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Functional Claiming in Litigation

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Corus Realty Holdings, Inc. v. Zillow Group, Inc., et al.



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(12) **United States Patent**
Hartz, Jr. et al.
 (10) **Patent No.: US 6,636,803 B1**
 (45) **Date of Patent: Oct. 21, 2003**

(54) **REAL-ESTATE INFORMATION SEARCH AND RETRIEVAL SYSTEM**
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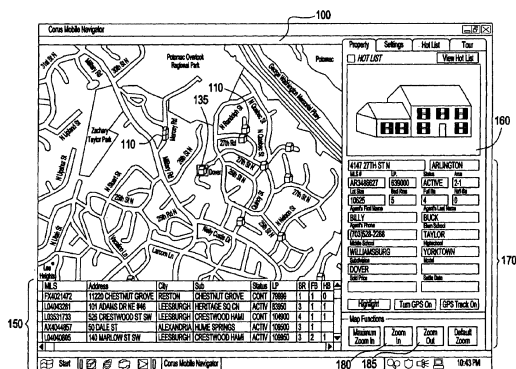
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ABSTRACT
 (57)
 A search and retrieval system includes a data terminal which displays icons representing properties in a given real-estate market on a digital map. The icons are selectable so that, when selected, information derived from an MLS or other database are displayed in association with the map. In one embodiment, the data terminal is equipped with a GPS receiver and data-enabled mobile phone. The GPS receiver receives location data which is used by a processor to display an icon representing a current location of the terminal within the map. The data-enabled phone links the terminal to a remote server or database of property information, which may also be displayed when property icons are selected on the map. The property information may include media (e.g., bitmap) data that provide a visual depiction of the property icons selected. By integrating all of these digital sources of information on one terminal, the efficiency and accuracy of the property buying experience is significantly enhanced.

33 Claims, 5 Drawing Sheets



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5. The method of claim 1, further comprising:
receiving location data indicative of a current location of
the mobile computing device in said area of interest;
and

displaying, on said digital map, information indicative of
the current location of said mobile computing device in
said area of interest.

6. The method of claim 1, wherein the digital map is
displayed in a first window on said mobile computing
device, and wherein said property information includes a
digital image of said item of property, and said digital image
of said item of property is displayed in a second window in
response to the property icon being selected.

7. The method of claim 1, wherein said database is
derived from a database of MLS listings.

8. The method of claim 1, wherein said property infor-
mation additionally includes at least one of demographics
information related to said item of property, current owner
information for said item of property, property specification
information and real-estate broker information.

9. The method of claim 1, wherein said obtaining step
includes obtaining property information which includes
locations, market price and market status of a plurality of
items of property in said area of interest, and wherein said
displaying a property icon step includes displaying a prop-
erty icon for each of said plurality of items of property with
said digital map.

10. The method of claim 9, wherein the digital map with
the plurality of property icons displayed on the map is
displayed in a first window, property information of an item
of property is displayed in a second window in response to
the property icon associated with the item of property being
selected in the first window, and textual information relating
to each of the plurality of items of property is displayed in
a third window.

11. The method of claim 10, wherein said second window
includes at least one user-modifiable field, and wherein if a
user enters information in said second window, the database
is searched for items of property that match the user-
entered information, and items of property that match the user-
entered information are displayed in the third window.

12. The method of claim 11, wherein a user-modifiable
field in the second window is market price range, and
wherein if a user enters a price range in the market price
range field, the database is searched for items of property
whose market price is in the entered range, and items of
property whose market price is in the entered price range are
displayed in the third window.

13. The method of claim 1, wherein said market status
information is selected from the group consisting of sold,
available or under contract.

14. A real-estate market information mobile computing
device, comprising:

a map generation unit for generating a digital map cov-
ering an area of interest;

a storage unit for storing property information which
includes at least a location, a market price and a market
status of an item of property in said area of interest;

a processor for determining information needed to display
a property icon for the item of property at the location
of the item of property on said digital map, and for
determining information needed to display property
information about the item of property associated with
the property icon, in response to the property icon being
selected; and

a display unit for displaying said generated digital map
and the property icon, and for displaying the associated

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property information for the item of property when the
associated property icon is selected.

