Exhibit I

UNITED STATES INTERNATIONAL TRADE COMMISSION
WASHINGTON, D.C.

Before the Honorable Paul J. Luckern
Chief Administrative Law Judge

In the Matter of	Investigation No. 337-TA-714
CERTAIN ELECTRONIC DEVICES WITH MULTI-TOUCH ENABLED TOUCHPADS AND TOUCHSCREENS	

COMPLAINANT ELAN MICROELECTRONICS CORP.'S MEMORANDUM IN SUPPORT OF ITS MOTION FOR PARTIAL SUMMARY DETERMINATION OF CLAIM CONSTRUCTION

TABLE OF CONTENTS

Page

TABLE OF AUTHORITIES iii

I. STATEMENT OF FACTS 1

A. The Parties 1

B. Background of the Technology 1

C. The '352 Patent 3

D. Previous Litigation 4

II. ARGUMENT 7

A. Claim Construction Legal Principles 7

B. The Level of Ordinary Skill 9

C. Disputed Terms in The '352 Patent 9

D. "Identify a first maxima in a signal corresponding to a first finger" Should Be Construed to Mean "identify a first highest absolute value in a first set of values derived from the compiling of a first finger within the touch sensor" 10

E. The Steps of Method Claim 1 Do Not Require Any Order of Operation 12

F. "Identify" and "In Response To" Are Common English Terms That Need No Construction 15

G. The specification Clearly Discloses and Links Copious Structure to the "means for selecting an appropriate control function" Limitation (claim 19) and Therefore the Claim Is Not Indefinite. 16

H. The Specification Discloses and Links Structure to the "means for detecting a distance between said first and second maxima" (claim 24)" 21

I. The specification Clearly Discloses and Links Structure for the "means for providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time." (claim 26) 23

J. The specification Clearly Discloses and Links Structure for "means for calculating first and second centroids corresponding to said first and second fingers." (claim 30) 25

III. CONCLUSION 27

TABLE OF AUTHORITIES

Page

Cases

02 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.,
521 F.3d 1351, 1362-63 (Fed. Cir. 2008) 8

3M Innovative Props., Co. v. Avery Dennison Corp.,
350 F.3d 1365, 1374-75 (Fed. Cir. 2003) 13

AllVoice Computing PLC v. Nuance Commc'ns, Inc.,
504 F.3d 1236, 1248 (Fed. Cir. 2007) 12, 16, 17, 20, 21, 23, 25

Altiris, Inc. v. Symantec Corp.,
318 F.3d 1363, 1369-70 (Fed. Cir. 2003) 13

Bell Atl. Network Servs., Inc. v. Covad Commc'n. Group, Inc.,
262 F.3d 1258, 1268 (Fed. Cir. 2001) 8

Daiichi Sankyo Co., Ltd. v. Apotex, Inc.,
501 F.3d 1254, 1257 (Fed. Cir. 2007) 9

Ekchian v. Home Depot, Inc.,
104 F.3d 1299, 1303 (Fed. Cir. 1997) 11

Embrex, Inc. v. Service Eng'g Corp.,
216 F.3d 1343, 1347 (Fed. Cir. 2000) 15

Finisar Corp. v. The DirecTV Group, et al,
523 F.3d 1323, 1340 (Fed. Cir. 2008) 20

Intel Corp. v. VIA Techs., Inc., 319 F.3d 1357, 1366 (Fed. Cir. 2003)..... 20

Interactive Gift Express, Inc. v. Compuserve Inc.,
256 F.3d 1323, 1342-43 (Fed. Cir. 2001) 13

Med. Instrumentation & Diagnostics Corp. v. Eleckta AB,
344 F.3d 1205, 1214 (Fed. Cir. 2003) 20

Mentor H/S, Inc. v. Med. Device Alliance, Inc.,
244 F.3d 1365, 1380 (Fed. Cir. 2001) 15

NeoMagic Corp. v. Trident Microsystems, Inc.,
287 F.3d 1062, 1074 (Fed. Cir. 2002) 8

Northrop Grumman Corp. v. Intel Corp.,
325 F.3d 1346, 1354 (Fed. Cir. 2003) 11

Phillips v. AWH Corp.,
415 F.3d 1303, 1312 (Fed. Cir. 2005) 7, 8, 11

SRI Int'l v. Matsushita Elec. Corp. of Am.,
775 F.2d 1107, 1118 (Fed. Cir. 1985) 8, 12

Vitronics Corp. v. Conceptronic, Inc.,
90 F.3d 1576, 1582 (Fed. Cir. 1996) 8

Wilson Sporting Goods Co. v. Hillerich & Bradsby Co.,
442 F.3d 1322, 1326-27, 1330-31 (Fed. Cir. 2006) 8

WMS Gaming, Inc. v. Int'l Game Tech.,
184 F.3d 1339, 1349 (Fed. Cir. 1999) 17

Statutes

35 U.S.C. § 112(6) 16, 20, 21, 23, 25

I. STATEMENT OF FACTS

A. The Parties

Elan is a leading designer of specialty microcontroller-based semiconductor products, including input devices for computers, such as controllers for computer mice, optical computer mice and touch pads. Elan's innovations have received numerous awards. For example, in 2002 Elan was named both one of the 500 Fastest-Growing Technology Enterprises in Asia by Deloitte Touche Tohmatsu and one of the best companies in the world with under $1 billion in revenue by Forbes Magazine. At the 2009 Computex computer and electronics trade show in Taipei, Taiwan, Elan's transparent touchpad product was given the Best Choice of the Year award among all products displayed, and was also named the Best Choice of the Year in the Peripheral Products category. Elan's Smart-Remote™, which includes Elan's proprietary touch sensitive input technology, was named the Best Choice of the Year in the Digital Entertainment category.

Apple designs, imports and sells electronic devices, including mobile phones, personal media players, computers, and peripheral devices such as computer mice.

