

2024-1432

**United States Court of Appeals
for the Federal Circuit**

GOOGLE LLC,
Appellant

v.

NOBOTS LLC,
Appellee

**Appeal from the United States Patent and Trademark Office,
Patent Trial and Appeal Board in
Case No. IPR2022-00940**

PRINCIPAL BRIEF OF APPELLANT GOOGLE LLC

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Nobots LLC - Ex. 2024 IPR2026-00429 Google LLC v. Nobots
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EXEMPLARY PATENT CLAIM AT ISSUE

Claim 19: A method for assessing a confidence level that an operator of a client computing device interacting with a server is a human being rather than an autonomic computer application, the method comprising:

- a) acquiring interest data from the client computing device prior to delivery of issued data by the server to the client computing device;
- b) comparing the interest data to model data relating to human interaction with a computing device prior to the time in which the interest data is acquired; and
- c) generating a value that represents a confidence level that a human user rather than an autonomic user operated the client computing device prior to the time in which the interest data is acquired.

FORM 9. Certificate of Interest

Form 9 (p. 1)
March 2023

**UNITED STATES COURT OF APPEALS
FOR THE FEDERAL CIRCUIT**

CERTIFICATE OF INTEREST

Case Number 2024-1432

Short Case Caption Google LLC v. Nobots LLC

Filing Party/Entity Google LLC

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Form 9 (p. 2)
March 2023

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Provide the full names of all entities represented by undersigned counsel in this case.	Provide the full names of all real parties in interest for the entities. Do not list the real parties if they are the same as the entities. ☒ None/Not Applicable	Provide the full names of all parent corporations for the entities and all publicly held companies that own 10% or more stock in the entities. ☐ None/Not Applicable
Google LLC		XXVI Holdings Inc.; Alphabet Inc.

☐ Additional pages attached

FORM 9. Certificate of Interest

Form 9 (p. 3)
March 2023

4. Legal Representatives. List all law firms, partners, and associates that (a) appeared for the entities in the originating court or agency or (b) are expected to appear in this court for the entities. Do not include those who have already entered an appearance in this court. Fed. Cir. R. 47.4(a)(4).

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☒ None/Not Applicable ☐ Additional pages attached

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STATEMENT OF RELATED CASES

Appellant Google LLC (“Google”) identifies the following case involving U.S. Patent No. 9,595,008 (“the ’008 patent”) that may directly affect or be directly affected by a decision in this appeal: *Nobots LLC v. Google LLC*, 1-22cv-00585-RP (W.D. Tex.). The district court case remains stayed pending completion of this appeal. *Nobots LLC v. Google LLC*, 1-22cv-00585-RP, Dkt. No. 64 (W.D. Tex.).

JURISDICTIONAL STATEMENT

The Board had jurisdiction under 35 U.S.C. §§ 6(b)(4), 311, 316(c). The Board's decision issued on November 29, 2023. Appx1-52. Google timely appealed on January 30, 2024. Appx2170-2226. This Court has jurisdiction under 28 U.S.C. § 1295(a)(4)(A) and 35 U.S.C. §§ 141(c), 319.

INTRODUCTION

The '008 patent relates to methods for determining whether a computer accessing a website is being operated by a human or an automated program (*i.e.*, a “bot”). The patent’s methods acquire data about the computer, compare that data to “model data” that is indicative of a human using a computer, and then generate a “confidence” value based on that comparison, *i.e.*, how likely is it that the computer is human-operated or bot-operated. The type of data that is acquired from the computer and compared to model data can be either “active data,” *e.g.*, how the computer’s mouse is moving, or “passive data,” *e.g.*, the computer’s IP address.

The Board correctly held that nearly all claims of the '008 patent are unpatentable, but it erred when it found that the prior-art Kitts reference did not anticipate independent claim 19. That method claim has three steps, the first of which recites “*acquiring interest data from the client computing device prior to delivery of issued data by the server to the client computing device.*”¹ Kitts’s system indisputably retrieves interest data from a client computing device with the required timing, and otherwise meets all elements of claim 19. However, the Board found that Kitts did not anticipate the claim because the type of data that Kitts retrieves is *passive* data, and the Board construed the phrase “*acquiring interest data*” to require the retrieval of at least some *active* data. That construction is wrong.