15. The real-estate market information mobile computing
device of claim 14, wherein said property information about
the item of property displayed in response to the property
icon associated with the item of property being selected
includes at least one of a digital image of said item of
property, demographics information related to said item of
property, current owner information for said item of
property, property specification information, market price
information, and market status information.

16. The real-estate market information mobile computing
device of claim 14, wherein said digital map shows at least
one street within said area of interest.

17. The real-estate market information mobile computing
device of claim 16, wherein said property icon is displayed
on or adjacent to said street.

18. The real-estate market information mobile computing
device of claim 14, further comprising:

a location determining unit which determines a current
location of said mobile computing device, said location
determining unit inputting information indicative of
said current location to said map generation unit, said
map generation unit automatically generating said digi-
tal map covering said area of interest based on said
current location information.

19. The real-estate market information mobile computing
device of claim 18, wherein said location determining unit
is a GPS receiver.

20. The real-estate market information mobile computing
device of claim 14, wherein said property information
additionally includes a digital image of said item of property.

21. The real-estate market information mobile computing
device of claim 14, wherein said property information
additionally includes at least one of demographics infor-
mation related to said item of property, current owner infor-
mation for said item of property, property specification
information, and real-estate broker information.

22. The real-estate market information mobile computing
device of claim 14, wherein said property information stored
in the storage unit is comprised of a database of one or more
MLS listings.

23. The real-estate market information mobile computing
device of claim 14, wherein said storage unit stores MLS
listing information, wherein the location of said item of
property is included within said MLS listing information.

24. The real-estate market information mobile computing
device of claim 14, wherein said market status information
is selected from the group consisting of sold, available or
under contract.

25. The real-estate market information mobile computing
device of claim 14, wherein said display unit displays the
generated digital map with the property icon in a first
window, and wherein said property information includes a
digital image of the item of property, and said digital image
of said item of property is displayed in a second window in
response to the property icon being selected.

26. The real-estate market information mobile computing
device of claim 14, wherein stored property information
includes locations of a plurality of items of property in said
area of interest, and wherein said processor determines
information needed to display a plurality of selectable icons
corresponding to locations of each of the plurality of items
of property, respectively, said locations included within said
property information stored in said storage unit.

27. The real-estate market information mobile computing
device of claim 26, wherein said display unit displays the

14. A real-estate market information mobile computing
device, comprising:

a map generation unit for generating a digital map cov-
ering an area of interest;

a storage unit for storing property information which
includes at least a location, a market price and a market
status of an item of property in said area of interest;

a processor for determining information needed to display
a property icon for the item of property at the location
of the item of property on said digital map, and for
determining information needed to display property
information about the item of property associated with
the property icon, in response to the property icon being
selected, and

a display unit for displaying said generated digital map
and the property icon, and for displaying the associated
property information for the item of property when the
associated property icon is selected.

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- Should these elements be construed as means-plus-function elements?
 - In making that determination, what is the role of the specification?
 - What is the role of experts?
- If any are means-plus-function elements, what is sufficient disclosure of structure to avoid indefiniteness?
 - Can reference to commercial products be sufficient?
 - Can structure be incorporated by reference to patents or publications?
 - What is sufficient for an algorithm?

Means-Plus-Function Claiming Generally

- “An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material or acts described in the specification and equivalents thereof.” 35 U.S.C. § 112(f)

Applicable Presumptions

- Use of “means” creates a rebuttable presumption that § 112(f) applies.
- Failure to use the word “means” creates a rebuttable presumption that § 112(f) does not apply.
 - The presumption can be overcome “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.” *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1348 (Fed. Cir. 2015) (*en banc*) (holding that “distributed learning control module for receiving communications ... for relaying communications ... and for coordinating” was a means-plus-function element).
 - *Citrix* overruled cases holding that this was a “strong” presumption.

Basic Principles – Does the Claim Term Sufficiently Convey a Definite Structure?