B. Background of the Technology

Prior to the filing of the '352 patent, a variety of touch sensitive computer input devices had been developed. *See* Declaration of Sean P. DeBruine in Support of Elan Microelectronics Corporation's Opening Claim Construction Brief ("DeBruine Decl."), Ex. A (U.S. Patent No. 5,825,352 ("'352 patent")) at 1:19-47; Declaration of Robert Dezmelyk in Support of Elan Microelectronics Corporation's Motion for Partial Summary Determination of Claim Construction ("Dezmelyk Decl."), Ex. 5 (U.S. Patent No. 5,764,218 ("'218 patent")) at 1:37-41 (stylus tablets and touchpads). The known technologies included resistive touch sensors, optical touch sensors and capacitive touch sensors. DeBruine Decl., Ex. A at 1:18-32. A more detailed description of the

operation of the resistive and capacitive touch sensing technologies is provided in the Declaration of Robert Dezmelyk filed herewith.

In the early 1990s, two trends coincided to make touch-sensitive input devices important in the computer industry. First, graphical user interfaces such as the Apple Macintosh and Microsoft Windows operating systems were becoming commonplace. Systems running such interfaces required a user input device that could manipulate the cursor on the screen, select menu choices and issue commands to act on objects on the screen. In most systems, cursor control was performed with a mouse, or similar mechanical input devices such as trackballs. DeBruine Decl., Ex. A at 1:18-32; *see also* Dezmelyk Decl., Ex. 5 at 1:24-43. Second, portable computers were becoming small and inexpensive enough to garner significant market acceptance. One problem in the design of portable computers using a graphical user interface was the need for a user input device to control the cursor. A separate external device, such as a mouse, was unacceptable for laptop computers. Many early laptops included a trackball pointing device in the computer housing. Trackballs, however, had a tendency to become dirty and wear out and were difficult to operate. For these reasons, starting in 1994, the flat, solid state touchpad became a popular mechanism for cursor control input in portable computers.

Touchpads lend themselves well to controlling simple cursor movement. The user simply moves his or her finger on the touchpad to move the cursor a corresponding distance and direction on the computer screen. The form factor and limited size of the touchpad, however, presented usability problems, especially compared to the computer mouse to which many laptop users were accustomed from using desktop computers. Controlling the cursor precisely was often difficult. For example, it was difficult to position a cursor onto the arrows provided to scroll the display in many applications. In addition, pressing mechanical buttons to perform

operations usually accomplished with a mouse by clicking a mouse button required a user to make awkward movements. Often, the user would have to lift his or her pointing finger off the touchpad to click a button. Dezmelyk Decl., Ex. 5 at 2:16-19. This made operations that require both moving a cursor and clicking a button, such as selecting blocks of text or selecting and dragging an object, particularly challenging. *Id.* at 2:20-41. The patents-in-suit describe and claim aspects of touch-sensitive input devices meant to address these and other perceived deficiencies.

One early solution to this problem was to employ tapping gestures on the touch sensor surface to emulate a button press, or other control input. DeBruine Decl., Ex. A at 11:24-28. In such gestures, the user could position the cursor, and then lift and quickly tap his or her finger. Such a gesture would register as a button click. *Id.*; *see also* Dezmelyk Decl., ¶ 25. In addition, two taps in quick succession could emulate a double click, and a tap followed by a touch down with motion could initiate the dragging of an object on the screen. *Id.*

The '352 patent was filed on January 4, 1996 and issued October 20, 1998. The '352 patent discloses and claims technology that is a significant advance and fundamental to the multi-touch user interfaces now found in many computers and portable electronic devices: the ability to detect the presence of two or more fingers or objects and their locations and to use that information to perform control functions within a user interface.

C. The '352 Patent

The '352 patent recognized shortcomings in the use of a single finger with tapping gestures. DeBruine Decl., Ex. A at 1:40-2:15. Those drawbacks included, for example, the fact that in certain instances the cursor would need to be moved to a specific location on the screen so that a particular function could be chosen with a button press. By lifting and tapping the finger, the cursor was likely to move out of

position, frustrating the user's attempt to control a computer program. *Id.* at 1:60-2:14. To overcome these shortcomings, the '352 patent discloses that the detection of two or more fingers simultaneously on the touch sensor may be used, along with contact duration and movement, to provide a rich and useful set of control functions. *Id.* at 2:18-4:16. To select an icon, for example, the user can position the cursor over the icon by moving one finger, and then briefly tap the touchscreen with a second finger. The touchscreen controller interprets this second contact as a press and release of a mechanical mouse button. *Id.* at 2:62-3:1. In addition, the user could touch the touchscreen with two fingers simultaneously and move these fingers vertically to scroll up or down in an application, or move both fingers horizontally to scroll side-to-side in an application. *Id.* at 13:36-44. The ability to detect two or more fingers makes these and many other user input commands possible, opening up new worlds for application designers. The method claimed in the '352 patent works by scanning the sensors of the touchpad and measuring the capacitance at each sensor. *Id.* at 58-61. The device's controller or software on the computer then analyzes the measurements to determine local "maximas" indicating each finger, and a local "minima" or valley between the fingers. *Id.* at 6:26-38.

D. Previous Litigation

The '352 patent was the subject of an earlier litigation between Elan and defendants Synaptics, Inc., ProStar Computer and Avaratec, Inc. before the U.S. District Court for the Northern District of California ("the Synaptics case"). Also at issue in the Synaptics case were four patents owned by Synaptics. During the course of that litigation certain terms of the '352 patent claims were construed. In its April 6, 2007 Claim Construction Order the District Court construed the terms "scanning the touch sensor," and the terms "identify a first maxima . . ." "identify a minima" and "identify a second maxima..." DeBruine Decl., Ex G (Claim Const. Order). The

District Court rejected Synaptics' proposals as, *inter alia,* based on the details of the disclosed embodiment and not consistent with the claim terms and broader disclosure in the '352 patent. *Id.* at 14. Thus, the Court rejected Synaptics' proposed construction of "scanning the touch sensor" which required measuring the traces in the touch sensor and assigning them a scan order. The District Court also rejected Elan's proposed construction as overbroad, and adopted the construction to which the private parties here now agree. Similarly, the District Court rejected Synaptics' overly narrow construction of "maxima" as a specific point where the measured values cease to increase, and begin to decrease, and "minima" as the specific point where the measured values cease to decrease and begin to increase as inconsistent with the patent.

