP., et al,
Defendants.

No. A-05-CA-181-SS

July 14, 2006.

ORDER

SAM SPARKS**, District Judge.**

BE IT REMEMBERED on the *14th* day of July 2006, the Court reviewed the file in the above-styled cause, and specifically the Report and Recommendation of the Special Master regarding claim construction of the patents-in-suit [# 232], Plaintiff's objections thereto [# 257], and Defendants' objections thereto [# 259]. Having considered the Report and Recommendation, the objections, the arguments and evidence presented at the *Markman* hearing, the claim construction briefs, responses, and replies, the case file as a whole, and the applicable law, the Court enters the following opinion and orders.

Background

This is a patent infringement action involving a single patent owned by Plaintiff Board of Regents of the University of Texas System ("the Board of Regents")-United States Patent No. 4,674,112, entitled "Character Pattern Recognition and Communications Apparatus" ("the '112 patent"). The '112 patent discloses an apparatus and a method designed to enable "easy, non-verbal entry of a message" using a standard, touch-tone telephone. '112 Patent, abstract.

Plaintiff has accused Defendants of infringing independent claim 10 and dependent claim 11 of its patent. The asserted claims, in their entirety, read as follows:

10. A method of communicating, utilizing a signal-generating keyboard where at least some of the keys represent two or more alphabetic characters, comprising the steps of:

inputting a word into said keyboard by depressing a single key for each alphabetic character of said word;

transmitting signals generated by the key depressions;

receiving said transmitted signals and decoding the signals into binary code;

matching said binary code with one or more pre-programmed codes, each pre-programmed code being representative of a syllabic element;

Forming a representation of the word from the one or more syllabic elements represented by the matched one or more pre-programmed codes; and

outputting the word representation in a form perceptible to the user.

11. The method of claim 10, wherein the outputting step includes displaying said word in a visually perceptible form.

Id., col. 8, *l*. 61-col. 9, *l*. 14.

In its opening claim construction brief, Plaintiff provided the following overview of the prior art discussed in the specification and a summary of the operation of the claims and the preferred embodiment:

The asserted claims cover methods for minimizing the keystrokes needed to communicate via a keyboard with a limited number of keys, such as a telephone's twelve-key keypad. Originally targeted to aid the hearing impaired, the '112 patent resolves ambiguities inherent with entering alphabetic characters via a keyboard where some keys represent two or more characters, such as a keypad where the "2" key represents characters "A," "B," and "C."

Prior solutions used multiple keystrokes to identify a particular alphabetic character. Although inputting an "A" required depressing the "2" key only once, inputting a "B" required depressing the "2" key twice, and inputting a "C" required depressing the "2" key three times. Even short messages required multiple keystrokes per letter-a major impediment to effective telecommunication. Past solutions also used recognition algorithms that matched keystroke combinations with certain words in a limited vocabulary....

The '112 patent advances beyond past solutions by, among other things, eliminating the need for multiple keystrokes to input a single letter. The '112 patent discloses an example of inputting the word "HELP" on a twelve key "Touch Tone" telephone keyboard. A single key is depressed for each alphabetic character of "HELP," i.e., the "4" key for "H," the "3" key for "E," the "5" key for "L," the "7" key for "P."

Each key depression generates a signal that is transmitted from the keyboard to a receiver in communication with the keyboard. The preferred embodiment keyboard is similar to the twelve digit keypad found on modern telephones. The receiver of the preferred embodiment includes a pick-up, preamplifier, automatic gain control amplifier, and filter that are physically distinct from a keyboard. Each generated signal is decoded into binary code, which, according to a preferred embodiment, is accomplished by a tone decoder that provides a four-bit binary code. In turn, the binary code is matched with one or more pre-programmed codes representative of a syllabic element .... The '112 patent discloses a microcomputer processor with on-chip random access memory ("RAM") and read-only memory ("ROM") and lookup tables to accomplish this function.

A representation of the word is formed from the one or more matched syllabic elements. In the context of the '112 patent's "HELP" example, as each of the "4," "3," "5," and "7" keys is depressed, "HELP" is formed by progressively matching ... the binary code components of the keystrokes with a preprogrammed

code representation of "HELP" stored in a microcomputer processor. In one embodiment, multiple matches can be prioritized or presented for individual selection. The representation of the word "HELP" is output in a form perceptible to a user. According to the preferred embodiments, the output can be visually perceptible (as per claim 11) on a liquid crystal diode ("LCD") display, or audibly perceptible using a speech synthesizer.

Pl.'s Op. Cl. Constr. Br. at 1-4 (footnotes omitted).

I. Claim Construction Principles

The Court begins its claim construction analysis with a review of the relevant claim construction principles. The claim language in a patent defines the scope of the invention. SRI Int'l v. Matsushita Elec. Corp., 775 F.2d 1107, 1121 (Fed.Cir.1985) (en banc). A claim term means "what one of ordinary skill in the art at the time of the invention would have understood the term to mean." Markman v. Westview Instruments, Inc., 52 F.3d 967, 986 (Fed.Cir.1995), *aff'd,* 517 U.S. 370 (1996). When construing claims, courts begin with "an examination of the intrinsic evidence, *i.e.* the claims, the rest of the specification and, if in evidence, the prosecution history." CCS Fitness, Inc. v. Brunswick Corp., 288 F.3d 1359, 1366 (Fed.Cir.2002); Interactive Gift Express, Inc. v. Compuserve, Inc., 256 F.3d 1323, 1331 (Fed.Cir.2001).

The words in the claims themselves are of primary importance in the analysis. Both the plain language of the claims and the context in which the various terms appear, "provide substantial guidance as to the meaning of particular claim terms." Phillips v. AWH Corp., 415 F.3d 1303, 1314 (Fed.Cir.2005). The specification also plays a significant role in the analysis. The Federal Circuit has repeatedly reaffirmed the principle that the specification "is always highly relevant .... Usually, it is dispositive; it is the single best guide to the meaning of a disputed term." Id. at 1315 (quoting Vitronics Corp. v. Conceptronic, Inc., 90 F.3d 1576, 1582 (Fed.Cir.1996)). In interpreting the effect the specification has on the claim limitations, however, courts must pay special attention to the admonition that one looks "to the specification to ascertain the meaning of the claim term as it is used by the inventor in the context of the entirety of his invention, and not merely to limit a claim term." Interactive Gift, 256 F.3d at 1332 (internal quotation marks and citations omitted).

The final form of intrinsic evidence the Court considers is the prosecution history. Although the prosecution history "represents an ongoing negotiation between the PTO and the applicant" and therefore "often lacks the clarity of the specification and thus is less useful for claim construction purposes," it can nonetheless "often inform the meaning of the claim language by demonstrating how the inventor understood the invention and whether the inventor limited the invention in the course of prosecution, making the claim scope narrower than it would otherwise be." Phillips, 415 F.3d at 1317.

Besides the intrinsic evidence, the Court may also consult dictionaries, treatises, and expert or inventor testimony-i.e., extrinsic evidence-in the claim construction analysis. *Id.* Although useful, the Court must be mindful that such evidence "is unlikely to result in a reliable interpretation of patent claim scope unless considered in the context of the intrinsic evidence." *Id.* at 1319. Indeed, the Court's task, at all times, is to determine the patent's limitations as they have been expressed through the claim terms themselves. Comark Commc'ns, Inc. v. Harris Corp., 156 F.3d 1182, 1186-87 (Fed.Cir.1998).

II. Terms in Dispute

A. "syllabic element"

The term "syllabic element" appears in claims 1, 10, 13, and 14 of the '112 patent. In its initial *Markman* papers, Plaintiff argued "syllabic element" should be defined as "a letter-group comprised of any number of alphabetic characters ranging from a single letter to a complete word." Joint Cl. Constr. Stmt. at 3. Plaintiff later modified its proposed definition as follows: "A syllabic element is a letter-group comprised of any number of alphabetic characters, each such letter-group forming a word or part of a word. In essence, a syllabic element is a word or part of a word." Pl.'s Post- *Markman* Opening Cl. Constr. Br. at 1.

Defendants have offered two alternative positions with respect to construction of the term "syllabic element." First, Defendants suggest "syllabic element" is indefinite. Defendants' secondary position, which they have argued should be adopted only in the event the Court declines to hold that the term is indefinite, is that " 'syllabic element' could be defined as 'a one syllable letter group which can be combined with other syllabic elements to form a word.' " Joint Cl. Constr. Stmt. at 3.

In his Report and Recommendation, the Special Master proposes the following construction:

A syllabic element is a one-syllable letter group that either comprises a word or can be combined with other one-syllable letter groups to form a word.

Rep. & Rec. Spec. Master at 3.

The Court begins by noting that although the claims themselves provide some guidance on the meaning of "syllabic element," they ultimately fail to resolve any of the significant questions about what limitations the term creates. Claim 1 makes clear that syllabic elements are "representative of one or more alphabetic characters." '112 Patent, col. 8, *ll*. 17-19. Similarly, claim 14 indicates that syllabic elements "represent[ ] one or more letters." Id. Although the claims point to one essential property of a syllabic element-namely, that it be representative of one or more letters-it provides little else.

