Functional Claiming for Software Patents: 
Leveraging Recent Court Treatment
Surviving 112(f) and Disclosing Functional Basis for Software to Meet Heightened Standard of Review

TUESDAY, JUNE 5, 2018
1pm Eastern  |  12pm Central  |  11am Mountain  |  10am Pacific

Today’s faculty features:

Cory C. Bell, Attorney, Finnegan Henderson Farabow Garrett & Dunner, Boston
Christopher S. Schultz, Partner, Finnegan Henderson Farabow Garrett & Dunner, Boston

The audio portion of the conference may be accessed via the telephone or by using your computer’s speakers. Please refer to the instructions emailed to registrants for additional information. If you have any questions, please contact Customer Service at 1-800-926-7926 ext. 1.
Tips for Optimal Quality

Sound Quality
If you are listening via your computer speakers, please note that the quality of your sound will vary depending on the speed and quality of your internet connection.

If the sound quality is not satisfactory, you may listen via the phone: dial 1-866-370-2805 and enter your PIN when prompted. Otherwise, please send us a chat or e-mail sound@straffordpub.com immediately so we can address the problem.

If you dialed in and have any difficulties during the call, press *0 for assistance.

Viewing Quality
To maximize your screen, press the F11 key on your keyboard. To exit full screen, press the F11 key again.
Continuing Education Credits

In order for us to process your continuing education credit, you must confirm your participation in this webinar by completing and submitting the Attendance Affirmation/Evaluation after the webinar.

A link to the Attendance Affirmation/Evaluation will be in the thank you email that you will receive immediately following the program.

For additional information about continuing education, call us at 1-800-926-7926 ext. 2.
Disclaimer

These materials are public information and have been prepared solely for educational and entertainment purposes to contribute to the understanding of U.S. intellectual property law and practice. These materials reflect only the personal views of the authors and are not individualized legal advice. It is understood that each case is fact-specific, and that the appropriate solution in any case will vary. Therefore, these materials may or may not be relevant to any particular situation. And not all views expressed herein are subscribed to by each author. Thus, the authors and Finnegan, Henderson, Farabow, Garrett & Dunner, LLP cannot be bound either philosophically or as representatives of various present and future clients to the comments expressed in these materials. The presentation of these materials does not establish any form of attorney-client relationship with the authors or Finnegan, Henderson, Farabow, Garrett & Dunner, LLP. While every attempt was made to insure that these materials are accurate, errors or omissions may be contained therein, for which any liability is disclaimed.
Functional Claiming In Software Patents
A claim term is functional when it recites a feature “by what it does rather than by what it is” (e.g., as evidenced by its specific structure or specific ingredients). There is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper.

The statute authorizes functional claiming.

MPEP §§ 2173.05(g) and 2181.
The ‘840 patent is directed to a “distributed learning system that uses industry-standard computer hardware and software linked by a network like the Internet” to create a “virtual classroom” environment.
Claim 8:

A system for conducting distributed learning... comprising...

a distributed learning control module for receiving communications transmitted between the presenter and the audience member computer systems and for relaying the communications to an intended receiving computer system and for coordinating the operation of the streaming data module.
Williamson – Procedural History


- The District Court held claim 8 and dependent claims 9-16 invalid as indefinite because the specification “fails to disclose the necessary algorithms for performing the claimed functions.”

- Williams stipulated to final judgment and appealed to the Federal Circuit.
Williamson – Procedural History

- The Federal Circuit held that, under Lighting World, “[t]he district court here failed to give weight to the strong presumption that 35 U.S.C. § 112, para. 6 did not apply based on the absence of the word ‘means’”, vacated the judgment of invalidity, and remanded (November 5, 2014) (“Williamson I”).

- Citrix sought and was granted en banc review, which was decided June 15, 2015 (“Williamson II”).
Williamson (II)

- The Federal Circuit withdrew its earlier opinion and substituted a new one ("Williamson II") including an en banc section addressing the means-plus-function issue.

- The en banc decision reversed and “expressly overrule[d]” the string of cases including Lighting World creating a “strong” presumption, in a return to the standard set forth in Personalized Media Comm’s. v. ITC, 161 F.3d 696 (Fed. Cir. 1998).
Why eliminate the “strong” presumption?

- The heightened presumption has “resulted in a proliferation of functional claiming.”

- Concern that claim drafters are too free to draft functional claims, without using “means”, “untethered” from §112 para. 6 statutory requirements.

- It is “uncertain in meaning and application, and has the inappropriate practical effect of placing a thumb on what should otherwise be a balanced analytical scale.”
Williamson (II)

Application of the Standard

- The claim limitation is “in a format consistent with traditional means-plus-function claim limitations. It replaces the term ‘means’ with the term ‘module’ and recites three functions performed by the ‘distributed learning control module.’”