The Synaptics Court did not separately construe the term "identify" or "in response to." In the context of arguing that it did not infringe the patent, however, Synaptics argued that its products did not identify a minima. In those products, the controller algorithm examined the scan data and wrote a value of binary "01" in a bit vector where the minima was located. Further processing then created a data structure with values only identifying the two maxima, which were used to provide a finger count. DeBruine Decl., Ex. H (October 26, 2007 Summ. J. Order) at 14. While that "01" value was never further processed, the Court found that it was sufficient to "identify" the minima. *Id.*

Elan is currently involved in litigation with Apple in the U.S. District Court for the Northern District of California involving the '352 patent, one other Elan patent and two patents asserted by Apple ("the Apple case"). Prior to filing their claim construction statement in that case, the parties discussed whether they could agree to adopt the construction of any of the claim terms from the Synaptics litigation. However, at no time did Apple advocate that all of that Court's constructions should be adopted. On the eve of the deadline for the parties to file their Joint Claim

Construction Statement, Apple proposed new constructions for the elements "identify a first maxima ...", 'identify a minima..." and "identify a second maxima..." In particular, Apple for the first time proposed to alter the Synaptics construction to restrict these steps to the analysis of "a finger profile taken on an axis." There was another change in the Joint Claim Construction Statement filed the next day. In Apple's new proposed constructions, the proposed constructions did not include a requirement that the step of "identify a minima" take place in order after the step "identify a first maxima." It did, however, include a requirement that the step of "identify a second maxima" follow in order after the "identify a minima" step. DeBruine Decl., Ex. D (Joint Claim Const. Stmt.). Apple later noticed the discrepancy, claiming it has intended to include the requirement that the three steps be performed in order; Elan disagreed, stating that it intended no order of steps. The parties filed an Amended Joint Claim Construction Statement to reflect those changes, as well as certain other changes. *Id.*, Ex. E.

On June 23, 2010 the District Court in the Apple case conducted a *Markman* hearing on the '352 patent and the three other patents at issue in that case. Those proceedings, and the preceding briefing, were limited to 10 claim terms selected from the four patents at issue. For the '352 patent, the District Court considered the terms "identify and first maxima..." "identify a minima..." and "identify a second maxima..." as one term. It also considered the terms "identify" and "in response to" and the means-plus-function element "means for selecting an appropriate control function..." in claim 19.

During the claim construction process in the Apple case, including the *Markman* hearing, much of the discussion revolved around the term "profile" from the Synaptics claim construction order, and in particular whether that construction should be further limited to a "profile taken on an axis." In other words, the parties were

essentially debating the construction of the previous claim construction, rather than the terms actually used in the patent claims. As will be discussed below in more detail, the patent expressly says that it is not limited to analyzing a finger profile "taken on an axis" to identify the maxima and minima. Rather, it expressly says that the analysis may be through the data set in a direction other than along a coordinate axis. In order to make clear that the patent allows for an analysis of all of the data points, and is not limited to an analysis of only the x values or only the y values, Elan here proposes a construction different from what it proposed in the Apple matter. In particular, rather than dispute the meaning of the earlier claim construction, Elan has proposed a construction that makes clear the parties' dispute regarding the data from which the "identify" steps may use. As such, Elan proposes that "identify"... encompass an analysis of the "set of values" derived from the scanning process. Elan also proposes to modify its position from the Apple case in one other aspect. In the Apple case both parties adopted the Synaptics definition of "maxima" as a "peak value." On further consideration, as discussed below, that phrasing may be ambiguous, and potentially raises and issue of claim differentiation, as certain dependent claims expressly limit the maxima to "peaks." Elan has therefore proposed constructions here that more clearly point out the parties disagreements on the meaning of the claim terms, resolves any lingering ambiguity from the constructions adopted in the Synaptics case and most closely aligns with the claim language and the patent's specification and file history.

II. ARGUMENT

A. Claim Construction Legal Principles

Claim interpretation begins with the plain language of the claim. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). Generally, there is a heavy presumption in favor of the ordinary meaning of claim language rather than an unconventional meaning. *Bell Atl. Network Servs., Inc. v. Covad Commc'n. Group,*

Inc., 262 F.3d 1258, 1268 (Fed. Cir. 2001). The person of ordinary skill is deemed to read the claim terms in the context of the specification. *Phillips*, 415 F.3d at 1313. The specification is the single best guide to the meaning of a disputed term and the specification "acts as a dictionary when it expressly defines terms used in the claims or when it defines terms by implication." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996).

It is the district court's role and duty to resolve fundamental disputes about the meaning of claim terms. *See 02 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1362-63 (Fed. Cir. 2008) (where parties present a fundamental dispute regarding the scope of a claim term, it is the court's duty to resolve that dispute and failure to construe the term is error). Construing claim terms with reference to the accused devices violates a fundamental tenet of claim construction. *SRI Int'l v. Matsushita Elec. Corp. of Am.*, 775 F.2d 1107, 1118 (Fed. Cir. 1985) (en banc); *NeoMagic Corp. v. Trident Microsystems, Inc.*, 287 F.3d 1062, 1074 (Fed. Cir. 2002). This does not mean, however, that the Court has to avert its gaze from the accused products and the infringement dispute in order to reach an unbiased construction. Doing so can result in a claim construction that simply rephrases the infringement issue rather than helping the finder decide infringement. It is appropriate for the Court to use its understanding of the accused products, in order to arrive at a claim construction that the finder of fact can readily apply in its infringement analysis without relying on expert testimony about what any claim term means. *See Wilson Sporting Goods Co. v. Hillerich & Bradsby Co.*, 442 F.3d 1322, 1326-27, 1330-31 (Fed. Cir. 2006) (while courts should not construe claims with an aim to include or exclude an accused product, knowledge of that product "provides meaningful context for the first step of the infringement analyses, claim construction").