Plaintiff has at times suggested that the language in Claim 1 is itself the definition of syllabic element. However, this excerpt clearly does not purport to exhaustively define the meaning of the term. For one thing, the language in claim 1 does not, in itself, convey even all the limitations contained in the definition the Plaintiff has urged the Court to adopt: "a letter-group comprised of any number of alphabetic characters, each such letter-group forming a word or part of a word." Pl.'s Post- *Markman* Opening Cl. Constr. Br. at 1. Whereas the Claim 1 language, if taken as definitional, essentially equates syllabic elements with alphabetic character strings, Plaintiff has conceded that not all alphabetic character strings are syllabic elements-only those strings that are words or parts of words are. *Id*.

Thus, the Court concludes the claim 1 language is not a reliable indicator of what the necessary and sufficient characteristics of a syllabic element are. No one disputes that syllabic elements must, at a minimum, be comprised of alphabetic characters. (Indeed, it is difficult to imagine how a patent dealing with a word-disambiguation algorithm could make use of anything but alphabetic character strings). The real fight between the parties is over what other properties a character string must have before it can be described as a syllabic element. Since the Claim 1 language cited by Plaintiff provides no useful guidance on that point, it fails to serve any useful function as a definition. FN1

FN1. Given the opportunity, Plaintiff might well reply that its definition is *almost* complete and that other parts of the patent-as well as the basic operation of the method disclosed by the patent-disclose the

additional "word/part of word" requirement included in Plaintiff's actual construction. However, such an argument would miss the point. Whether or not the patent implies that the alphabetic character strings disclosed in claim 1 must also be words or parts of words before they may qualify as syllabic elements-and the Court agrees that it does-there is no way one could ascertain that fact from the actual phrase Plaintiff points to as definitional-"each being representative of one or more alphabetic characters." Once Plaintiff concedes that it cannot produce a complete and accurate definition of the term syllabic element without resorting to other language in the claims and/or the specification, it is left hard pressed to explain why the phrase on which it relies can really be characterized as an exclusive definition rather than as a mere statement about one particular quality that all syllabic elements possess.

Although the claims themselves do not settle the matter, the Court notes the Special Master's proposed construction is well-supported by the other intrinsic evidence in the record. First and foremost, the prosecution history reflects that the patentees, when characterizing their claims during the patent's prosecution, provided the Examiner with specific guidance on the meaning of the term "syllabic elements" by expressly treating it as synonymous with the phrase "syllable-like letter groups." *See* App. Pl.'s Objs. Rep. & Rec. at APP 0023 ("In contrast, the present invention employs a data base of syllabic elements (i.e., syllable-like letter groups) which are *combined to form* a word of standard English text, giving an almost unlimited vocabulary") (emphasis in original). At first glance, the patentees' use of the phrase "syllable-like letter group" may appear to have accomplished little more than the trading of one obscure term of art for another. However, one cannot ignore the fact that the phrase was offered to the Examiner in an attempt to explain the meaning of "syllabic element." Because the phrase "syllable-like letter groups," when taken as a whole, has no obvious, special meaning as a term of art, one can reasonably infer its explanatory value lies in the individual component terms that comprise it. FN2

FN2. As Defendants have pointed out, breaking a term down and analyzing the individual words or phrases that comprise it will not always produce accurate results. For instance, in Network Commerce, Inc. v. Microsoft Corp., 422 F.3d 1353 (Fed.Cir.2005), the Federal Circuit rejected a construction of the term "download component" offered by a party who attempted to define the phrase by "combin[ing] individual dictionary definitions of 'download' and 'component.' " Id. at 1360. However, in a case such as this, in which a phrase has been offered in an attempt to *clarify* the meaning of a term of art in the patent claims, the Court can only assume that the phrase so offered is capable of being understood according to its own terms and without any specialized knowledge.

Accordingly, the Court analyzes the meaning of each component of the phrase "syllable-like letter group." To begin with, the concept of a "letter group" can be easily understood by anyone-it is simply a group of letters. Given the obvious meaning of this term, the only potentially difficult question is what it means for a group of letters to be "syllable-like." Thus, the Court must break down and analyze the meaning of this potentially ambiguous phrase.

The essential characteristic of a syllable is well-known to ordinary users of the English language-it is a word sound consisting of a single rhythmic beat. FN3 A common sense approach to interpreting the phrase syllable-like letter group, therefore, is to describe letter groups as syllable-like when they share this basic and essential characteristic with syllables. As Defendant's expert Professor Paul Stanley Peters testified, "you can't get any more syllable like than being a syllable." FN4 Hr'g Tr. 136, Jan. 6, 2006.FN5 Because the most obvious meaning of "syllable-like letter group" is a letter group that corresponds to a single syllable,

and because Plaintiff and the original patentees have treated the phrase "syllable-like letter group" as synonymous with the term "syllabic element," the Court agrees with the Special Master's construction of "syllabic element" as a "one-syllable letter group that either comprises a word or can be combined with other one-syllable letter groups to form a word."

FN3. As with many simple words, the dictionary definitions of syllable, ironically, are somewhat complex at first glance. For example, Merriam-Webster's first listed definition of syllable is "a unit of spoken language that is next bigger than a speech sound and consists of one or more vowel sounds alone or of a syllabic consonant alone or of either with one or more consonant sounds preceding or following." MERRIAM-WEBSTER ONLINE DICTIONARY, "syllable" (2005-06), http://m-w.com/dictionary/syllable. The American Heritage College Dictionary lists its first definition as "[a] unit of spoken language consisting of an uninterrupted sound formed by a vowel, diphthong, or syllabic consonant alone or by any of these sounds with one or more consonants." AM. COLLEGE HERITAGE DICTIONARY 1396 (4th ed.2002). Despite the seeming complexity of these definitions, one point should be emphasized. However one defines the term, all ordinary speakers of the language know the number of syllables that can be found in the words of this sentence can be written out as follows. 3-1-2-1-1-1-4-2-1-1-2-1-1-2-1-3-1-1-1-1-1-1-1-1-2-1-1-2-1-1-2.

FN4. Plaintiff has argued "syllable-like letter groups" must mean something other than "syllables" because it would make no sense to describe something that *is* a syllable as syllable- *like*. The Court hastens to acknowledge that if the inventors had used the term syllable instead of the phrases "syllable-like letter group" and "syllabic element," the meaning of *that* term would have been readily understandable to persons of ordinary skill in the art (indeed, it would be clear to all ordinary speakers of the English language), and the ambiguity inherent in the phrases actually chosen by the inventor would have been eluded. However, one possible explanation for the choice of "syllable-like letter groups" over "syllables" is that a syllable is often understood as an expression of spoken, as opposed to written language, as the two dictionary definitions in the preceding footnote reflect. Thus, the use of "syllable-like letter groups" instead of "syllables" may reasonably be taken as a simple nod to the fact that written letter groups that correspond to spoken syllables cannot be anything more than "syllable-like."

FN5. Prior to the *Markman* hearing, Plaintiff moved to strike Peters's testimony on three grounds: (1) he is not a "person of ordinary skill in the art;" (2) his testimony "lacks the requisite indicia of reliability;" and (3) Defendants failed to make appropriate discovery with respect to Peters's opinions. Pl.'s Mot. Exclude Testimony Peters at 1-3. The Court declines to strike the testimony.

The Court first considers Plaintiff's contention that Peters is not a "person of ordinary skill in the art." *Id*. at 1. Although it is undisputed that Peters, a computational linguist, is ultimately not a person of ordinary skill in the art because he lacks the appropriate background in computer science and/or electrical engineering, Plaintiff has come forward with no authority for the proposition that only persons who possess ordinary skill in the art may testify in the course of *Markman* proceedings. Plaintiff claims that Tel-Lock, Inc. v. Thomson Consumer Elecs., No. 03 C 320, 2005 WL 741930 (N.D.Ill. Mar. 30, 2005) supports this broad proposition. However, *Tel-Lock* dealt with the exclusion of a patent attorney's testimony. *Id*. at 7. The court's basis for excluding the testimony was not simply that he did not possess skill in all relevant aspects of the art, but that he "offered no guidance in understanding the terms of the claims or claim elements and did not attempt to give such terms any special meaning." *Id*. Peters, on the other hand, has offered a meaningful

contribution to the Court's understanding of some of the issues raised by the use of the phrase "syllabic element." While it is certainly beyond dispute that the understanding of a person of ordinary skill in the art will ultimately be dispositive in assigning meaning to claim terms, there is no reason to believe that someone who is skilled in at least one relevant field can have nothing useful to say, especially in the case of an invention that makes contributions to more than one field of study

Plaintiff also moved to strike the testimony of Peters on the grounds that his testimony lacks the "requisite indicia of reliability." Pl.'s Mot. Exclude Testimony Peters at 3. Plaintiff alleges "Mr. Peters' only role in producing the expert report was to sign a report that had been previously researched, drafted, and edited by Defendants' trial counsel." *Id*. at 5. Plaintiff misrepresents Peters's deposition testimony. Peters actually testified that he "authored the opinions" in the report. Peters Dep. at 141. He elaborated that there "was a process of us first having a telephone conversation, then me coming here to collaboratively edit an electronic document, and the opinions are mine, the questions are mine. I don't remember who typed particular words, whether-which cases I typed them, in which cases the other person typed them." *Id*. at 146-147. Ultimately, Peters made clear "they are my answers, if that's what you're asking about, they're not [counsel's] answers." *Id*. at 69. Rule 26(a)(2) (B) provides that an expert witness must prepare and sign his written report. FED. R. CIV. P. 26(a)(2)(B). However, the Advisory Committee's Note corresponding to the current rule clarifies that the rule "does not preclude counsel from providing assistance to experts in preparing the reports." FED. R. CIV. P. 26(a)(2)(B), advisory committee's note. Thus, there was no impropriety in the participation of Defendants' counsel in the drafting of Peters's expert report.