- “Module” does not provide “any indication of structure” and is a “black box recitation... for providing the same specified function” as “means.”
The prefix “distributed learning control” by itself has insufficient structure, and there is not enough in the written description or prosecution history to impart any structural significance to it.

Likewise, the claimed interaction of the distributed learning control module with other claimed components does not “inform the structural character of the limitation.”
The court disregarded expert testimony that one of ordinary skill in the art would know how to program software to perform the claimed functions.

- Such testimony “cannot create structure where none otherwise is disclosed.”

Conclusion: “distributed learning control module” is subject to §112 paragraph 6
Two-step process for construing 112(f):
- Identify the claimed function(s).
- Determine corresponding structure in specification.

The intrinsic evidence must clearly link or associate the function in the claim to the structure disclosed in the specification.

If there is inadequate disclosure of the corresponding structure, or one of ordinary skill cannot determine the correspondence, the claim is indefinite.
Williamson (II) – Judge Reyna

- Judge Reyna, in a separate opinion, concurs with the majority opinion as to the §112 issues.
- Questions whether the “rigid framework” of any presumption is correct.
- Believes a more “flexible” test is appropriate that focuses only on whether the claims recite function with insufficient structure, “regardless of whether the word ‘means’ is used.”
Williamson (II) – Judge Newman

- Judge Newman, in dissent, writes that the negatives of changing the law outweigh the positives and is “legislation by footnote.”
- The result is “clear: additional uncertainty of the patent grant, confusion in its interpretation, invitation to litigation, and disincentive to patent-based innovation.”
- “[N]o one will know whether a patentee intended means-plus-function claiming until this court tells us.”
- “Means”-based presumption was very clear.
Applying the 112(f) Standard
3-prong Analysis for Means-type Claims

Following MPEP 2181(l), a claim limitation should be interpreted according to 112(f) if it meets the following 3-prong analysis:

1) The claim limitation uses the phrase “means” or a term used as a substitute for “means” that is a generic placeholder;

2) The phrase “means” or the substitute term is modified by functional language, typically linked by the transition word “for” (e.g., “means for”) or another linking word; and,

3) The phrase “means” or the substitute term is not modified by sufficient structure or material for performing the specified function
112(f) Presumptions

- When an application contains claim limitations in the form of a term modified by functional language, note the 112(f) presumptions by use of FP 7.30.04

- FP 7.30.04 recites in part:
  “…Claim elements that use the word “means” are presumed to invoke 112(f) except as otherwise indicated in the Office Action. Similarly, claim elements that do not use the word “means” are presumed not to invoke 112(f) except as otherwise indicated in an Office Action.”

- The Examiner must still complete the 3-prong analysis for each occurrence of a term modified by functional language indicating those limitations in which the presumptions set forth by FP 7.30.04 are overcome
In addition to the use of FP 7.30.04, the prosecution record should be clarified when the presumptions are overcome, such as when:

- a claim uses the word “means” and 112(f) is not invoked
  - Not modified by functional language
  - Includes sufficient structure or material for achieving the specified function
- a claim uses a generic placeholder instead of the word “means” and 112(f) is invoked
Terms That May Invoke 112(f)

MPEP Section 2181:

mechanism for
module for
device for
unit for
component for
element for
member for
apparatus for
machine for
system for
Williamson Applied by District Courts

After Williamson, courts determine if a claim limitation is in a format consistent with traditional means-plus-function (MPF) claim limitations.

- Does the claim limitation provide or impart any structure to the claimed function being performed?
- Is a function claimed?

Once the court establishes that a claim term is drafted in MPF format, construction of the term is the traditional two-step process. Not Dead Yet Mfg. V. Pride Solutions, LLC, 2015 U.S. Dist. LEXIS 135629 (N.D. ILL. Oct. 5, 2015).

- First, the court identifies the claimed function.
- Second, the court determines what structure, if any, disclosed in the specification corresponds to the claimed function.
“Unit” Does Not Invoke 112(f)

OPTIS Wireless Tech. LLC v. ZTE Corp.

A mobile station apparatus comprising:

... 

**a determination unit** configured to determine a resource of downlink, to which a response signal transmitted from the base station is mapped, from an index of the allocated resource block based on the allocation information,

...
‘Determination unit’ . . . connotes structure. Even if the term ‘determination unit’ does not in isolation connote sufficiently definite structure, the claim connotes structure to one of skill in the art by reciting details of **how the unit functions as part of the claim**. The claim states the **objective** of the ‘determination unit’ is ‘to determine a resource of downlink.’ It further states the ‘determination unit’ **achieves this objective** using ‘an index of the allocated resource block based on the allocation information’ received by the ‘reception unit.’

Such a disclosure of the objectives of the ‘determination unit’ and **how the unit operates within the context of the claimed invention** connotes sufficiently definite structure to one of skill in the art.

“Element” Does Not Invoke 112(f)

Telebrands Corp. v. GMC Ware, Inc.