¹ Emphasis is added throughout and claim language has been italicized.

The proper construction of the three-word phrase “*acquiring interest data*” is clear from the claim language and the patent’s specification. To start, the plain meaning of the word “*acquiring*” is simple and well-known—it means retrieving. There is no dispute on this point.

The term “*interest data*” itself has no set meaning in the art, but is a term that the patentee explicitly defined in the specification. And that definition says that “*interest data*” “comprises active *or passive data*.” Appx60 (3:41-46). Again, there is no dispute as to how the patentee defined “*interest data*.”

Therefore, under this Court’s claim construction principles, the disputed phrase “*acquiring interest data*” simply means retrieving active or passive data, and Kitts’s system indisputably retrieves the latter. This straightforward construction is fully consistent with the specification which uses forms of the word “*acquire*” in accordance with its plain meaning when describing the embodiment to which claim 19 is directed. That description even states that the type of data that the patent’s method acquires includes active data *or passive data*. A dependent claim—when properly read to depend from claim 19—further confirms this fact as it limits “*the interest data*” of claim 19 to “*available data*,” which the patent defines as a form of *passive data*. The intrinsic record fully supports construing “*acquiring interest data*” to mean retrieving active or passive data.

The Board reached its contrary claim construction by reliance on the definition of a term—“acquired data”—that does not appear in claim 19. The patent defines “acquired data” as well as “its equivalents and verb forms” as limited to active data. The Board reasoned that this definition should be applied liberally such that the word “*acquiring*” took on a novel meaning in the context of claim 19 and limited the type of data capable of being acquired to active data. But neither the word “*acquiring*” by itself nor the full disputed phrase “*acquiring interest data*” is a “verb form” of “acquired data,” and the Board’s overly liberal application of lexicography is inconsistent with this Court’s precedent which establishes an exacting standard for lexicography. That the Board’s construction effectively (and impermissibly) reads “*interest data*” entirely out of claim 19 and is inconsistent with how Nobots interpreted the claim language in pending district court litigation further underscores the flaws in the Board’s construction.

The Board’s construction should be reversed, the phrase “*acquiring interest data*” should be construed to mean retrieving active or passive data, and the Board’s patentability finding for claim 19 should be reversed because there is no dispute that Kitts retrieves passive data.

STATEMENT OF ISSUES

Whether the Board erred in construing “*acquiring interest data*” in claim 19 to require retrieving “active” data where (a) the patentee defined the term “*interest data*” to encompass “passive” data, (b) the plain meaning of “*acquiring*” does not impose any limit on the type of data retrieved, (c) the patentee did not re-define “*acquiring*” to have a meaning other than its ordinary meaning, and (d) the Board’s construction is otherwise inconsistent with the specification?

STATEMENT OF THE CASE

A. Overview of the Patent

The '008 patent describes methods for assessing whether a computer accessing a website's server is being operated by a human or instead by an automated program (a.k.a. a "bot"). Appx59 (1:7-16, 2:12-18).

The patent explains that website developers employ "a variety of tests" to detect and block bots from accessing a website's server for "abus[ive]" reasons. Appx59 (1:7-16). One well-known test is "CAPTCHA,"² which "requir[es] the human user to answer a test that should be simple to most humans but difficult for non-humans, e.g., bots." Appx59 (1:54-60). "A common type of CAPTCHA requires that the user type the letters, digits or characters of a distorted image appearing on the screen." Appx59 (1:24-27).

According to the '008 patent, although conventional CAPTCHA tests "are becoming increasingly more difficult for bots, they are also becoming more difficult and/or burdensome for human users." Appx59 (1:37-40). The patent therefore sought to "[r]educ[e] or eliminat[e] the requirement of a user having to decipher CAPTCHA" so as to "create a more positive user experience for [website] visitors and minimize opportunity costs." Appx59 (2:5-8).

² The term "CAPTCHA" was coined by Carnegie Mellon University and stands for "Completely Automated Public Turing test to tell Computers and Humans Apart." Appx59 (1:22-24).