B. The Level of Ordinary Skill

Because patent claims are to be construed to reflect the understanding of an ordinary worker in the appropriate filed, a first step in the claim construction process is to determine the level of ordinary skill in the relevant technology. Factors to be considered are the complexity of the technology, the pace of technological advancement in the field, and the education and experience of those working in the area. *Daiichi Sankyo Co., Ltd. v. Apotex, Inc.*, 501 F.3d 1254, 1257 (Fed. Cir. 2007). Here, the parties are largely in agreement regarding the appropriate level of skill. For all of the patents, one of ordinary skill would have an undergraduate degree in electrical engineering or computer science with class work on electrical circuits, and about three years of experience in the design and operation of touch-sensitive input devices. One with a more advanced degree may have less practical experience. *See* Dezmelyk Decl., ¶ 3. Dr. Von Herzen's opinion is similar. *See* DeBruine Decl., Ex. F (Von Herzen Depo) at 23:21-24:14.

C. Disputed Terms in The '352 Patent

Claims 1 and 18 are the independent claims of the '352 patent. Claim 18 is representative and reads as follows, with the disputed terms emphasized:

> A touch sensor for detecting the operative coupling of multiple fingers comprising:
>
> means for scanning the touch sensor to (a) *identify a first maxima in a signal corresponding to a first finger*, (b) *identify a minima following the first maxima*, and (c) *identify a second maxima in a signal corresponding to a second finger following said minima*, and
>
> *means for providing an indication of the simultaneous presence of two fingers in response to identification of said first and second maxima.*

DeBruine Decl., Ex. A at 16:14-23.

D. "Identify a first maxima in a signal corresponding to a first finger" Should Be Construed to Mean "identify a first highest absolute value in a first set of values derived from the compiling of a first finger within the touch sensor"

Apple's Proposal	Elan's Proposal
Identify a first peak value in a finger profile *taken on an axis* obtained from scanning the touch sensor (emphasis added)	Identify a first highest absolute value in a first set of values derived from the coupling of a first finger with the touch sensor

The first recited step in the method claimed in the '352 patent for detecting the number of fingers on a touch pad begins "scanning the touch sensor to (a) identify a first maxima in a signal corresponding to a first finger . . ." The parties agree that "scanning the touch sensor" means "measuring the values generated by a touch sensor to detect operative coupling and determining the corresponding positions at which measurements are made."

Elan's proposed construction is true to the language of the claim and the specification. It uses the plain meaning of "maxima"as a highest value in a set of values. It recognizes that the maxima may be a negative number, depending on the sensor circuitry. *See* DeBruine Decl., Ex. C (August 18, 1997 Amendment) at 8. It differs from the claim construction Elan had earlier proposed in two respects. First, it substitutes "highest absolute value" for the term "peak." This is to clarify that the maxima need not be surrounded by lower values, but rather that it may be greater to or equal to the surrounding values. For example, the patent teaches, in Fig. 6-1, step 230. Last, the test for the maxima is whether the current value is greater than or equal to its neighbor. In other words, a maxima may be part of a "plateau." This construction also avoids the issue of claim differentiation, because claims 7 and 21 expressly limit the maxima to "peaks."

Apple's construction adds a requirement, not found in the claim language, that

the finger profile be "taken on an axis." Nothing in the claim language or intrinsic evidence supports adding this limitation to the claim term. Apple is improperly asking the Court to read limitations from a preferred embodiment into the claims to narrow them. Under any normal circumstance this would be an improper construction. *See Phillips*, 415 F.3d at 1325 (claims not limited to preferred embodiment). The Federal Circuit has many times explained that while claim terms are construed in the context of the specification, courts must take care not to limit the claims to specific embodiments described in the specification. *See*, e.g., *Ekchian v. Home Depot, Inc.*, 104 F.3d 1299, 1303 (Fed. Cir. 1997) (the Federal Circuit has repeatedly "cautioned against limiting the claimed inventions to preferred embodiments or specific examples in the specification"); *Northrop Grumman Corp. v. Intel Corp.*, 325 F.3d 1346, 1354 (Fed. Cir. 2003) (reversing claim construction).

In this case, Apple is asking for limitations to be added to the claim even though the specification clearly states that the invention is not so limited. While the '352 patent describes an exemplary embodiment, in which the scanning occurs along the X or Y axis, DeBruine Decl., Ex. A at 7:1-6, after describing that "exemplary embodiment" the patent goes on to explain that:

> While the foregoing example describes identification of minima and maxima in the X and Y directions [e.g. along the X or Y axis] it will be apparent that an analysis along a diagonal or some other angular direction may be preferred in some instances, and is still within the scope of the present invention." *Id.* at 11:11-15. The patent further emphasizes that "sensors may be scanned sequentially or concurrently, depending on the hardware implementation.

Id. at 7:36-37 (parenthetical added).

In light of this very clear statement, one of ordinary skill in the art could not possibly conclude that the invention required scanning for a finger profile "on an axis." On the contrary, one of ordinary skill would realize that a matrix of sensors could be

configured and scanned in various ways depending on the application, so long as the electrical values can be measured and maxima and minima identified. As a matter of law, "it is not necessary to embrace in the claims or describe in the specification all possible forms in which the claimed principle may be reduced to practice." *SRI Int'l*, 775 F.2d at 1121; *see also AllVoice Computing PLC v. Nuance Commc'ns, Inc.*, 504 F.3d 1236, 1248 (Fed. Cir. 2007). Apple's attempt to rewrite the claims should not be permitted.