Claim term: **driving element**

Does not invoke MPF because the claim required that the driving unit be fixed securely within the axial space of the rotary rod and formed with a central spiral hole.

Other physical limitations in the claim meant that the driving element was “an object configured to rotate and simultaneously cause rotation of another object.”

“Device” Invokes 112(f)

Verint Sys. v. Red Box Recorders, Ltd.

A recording system for capturing and recording audio data packets transmitted across a data network, comprising:

a data switch operable to receive a plurality of call setup requests, requesting to establish a voice data session between a calling party and a called party, the voice data session comprising audio data packets communicated between a calling party and a called party via a data network;

a monitoring device operable to capture the audio data packets received by the data switch, wherein the monitor is operable to identify a call to which the audio data packets belong, and to associate the audio data packets to a voice interaction session; and

a data store operable to interface with the monitor and to record at least a portion of the received audio data packets to a record associated with the voice interaction session.

“Device” Invokes 112(f)

Verint Sys. v. Red Box Recorders, Ltd.

The term “monitoring device” invoked MPF treatment and failed to provide sufficient structure.

The term “device” is a nonce term that was operative to perform three functions:

- To capture the audio data packets...
- To identify a call...
- To associate the audio data packets to a voice interaction session

The claims recite computer-implemented functions, but the specification did not provide an algorithm for all the functions of the monitoring device.

Reliance on the Summary of the Invention, which stated the claimed functions in a “conclusory manner”, was insufficient disclosure of an algorithm for the “identify” function.

Reliance on identical portions of the specification as supporting the “identify” and “associate” functions evidenced that the patent lacked a description of how the device would perform the claimed monitoring.

The term ‘monitoring device’ did not appear anywhere in the specification much less with an associated algorithm. “The failure to even reference this device in the specification raises enough doubt about whether a person of ordinary skill in the art could understand what structure corresponds to the means limitation.”
“Device” Does Not Invoke 112(f)

Cellular Comm’s Equip. v. Samsung

A method, comprising:

monitoring a usage of a plurality of buffers;

detecting one of a plurality of pre-selected conditions corresponding to the plurality of buffers;

designating one of a plurality of buffer status reporting formats comprising a long buffer status reporting format and a short buffer status reporting format depending on the pre-selected condition detected; and

communicating a buffer status report to a network device in accordance with the buffer status reporting format designated, wherein the designating designates the long buffer status reporting format when there is sufficient uplink bandwidth to communicate using the long buffer status reporting format.

“Device” Does Not Invoke 112(f)

*Cellular Comm’s Equip. v. Samsung*

The disputed term includes a preceding modifier, ‘network,’ which changes the meaning of the word ‘device.’ . . . The specification shows how ‘network device’ designates structure: . . . FIG. 5 is a block diagram representing a short buffer status reporting format 500 in accordance with one embodiment of the present invention.
“Device” Does Not Invoke 112(f)


The word “network” gives rise to **structural connotations** when coupled with the word “device,” as reinforced by the specification.

The term “network device” does not appear “in a format consistent with traditional means-plus-function claim limitations.” In *Williamson*, the court noted that the relevant portion of the claims at issue “replaces the term 'means' with the term 'module' and recites three functions performed by the 'distributed learning control module.'”
“Device” Does Not Invoke 112(f)

Cellular Comm’s Equip. v. Samsung

The claim does not recite any functional limitation associated with the “network device” other than perhaps merely being the recipient of a buffer status report.

The disclosure in the specification and the context in which the term is used in the claims demonstrate that “network device” is not a means-plus-function term.

Note: Skky v. Mindgeek, 859 F.3d 1014 (Fed. Cir. 2017): “wireless device means” in the preamble does not invoke MPF because claim did not recite function - just structure.
“Module” Invokes 112(f)

Verint Sys. v. Red Box Recorders, Ltd.

A system to manage communications over a communications network that includes an exchange, the system comprising:

- a monitoring device configured to connect the system to the communications network and to receive data packets from the communications network;

- an analysis module configured to receive an identifier tagged onto the data packets so as to identify the data packets, such that the identified data packets form at least a portion of the traffic stream and that data packets are selected data packets;

- a recorder configured to receive the selected data packets and to store the selected data packets, such that the selected data packets are stored data packets;

- a data store configured to receive and to store the stored data packets from the recorder, such that said at least a portion of the traffic stream is stored;

- a link between the exchange and the recorder configured to transfer information related to the data packets from the exchange to the recorder.

“Module” Invokes 112(f)

Verint Sys. v. Red Box Recorders, Ltd.

The term “analysis module” involves the term “module” which was the exact nonce word at issue in Williamson, and that by adding the term “analysis” imparts no structure just as adding “distributed learning control” failed to do so in Williamson.