Plaintiff also complains that Peters "performed no independent research nor did he verify any information fed to him by Defendants' counsel." Pl.'s Mot. at 5. However, Peters testified in his deposition that he conducted independent research in dictionaries, on the Internet, and in relevant literature. Peters Dep. at 43, 114-115, 198-99. He also asserted that he reviewed the prosecution history, the specification, and the '112 patent claims, and he specifically stated that he "read the Rabiner article." Id. at 21, 33, 198. The Court thus finds Plaintiff's "no independent research" claim to be without merit.

Finally, Plaintiff alleges that Defendants engaged in improper discovery tactics, which they claim provides an alternative basis for the exclusion of Peters's testimony. Pl.'s Mot. at 7. However, the Court finds that there was no discovery misconduct committed by Defendants to warrant the striking of Peters's testimony. Moreover, any prejudice resulting from a failure to disclose relevant information appears to have been cured by the rulings of the Special Master during the course of the *Markman* proceedings.
The Special Master's construction is also supported by the fact that certain statements in the specification describing the properties of syllabic elements only make sense if one assumes the existence of a one-syllable limitation. For instance, the specification describes syllabic elements as typically having a "letter group size" of between three and six letters. '112 Patent, col. 5, *ll*. 18-19. The specification also states, "Most words are identified by connected syllabic elements 2 to 4 characters in size." Id., col. 6, *ll*. 31-32.FN6 Professor Peters specifically testified that each of these statements is consistent with the properties of one-syllable letter groups. Hr'g Tr. 133, Jan. 6, 2006. There was no testimony or argument offered by Plaintiff, on the other hand, of how these two statements might be explained in the absence of a one-syllable limitation.

FN6. Although both of these statements were made in the course of the description of the invention's

preferred embodiment, there is no reason to believe their applicability was limited to the specific syllabic elements employed in that embodiment. Indeed, the language used in each sentence is broad and seems to describe the characteristics of syllabic elements generally-not just the syllabic elements used in a particular embodiment.

Finally, the Court notes the Special Master's construction does not appear to be inconsistent with any of the intrinsic evidence. For instance, the sole example of a syllabic element provided in the patent is the letter group "con," which, as the specification points out, appears in words such as contest, silicon, conference, and contact. '112 Patent, col. 5, *ll*. 5-9. This example is, of course, fully consistent both with the requirement that syllabic elements be single-syllable letter groups and with the requirement that they either comprise words or are combinable to form words.

The specification also contains the following statement concerning the preferred embodiment: "the vocabulary stored in the preferred embodiment includes common letter-groups, suffixes, prefixes, single letters, and a few complete words, generiсly [sic] referred to as 'syllabic elements.' " '112 Patent, col. 5, *ll*. 9-12. Although the Plaintiff has at times suggested that this list is inconsistent with a one-syllable limitation, it is difficult to understand the basis for this position. After all, as Plaintiff itself argued at the *Markman* hearing, the list does not constitute an exhaustive definition but merely provides examples of the kinds of items that may appear as syllabic elements in the preferred embodiment. More importantly, the specification does not give any indication that the vocabulary of syllabic elements in the preferred embodiment must include *every* known prefix, suffix, or common letter group; rather, it simply suggests that there are some syllabic elements in the preferred embodiment that fall into each of these categories. Ultimately then, the list of items used in the preferred embodiment's vocabulary is wholly consistent with the Special Master's construction; there are numerous examples of suffixes, prefixes, common letter groups, single letters, and complete words that: (1) consist of a single syllable; and (2) either comprise words or are combinable to form words. In the end, the Court finds the Special Master's construction to be fully consistent with each of the descriptions of "syllabic elements" contained in the intrinsic evidence.

1. Plaintiff's Objections

Both Defendants and Plaintiff have objected to the Special Master's proposed construction. The Court considers each set of objections in turn. In Plaintiff's objections, Plaintiff argues the Special Master's proposed construction embraces two fundamental errors, one of which it characterizes as a "lower limit error" and the other, an "upper limit error." Plaintiff addresses each asserted error separately and offers an alternative construction in the event the Court sustains the first, but not both, of its objections.

Plaintiff's first objection, which addresses the "lower limit error," is that the Special Master's proposed construction improperly imposes a limitation on "syllabic element" that excludes single letters and letter groups that are less than one syllable in length. The second objection, which addresses the so-called "upper limit error," is that the Special Master's proposed construction improperly excludes letter groups that exceed one syllable in length. Both objections are grounded in Plaintiff s position that the Special Master's "one-syllable" limitation should not be applied to the Court's construction of "syllabic element."

Plaintiff's lower-limit objection, however, is not completely directed at the "one-syllable" limitation. Instead, part of Plaintiff's lower limit challenge to the Special Master's construction is grounded in its contention that the phrase "letter **group** ... arguably implies that a syllabic element [must be] more than one

letter." Pl.'s Objs. Rep. & Rec. at 5 (emphasis in original). The Court begins by noting that it is far from clear the Special Master's construction can reasonably be construed to include this particular limitation. There is nothing in the record to suggest Defendants ever took the position that "syllabic element" must be construed to exclude single letters. Indeed, as Plaintiff points out, such a position would clearly be untenable since the patent explicitly provides that a syllabic element may be "representative of *one or more* alphabetic characters." '112 Patent, col. 8, *ll*. 16-19 (emphasis added); *see also* id., col. 10, *ll*. 3-4; id., col. 1, *ll*. 66-68. Moreover, the Court is of the view that the term "letter group" is broad enough, on its face, to encompass a group of one.FN7 However, to avoid any potential for confusion on this point, the Court holds that the Special Master's construction of the term syllabic element should be amended to make clear that "letter group" means a group of one or more letters.

FN7. Indeed, the Court notes that each of Plaintiff's constructions have made use of the term "letter group." Joint Cl. Constr. Stmt. at 3; Pl.'s Post- *Markman* Opening Cl. Constr. Br. at 1.

Plaintiff's second argument in support of its lower limit objection engages the Special Master's "one-syllable" limitation directly. Plaintiff contends the Special Master's recommended construction is erroneous because it implies that suffixes that are less than a syllable, such as "-s," "-es," "-d," and "-ed," cannot be syllabic elements. Notably, this list of supposedly exemplary syllabic elements comes without any citation to intrinsic evidence. The reason for this is simple. The list is not supported by anything in the record.FN8 Because the Court can hardly fault the Special Master for construing a claim term to exclude aspects of one conceivable embodiment that was nowhere disclosed in the patent or the prosecution history, the Court holds that the exclusion of the suffixes identified by Plaintiff does not constitute error.

FN8. Two of these suffixes, "-s" and "-ed," do appear in a Master's of Science Project Report, entitled *New DMTF Telecommunication Aid for the Deaf,* that was written by one of the two inventors listed on the patent, Adnan Shennib. App. Pl.'s Objs. Rep. & Rec., APP 0115-0246. This paper is not a useful tool in the claim construction analysis for three reasons. First, it does not qualify as appropriate intrinsic evidence because it was never made part of the prosecution history. Second, although it appears to describe a method that is at least related to the invention of the '112 patent, the term "syllabic element" appears nowhere in the Master's Report, and thus it is not even entirely clear that the "vocabulary listing" it contains was in fact limited to the "syllabic elements" that ultimately appeared in the issued patent. Finally, even as extrinsic evidence, the value of the Master's Report is dubious under relevant precedent. Although the Federal Circuit has made clear that extrinsic evidence may be consulted to "educate the court regarding the field of the invention," one of the risks presented by evidence of the sort relied on here is that "it will be used to change the meaning of claims in derogation of the 'indisputable public records consisting of the claims, the specification and the prosecution history,' thereby undermining the public notice function of patents." Phillips, 415 F.3d at 1319. As an unpublished work, it is difficult to see how the Master's Report could have any bearing on what ordinary persons of skill in the art would have understood the concededly novel term, "syllabic element," to mean at the time of the patent's issuance.

Next, Plaintiff argues the Special Master's construction would render Claim 14 of the patent meaningless. Claim 14 describes a "method of recognizing an input word" where the inputted word is composed of "two or more syllabic elements." ' 112 Patent, col. 9, *l*. 36-col. 10, *l*. 37. According to Plaintiff, if syllabic element is construed to be limited to one-syllable elements, then claim 14 would not read on a system that includes one-syllable words. This would in turn render Claim 14 meaningless, according to Plaintiff, because a

method designed "to aid the hearing impaired ... would be useless if a person could not communicate any one-syllable words." Pl.'s Objs. Rep. & Rec. at 7.

This is a specious argument. The opening premise is sound. If a "syllabic element" must be at least one syllable in length, then Claim 14 cannot cover one-syllable words. However, the remainder of Plaintiff s argument is faulty. Plaintiff has failed to point out how its own construction fares any better in the context of Claim 14. After all, the two-syllabic-element requirement is imposed by the terms of Claim 14 itself. Even under Plaintiff's construction, a class of words will be beyond the reach of the claim-one-letter words, such as "a" and "I." FN9 Although this is certainly a much smaller class of words than all one-syllable words, it is difficult to fathom the purpose to be served by excluding one-letter words or any reason why such an exclusion would be more appropriate than the exclusion of one-syllable words.