- A “critical question” is “whether ‘the claim term is used in common parlance or by persons of skill in the pertinent art to designate structure,’ including either a particular structure or a class of structures.” *MTD Prod. Inc. v. Iancu*, 933 F.3d 1336, 1341 (Fed. Cir. 2019); *Skky, Inc. v. MindGeek, s.a.r.l.*, 859 F.3d 1014, 1020 (Fed. Cir. 2017) (“[I]t 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.”).
- What is the line between “any structure” and a “broad class” of structures?

“Nonce” Words Do Not Impart Structure

- Certain words are considered “nonce” words, and are often treated as a synonym for “means.” *Williamson*, 792 F.3d at 1350 (holding that “module” is a “nonce” word that can operate as a substitute for ‘means’ in the context of § 112[f].”)

EXAMPLES

- “Mechanism” (“Compliance Mechanism”) - *In Media Rights Techs., Inc. v. Capital One Fin. Corp.*, 800 F.3d 1366, 1373 (Fed. Cir. 2015)
- “Device” (“Program Loading Device” / “Program Recognition Device”) - *See, e.g., Robert Bosch, LLC v. Snap-On Inc.*, 769 F.3d 1094, 1097 (Fed. Cir. 2014)
- “Module” (“Customization Module”) - *Grecia v. Samsung Elecs. Am., Inc.*, 780 F. App'x 912, 915 (Fed. Cir. 2019)
- “Assembly” (“Mechanical Control Assembly”) - *MTD Prod. Inc. v. Iancu*, 933 F.3d 1336, 1344 (Fed. Cir. 2019)

Basic Principles — “Adjectival Qualification”

- Modifying a nonce word can convey structure.
 - “Circuit” connotes sufficient structure *when it is coupled to something else*. *Power Integrations, Inc. v. Fairchild Semiconductor Int'l, Inc.*, 711 F.3d 1348, 1365-66 (Fed. Cir. 2013) (“A description of the circuit's operation may provide sufficiently definite structure as can certain “adjectival qualifications.”).
 - *Linear Tech. Corp. v. Impala Linear Corp.*, 379 F.3d 1311, 1320 (Fed. Cir. 2004) (“Thus, when the structure-connoting term “circuit” is coupled with a description of the circuit's operation, sufficient structural meaning generally will be conveyed to persons of ordinary skill in the art, and § 112 ¶ 6 presumptively will not apply.”).

An Algorithm is the Structure for Computer-Implemented Functions

- “In a means-plus-function claim in which the disclosed structure is a computer, or microprocessor, programmed to carry out an algorithm, the disclosed structure is not the general purpose computer, but rather the special purpose computer programmed to perform the disclosed algorithm.” *WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1349 (Fed. Cir. 1999).

The *Katz* Exception—Receiving, Processing and Storing Data

- A computer, without any disclosure of an algorithm, is sufficient where the recited function is fundamental or “coextensive” to a computer, such as processing data. *In re Katz Interactive Call Processing Patent Litig.*, 639 F.3d 1303, 1316 (Fed. Cir. 2011) (“Those seven claims do not run afoul of the rule against purely functional claiming, *because the functions of “processing,” “receiving,” and “storing” are coextensive with the structure disclosed, i.e., a general purpose processor.*”).

An Algorithm in Claim Can Avoid 112(f) Treatment

- Claim language itself may sufficiently disclose an algorithm through “inputs” and “outputs.” *Apple Inc. v. Motorola Inc.*, 757 F.3d 1286, 1300 (Fed. Cir. 2014) (holding the term “heuristic” was not within 112(f) because “the claim language and the specification disclosed the heuristic’s operation within the context of the invention including the inputs, outputs, and how certain outputs are achieved.”).
- *But cf. Citrix*, 792 F. 3d at 1351 (“While portions of the claim do describe certain inputs and outputs at a very high level (e.g., communications between the presenter and audience member computer systems), the claim does not describe how the “distributed learning control module” interacts with other components ... in a way that might inform the structural character of the limitation-in-question or otherwise impart structure”).