E. The Steps of Method Claim 1 Do Not Require Any Order of Operation

The parties dispute the construction of "identify a minima . . . following a first maxima" and "identify a second maxima . . . following said minima" in claims 1 and 18.

Claim term	**Apple's Proposal**	**Elan's Proposal**
identify a minima following the first maxima	Identify the lowest value in the finger profile taken on said axis that occurs after the first peak value and before another peak value is identified	Identify a lowest absolute value that follows the first maxima
identify a second maxima in a signal corresponding to a second finger following said minima	After identifying the lowest value in the finger profile taken on said axis, identify a second peak value in the finger profile taken on said axis	Identify a second highest absolute value in a set of values derived from the coupling of a second finger with the touch sensor that follows the minima

The parties have two disputes regarding these claim elements. First, Apple has inserted the same "taken on an axis" limitation in these terms as it did to the previous term "identify a first maxima . . ." For the reasons discussed above, that limitation should not be read into these terms either. The parties also dispute whether there is a requirement that the first maxima, minima and second maxima be identified in that

order; that is, whether the step of identifying the minima must be performed in sequence after the step of identifying the first maxima and before the step of identify the second maxima. Reading the patent in light of the specification, it would be error to impose any such limitation. First, absent a clear indication in the claim itself, there is no requirement that the steps of a method claim be performed in the order recited. *Interactive Gift Express, Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1342-43 (Fed. Cir. 2001). *Interactive Gift* describes a two-part test for determining whether a method claim recites a particular order of steps. First, the claim language is examined to determine whether, as a matter of grammar or logic, the steps must be performed in order. If there is no such requirement in the claim language itself, the rest of the specification is examine to determine whether it directly or implicitly requires such a narrow construction. *Altiris, Inc. v. Symantec Corp.*, 318 F.3d 1363, 1369-70 (Fed. Cir. 2003).

Applying that standard to claim 1, it is clear that there is no requirement that the step of "identifying the second maxima . . ." be performed after the step of "identifying the minima . . ." While the claim does use the phrase "following" that does not imply that the step follows in time. Rather, "following" refers to the location of the second maxima in relation to the minima. In other words, taking one maxima as the "first maxima," the claimed method requires that the other, or "second" maxima, be separated from the first by a minima. Thus, the "minima" is described with relation to the "first" maxima, and the second maxima must follow the minima. *See*, e.g., *3M Innovative Props., Co. v. Avery Dennison Corp.*, 350 F.3d 1365, 1374-75 (Fed. Cir. 2003) (use of "first," "second," etc. does not imply that steps are performed in that order). According to the grammar of the claim, "following" and "after" refers to the spatial relationship of the minima and the second maxima to the "first" minima. It does not refer to the order in which that relationship is determined.

The specification is consistent with this understanding. Here, the patent makes clear that the order of steps are not important. The steps of identifying the maxima and minima are part of a "scanning" process. The patent makes clear that "sensors can be scanned sequentially or concurrently, depending on the hardware implementation." DeBruine Decl., Ex. A at 7:36-37. It also says that "the X and Y compute processes may be performed sequentially in either order or concurrently." *Id.* at 11:6-10. As such, the patent makes clear that the order of steps is not important to the invention.

Elan recognizes that the language Apple proposes that would impose an order of execution of the steps of "identifying a first maxima," "identifying a minima," and "identifying a second maxima" is taken in part from the claim construction order entered by Judge Breyer in the Synaptics case involving Elan's predecessor in interest, Elantech Devices Corp. *See* DeBruine Decl., Ex. G. Elan also recognizes that this language was taken from a claim construction proposed by Elantech. In the previous action, however, the *order* of the scanning steps was not important to the claim construction process or the determination of infringement. To the extent step order was discussed, Elantech made arguments consistent with Elan's positions here. In its Reply Claim Construction Brief for U.S. Patent 5,825,352, Elantech argued:

> The use of the term "following" according to the plain language itself merely explains the relative locations of the maxima and minimum, as having "a minima *following* the first maxima" and "a second maxima ... *following* said minima."

DeBruine Decl., Ex. I at 5. While this argument was made to rebut a specific point not at issue here – i.e., that the term "scanning" required the storage and examination of measured values in the order of the sensors (e.g., taken along an X or Y axis) it anticipates Elan's current position that the claim terms do not impose any sequence of steps. Therefore, Apple's proposed construction should be rejected as inconsistent with

the specification, which illustrates that the claim term "following" merely describes the relative location of the two maxima and one minimum. It does not require scanning in any particular order. The use of the term "following" according to the plain language itself merely explains the relative locations of the maxima and minimum, as having "a minima following the first maxima" and "a second maxima . . . following said minima." *Id.*

Similarly, and for the same reasons, the term "identify a minima following the first maxima" should be construed to mean "identify a lowest absolute value that follows the first maxima" and the term "identify a first maxima in a signal corresponding to a first finger" should be given the meaning: " identify a second highest absolute value, in a set of values derived from the coupling of a second finger with the touch sensor, that follows the minima."

F. "Identify" and "In Response To" Are Common English Terms That Need No Construction

Claim Term	Apple's Proposal	Elan's Proposal
Identify	"recognize a value to be"	plain meaning
In response to	"after and in reaction to"	plain meaning

The terms "identify" and "in response to" appear in the longer claim term Elan identified for construction, discussed above. These common words need no construction. The purpose of claim construction is to understand and explain the scope of claims. *Embrex, Inc. v. Service Eng'g Corp.*, 216 F.3d 1343, 1347 (Fed. Cir. 2000). Language that is clear on its face needs no construction, because no further understanding or explanation is needed. *See*, e.g., *Mentor H/S, Inc. v. Med. Device Alliance, Inc.*, 244 F.3d 1365, 1380 (Fed. Cir. 2001) (district court properly declined to construe claim terms "irrigating" and "frictional heat" and did not err by instructing the jury to give these terms their ordinary meanings). The words "identify" and "in

response to" are even more common and general than the terms at issue in *Mentor*.