FN9. At the very least, Plaintiff must concede that under its construction, a syllabic element can be no smaller than a single letter. *See* Pl.'s Objs. Rep. & Rec. at 1 (describing a syllabic element as "a letter or group of letters").

However, Plaintiff's construction of syllabic element would likely exclude more than just single-letter words in numerous possible embodiments since Claim 14 calls for only "a limited vocabulary of syllabic elements." ' 112 Patent, col. 10, *l*. 3. Depending on which letter groups one were to choose for the vocabulary in a particular case, it is entirely possible that *many* single-syllable words would be excluded by Claim 14. That is, unless the embodiment's vocabulary contained a sufficient number of elements that were less than a syllable, combinable with other elements that were a syllable or less, a large number of one-syllable words would necessarily be excluded by Claim 14's two-syllabic-element limitation.
Under either the Special Master's or the Plaintiff's proposed construction, some class of words are excluded by Claim 14-apparently inexplicably. This fact proves little more, however, than that Claim 14 is a peculiar claim. But neither construction would render Claim 14 *meaningless*. At most, both proposed constructions would simply render Claim 14 less successful than Claim 1 in facilitating communication for the deaf. But because "not every advantage of the invention must appear in every claim," LizardTech, Inc. v. Earth Resource Mapping, Inc., 424 F.3d 1336, 1343 (Fed.Cir.2005), this is not a reason to reject either construction.

Plaintiff's final lower-limit argument is that construing "syllabic element" as a "syllable" improperly disregards the distinction between syllabic element and syllable. According to Plaintiff, "[c]onstruing 'syllabic element' as 'a one syllable letter group' causes 'syllabic' to have the same meaning as 'syllable,' and renders the claim terms 'element' (in 'syllabic element') superfluous." Pl.'s Cl. Constr. Reply Br. at 2. First, any argument that the Special Master's construction impermissibly emphasizes the word "syllabic" at the expense of the word "element" ignores the fact that the patentees themselves imposed the single-syllable limitation by describing syllabic elements as "syllable-like letter groups." Moreover, as the Court has previously explained, the term syllable is at least sometimes understood to describe a unit of spoken, as opposed to written, language. If one assumes the inventors' understanding of the preferred meaning of syllable was consistent with this common usage, it would be perfectly reasonable to expect that they would use a term other than syllable, i.e., syllabic element or syllable-like letter group, to describe something that is merely the written equivalent of a syllable.FN10

FN10. It might also be noted that while Plaintiff objects that the Special Master's construction impermissibly reads the word "element" out of the term "syllabic element," Plaintiff's own construction reads the word "syllabic" out of the term. The evidence in the record overwhelmingly points to a conclusion that the term

"syllabic element" had no predefined meaning in the art prior to the filing of the patent, but rather is a term coined by the inventors. Accordingly, one can only assume that the inventors had some particular reason for choosing the word "syllabic" as part of their newly coined term. That one of the most obvious potential meanings of that word-syllable-like-was the intended meaning of the word is made clear by the statements in the prosecution history describing syllabic elements as "syllable-like letter groups." Plaintiff has offered no argument or explanation why these unique wording choices were made. Accordingly, its proposed construction, which bears no apparent relation to the idea of a syllable, utterly fails to account for the function performed by the terms "syllabic" and "syllable-like."

Plaintiff also raises a so-called upper limit objection to the Special Master's construction of the term "syllabic element." Plaintiff argues that "[t]he claim construction record does not support limiting syllabic element to one-syllable, even as to the upper length of a syllabic element." Pl.'s Objs. Rep. & Rec. at 8-9. However, the Court has already found ample support for this limitation in the intrinsic record and need not repeat it here.

Plaintiff also argues that because syllabic elements are at times described without reference to their length, no limitation relating to length is permissible. In support, Plaintiff points to the fact that examples of syllabic elements in the preferred embodiment include suffixes, prefixes, and complete words-all of which can consist of more than a single syllable. This reasoning is fallacious. A letter group can both consist of a suffix, for example, and be syllable-like at the same time. Nothing in the specification indicates that *all* known suffixes, prefixes, and complete words appear in the preferred embodiment. Indeed, the preferred embodiment is expressly described as containing only a "few" complete words, and Plaintiff has not attempted to argue the preferred embodiment, much less any embodiment, ought to include all suffixes and prefixes.

Finally, Plaintiff argues that the Special Master's proposed construction renders unnecessary the nine-letter segment of the lookup table described in the preferred embodiment because there are only eight common English language single-syllable words that are nine characters long. According to Plaintiff, there would be no need to provide vocabulary entries for these words because each contains the common suffixes "-s" or "-ed." *See* Pl.'s Objs. Rep. & Rec. at 10 ("[T]he only nine letter single syllable words that are common in the English language are screeched, scratched, scrounged, scrunched, stretched, straights, [and] strengths.").

Plaintiff has it backwards. In fact, there would be no reason for capping the number of letters that make up the syllabic elements in the preferred embodiment at nine unless one assumes there is some reason that the inclusion of elements of more than nine letters would be either not possible or not useful for some reason. The fact that the largest single-syllable English words are nine letters long may in fact be a coincidence, but it is certainly not inconsistent with the decision of the patentee to limit the size of the syllabic elements in the preferred embodiment's vocabulary to nine letters.

Moreover, Plaintiff is mistaken that the appearance of the suffixes "-s" and "-ed" in each of the one-syllable, nine-letter English words somehow renders separate entries in the syllabic element vocabulary unnecessary. The suffix "-s" is *not* a syllabic element under the Special Master's construction since it is less than a single syllable. Although separate entries for terms ending in "-s" might be unnecessary if one were to adopt Plaintiff's proposed construction of syllabic element, this point has little to say about the internal consistency of the Special Master's approach. Since the Special Master's construction specifically ties the appearance of a particular item in the vocabulary to whether the item consists of a single syllable, it is

perfectly appropriate that each of the nine-letter words pointed to by Plaintiff might appear in a syllabic element vocabulary.

2. Defendant's Objections

Defendants raise two objections to the Special Master's construction of the term "syllabic element." The first is a limited objection to the portion of the Special Master's proposed construction indicating that a syllabic element need not be capable of being combinable with other syllabic elements to form words in order to qualify as a syllabic element. In Defendants' view, syllabic elements may incidentally be words, but they must also be combinable to form words.

In support of this objection, Defendants rely on statements made by the patentees during the prosecution history. In distinguishing the patented invention from certain prior art, the patentees argued, "Rabiner describes a data base comprising a limited vocabulary of complete words. In contrast, the present invention employs a data base of syllabic elements (i.e., syllable-like letter groups) which are *combined to form* a word of standard English text, giving an almost unlimited vocabulary." App. Pl.'s Objs. Rep. & Rec. at APP 0023 (emphasis in original).

There is no question that one reasonable interpretation of the statement in the prosecution history is that, in the context of the invention, syllabic elements must always be "combined to form" words. Under that view, a syllabic element could never, in itself, be a word. However, one overriding fact in the intrinsic evidence shows the statement in the prosecution history should not be construed in this way. The plain language of Claim 10 shows a word may be formed from a single syllabic element. '112 Patent, col. 9, *ll*. 6-8 ("Forming a representation of the word from the *one or more* syllabic elements represented by the matched one or more pre-programmed codes ...") (emphasis added). If the statement in the prosecution history were construed to mean that, in the context of the invention, words could *only* be formed by combining multiple syllabic elements, the "one or more" language in the claim would be rendered meaningless.FN11

FN11. To be fair, Defendants have not actually argued that syllabic elements will always be "combined to form" words. Rather, they have argued that syllabic elements must always be *capable* of being combined with other syllabic elements to form a new word, even when they are, in themselves, words. Although it may be true that this particular limitation would not be fatally inconsistent with the "one or more" language in the claims, it suffers from a different defect. It is not the same limitation that can be inferred from the language in the prosecution history. The patentees did not tell the Examiner that syllabic elements are "combinable" to form words-they said they are "combined to form" words. Defendants concede that a "combined to form" limitation would be too drastic, so they have attempted to salvage their disclaimer position by reading a more limited combinability limitation into the claims. Since this limitation is not supported by the actual language in the prosecution history, however, it fails as well.

Furthermore, contrary to Defendants' assertions, imposing a requirement that syllabic elements always be capable of being combined to form words is not necessary to make sense of the patentees' statements made to overcome the Rabiner reference. So long as some syllabic elements are capable of being combined to form words, even if not all are, the invention still has an advantage over a system that relies exclusively on complete word databases-it is still capable of generating more total words than the system can store as complete words in memory. Thus, Defendants are incorrect that the patentees' efforts to distinguish their invention from the prior art served to limit the scope of the claim term.