Terms Without “Means” Found to be Within § 112(f)

- “Distributed learning control module” – *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1351 (Fed. Cir. 2015)
- “Cheque standby unit” – *Diebold Nixdorf, Inc. v. Int’l Trade Comm’n*. 899 F.3d 1291, 1298 (Fed. Cir. 2018)
- “Symbol generator” – *Advanced Ground Information Sys., Inc. v. Life360, Inc.* 830 F.3d 1341 (Fed. Cir. 2016)
- “Identifying unit,” “obtaining unit,” and “processing unit” – *Huawei Techs. Co. Ltd. v. T-Mobile US, Inc.*, Case No. 2:16-CV-00056-JRG-RSP, 2017 WL 2267304, at *17-19 (E.D. Tex. May 24, 2017) (finding “unit” is a “generic recitation of software or hardware, and is purely functional claiming”)

Terms Without “Means” Found to be Within § 112(6)

- “Colorant selection mechanism” – *Massachusetts Institute of Technology and Electronics for Imaging, Inc., v. Abacus Software*, 462 F.3d 1344, 1354 (Fed. Cir. 2006) (“In contrast, the term ‘colorant selection,’ which modifies ‘mechanism’ here, is not defined in the specification and has no dictionary definition, and there is no suggestion that it has a generally understood meaning in the art. We therefore agree with the district court that ‘colorant selection mechanism’ does not connote sufficient structure to a person of ordinary skill in the art to avoid 112 ¶ 6 treatment.”).

Cases Finding Terms Were *Not* § 112(f) Elements

PRE-CITRIX CASES WHEN STRONG PRESUMPTION APPLIED

- “Connector assembly” – *Lighting World, Inc. v. Birchwood Lighting, Inc.*, 382 F.3d 1354, 1359-60 (Fed. Cir. 2004).
- “Aesthetic correction circuitry” – *Massachusetts Institute of Technology and Electronics for Imaging, Inc., v. Abacus Software*, 462 F.3d 1344, 1354 (Fed. Cir. 2006) (relying on claim language that described the operation of the circuit).
- “Computing unit” – *Inventio A.G. v. Thyssenkrupp Elevator Americas Corp.*, 649 F.3d 1350, 1360 (Fed. Cir. 2011) (relying on “strong presumption that the claimed ‘computing unit’ connotes such sufficiently definite structure to those skilled in the art”).
- “Multi-function unit” – *Securus Techs., Inc. v. Glob. TelLink Corp.*, No. 3:13-CV-03009-K, 2015 WL 356872 (N.D. Tex. Jan. 27, 2015).
- “Modernizing device” – *Inventio AG v. Thyssenkrupp Elevator Americas Corp.*, 649 F.3d 1350, 1358 (Fed. Cir. 2011) (relying on claim language describing inputs and outputs to modernizing device).

Cases Finding Terms Were *Not* § 112(f) Elements

POST-CITRIX CASES

- “Executable 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....” – *Zeroclick, LLC v. Apple Inc.*, 891 F.3d 1003 (Fed. Cir. 2018) (holding the claim terms were directed to existing code and would be construed as “specific references to conventional graphical user interface programs or code, existing in the prior art at the time of the inventions.”).
- “System memory” and “digital logic” – *TecSec, Inc. v. Int’l Bus. Mach. Corp.*, 731 F.3d 1336, 1347 (Fed. Cir. 2017) (holding that “system memory” and “digital logic” sufficiently conveyed structure)

Can Examples of Structure in the Specification Be Sufficient to Avoid §112(f) Treatment?

SOME DECISIONS SUGGEST THAT EXAMPLES CAN CONVEY SUFFICIENT STRUCTURE

- Under *Phillips*, courts must look to specification to construe claim terms. Can examples in specification be enough to convey structure to an otherwise functional term?
- Some courts have followed this reasoning. *Huawei Techs. Co. Ltd. v. T-Mobile US, Inc.*, 2017 WL 1376436 at *16 (E.D. Tex 2017) (112(6) “does not apply when the *written description provides context as to the ‘inputs and outputs’ and how the claim components ‘interact [] with other components . . . in a way that . . . inform[s] the structural character of the limitation-in-question or otherwise impart[s] structure.*” (quoting *E2E Processing, Inc. v. Cabela’s, Inc.*, 2015 WL 40514323 at *20 (E.D. Tex. July 2, 2015)) (emphasis added).