The analysis module “is a black box nonce term that performs a function consistent with the format of MPF claiming” because it is configured to perform a single function (e.g., receive an identifier tagged onto the data packets...
“Module” Invokes 112(f)

Verint Sys. v. Red Box Recorders, Ltd.

Patentee’s reliance on a technical dictionary “reveals a lack of structure in the specification.”

- Patentee attempted to impart structure into the claim by arguing that the “‘analysis module’ contains inherent structure because the term ‘data analysis’ is defined in a technical dictionary as the ‘systematic investigation of data and their flow in a real or planned system.’”

- Court: the “immediate resort to a technical dictionary for an entirely different term reveals the lack of structure in the specification... crediting the definition of ‘data analysis’ as the definition for the added term ‘analysis’ still only describes the claimed function at a high level but fails to offer corresponding structure...”

The court reviewed the specification and did not find an algorithm performing the analysis module’s functions or steps.
“Module” Invokes 112(f)

_Metaswitch Networks Ltd. v. Genband USA LLC_

A gateway system for interfacing telephony signals with a broadband access network, comprising:

an **access network module** operable to interface with the broadband access network;

at least one telephony port module operable to interface with a public switched telephone network, the telephony port module including a plurality of digital signal processors operable to perform processing functions on telephony signals received from either the broadband access network or the public switched telephone network;

a system controller module operable to manage a flow of telephony signals between the **access network module** and the telephony port module, the telephony port module operable to assign telephony signals to any digital signal processor of the telephony port module.
“Module” Invokes 112(f)

Metaswitch Networks Ltd. v. Genband USA LLC

Unlike the term “telephony port module,” the term “access network module” is not recited in the claim in association with any distinct structure, and the term does not modify the word “module” with any language that imparts structure.

In particular, the phrase “access network” merely refers to a broadband network.

The term “access network” module is therefore construed as a means-plus-function term.
“Module” Does Not Invoke 112(f)

Same case: different claim

A system for interfacing telephony voice signals with a broadband access network, comprising:

a plurality of *telephony port modules* each operable to receive telephony voice signals, each of the plurality of *telephony port modules* including one or more digital signal processors, each digital signal processor operable to perform one or more processing functions on the telephony voice signals, wherein each of the plurality of *telephony port modules* may transfer a received telephony voice signal to any digital signal processor on any of the plurality of *telephony port modules*.

“Module” Does Not Invoke 112(f)

Metaswitch Networks Ltd. v. Genband USA LLC

The claims themselves recite each of the telephony port modules “including one or more digital signal processors” or “including a plurality of digital signal processors.”

The reference to a ‘port’ also connotes structure known in the art, relying on Dictionary of Computer Science Engineering & Technology, Newton's Telecom Dictionary; Phillips, 415 F.3d at 1318 (“We have especially noted the help that technical dictionaries may provide to a court to better understand the underlying technology and the way in which one of skill in the art might use the claim terms.”)
“Module” Does Not Invoke 112(f)

St. Isidore Research v. Comerica

transaction processing module

not subject to 112(f)

claim itself recites the algorithm - the algorithm connotes structure

contrast to Williamson

Claim term: a **processor for associating** the content data with dispatch record data which includes at least said time related indicia and an indicia relating to the destination of the dispatch, to generate authentication data which authenticate[s] the dispatch and the contents of the dispatch.
“Processor” Invokes 112(f)

GoDaddy.com, LLC v. RPost Commc'ns Ltd.,

“Although the Court concludes that the term ‘processor’ connotes at least some structure, this does not end the Williamson analysis.”

“The Court first reviews how one skilled in the art would understand ‘processor’ as used in Claim 82.”
Based on a review of dictionary definitions, the Court concludes that a skilled artisan would not recognize “processor” as a name of a sufficiently definite structure for “associating” two distinct types of data in order to “generate” a third class of data. Rather, one skilled in the art would understand “processor” to mean a general purpose computer, a central processing unit (“CPU”), or a program that translates another program into a form acceptable by the computer being used.
“Processor” Invokes 112(f)

GoDaddy.com, LLC v. RPost Commc'ns Ltd.,

The Court concludes that “associating” two sets of data in order to “generate” a third set of data is not a typical function found in a general purpose processor and requires additional programming of the processor to implement. Accordingly, the claimed “processor” alone is not sufficient structure to perform the claimed functions.
“Processor” Invokes 112(f)


Processor -

performing an incremental find
ordering one or more items found in the incremental find

The claim does not recite sufficiently definite structure to perform the recited functions.

112(f) applies - claim is limited to “algorithmic structure” in the specification.
“Processor” Invokes 112(f)

St. Isidore Research v. Comerica

Processor -

Term is often structural but here is only defined by its function

Claim does not describe how the processors interact with each other or with other limitations in the claim

There was sufficient structure disclosed in the specification.
“Processor” Does Not Invoke 112(f)

Syncpoint Imaging, LLC v. Nintendo of Am. Inc.

a processor for:

(1) processing the image to detect position of the optical cursor and at least one property of the optical cursor; and

(2) converting the position and at least one property to corresponding commands to control the computer and move an internal cursor to a position corresponding to the optical cursor while the optical cursor remains within the output displayed on the screen.
“Processor” Does Not Invoke 112(f)

Syncpoint Imaging, LLC v. Nintendo of Am. Inc.