Finally, the Court holds that the meaning of the statement in the prosecution history is not sufficiently clear to amount to a disclaimer that overcomes the plain language of Claim 10. The Federal Circuit has indicated that "[d]isclaimers based on disavowing actions or statements during prosecution ... must be both clear and unmistakable." *Sorensen v. Int'l Trade Comm'n,* 427l F.3d 1375, 1378-79 (Fed.Cir.2005). Although the Court agrees with Defendants that no magic words are required for a disclaimer, the patent applicant's intent to surrender the plain meaning of the claim's scope must be sufficiently clear before the Court will consider a disclaimer to have occurred. Here, the context makes clear that Plaintiff was attempting to distinguish its invention from Rabiner by pointing out that the syllabic element vocabulary in its invention was qualitatively different than the complete word databases in the Rabiner reference cited by the Examiner. The critical distinction was that syllabic elements could be combined to form words, meaning that the invention was not limited to a one-to-one correspondence between stored vocabulary items and output words. In making this point, Plaintiff neglected to mention that the claim language contemplated that some syllabic elements are words in and of themselves, but nothing in its argument turned on whether such single syllabic-element words did or did not exist. Therefore, the Court declines to infer that Plaintiff drastically altered the plain meaning of the language in its claim with this single statement.

Defendants' second objection to the Special Master's construction of syllabic element is that he failed to embrace their view that the term is indefinite. Although the Court agrees that the patent does a poor job of defining syllabic element, the standard for establishing indefimteness is extremely high, and Defendants have simply failed to meet it. The test for indefimteness under 35 U.S.C. s. 112, para. 2 focuses on whether the claim in question is "amenable to construction." Honeywell Int'l., Inc. v. Int'l Trade Comm'n, 341 F.3d 1332, 1338 (Fed.Cir.2003). If the claim can be construed, then it is definite, no matter how difficult the task of construing it may be. *Id*. It is only when the "claim is insolubly ambiguous, and no narrowing construction can properly be adopted," that the Court should hold the claim to be indefinite. *Id*. at 1338-39 (quoting Exxon Research & Eng'g Co. v. United States, 265 F.3d 1371, 1375 (Fed.Cir.2001)). As the Federal Circuit explained in *Exxon Research,*

We engage in claim construction every day, and cases frequently present close questions of claim construction on which expert witnesses, trial courts, and even the judges of this court may disagree. Under a broad concept of indefimteness, all but the clearest claim construction issues could be regarded as giving rise to invalidating indefimteness in the claims at issue. But we have not adopted that approach to the law of indefimteness. We have not insisted that claims be plain on their face in order to avoid condemnation for indefiniteness; rather, what we have asked is that the claims be amenable to construction, however difficult that task may be. If a claim is insolubly ambiguous, and no narrowing construction can properly be adopted, we have held the claim indefinite. If the meaning of the claim is discernible, even though the task may be formidable and the conclusion may be one over which reasonable persons will disagree, we have held the claim sufficiently clear to avoid invalidity on indefiniteness grounds.

265 F.3d at 1375.

The Court must consult all available claim construction resources before declaring a claim indefinite. The fact that resort to the prosecution history is required to ascertain a properly supported claim construction is of no significance. *See* Datamize, LLC v. Plumtree Software, Inc., 417 F.3d 1342, 1353 (Fed.Cir.2005) (reviewing a patent's prosecution history in the context of an indefmiteness inquiry); All Dental Prodx, LLC v. Advantage Dental Prods, Inc., 309 F.3d 774, 780 (Fed.Cir.2002) ("The prosecution history can thus be relied upon to clarify the claim meaning and hence provide defmiteness."). FN12

FN12. Defendants have argued that because "syllabic element" was not a term known to persons of ordinary skill in the art at the time of the patent's issuance, the term is indefinite unless Plaintiff provided an explicit definition of the term in the patent's specification. The Court is aware of no authority for this proposition, and the Federal Circuit's willingness to consider prosecution history in its indefmiteness discussions suggests that no such authority exists.

In this case, the Court finds the intrinsic and extrinsic evidence in the record clearly supports the construction of "syllabic element" proposed by the Special Master. Thus, it cannot be said that the claim is insolubly ambiguous. To be sure, there is enough ambiguity in the record that reasonable people could disagree about whether the construction recommended by the Special Master and adopted by the Court is the correct one. However, the evidence is not so equivocal as to make the choice between the competing constructions an arbitrary one. Rather, the construction proposed by the Special Master is superior to all alternative constructions that have been proposed, in the sense that it is more consistent with the intrinsic evidence than are each of the other possible constructions. Accordingly, "syllabic element" can be supplied with an appropriate construction and therefore a definite meaning. For this and each of the other foregoing reasons, the Court adopts the construction recommended by the Special Master, along with the comment that a syllabic element may be as small as a single letter.

B. "one or more pre-programmed codes"

The phrase "one or more pre-programmed codes" appears in claim 10 of the ' 112 patent. Plaintiff has argued that the Court should construe the term "pre-programmed code" to mean "an electronically stored representation of a syllabic element." Joint Cl. Constr. Stmt. at 12. Defendants argue that the entire phrase, "one or more pre-programmed codes," should be defined as "a database of pre-set codes in which each of the codes represents a syllabic element, wherein the database cannot include more than a few complete words." Id.

In his Report and Recommendation, the Special Master proposes that the Court not provide any construction for this phrase. Rep. & Rec. at 3. Plaintiff has not objected to this aspect of the Report and Recommendation. Defendants have objected to the non-construction proposed by the Special Master, by: (1) arguing the Court has the duty to construe claim terms that are in dispute; and (2) incorporating its prior arguments in favor of its construction by reference.

First, with respect to Defendants' argument that the Court has a duty to construe claim terms, the Court agrees with this argument in principal, but it disagrees that the Court must attach a special construction to a term in order to fulfill its duty. Instead, the Court properly refuses to attach a special construction to a term when the ordinary meaning of the term applies. Mentor H/S, Inc. v. Medical Device Alliance, Inc., 244 F.3d 1365, 1380 (Fed.Cir.2001).

In this case, Defendants' proposed construction would be both unhelpful to a jury and possibly incorrect in its description of the limitations covered by the phrase "one or more preprogrammed codes." First, the portion of Defendant's proposed construction indicating "one or more preprogrammed codes" is "a database of pre-set codes in which each of the codes represents a syllabic element" is entirely unhelpful. No clarity is gained by trading the "one or more preprogrammed codes" language for the phrase "database of pre-set codes." Moreover, to the extent that the meaning of the two phrases is different, it would be erroneous to

substitute the latter for the former. Defendants' proposed use of the phrase, "in which each of the codes represents a syllabic element," is also unhelpful. The claim unambiguously states that "each pre-programmed code [is] representative of a syllabic element," and the Court cannot imagine how a jury would find it useful for the Court to build this point into a separate, specially attached construction. '11Patent, col. 9, *ll*. 4-5.

Second, while Defendant's position that "the database cannot include more than a few complete words" is arguably true, it makes no sense to include this limitation as part of the definition of "pre-programmed codes." The only evidence Defendants cite in support of so limiting the meaning of this phrase are passages from the specification that purport to describe the properties of *syllabic elements,* which the pre-programmed codes are said to represent. Defendants have cited no evidence to suggest that the phrase "one or more pre-programmed codes," in itself, carries a special meaning that limits its scope to a few complete words. The full scope of the term "syllabic element" is already articulated in the Court's construction of that term. Since it would needlessly confuse the issues in this case to separately impose limitations on the term "syllabic element" in the guise of construing the phrase "one or more preprogrammed codes," the Special Master properly declined to recommend Defendant's construction.FN13

FN13. Although Plaintiff did not object to the Special Master's non-construction of the phrase "one or more preprogrammed codes," the Court does note that Plaintiff's proposed construction-"an electronically stored representation of a syllabic element"-fails for the same reasons Defendants' does. Namely, it fails to provide any clarity to the claim term that cannot be derived from reading the plain language of the claim itself.

C. "communicating"

The word "communicating" appears in the preamble of Claim 10. Plaintiff has argued that "communicating" needs no construction, and in the alternative, that the term should be construed to mean "conveying information." Joint Cl. Constr. Stmt. at 21-22. Defendant has argued "communicating" means "conveying information from one user to another." *Id*. at 22. The Special Master recommended the Court adopt Plaintiff's view and apply no construction to the term. Rep. & Rec. at 3.

The Court agrees with the Special Master that no special construction should be applied to the word "communicating." Although the phrase "conveying information" accurately describes the meaning of the term, it would not provide any more useful guidance to a jury than would a simple instruction to apply the plain and ordinary meaning of the word "communicating." The real dispute here is whether Defendants are correct in insisting that the phrase, "from one user to another," be applied to modify the plain meaning of the word.

The Court finds the evidence does not support Defendants' position. Although the preferred embodiment identified in the specification clearly contemplates two different users of the method communicating with one another, other applications of the method are clearly disclosed. The specification recites that one "alternative would be to use the apparatus 10 of the present invention for remote computer control by non-handicapped individuals." '112 Patent, col. 7, *ll*. 49-51. In that scenario, commands such as PRINT, LIST, and SAVE would be delivered to a computer, and no second user would be necessary. Id., col. 7, *ll*. 50-54.

Moreover, standard dictionary definitions of the word "communicate" do not limit the term's meaning to person-to-person exchanges of information. *See* MERRIAM-WEBSTER ONLINE DICTIONARY,

"communicate" (2005-06), http://m-w.com/dictionary/communicate ("2a: to convey knowledge of or information about: make known"); AM. COLLEGE HERITAGE DICTIONARY 290 (4th ed.2002) ("communicate ... 1a. To convey information about; make known; impart"). Indeed, Defendants concede "that 'communicating' *in general* can include human to computer interaction." Defs.' Op. Post- *Markman* Hr'g Br. at 10. Given that the plain meaning of the word "communicating" is broad enough to cover all situations in which information is conveyed, along with the fact that the specification does not clearly narrow the word's general meaning, the Court rejects Defendants' proposed addition of the phrase "from one user to another" and adopts the Special Master's position that no special construction need be applied to the word.