What is more troubling than Apple's attempt to substitute words in an attempt to paraphrase the claim terms chosen by the inventors is the interpretation that Apple, or at least its expert, has adopted as an additional gloss on that improper interpretation. For example, while Apple proposes that "in response to" means "after and in reaction to," Dr. Von Herzen understands Apple's definition to mean "after and ***in direct*** reaction to" such that no intervening steps or events may take place. DeBruine Decl., Ex. F at 109:9-110:9. In other words, Apple appears to propose this unnecessary construction so that it can later construe its construction to require a limitation found nowhere in the claim or the specification. That attempt should be rejected.

Similarly, Apple's expert would interpret "identify" to mean "recognize to be" which in turn could well require that a value is written into memory. *Id.* at 102:15-105:8. Again, there is no basis on which to provide Apple the opportunity to present expert testimony to further construe its construction to add spurious limitations to the claims if the Court accepts Apple's construction. The term "identify" means to identify, and "in response to" means in response to.

G. The specification Clearly Discloses and Links Copious Structure to the "means for selecting an appropriate control function" Limitation (claim 19) and Therefore the Claim Is Not Indefinite.

Claim 19 depends from claim 18, and adds the requirement of a

> means for selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers.

Id., Ex. A at 17:37-42. Both parties agree that this element is a "means-plus-function" element that is governed by 35 U.S.C. § 112(6). Construction of such a claim element involves two steps. First, the Court must determine the claimed function. Second, the Court must identify the corresponding structure in the written description that performs the claimed function. *See AllVoice Computing*, 504 F.3d at 1240. Here, the parties

agree that the recited function is "selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers." DeBruine Decl., Ex. E (Amended Joint Claim Const. Stmt.) at 8.

Apple's Proposal	Elan's Proposal
The recited function is selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. Because the specification does not disclose a corresponding structure, this limitation is indefinite	The recited function is selecting an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers. The corresponding structure is Analog multiplexor 45: Capacitance measuring circuit 70: A to D convertor 80, Microcontroller 60 and/or software, firmware or hardware performing the claimed function.

Apple contends that the specification does not disclose a corresponding structure and that the limitation is therefore indefinite. *Id.* Apple could not be more wrong.

Where the structure for a means-plus-function element involves a computer or processor, the computer or processor itself is not the corresponding structure. Rather, it is the processor programmed to execute an algorithm that performs the claimed function. *WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999). The patentee need only disclose adequate defining structure to render the bounds of the claim understandable to one of ordinary skill in the art. *AllVoice Computing*, 504 F.3d at 1245. When a specifically-programmed processor is the structure, there is no need to disclose the specific program code if software were linked to a specific function and one skilled in the art would know the kind of program to use. *Id.* One of ordinary skill would understand that the structures in the specification

linked to this function are the Multiplexor 45, Capacitance Measuring Circuit 70, Analog to Digital Convertor 80, Microcontroller 60 and/or software, firmware or hardware performing the claimed function, and their equivalents. *See* Dezmelyk Decl., ¶¶ 28-30.

The specification provides numerous examples of how the combinations of fingers the number of fingers, the movement of the fingers and the time the fingers are present can be used in the claimed selecting of appropriate control functions. Many such sequences are shown in Figs. 7A-F. DeBruine Decl., Ex. A. Those functions, mapped to the illustrated gestures, can include: a second finger tap mapped to a select function, *id.* at 13:8-11; two fingers moving in unison to mapped to a "drag" function, *id.* at 13:19-22; two fingers briefly tapping the surface can be mapped to a double click of the left mouse button or a middle mouse button, s*ee id.* at 13:23-31; a three finger tap can be mapped to a right mouse button click to call up a context-sensitive menu, *id.* at 13:32-37; and three fingers moving can be used to control a scroll function, *id.* at 13:36-44. The patent also states that the invention allows the implementation of control functions that go beyond conventional mouse functions, to include, for example an "ink" function or even to implement a musical keyboard. *Id.* at 3:47-4:26. There is no dispute that, as of the filing of the '352 patent, those skilled in the art could readily construct and program a touchpad that could detect the movement of fingers in contact with the touch sensor. *See* Dezmelyk Decl., ¶ 31. There is also no dispute that one of ordinary skill in the art could determine the time duration of any such contact. *See* DeBruine Decl., Ex. F at 38:2-10. As the above examples show, the '352 patent teaches one skilled in the art how to determine the number of fingers present on the touchpad.

The '352 patent further teaches, with detailed exemplary algorithms and instructions, how to implement one such control function. For example, the algorithm

described in Fig. 8 illustrates a program that implements the gestures shown in Figs. 7F-1 and 7F-2. *Id.*, Ex. A at 13:59-61. This flow chart determines the number of fingers present on the touchpad and finger movement and determines whether to report the button as up or down (steps 915 and 925) and to report motion to control the cursor (step 930). *Id.* at 13:59-15:11. As such, one of ordinary skill in the art would very clearly understand that the scope of claim 19 includes the well-known firmware or software programmed to select an appropriate control function based on a combination of a number of fingers detected, an amount of time said fingers are detected, and any movement of said fingers.