Can Examples of Structure in the Specification Be Sufficient to Avoid §112(f) Treatment?

Relied on this dicta in *Williamson*:

- Although the ‘distributed learning control module’ is described in a certain level of detail in the written description, the written description fails to impart any structural significance to the term. At bottom, we find nothing in the specification or prosecution history that might lead us to construe that expression as the name of a sufficiently definite structure as to take the overall claim limitation out of the ambit of section 112, para 6.

Quiz

Are the following § 112(f) elements?

- “A map generation unit for generating a digital map covering an area of interest....”
 - Specification says such units are “well-known” and refers to Map Point and MapQuest commercial product—no evidence underlying algorithm of products is known
- “A storage unit for storing property information.”
 - Specification discloses only persistent memory (database of property information).
- “A processor for determining information needed to display a property icon....”
 - Dispute as to whether specification discloses algorithm.

“Map Generation Unit”—Not 112(f)

“Looking solely at the language of Claim 14, a person of ordinary skill in the art could find that “map generation unit” lacks sufficiently definite structure. Claim 14 describes “map generation unit” only in relation to its function: “generating a digital map covering an area of interest.” (’803 Patent at C1 2:47-53); see *Diebold Nixdorf, Inc. v. Int’l Trade Comm’n*, 899 F.3d 1291, 1298 (Fed. Cir. 2018). However, analyzing the words of the claim does not end the court’s analysis. Rather, as stated above, the court makes the § 112(f) determination “under the traditional claim construction principles . . . in light of evidence intrinsic and extrinsic to the asserted patents.” See *Zeroclick*, 891 F.3d at 1007.

Descriptions of the inputs and outputs of a term support a finding that the term recites sufficient structure. See *Inventio*, 649 F.3d at 1358-59. Here, according to the Patent’s specification, one embodiment of the Invention is a stand-alone data terminal that “is equipped with a map generation unit, a storage unit, a processor, and a display.” (’803 Patent at B1 4:15-20.) “

Corus v. Zillow, Claim Construction Order at 20.

“Map Generation Unit”—Not 112(f)

“Corus’s expert, Mark Sturza, confirmed that such map generation programs were commercially available at the time of the Patent and would have provided sufficiently definite meaning as the name for structure to a person of ordinary skill in the art. (Sturza Decl. (Dkt. # 35-3) ¶¶ 36-38.)

Further, Mr. Sturza testified that the term is understood by skilled artisans to refer to a structure or class of structures.

Thus, the ’803 Patent recites structure by providing “examples of what structures or class of structures fall within the definition of” the storage unit. *See Diebold*, 899 F.3d at 1298.”

Claim Construction Order at 23.

“Storage Unit”—Not 112(f)

“Thus, the '803 Patent recites structure by providing “examples of what structures or class of structures fall within the definition of the storage unit. *See Diebold*, 899 F.3d at 1298.”

Claim Construction Order at 28.

“Storage Unit”—112(f)

Defendants’ expert argues that “storage unit” is a means-plus-function limitation because “storage unit” would not be recognized by a skilled artisan as having a sufficiently definite structure. (Bederson Decl. (Dkt. # 35-3) ¶ 60.) Dr. Bederson asserts that “‘unit’ is a generic description of software or hardware . . . and the prefix ‘storage’ simply repeats the functional description” (*Id.*) However, as with “map generation unit,” Dr. Bederson made this determination only considering the language in the claim, inappropriately disregarding other relevant intrinsic and extrinsic evidence. (See *id.*; *id.* ¶ 61 (Dr. Bederson explaining that he only considered the intrinsic and extrinsic evidence after concluding that “storage unit” was a means-plus-function limitation).)

In contrast to Dr. Bederson, Corus’s expert argues that storage unit is understood by persons of ordinary skill in the art to have sufficiently definite meaning as the name for structure. (Sturza Decl. ¶ 46.) Mr. Sturza relies on the specification language cited above to reach his conclusion. (*Id.* ¶¶ 47-49.)

Claim Construction Order at 30.

“Processor for determining information needed to display a property icon...” –Not 112(f)

Here, the Patent explains how the processor interacts with other components, as well as the inputs and outputs of the processor.