D. "signal-generating keyboard"

The phrase "signal-generating keyboard" also appears in the preamble of Claim 10. Plaintiff has argued the phrase needs no construction, and in the alternative, that the phrase "signal-generating keyboard" should be construed to mean "a keyboard that is capable of generating a signal" and that the word signal should be construed to mean an "indicator." Joint Cl. Constr. Stmt. at 21-22. Defendant has argued "signal-generating keyboard" should be construed to mean "a device that includes a set of keys that produces a non-binary waveform in response to the depression of its keys." *Id*. at 22. The Special Master recommended the Court adopt Plaintiff's first proposal and apply no construction to the phrase. Rep. & Rec. at 3.

The parties' briefing makes clear that the real dispute over the meaning of the phrase "signalgenerating keyboard" is whether the signal generated by the keyboard should be limited to a certain type of signal. Because nothing in the words themselves carries such a limitation, and further because this dispute is adequately addressed by the Special Master's construction of the phrase "transmitting signals generated by the key depressions," there is no reason to address the dispute through a special construction of "signal-generating keyboard." Because neither party's proposed construction would add anything useful to the jury's ability to understand the claim, the Court accepts the Special Master's recommendation that no special construction be applied to the phrase "signal-generating keyboard."

E. "inputting a word into said keyboard by depressing a single key for each alphabetic character of said word"

The phrase "inputting a word into said keyboard by depressing a single key for each alphabetic character of said word" is the first listed step in the method claimed in Claim 10. Plaintiff has argued the phrase needs no construction. Joint Cl. Constr. Stmt. at 21. In the alternative, Plaintiff argues the phrase "inputting a word into said keyboard" means "entering letters of a word by manual entry with a keyboard," and that the phrase "by depressing a single key for each alphabetic character of said word" means "where for each alphabetic character that is input via the keyboard, a single key is depressed." *Id*. at 30. Defendants argue the phrase "inputting a word into said keyboard" means "the act of a user entering all of the alphabetic characters for a word and an end of word indicator into the signal-generating keyboard." *Id*. Furthermore, Defendants contend the term "word" means "a complete word" and the term "each" means "every." *Id*.

The Special Master proposed the following construction of the entire phrase "inputting a word into said keyboard by depressing a single key for each alphabetic character of said word":

This phrase requires all the alphabetic characters of the word to be input, with each character to be input by a single key depression. However, there is no requirement that all of the alphabetic characters be inputted before the other steps in the method may commence.

Rep. & Rec. at 3.

The Court adopts the recommendation of the Special Master. First, the Court finds that the requirement that all characters of the word be inputted, with each character to be inputted by a single key depression, clearly flows from the most natural and logical reading of the phrase.FN14 The Court also agrees with the Special Master that "there is no requirement that all of the alphabetic characters be inputted before the other steps in the method commence ." Defendants object to this portion of the Special Master's recommendation.

FN14. Although Plaintiff initially disputed the requirement that a complete word had to be inputted, it is not clear Plaintiff is still asserting this position since it did not mention the point in its objections. Assuming Plaintiff has not abandoned the point, the Court will briefly address it. In making the argument that one could perform the "inputting" step by entering only part of a word, Plaintiff relied on the fact that the word "inputting" is a verb that expresses action. Pl.'s Opening Cl. Constr. Br. at 12. As Plaintiff put it, "[i]t's the difference between actively 'closing a door' and 'a closed door.' " *Id*. Plaintiff's analogy does not withstand scrutiny. Although it might be said that a person is "closing a door" the whole time they are taking the action required to get the door closed, it is simply incorrect to say that the person has ultimately *completed* the task of "closing a door" until the door is closed. On Plaintiff's view, a person could perform the task of "running a mile" even if he or she were to quit running after a single yard. Any reasonable speaker of the English language can tell you that you cannot "input a word" by inputting *part of* a word anymore than you can close a door by leaving it open or you can run a mile by running a yard. The step in the method that calls for "inputting a word" requires a complete word to be inputted.

The Federal Circuit has indicated that a court should not assume the steps in a method claim must be performed in the sequential order in which they are listed "[u]nless the steps ... actually recite an order...." Interactive Gift Exp., Inc. v. Compuserve Inc., 256 F.3d 1323, 1342 (Fed.Cir.2001). There are two general exceptions to this rule. First, "if, as a matter of logic or grammar, [the steps] must be performed in the order written," the Court will construe the claim to require that the steps be performed in that order. Altiris, Inc. v. Symantec Corp., 318 F.3d 1363, 1369 (Fed.Cir.2003). Second, if "the specification ... 'directly or implicitly requires' " the steps to be performed in a certain order, the Court should hold the method claim is limited to that order. Id. at 1370 (quoting Interactive Gift, 256 F.3d at 1343). However, the Federal Circuit has cautioned against importing a requirement that steps be performed in a certain sequence simply because the embodiments in the specification make use of that sequence. *Id*. at 1370-71.

Here, Defendants have not attempted to argue that Claim 10 expressly recites an order in which the steps must be performed. Instead, they contend: (1) the only embodiment described in the specification is one in which the "inputting" step is completed before the "matching" step begins; (2) the "inputting" step must be completed before the "matching" step begins in order to render the invention operable; (3) the claim language implicitly requires the "inputting" step to be complete before the "matching" step can take place; and (4) Federal Circuit precedent forbids the adoption of a construction broader than that disclosed in the specification. The Court begins by considering Defendants' first and fourth arguments together.

There is no doubt that the only embodiment disclosed in the specification contemplates that the inputting step be fully completed before the matching step begins. In that embodiment, the matching step begins after all letters of the word have been inputted, followed by the depression of the asterisk key. Although the Court agrees that no other embodiments are disclosed, it disagrees with Defendants' position that the claim must be limited to the order of steps in the disclosed embodiment. Indeed, the Federal Circuit flatly rejected

this very approach in *Altiris*. *Id* . There, the court noted that the written description of the method patent at issue in the case "clearly only discusses a single 'preferred' embodiment in which the 'setting' step occurs after the 'testing' step and before the 'booting normally' step." *Id*. at 1371. The court nonetheless held that the claim could not be limited to this particular order of steps, because nowhere in the specification was there "any statement that this order [was] important, any disclaimer of any other order of steps, or any prosecution history indicating a surrender of any other order of steps." *Id*.

The cases Defendants have cited do not suggest otherwise. *See On* Demand Mach. Corp. v. Ingram Indus., Inc., 442 F.3d 1331 (Fed.Cir.2006); Semitool, Inc. v. Dynamic Micro Sys. Semiconductor Equip. GmbH, 444 F.3d 1337 (Fed.Cir.2006); Inpro II Licensing, S.A.R.L. v. T-Mobile USA, Inc., No. 05-1233, 2006 WL 1277815 (Fed.Cir. May 11, 2006); Loral Fairchild Corp. v. Sony Elecs. Corp., 181 F.3d 1313 (Fed.Cir.1999); Mantech Envtl. Corp. v. Hudson Envtl. Servs., Inc., 152 F.3d 1368 (Fed.Cir.1998); LizardTech, Inc. v. Earth Res. Mapping, Inc., 424 F.3d 1336 (Fed.Cir.2005). First, *Loral Fairchild* and *Mantech* do not stand for the broad proposition that method claims are limited to the order of steps disclosed in the embodiments listed in the specification. Indeed, these two cases were cited by the Federal Circuit in *Altiris* for a much narrower principle-namely, that a method claim is limited to a particular order of steps when "as a matter of logic or grammar, [the steps] must be performed in the order written." Altiris, 318 F.3d at 1369. The Federal Circuit certainly has not held that a "patentee cannot obtain a construction that would cover more than its single disclosure." Defs.' Objs. Rep. & Rec. at 8. Indeed, the court made clear in *Altiris* that "the number of embodiments disclosed in the specification is not determinative...." 318 F.3d at 1370 (quoting Teleflex, Inc. v. Ficosa N. Am. Corp., 299 F.3d 1313, 1327 (Fed.Cir.2002).

On Demand, Inpro II, and *Semitool* also fail to support Defendants' position. None of these cases involved method claims. *On Demand* and *Semitool* stand only for the well-established principle that an ambiguity in the meaning of a particular claim term may be resolved by referring to the manner and context in which the term is used in the specification. *See On* Demand, 442 F.3d at 1340 (holding the term "customer" was limited to a retail consumer because the "specification repeatedly reinforce[d] [this] usage of the term"); Semitool, 444 F.3d at 1345-48. Similarly, *Inpro II* merely reaffirmed the principle that an inventor can disclaim a broad construction of a claim term by making specific statements about the scope of the invention in the specification and prosecution history. *See* Inpro II, 2006 WL 1277815 at *3-6 (affirming a district court's construction of the term "host interface" as being limited to "a direct parallel bus interface" where the inventor made clear in the specification and the prosecution history that the use of a parallel interface was a feature that distinguished the invention from inferior prior art approaches). None of these cases has any bearing on the question of when a method claim should be construed to require a specific sequence of steps.