The other structure corresponding to this limitation includes the multiplexor, capacitance measuring circuit and analog to digital converter that provide signals from which the microcontroller, or software on the host device, can determine the presence of fingers on the touchpad, the amount of time the fingers are detected and any movement of the fingers. *See id.* at 5:20-55 ("the analog to digital converter 80 then supplies the signals to the microcontroller 60, which operates to form, among other things, a finger profile for one or more fingers, X-Y cursor data, and control signals"); *id.* at 7:1-3 ("... the operation of the system of Fig. 2 is controlled in either firmware, software or hardware."); *id.* at 7:29-33 ("In some instances, driver software executing on the host may ascertain the existence of finger movement, while in other instances including the exemplary embodiment described herein the determination of finger movement occurs in firmware in the pointing device."); *id.* at 15:64-16:5 ("...this aspect of the invention is directed to the ability to identify and process various sequences in which one or more fingers are either absent or present, interspersed with the motion or lack of motion of the finger or fingers across the touch sensor, to evaluate those sequences either locally or via software on the host, and to report appropriate signals to cause cursor movements or control functions to occur in applications

programs or operating environments."). Thus, the patent discloses and links this hardware, along with firmware or software programmed to perform the claimed function, as the corresponding structure.

Because there is ample structure disclosed, this claim is not indefinite. A claim will be found indefinite only where one skilled in the art would be unable to recognize the structure in the specification and associate it with the corresponding function in the claim. *AllVoice Computing,* 504 F.3d at 1241; *see also Finisar Corp. v. The DirecTV Group, et al*, 523 F.3d 1323, 1340 (Fed. Cir. 2008) (citing *WMS Gaming*, 184 F.3d at 1349) ("The patent must disclose, at least to the satisfaction of one skilled in the art, enough of an algorithm to provide the necessary structure under § 112 ¶ 6. In the case where the corresponding structure is disclosed as logic, the algorithm in the specification need only disclose "adequate defining structure to render the bounds of the claim understandable to one of ordinary skill in the art." *AllVoice Computing,* 504 F.3d at1245 (citing *Med. Instrumentation & Diagnostics Corp. v. Eleckta AB*, 344 F.3d 1205, 1214 (Fed. Cir. 2003) ("[H]ere there would be no need for a disclosure of the specific program code if software were linked to the converting function and one skilled in the art would know the kind of program to use."); *see also Intel Corp. v. VIA Techs., Inc.*, 319 F.3d 1357, 1366 (Fed. Cir. 2003) (the internal circuitry of an electronic device need not be disclosed in the specification if one of ordinary skill in the art would understand how to build and modify the device) This algorithm can be expressed "as a mathematical formula, in prose, or as a flow chart, or in any other manner that provides efficient structure." *Finisar*, 523, F.3d at 1340. Here, one of ordinary skill in the art would understand that the written description of the '352 patent discloses structure corresponding to the function of choosing an appropriate control function based upon a combination of a number of fingers detected, an amount of time the fingers are detected and any movement of the fingers. Dezmelyk Decl., ¶¶ 28-30.

As such, the claim can be understood by one skilled in the art, and would be understood to encompass the structure Elan has identified.

H. The Specification Discloses and Links Structure to the "means for detecting a distance between said first and second maxima" (claim 24)"

Claim 24 depends from claim 18, and adds the requirement of a

means for detecting a distance between said first and second maxima.

DeBruine Decl., Ex. A at 18:14-16. Both parties agree that this element is a "means-plus-function" element that is governed by 35 U.S.C. § 112(6). Construction of such a claim element involves two steps. First, the Court must determine the claimed function. Second, the Court must identify the corresponding structure in the written description that performs the claimed function. *See AllVoice Computing*, 504 F.3d at 1240. Here, the parties agree that the recited function is "detecting a distance between the first and second maxima." DeBruine Decl., Ex. E at 9. Again, Apple claims that there is no disclosed structure and that the claim is therefore invalid as indefinite. To the contrary, the specification discloses and links adequate structure to allow one of ordinary skill in the art to understand the claim limits.

Apple's Proposal	Elan's Proposal
The recited function is detecting a distance between said first and second maxima. Because the specification does not disclose a corresponding structure, this limitation is indefinite.	The recited function is detecting a distance between the first and second maxima and equivalents thereof. The corresponding structure includes the structure of claim 18 and firmware, software or hardware that determines the distance between the location of the first maxima and the location of the second maxima, and equivalents thereof. *See*, e.g. 3:21-26, 6:59-67.

The patent points out and associates structure corresponding to the claimed function of "detecting a distance between the first and second maxima." First, the patent discusses the reason for determining that distance. For example, it can be used to ensure that two identified maxima are two fingers, and not artifacts or other inaccurate data. It does so by checking that the maxima are neither too far apart nor two close together. *Id.*, Ex. A at 6:59-67. The distance may be used as an input to a control function, such as using the distance between two fingers to set line width or other variable values. *Id.* at 3:21-26.

The patent states that "operation of the system is controlled in software, firmware or hardware. *Id.* at 7:1-3. The patent gives several examples of algorithms to illustrate the novel aspects of the invention. *See id.*, Figs. 5, 6, 8 and 9. The purpose of those algorithms, and in particular the X compute and Y computer loops, is to calculate finger location and determine whether a second finger is present. *Id.* at 7:43-48. While those algorithms do not illustrate the step of calculating the distance between two points identified as maxima, there was no need to make such an explicit disclosure. By stating that the algorithm could be modified to include these steps, the patent informs one of skill in the art of the bounds of the claim.

Determining the distance between two points on the touchpad was more than well known to those skilled in the field. Rather, that is the chief purpose of all touchpads. The control algorithm for every touchpad operating in relative mode first and foremost determined the present position of the finger, compared it to the last detected position, and calculated the distance between the two points. Dezmelyk Decl., ¶ 33. Such a calculation is shown in Fig. 5, where finger movement is determined by calculating the

distance between two points on the touchpad. *Id.* Apple's argument, if adopted, would force applicants for patents to disclose the specific steps necessary for a computer to perform eighth grade mathematics. Certainly this is the level of well-known detail that the patent laws, and the patent office rules, say need not and should not be included in the specification.