* * *

The Patent also provides examples of the processor’s structure:

The processor may be any type capable of running a program or script for performing the information search, retrieval, and data integration functions of the invention. If the mobile terminal is a notebook computer, the processor may be a microprocessor running an application program which performs various management functions necessary for implementing the method of the present invention.

These management functions include retrieving information from the map generation and storage units based on various data inputs and commands, as well as integrating this information for presentation on the display of the terminal.

(*Id.* at B1 5:32-42.) Thus, the processor is hardware—such as a microprocessor—that is capable of running a program or script for searching, retrieving, and integrating data from the storage unit, map generation unit, and—in some embodiments—the GPS receiver and/or remote server.

Claim Construction Order at 39-40.

Recent Federal Circuit Clarification as to Role of Specification?

Following decision, Federal Circuit seemed to clarify that specification must **define** functional term to avoid 112(f) treatment.

- “We agree with the Board that specification plays a role in assessing whether particular claim language invokes § 112, ¶6, but we do not agree that the patent specification at issue here renders the nonced term ‘mechanical control assembly’ sufficiently structural to a person of ordinary skill in the art. **The specification does not demonstrate that the patentee intended to act as its own lexicographer and define the nonced term....”** *Id.* at 1344; *see also id.* at 1338 (“**We conclude that the Board erred by conflating corresponding structure in the specification with a structural definition for the term....”**)
 - *MTD Prod. Inc. v. Iancu*, 933 F.3d 1336, 1344 (Fed. Cir. 2019)

Indefiniteness --Can Expert Testimony Substitute for Structure in the Specification?

- Experts can presumably explain that a claim term conveys structure to a POSITA.
- But some cases suggest that there must be other supporting extrinsic evidence. *See Diebold Nixdorf, Inc. v. Int'l Trade Comm'n*, 899 F.3d 1291, 1298 (Fed. Cir. 2018) (holding that ITC had improperly relied on expert testimony to find that “cheque standby unit” conveyed structure, when there were no dictionary definitions or other evidence that it had a meaning to a POSITA).
- And when it comes to algorithms, the courts apparently require that the algorithm be in the specification. *Williamson*, 792 F.3d at 1354 (“The testimony of one of ordinary skill in the art cannot supplant the total absence of structure from the specification.”); *Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1313 (Fed. Cir. 2012) (finding that if the specification discloses no algorithm, the sufficiency of disclosure may not be judged in light of a person of ordinary skill).
- Make sense? Why can't algorithm be “well known?”

Indefiniteness--Can Structure Be Incorporated by Reference?

- “Material incorporated by reference cannot provide the corresponding structure necessary to satisfy the definiteness requirement for a means-plus-function clause.” *Default Proof Credit Card Sys., Inc. v. Home Depot U.S.A., Inc.*, 412 F.3d 1291, 1301 (Fed. Cir. 2005); *Amtel Corp. v. Information Storage Devices, Inc.*, 198 F.3d 1374, 1382 (Fed. Cir. 1999) (holding that essential material could not be incorporated by reference from non-patent documents); *but see Otto Bock HealthCare LP v. Össur HF*, 557 Fed. Appx. 950, 955 (Fed. Cir. 2014) (holding that *Amtel* “only foreclose[d] the use of the content of a non-patent publication to add structure to a means-plus-function claim”).

Indefiniteness--Can Structure Be Incorporated by Reference?

- But other cases allow incorporation of structure of commercial products. *Budde v. Harley-Davidson, Inc.* 298 F.3d 1369, 1381 (Fed. Cir. 2001) (holding that referenced vacuum sensors with analog sensors sufficiently disclosed structure because they were “well known.”); *Zeroclick, LLC v. Apple Inc.*, 891 F.3d 1003 (Fed. Cir. 2018) (in holding the terms were not covered by 112(6), court found claim language was directed to existing code and would be construed as “specific references to conventional graphical user interface programs or code, existing in the prior art at the time of the inventions.”).
- Why isn’t this incorporation by reference? Is it clearer to refer to a commercial product than an IEEE article?

Questions?