Finally, although *LizardTech* does involve a method claim, it furnishes the least support for Defendants' position. The court there dealt with a claim directed at "creating a seamless array of DWT coefficients generically." LizardTech, 424 F.3d at 1345. Although, on its face, the language in the claim seemed to cover all possible ways of "creating a seamless DWT," the embodiment in the specification disclosed only one such way. *Id*. Although the court held "that the description of one method for creating a seamless DWT does not entitle the inventor ... to claim any and all means for achieving that objective," it did not, as a matter of claim construction, limit the scope of the claim. *Id*. at 1346. Instead, the court construed the claim to cover *all* ways of creating a seamless DWT, and dealt with the disconnect between the claim's broad scope and the single disclosed embodiment by holding the claim was invalid for failure to satisfy the requirements of 35 U.S.C. s. 112. *Id*. at 1346-47. Thus, *LizardTech* ultimately suggests that a narrow disclosure in connection with a broad method does not present a claim construction issue, but a s. 112 issue.

In the end, none of the cases cited by Defendants suggest that Plaintiff's claim must be limited to the single order of steps disclosed in the preferred embodiment.

Defendants' second objection to the Special Master's order of steps construction is that the invention would be inoperable unless the inputting step were completed before the matching step began. It is not clear how Defendants reach this conclusion. First, Defendants concede, as they must, that the first three steps are not performed strictly in the sequence disclosed in the preferred embodiment. As Defendants put it they "are performed in a continuous loop 'until [the] complete word [is] received.' " Defs.' Reply Post-Hr'g *Markman* Br. at 4. Each step is comprised of numerous discrete acts. For instance, when the word "help" is inputted, the preferred embodiment discloses five separate key depressions that make up the "inputting the word" step-one depression for each letter, and one for the asterisk key. The "transmitting" step involves the transmission of separate signals for each of the key depressions. Finally, the "receiving and decoding" step calls for each of the signals that were transmitted to be received and decoded. In the preferred embodiment, each of the first three steps occurs in an overlapping fashion. The entry of the letter "h" is the beginning of the inputting step. Before the "inputting" continues with the entry of the letter "e," the "transmitting" and "receiving" steps begin to process the letter "h" through the system. The same process is repeated until each key depression is made and each signal is transmitted, received, and decoded.

Given that the preferred embodiment specifically contemplates that the first three steps are performed in this overlapping way, it should be clear that the fact that the steps are listed in a particular order does not require each step to be performed sequentially, one after the other. Nonetheless, Defendants suggest that the order of steps disclosed in the specification is the only order that will allow the invention to operate. The suggestion is not well taken. First, it should be noted that there is no reason even the first three steps must be performed in the overlapping way disclosed in the preferred embodiment. For example, there is no reason the steps could not in fact be performed in the order in which they are listed without any overlapping. That is, one can easily conceive of an embodiment in which the first sequential step would be the inputting of all the letters in the word, followed by a second step in which all the signals are transmitted together, followed by a third step of receiving and decoding all of the signals.

Similarly, although the "matching" step begins only after the first three steps have been completed *in the preferred embodiment,* one can easily conceive of a system in which the matching function could be folded into the same overlapping procedure used in the preferred embodiment's performance of the first three steps. That is, after the key representing the letter "h" is depressed but before the second key is depressed, the system could begin matching the binary code generated by the first depression with pre-programmed codes in the syllabic element vocabulary.FN15

FN15. There are many different ways in which the process of matching could take place. For instance, when the "4" key is entered to signify the letter "h," the matching process could begin for the first syllabic element in the word with a step of eliminating from consideration all syllabic elements that do not begin with a letter consistent with the depression of the "4" key.

The fact that the matching will necessarily be incomplete at this point is of no consequence. Even in the preferred embodiment, the first three steps are completed by the performance of short discrete acts, each of which only partially performs each respective step. Thus it would be entirely consistent with the rest of the steps in the method for the matching step to be partially performed after the entry of each letter. Because acts consistent with the matching process could easily be interwoven into the overlapping procedure

contemplated in the performance of the first three steps in the preferred embodiment, the Court finds that the Special Master's construction would not render the invention inoperable.FN16

FN16. In their objections, Defendants have not re-urged their position that the inputting step requires the entry of an end-of-word indicator. However, their position on this point is related to their position on the invention's operability, so the Court will briefly address it. In their Reply Post-Hearing *Markman* Brief, Defendants argued "Plaintiff ... fails to explain how claim 10 would operate without an end of word indicator." Defs.' Reply Post-Hr'g *Markman* Br. at 4. Defendants' position has been that the system contemplated in Claim 10 could not distinguish the end of one word from the beginning of the next without such an indicator. The problem with this argument is that the claimed method only contemplates the formation of a single word. Thus, there is no need for Plaintiff to address the problem of distinguishing one word from another.

Finally, the Court considers Defendants' objection that the claim *language* implicitly requires the "inputting" step to be completed before the "matching" step can take place. Defendants argue that the claim describes a single binary code being matched against pre-programmed codes, and thus matching cannot begin until the entire binary code is formed. *See* '112 Patent, col. 9, *ll*. 3-5 ("matching said binary code with one or more pre-programmed codes, each pre-programmed code being representative of a syllabic element"). The Court disagrees. As Defendants have conceded, the "receiving and decoding" step, in which the binary code is decoded, takes place through a series of discrete events in an overlapping procedure in the preferred embodiment. Thus, it makes no sense to infer that the binary code, as described in the matching step, can only describe a single, unitary code. Instead, the preferred embodiment specifically contemplates that new pieces of binary code are formed with the inputting of each letter. Accordingly, there is no reason the matching could not begin as soon as *each part* of the binary code is decoded.FN17

FN17. This is not to say, of course, that the matching step could be *completed* before all parts of the binary code are received.

F. "transmitting signals generated by the key depressions"

The phrase "transmitting signals generated by the key depressions" is the second listed step in the method claimed in Claim 10. Plaintiff has argued the phrase needs no construction. Joint Cl. Constr. Stmt. at 21. In the alternative, Plaintiff argues the word "transmitting" means "sending." Id. at 38. Defendants have argued the phrase "transmitting signals generated by the key depressions" means "sending non-binary waveforms corresponding to the inputted word from the signal-generating keyboard to a separate receiving device." Id.

The Special Master proposed the following construction of the entire phrase "transmitting signals generated by the key depressions":

The 'signals' identified in this phrase cannot consist of binary code. Otherwise, no construction is necessary.

Rep. & Rec. at 3.

The Court adopts the recommendation of the Special Master. First, the Court agrees with the Special Master that the plain language of the phrase is generally sufficient to convey its meaning, and no special

construction is needed to specially point out that "transmitting" means "sending" or that the signals "generated by the key depressions" come from the signal-generating keyboard. With respect to Defendants' position that the transmissions are made "to a separate receiving device," there is simply no language in the claim to support the addition of this limitation. Finally, with respect to the sole construction recommended by the Special Master-that "the 'signals' identified in this phrase cannot consist of binary code"-the Court agrees that this construction is correct and that it more precisely describes the claim's limitations than does the "non-binary waveform" language advocated by Defendants.

Plaintiff objects to the Special Master's construction on the grounds that a signal is simply "an indicator." Pl.'s Objs. Rep. & Rec. at 10. However, the logic and the language of the claim clearly support the imposition of the limitation recommended by the Special Master. The third step in the method calls for "decoding the signals into binary code." '112 Patent, col. 9, *ll*. 1-2. Plainly then, the signals described in the "transmitting" step-the step that takes place before the decoding step-cannot already consist of binary code. Plaintiff takes the position that one binary code can be translated into another binary code, and thus the decoding step does not require the signals to be non-binary before decoding. The problem with this argument is that the claim does not call for the signals to be decoded into *a* binary code, as in a particular sequence of 1s and 0s. Rather, the claim calls for decoding the signals into binary code, period, which suggests that the claim requires a conversion of the *type* of signal or code, not just a change from one code sequence to another code sequence.

G. "receiving said transmitted signals and decoding the signals into binary code"

The phrase "receiving said transmitted signals and decoding the signals into binary code" is the third listed step in the method claimed in Claim 10. Plaintiff has argued the phrase needs no construction. Joint Cl. Constr. Stmt. at 21. In the alternative, Plaintiff argues the phrase "decoding the signals into binary code" means "converting the signals into binary code." Id. at 43. Defendants have argued the entire phrase means "receiving the transmitted signals at the receiving device and translating them into a binary code representing the inputted word." Id. The Special Master recommends the Court adopt Plaintiff's first proposal and apply no construction to the phrase. Rep. & Rec. at 3.

The Court adopts the recommendation of the Special Master. First, it should be noted that the ordinary meaning of the word "decoding" applies here, and nothing would be gained by substituting the word "translating" or the word "converting." Second, as stated earlier, there is simply no support whatsoever in the claim language for the insertion of a "receiving device" limitation, and the remainder of Defendants' proposed construction would merely result in redundancies and would, in fact, be incorrect to the extent it replaces "binary code" with "a binary code."