I. The specification Clearly Discloses and Links Structure for the "means for providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time." (claim 26)

Claim 26 depends from claim 18, and adds the requirement of a

> means for providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time.

DeBruine Decl., Ex. A at 18:21-24. Both parties agree that this element is a "means-plus-function" element that is governed by 35 U.S.C. § 112(6). Construction of such a claim element involves two steps. First, the Court must determine the claimed function. Second, the Court must identify the corresponding structure in the written description that performs the claimed function. *See AllVoice Computing*, 504 F.3d at 1240. Here, the parties agree that the recited function is "providing a click function in response to the removal and reappearance of said second maxima within a predetermined period of time." DeBruine Decl., Ex. E at 10. Again, Apple claims that there is no disclosed structure and that the claim is therefore invalid as indefinite. To the contrary, the specification discloses and links adequate structure to allow one of ordinary skill in the art to understand the claim limits.

Apple's Proposal	Elan's Proposal
Because the specification does not disclose a corresponding structure, this limitation is indefinite.	The corresponding structure includes the structure of claim 18 and firmware, software or hardware that provides a click function in response to the removal and reappearance of said second maxima within a predetermined period of time, and equivalents thereof. *See*, e.g. Fig. 7; 2:38-4:13; 7:1-5; 11:24-16:5.

The '352 patent discusses the utility of using the second finger to invoke a "click" function and distinguishes the patented invention from the prior art. The patent recognizes that the prior art used a single finger to move the cursor. *Id.*, Ex. A at 11:24-25. In the prior art, when that finger is tapped (that is, removed and reapplied within a predetermined amount of time) various control functions are invoked. *Id.* at 11:25-28. As discussed above, the prior art is replete with examples of touchpads in which the length of times between contacts is used to emulate a button click. *See supra* Part I.B; *see also* Dezmelyk Decl., ¶¶ 24-26. Thus, there is no dispute that algorithms to determine when a finger is removed and then reappears on the touchpad were very well known. Again, there was no need for the patent specification here to point out in excruciating detail every algorithm that would result from the various gestures disclosed in the patent. Here, the patent illustrates a novel concept – using the presence of two maxima separated by a minima – to determine the presence of two fingers. The patent teaches that this program loops continuously. To include in the control of such a touchpad a routine that monitors the number of fingers present on the touchpad over time, detects the removal and reappearance of the second maxima within a

predetermined number of scan cycles and provide a "click" function when that condition is met.

J. The specification Clearly Discloses and Links Structure for "means for calculating first and second centroids corresponding to said first and second fingers." (claim 30)

Claim 30 depends from claim 18, and adds the requirement of a

> means for calculating first and second centroids corresponding to said first and second fingers.

DeBruine Decl., Ex. A at 18:44-46. Both parties agree that this element is a "means-plus-function" element that is governed by 35 U.S.C. § 112(6). Construction of such a claim element involves two steps. First, the Court must determine the claimed function. Second, the Court must identify the corresponding structure in the written description that performs the claimed function. *See AllVoice Computing*, 504 F.3d at 1240. Here, the parties agree that the recited function is "calculating first and second centroids corresponding to the first and second fingers." DeBruine Decl., Ex. E at 11. Again, Apple claims that there is no disclosed structure and that the claim is therefore invalid as indefinite. To the contrary, the specification discloses and links adequate structure to allow one of ordinary skill in the art to understand the claim limits.

Apple's Proposal	Elan's Proposal
The recited function is calculating first and second centroids corresponding to said first and second fingers. Because the specification does not disclose a corresponding structure, this limitation is indefinite.	The recited function is calculating first and second centroids corresponding to said first and second fingers. The corresponding structure includes the structure of claim 18 and hardware, firmware or software that calculates the centroids of the measured values corresponding to the first and second fingers and equivalents thereof. *See*, e.g., Figs 6 and 9, 10:31-51.

As with the previous "means-plus-function" elements, there is clear and adequate disclosure of corresponding structure to those skilled in the art. First, the patent discusses the calculation of centroids as a step in the control algorithms used as examples. *See id.*, Ex. A, Fig. 6-2, steps 220 and 295 and Fig. 9-2, steps 220 and 295. As the patent explains, those algorithms calculate one centroid for all of the detected capacitance, such that for two fingers the centroid would "jump" to approximately the mid-point of the two fingers. *Id.* at 10:31-40. The patent goes on to disclose a second embodiment in which the centroids are calculated for each maxima, such that multiple centroids will be calculated when multiple fingers are applied. As such, one of ordinary skill in the art would understand the "means for calculating first and second centroids corresponding to said first and second maxima" to mean hardware logic, software or firmware that calculates the centroids of the measured values corresponding to the first and second fingers, and equivalents thereof.

Again, it was well within the knowledge of those skilled in the art to program such software or firmware, or create such logic. Calculating a centroid is a very well-known part of touch sensor controllers. *See* Dezmelyk Decl., ¶¶ 18, 20 and 32, Ex. 1

(Boie). Such a calculation is expressly shown in the patent. In order to adapt steps 220 and 295 to the alternate embodiment of claim 30, all one of skill in the art need do is substitute the range of sensor locations to correspond to the "first maxima" and repeat the calculation for the "second maxima." *Id.*, ¶ 32. In other words, rather than analyzing all of the measured locations, the formula would be adopted to examine the range of values surrounding each maxima. *Id.*, ¶ 33. Apple's claim that there is no corresponding structure again ignores the disclosure of the patent as it would be understood by those skilled in the art.

III. CONCLUSION

For the foregoing reasons, the construction of the disputed claim terms proposed by Elan are consistent with the claim language, the written description and file history of the '352 patent and the understanding of those skilled in the art. For those reasons, the construction of these terms proposed by Elan should be adopted.

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