Here, the Court finds that § 112, ¶ 6 does not apply for three reasons.

First, ‘processor’ connotes structure.”

Dictionary definitions: the court found dictionary definitions are analogous to those relied on by the Federal Circuit in Linear Technology. (379 F.3d at 1320 (defining ‘circuit’ as ‘the combination of a number of electrical devices and conductors that, when interconnected to form a conducting path, fulfill some desired function.’)
“Processor” Does Not Invoke 112(f)

Syncpoint Imaging, LLC v. Nintendo of Am. Inc.

Second, [the claim] itself recites the objectives and operations of the processor limitation.

Third, one of ordinary skill in the art would understand the structural arrangements of the processor from the recited objectives and operations of the processor.
“Processor” Does Not Invoke 112(f)

Finjan, Inc. v. Proofpoint, Inc.

A system for protecting a computer from dynamically generated malicious content, comprising:

- a **content processor** (i) for processing content received over a network, the content including a call to a first function, and the call including an input, and
- (ii) **for invoking** a second function with the input, only if a security computer indicates that such invocation is safe;

“Processor” Does Not Invoke 112(f)

Finjan, Inc. v. Proofpoint, Inc.

The term “content processor” has a sufficiently specific structure.

The claim itself describes how the content processor interacts with other components, which provides the term’s structural character.
“Processor” Does Not Invoke 112(f)


A processor for associating a text message with an attachment

processor connotes a class of structures, referencing technical dictionary and Webster’s

context imparts additional structural significance and understandability to processor

claim term has its ordinary meaning
“Processor” Does Not Invoke 112(f)


The term processor is not a nonce word.

IEEE Dictionary of Computing
IEEE Standards

claim language provides the objectives and operations of the claimed processors

(collects cases finding processor does not invoke 112(f)).
Claim term: user interface code being configured to detect one or more locations touched by a movement of the user's finger on the screen without requiring the exertion of pressure and determine therefrom a selected operation.

The phrase ‘user interface code’ provides the same ‘black box recitation of structure’ as the word ‘module’ in Williamson, and the claim language provides no additional clarification regarding the structure of the term, the ‘user interface code’ is a means-plus-function term.
Citing Williamson, the presumption can be overcome, and § 112, ¶ 6 will apply, “if the challenger demonstrates that the claim term fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function.”

Citing AGIS v. Life360, Inc., 830 F.3d 1341, 1347 (Fed. Cir. 2016): “In determining whether this presumption has been rebutted, the challenger must establish by a preponderance of the evidence that the claims are to be governed by § 112, ¶ 6.”
“The district court’s discussion is revealing: its determination that the terms must be construed as means-plus-function limitations is couched in conclusory language.”

“The court relied on Apple’s arguments, contrasting them against Zeroclick’s contentions, but pointed to no record evidence that supports its ultimate conclusion regarding whether § 112, ¶ 6 applies to the asserted claims.”
“Code” – Federal Circuit – Vacates


“The district court’s discussion is revealing: its determination that the terms must be construed as means-plus-function limitations is couched in conclusory language.”

“By taking that approach, the district court effectively treated “program” and “user interface code” as nonce words, which can operate as substitutes for “means” and presumptively bring the disputed claims limitations within the ambit of § 112, ¶ 6. That is erroneous for at least three related reasons.”
“Code” – Federal Circuit – Vacates


First, the mere fact that the disputed limitations incorporate functional language does not automatically convert the words into means for performing such functions.

Second, the court’s analysis removed the terms from their context, which otherwise strongly suggests the plain and ordinary meaning of the terms.

Third, and relatedly, the district court made no pertinent finding that compels the conclusion that a conventional graphical user interface program or code is used in common parlance as substitute for “means.”
“Code” – Involves 112(f)


program code for configuring -

(1) term invokes 112(6)
    - only defined by function it performs
    - how the code interacts with other code or structure is not described
    - no indicia of structural nature of code

(2) disclosure requirement not met
    - the GUI does not perform the claimed functions of partitioning and configuring; cannot be corresponding structure
“Code” Does Not Invoke 112(f)

Uniloc USA, Inc. v. Autodesk, Inc.

wherein the add-on computer software code has a palette that includes at least one parametric symbol that corresponds with a construction plan element, and that may be selected by a user for insertion into the construction plan drawing; and wherein the add-on computer software code when executed by the local computer:

(i) inserts at least one of the parametric symbols that are selected by a user into the construction plan drawing;
(ii) transmits data corresponding to inserted parametric symbols from the local computer to the database;
(iii) receives from the database a price for the purchase of one or more construction plan elements corresponding to inserted parametric symbols, wherein the price may be determined using price data that is present in the database; and
(iv) generates a price schedule from the prices, wherein the price schedule may include a total cost for all of the construction plan elements corresponding to inserted parametric symbols, wherein the price schedule can include one or more construction plan elements, and wherein the price schedule can be immediately used on the local computer to place an order to purchase one or more construction plan elements that are present in the price schedule.