H. "matching said binary code with one or more pre-programmed codes, each pre-programmed code being representative of a syllabic element"

The phrase "matching said binary code with one or more pre-programmed codes, each pre-programmed code being representative of a syllabic element" is the fourth listed step in the method claimed in Claim 10. Plaintiff has argued the phrase needs no construction. Joint Cl. Constr. Stmt. at 21. In the alternative, Plaintiff argues the phrase "matching said binary code with one or more pre-programmed codes" means "comparing the binary code with one or more preprogrammed codes until one or more preprogrammed code is identified." Id. at 48. Defendants have argued the entire phrase means "each time a binary code is matched against a pre-programmed code, each such matched pre-programmed code represents a syllabic element." Id. Defendants further propose that the term "matching" means "a comparison to determine identity of

items." Id. at 48-49. The Special Master recommends the Court adopt Plaintiff's alternative construction that the phrase "matching said binary code with one or more pre-programmed codes" means "comparing the binary code with one or more preprogrammed codes until one or more preprogrammed code is identified," and that the Court not separately construe the phrase "each pre-programmed code being representative of a syllabic element." Rep. & Rec. at 3.

Although Defendants have not raised specific objections to the Special Master's constructions, the Court will briefly address the reasons it declines to adopt their proposed construction. First, although Defendants' statement that "each time a binary code is matched against a pre-programmed code, each such matched pre-programmed code represents a syllabic element" is more or less correct, it adds nothing that is not already unambiguously conveyed by the claim language itself. The words of the "matching" step clearly indicate that each one of the pre-programmed codes that is matched with the binary code individually represents a syllabic element. '112 Patent, col. 9, *ll*. 4-5. There is no reason to restate this obvious point in a separate claim construction.

Second, Defendants' argument that "matching" requires an identity of items is incorrect. The Court agrees with the Special Master that only a correspondence need occur for matching to take place. For one thing, in everyday usage, ordinary speakers of English often use the term "match" to describe a simple correspondence rather than an exact identity of items. For instance, a particular belt may be said to "match" a pair of shoes, even though there are numerous obvious differences between the items. *Cf*. AM. COLLEGE HERITAGE DICTIONARY 853 (4th ed.2002) (defining "match" alternatively as "[t]o be exactly like; to correspond exactly to" and "[t]o be like *with respect to specified qualities*") (emphasis added); MERRIAM-WEBSTER ONLINE DICTIONARY, "match" (2005-06), http://m-w.com/dictionary/match (listing the following relevant definitions of the verb form of match: "to put in a set possessing equal or harmonizing attributes;" "to cause to correspond;" "to be the counterpart of;" "to compare favorably with;" "to harmonize with;" and "to provide with a counterpart").

Furthermore, it does not appear that the "matching" that takes place in even the preferred embodiment contemplates an exact identity between the binary code sequence and the one or more preprogrammed codes that are matched with it. Instead, the specification describes the use of a letter positioning code system, in which a binary sequence is appended to or integrated with the vocabulary code sequences so that the system will know which ASCII letter representations to display. '112 Patent, col. 6 *l*. 49-col. 7, *l*. 23. For example, when a user inputs the word "help" by depressing the four keys corresponding with the letters H-E-L-P, the binary code that is formed in the decoding step is an ambiguous code associated with the numbers 4-3-5-7. FN18 The matched code needs to be unambiguous for the invention to operate, however, so the matched code cannot be identical to the ambiguous binary code. The difference between the two codes is that, in addition to the coded information that is directly associated with the numbers 4-3-5-7, the preprogrammed code in the syllabic element vocabulary must also include a letter-positioning pointer to show that the 4 represents an "h," the 3, an "e," the 5, an "1," and the 7, a "p." *See* ' 112 Patent, col. 7, *ll.,* 15-17 ("The matched word code points to a letter position mapping code (LPMC) byte."). Ultimately then, although the binary code and the matched "one or more preprogrammed codes" in the preferred embodiment correspond, they are not identical, and thus it makes no sense to construe the "matching" step to require an exact identity of items.

FN18. As described in the specification, each numeric entry represents three possible letters. Id., col. 4, *ll*. 44-52.

I. "forming a representation of the word from the one or more syllabic elements"

The phrase "forming a representation of the word from the one or more syllabic elements" is the fourth listed step in the method claimed in Claim 10. Plaintiff has argued the phrase needs no construction. Joint Cl. Constr. Stmt. at 21. In the alternative, Plaintiff argues the phrase "forming a representation of the word" means "forming a representation of a word corresponding to the received binary code." Id. at 59. Defendants have argued the entire phrase means "forming the inputted word from the one or more syllabic elements." Id. The Special Master recommends the Court adopt Plaintiff's first proposal and apply no construction to the phrase. Rep. & Rec. at 3.

The Court adopts the recommendation of the Special Master and adopts Plaintiff's position that no construction is necessary. Defendants' proposal adds nothing to the understandability of the claim, but merely substitutes the phrase "the inputted word" for the phrase "a representation of the word." In each of their briefs, Defendants have taken a slightly different position on why their proposed construction is necessary. However, it is far from clear how the use of the phrase "the inputted word" would answer any question about the scope of the claim or provide any additional clarity to the jury, and thus, the Court leaves this phrase without a construction.FN19

FN19. Defendants are correct that "the word" referenced in the "forming" step is the same as the word referenced in the inputting step. However, this fact is apparent from the claim language itself and does not appear to be in dispute. Similarly, there is no discernible, meaningful difference between "the word" and "a representation of the word," and the Court does not see what good can be accomplished by construing the inventor's chosen terminology out of the claim.

J. "in a form perceptible to the user"

The phrase "in a form perceptible to the user" is the last clause in the method claimed in Claim 10. Plaintiff has argued the phrase needs no construction. Joint Cl. Constr. Stmt. at 21. In the alternative, Plaintiff argues the phrase means "in a manner that can be discerned by the user." Id. at 62. Defendants have argued the phrase means "in a manner that can be discerned by a user at the receiving device who receives the communication from the inputting user." Id. The Special Master recommends the Court adopt Plaintiff's first proposal and apply no construction to the phrase. Rep. & Rec. at 3.

The Court agrees with the Special Master's recommendation. First, the Court holds that the claim's actual language is as clear as, if not clearer than, the language common to both parties' proposals-"in a manner that can be discerned by the [a] user." Second, the Court finds Defendants' efforts to imbue this phrase with the requirement of a second user and a receiving device simply is unsupported by the claim's language. The fact that the preferred embodiment describes more than one user and more than one device does not change the analysis. Only when claim language is capable of more than one possible construction may the specification affect the limitations in the claim. *See* Kemco Sales, Inc. v. Control Papers Co., Inc., 208 F.3d 1352, 1362 (Fed.Cir.2000) ("[T]his court has consistently adhered to the proposition that courts cannot alter what the patentee has chosen to claim as his invention, that limitations appearing in the specification will not be read into claims, and that interpreting what is *meant* by a word *in* a claim is not to be confused with adding an extraneous limitation appearing in the specification, which is improper.") (internal citations and quotation marks omitted, emphasis in original). Because Defendants' proposed construction would incorrectly describe the claim's limitations, the Special Master correctly recommended that no construction be applied to this

phrase.

K. "in a visually perceptible form"

The phrase "in a visually perceptible form" is the last clause in dependent Claim 11. Plaintiff has argued the phrase needs no construction. Joint Cl. Constr. Stmt. at 21. In the alternative, Plaintiff argues the phrase means "in a manner that can be seen." *Id*. at 66. Defendants have argued the phrase means "in a manner that can be seen by a user at the receiving device." *Id*. The Special Master recommends the Court adopt Plaintiff's first proposal and apply no construction to the phrase. Rep. & Rec. at 3. The Court adopts the Special Master's recommendation for essentially the reasons articulated in the foregoing discussion of the phrase "in a form perceptible to the user."

Conclusion

In accordance with the foregoing:

IT IS ORDERED that the Report and Recommendation of the Special Master regarding claim construction of the patents-in-suit [# 232], as modified herein, is ACCEPTED.

IT IS FURTHER ORDERED that the Court adopts the construction of "binary code" that was stipulated to by the parties-namely, that "binary code" means "a code in which each code element may be either of two distinct kinds or values."

IT IS FURTHER ORDERED that the construction of each of the patent claim terms adopted herein will be incorporated into anyjury instructions given in the above-styled cause and will be applied by the Court in ruling on the issues raised in summary judgment motions.

IT IS FURTHER ORDERED that Plaintiff's Motion to Exclude the Testimony of Paul Stanley Peters or to Compel Related Discovery [# 161] is DENIED.

IT IS FURTHER ORDERED that Plaintiff's Motion to Exclude the Testimony of and I. Scott Mackenzie or to Compel Related Discovery [# 162] is DENIED.

IT IS FURTHER ORDERED that Plaintiff's Supplemental Motion to Exclude the Testimony of Paul Stanley Peters and Scott MacKenzie or Compel Related Discovery [# 169] is DENIED.

IT IS FURTHER ORDERED that Defendants' Motion to Exclude Untimely Publications and Any Opinion or Testimony Referring or Relating Thereto [# 201] is DENIED.

IT IS FURTHER ORDERED that the exhibits included in Plaintiff's Supplemental Offer of Exhibits [# 211] are ADMITTED.

IT IS FURTHER ORDERED that Defendants' Motion for Summary Judgment for Invalidity of United States Patent No. 4,647,112 [# 189] is DENIED in light of the Court's determination that the phrase "syllabic element" is not indefinite.

SIGNED this the *14th* day of June 2006.

W.D.Tex.,2006.
Board of Regents of the University of Texas System v. Benq America Corp.