“Code” Does Not Invoke 112(f)

Uniloc USA, Inc. v. Autodesk, Inc.

The claims connote that the “add-on computer software code” is structural by describing how the “add-on computer software code” operates within the claimed invention to achieve its objectives:

For instance, the claim recites that the add-on computer software code runs within the software design tool, inserts specific symbols into a drawing provided by the software design tool, transmits specific symbol data from...
Claim Scope Impact

A claim invoking 112(f) “shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.” 35 U.S.C. 112(f).

Scope is limited “to only the structure, materials, or acts described in the specification as corresponding to the claimed function and equivalents thereof.” Williamson v. Citrix, 792 F. 3d 1339, 1347 (Fed. Cir. 2015).

112(f) may limit claim scope
Comparison of BRI

- Limitation that **does not** invoke § 112(f)
  
  $$\textit{BRI} = \textit{[plain meaning of the claim language]}$$
  
  - Details from the specification are not considered part of the claim limitation

- Limitation that **does** invoke § 112(f)
  
  $$\textit{BRI} = \textit{[corresponding structure, material, or acts disclosed in the specification, and equivalents, for performing the recited function]}$$
  
  - The corresponding specification is considered to be part of the claim limitation

5/24/2018
“Even if the specification discloses corresponding structure, the disclosure must be of ‘adequate’ corresponding structure to achieve the claimed function.’” Williamson v. Citrix, 792 F. 3d at 1352.

For software, “[w]e require that the specification disclose an algorithm for performing the claimed function.” Id.

“Adequacy” is hard to reconstruct after-the-fact. Id. at 1354 (“The testimony of one of ordinary skill in the art cannot supplant the total absence of structure from the specification.”)

- Dictionaries
- Prior Art
- Expert testimony

112(f) may impose a higher disclosure burden
A claim satisfies the **written description** requirement when “the **disclosure** of the application relied upon reasonably **conveys** to those skilled in the art that the inventor had **possession** of the claimed subject matter as of the filing date.“  *Ariad v. Eli Lilly*, 598 F. 3d 1336, 1351 (Fed. Cir. 2010) (*en banc*).

A claim invoking 112(f) “shall be construed to cover the corresponding structure, material, or acts **described in the specification** and equivalents thereof.”

112(f) **may** mean W/D requirement met
Enablement Impact

- “[T]o be enabling, the specification must teach those skilled in the art how to make and use the full scope of the claimed invention without ‘undue experimentation’.” *In re Wright*, 999 F. 2d 1557, 1561, (Fed. Cir. 1993).

- Enablement serves the dual function of ensuring adequate disclosure of the claimed invention and of preventing claims broader than the disclosed invention. Broad claim language is used at the peril of losing any claim that cannot be enabled across its full scope. MPEP 2164.06(a)(l).

112(f) constrains claim scope to the disclosure (and equivalents)
Definiteness Impact

  - “1. A method of operating a processing system to control a packet communication system...”
  - District Court: Invalid as indefinite.
    - Structural limitation - functionally described - did not pass Nautilus.
  - Federal Circuit: Reversed.
    - “All of the asserted claims are method claims, and the point of novelty resides with the steps of these methods, not with the machine that performs them. ‘‘Processing system’ is merely the locus at which the steps are being performed.”
    - “If ‘processing system’ does not discernably alter the scope of the claims, it is difficult to see how this term would prevent the claims (...from serving their notice function under § 112, ¶ 2.”
    - “Claims are not per se indefinite merely because they contain functional language.”
Programmed Computer Functions

- Programmed computer functions require a computer programmed with an “algorithm” to perform the function
  - An algorithm is a step-by-step procedure for accomplishing a given result
  - Can be expressed in various ways “in any understandable terms including as a mathematical formula, in prose or as a flow chart, or in any other manner that provides sufficient structure” (Finisar)
  - Amount of disclosure of an algorithm is analyzed on a case-by-case basis
Programmed Computer Functions

Two types of computer-implemented functions:

**Specialized functions**: functions other than those commonly known in the art, often described by courts as requiring “special programming” for a general purpose computer or computer component to perform the function

- Ex. *means for matching incoming orders with inventory on a pro rata basis*

**Non-specialized functions**: functions known by those of ordinary skill in the art as being commonly performed by a general purpose computer or computer component

- Ex. *means for storing data*
Programmed Computer Functions

Specialized v. Non-specialized functions:

With respect to computer-implemented functional claims, a "microprocessor or general purpose computer lends sufficient structure only to basic functions of a microprocessor. All other computer-implemented functions require disclosure of an algorithm." EON, 785 F.3d at 623 (Fed. Cir. 2015).
Programmed Computer Functions

- A specialized function must be supported in the specification by the computer and the algorithm that the computer uses to perform the claimed specialized function
  - The default rule for § 112(f) programmed computer claim limitations is to require disclosure of an algorithm when special programming is needed to perform the claimed function
  - Disclosure of the step by step procedure for specialized functions establishes clear, definite boundaries and notifies the public of the claim scope
  - Claiming a processor to perform a specialized function without disclosing the internal structure of the processor in the form of an algorithm, results in claims that exhibit the ‘overbreadth inherent in open-ended functional claims’ Halliburton Energy Services
Specialized Computer-Implemented Function

- The corresponding structure in the specification that supports a § 112(f) limitation that recites a specialized function is:
  - A general purpose computer or computer component along with the algorithm that the computer uses to perform the claimed specialized function
  - The disclosure requirement under § 112(f) is not satisfied by stating that one of ordinary skill in the art could devise an algorithm to perform the specialized programmed function
A § 112(f) specially programmed computer limitation is construed as:

- **Means** for performing a specialized function = [**computer/component** + **algorithm** described in the supporting disclosure for performing the entire claimed function]
- The “structure” in this case is the hardware plus the algorithm that the hardware uses to perform the function
- A generic reference to hardware alone or hardware with “software” is not sufficient support for specialized functions
Specialized Computer-Implemented Function

AGIS v. Life360, 830 F.3d 1341 (Fed. Cir. 2016):

- Accused product -- mobile app designed to help families stay connected
- Claim term - “a symbol generator connected to [a] CPU and [a] database for generating symbols on [a] touch screen display screen.”
Specialized Computer-Implemented Function

**AGIS v. Life360, 830 F.3d 1341 (Fed. Cir. 2016):**

- Unrebutted expert testimony that one reading the spec. would know the symbol generator was a known class of structures/software modules.

- Fed. Cir.: Symbol=known; Generator=known; Symbol generator=abstraction.
AGIS v. Life360, 830 F.3d 1341 (Fed. Cir. 2016):

- The term ‘symbol generator’ invoked 112(f) because it fails to describe a sufficient structure and otherwise recites abstract elements "for" causing actions.

- It “is a term coined for the purposes of the patents-in-suit. The term is not used in ‘common parlance or by persons of skill in the pertinent art to designate structure’ such that it connotes sufficient structure to avoid the application of 35 U.S.C. § 112(f).
Specialized Computer-Implemented Function


- Claim term: “initial motion recognition module”
Specialized Computer-Implemented Function

Claim term: “initial motion recognition module”

- the initial motion recognition module performing an initial recognition with respect to motion data acquired by a sensor, and providing m*Fs frames of motion data prior to the motion trigger point, motion data regarding the motion trigger point, and n*Fs-1 frames of motion data after the motion trigger point to the data storage module for storage, m and n denoting a predefined positive integer, and Fs denoting a sampling rate, and wherein one frame of motion data is a collection of data collected by various sensors at the same sampling moment.
Challenger: “initial motion recognition module” performs a specialized function and thus requires a specialized computer, but no algorithm is disclosed to connote structure.

Court: *Williamson* does not stand for the proposition that module automatically “places it among terms such as ‘means’” thus triggering the 112(f) presumption.
Specialized Computer-Implemented Function


- Court: rebuttable presumption that 112(f) does not apply.
- There is adequate structure: look at claim language.
- The specification “clearly identifies the initial motion recognition module and describes its structure and the process for carrying out initial motion recognition.”
- The specification allows one of skill to understand “what it does” and “how it does it.”
Programmed Computer Functions

- A non-specialized computer function can be adequately supported in the specification by a general purpose computer only
  - Applies to functions that can be accomplished by any general purpose computer without special programming
  - It is only in rare circumstances that an algorithm need not be disclosed
  - In those situations, make the record clear, if necessary, that the function is a non-specialized function and therefore no disclosure of an algorithm is required
  - Note that a known prior art device (any general purpose computer) that performs the claimed function would anticipate the limitation
Non-specialized Computer-Implemented Function

- The corresponding structure in the specification that supports a § 112(f) limitation that recites a non-specialized function is:
  - A general purpose computer or a known computer component that is recognized by those of ordinary skill in the art as typically including structure and basic programming, if needed, to perform the claimed function
  - No disclosure of a specific algorithm is required
    - Sufficient supporting structure for a “means for storing data” could be a known memory device, such as a RAM, recognized by those skilled in the art as sufficient structure for storing data
Non-specialized Computer-Implemented Function

  - Claim terms: "[the second device / the first device / the other device / the at least one client device / the client device] sending a signal to a server that indicates the start of the pairing process"
  - Neither the claims nor the specification provide much detail about this function; instead, it appears to be a simple transmission of a data signal from the client to the server. The specification makes only one passing mention of it and simply states that "the client tells the server to begin a pairing process."
Non-specialized Computer-Implemented Function

- *Fitbit v. Aliph Corp.*
  - Given the relatively simple nature of this function, the "[second/other/client/first] device" is sufficiently definite structure, as this term requires a device that has the basic, general-purpose computing ability to transmit a data signal.
Non-specialized Computer-Implemented Function

  - Claim term: “data storage module”
  - Presumption not triggered.
  - The term "data storage module" contains enough structure in itself and as supported by the specification.
  - It is sufficient if the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure, even if the term covers a broad class of structures and even if the term identifies the structures by their function.
Consider pros and cons of functional claiming in view of Williamson.

- Omitting the term “means” does not provide a “strong” presumption that §112(f) does not apply.

- Indefiniteness will be a challenge if the specification does not disclose particular structure, materials or steps that accomplish the function or achieve the result.

- What does one of one of understand the boundaries of the claim are in the specific context of the art.
Benefits and Risks of Functional Claims

- **Benefits**
  - Link to specification to avoid prior art.
  - Requires clear thinking for disclosures.
  - Statutory equivalents to what is linked to the specification, but such statutory equivalents are considered in the context of literal infringement, not doctrine of equivalents.

- **Challenges/Limits**
  - Narrowness and linking to the specification
  - Defining statutory equivalents
  - USPTO treatment
Benefits and Risks of Functional Claims

- It is difficult to anticipate whether a functional recitation will be later interpreted to invoke 112(f).

  - Reasons for allowance
  - Reexamination / reissue
  - Licensing negotiation
  - Litigation

- Potentially narrowing or invalidating the claims.

  - e.g., under § 112, ¶2 for lack of corresponding structure.
Best Practices: Drafting Stage - Specification

- Specification: Assume that § 112(f) will apply.
  - Write specification to provide structure that is clearly linked to any functional recitations in the claims.
    - Use the claim terms in the specification.
  - Disclose alternative structures:
    - Programmed processor, circuitry, algorithms.
  - Disclose algorithm behind every "black box."
    - Include a flow chart and associated description for each element of the claim
MPEP 2181: Must Link in a §112(f) Claim

- Structure disclosed in the specification is corresponding structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim. Duty to link structure to function is the quid pro quo for employing 112, paragraph 6.

- “The structure disclosed in the written description of the specification is the corresponding structure only if the written description of the specification or the prosecution history clearly links or associates that structure to the function recited in a means- (or step-) plus-function claim limitation under 35 U.S.C. 112(f) ... The requirement that a particular structure be clearly linked with the claimed function in order to qualify as corresponding structure is the quid pro quo for the convenience of employing 35 U.S.C. 112(f) ... and is also supported by the requirement of 35 U.S.C. 112(b) ... that an invention must be particularly pointed out and distinctly claimed. ... For a means- (or step-) plus- function claim limitation that invokes 35 U.S.C. 112(f) ... a rejection under 35 U.S.C. 112(b) ... is appropriate if one of ordinary skill in the art cannot identify what structure, material, or acts disclosed in the written description of the specification perform the claimed function.”
A single means claim does not comply with the enablement requirement of 112(a), and is not a proper 112(f) claim.

“A single means claim is a claim that recites a means-plus-function limitation as the only limitation of a claim. ... A single means claim does not comply with 35 U.S.C. 112(a) ... requiring that the enabling disclosure of the specification be commensurate in scope with the claim under consideration. ... Thus, a single means limitation that is properly construed will cover all means of performing the claimed function. A claim of such breadth reads on subject matter that is not enabled by the specification, and therefore, should be rejected under section 112(a) .... See also MPEP § 2164.08(a).”
Best Practices: Drafting Stage - Claims

- Claims: Avoid claiming “black boxes”
  - e.g., modules, units
  - Instead, claim/disclose processors, circuitry, etc.
  - For non-method software claims, one solution may be to claim a processor executing instructions that when executed perform a function (rather than claiming a “module”)

- Consider explicit “means” claim set
  - By claim differentiation, non-"means" claims may not invoke the statutory construction.

- Consider CRM claim set
  - "A computer readable medium storing instructions for executing a method performed by a computer processor, the method comprising .... “
Best Practices: Prosecution

- Consider Arguing without Examiner raising
  - Supplement the “intrinsic” record
    - dictionary definitions
    - expert statements
    - argument
  - Distinguish various claim sets
Best Practices: Post-Prosecution

- Consider reissue to correct potential problems in existing portfolio.
  - Over-reliance on modules, units, etc.
Thank You

Cory C. Bell
cory.bell@finnegan.com

Christopher S. Schultz
christopher.schultz@finnegan.com