The patent seeks to reduce the need for CAPTCHAs by using other ways of differentiating between human and bot activity that “are highly transparent to the user” (*e.g.*, they do not require the user to do anything extra) and therefore are less bothersome. Appx60 (4:35-39). Specifically, the patent compares “data relating to the operation of the computing device” attempting to access a server “to suitable models embodying human user derived data (model data).” Appx59 (1:65-2:22). The “model data” against which the comparison is made can include either or both of two categories of data: “passive” model data and “active” model data. Appx59 (2:54-60).

Passive model data is “data available from a computing device user’s interactions therewith and within the computing environment where such data is normally stored (logged) or transmitted to a remote location.” Appx60 (3:9-12). Passive data can include data such as “browser cookies” or an “originating IP address” (Appx60 (3:9-24)), which are items that are normally transmitted when, *e.g.*, a user’s computing device requests to access a webpage from a web server.

Active model data is “data acquired from a computing device user’s interaction therewith and within the computing environment where such data is not normally stored (logged) or transmitted to a remote location,” and therefore “[g]enerally...must be monitored and stored...by a program operative on the computing device, which makes the data available to another program, preferably

on a server..., or actively transmits such data to a server.” Appx59-60 (2:60-3:9). Active data can include data such as “pointing device vector movements” or “key stroke combinations.” Appx59-60 (2:60-3:32). Active data can be collected, for example, by installing “a covert program” similar to “malware applications [that] log keystrokes and periodically pass them to remote servers.” Appx60 (4:6-15).

The patent discloses acquiring either of the two forms of data and comparing the data to “model data.” Appx59-60 (2:54-60, 3:33-60). The comparison “yields a probability value” as to the status of the computing device attempting to access a server, *e.g.*, human-operated versus bot-operated. Appx59-60 (2:21-33, 3:47-65).

B. The Challenged Claims

The Board found that claims 1-17 and 20 either were anticipated or would have been obvious, but found that claim 18 (dependent from claim 1) and independent claim 19 were not proven obvious. Appx50. Nobots did not appeal the Board’s unpatentability findings for claims 1-17 and 20, and Google is no longer appealing the Board’s finding with respect to claim 18. Google’s appeal thus concerns independent claim 19 only, and that claim is reproduced in full below:

19. A method for assessing a confidence level that an operator of a client computing device interacting with a server is a human being rather than an autonomic computer application, the method comprising:
 - a) acquiring interest data from the client computing device prior to delivery of issued data by the server to the client computing device;

- b) comparing the interest data to model data relating to human interaction with a computing device prior to the time in which the interest data is acquired; and
- c) generating a value that represents a confidence level that a human user rather than an autonomic user operated the client computing device prior to the time in which the interest data is acquired.

In broad terms, claim 19 covers acquiring “*interest data*,” which the patent defines as including “active or passive data, whether available or acquired, that correlates to any data within model data.” Appx60 (3:41-45). The “*interest data*” in claim 19 is then compared to “*model data*” to generate a “*value that represents a confidence level*” that the computer interacting with the server is being operated by a human, rather than a bot.

The key dispute before the Board for claim 19 was how the phrase “*acquiring interest data*” in step a) should be construed.

C. The Prior Art

The only reference that remains relevant on appeal is Kitts (Appx585-601).

Kitts describes techniques for detecting and preventing “click fraud,” which is a known problem in “pay-per-click” systems of Internet advertising. Appx593 ([0002]-[0005]). Pay-per-click advertisers place clickable advertisements on a publisher’s website (e.g., Yahoo), and pay the publisher “a charge-per-click rate every time an online advertisement is selected by a user” who clicks on the advertisement and is referred to the advertiser’s website. Appx593 ([0002]). Kitts explains that “click fraud occurs when a person or computer program imitates a

legitimate user by clicking on an online advertisement for the purpose of generating an improper charge per click.” Appx593 ([0003]). “Not only can click fraud be perpetrated by a user repeatedly clicking an advertisement, but various automated methods can also be used,” such as “malicious software...configured to constantly click advertisements...in the background of a computing device.” Appx593 ([0005]).

Kitts describes techniques for “reducing the influence of click fraud” by detecting when “a web-page request” is “originating from an automated system e.g., a program that constantly clicks advertisements.” Appx594 ([0020]-[0021]). In Kitts’s system, “attributes” associated with the device making the web-page request are collected and fed into a statistical model to “calculate a probability that the web-page request was fraudulently initiated” by such a clickbot. Appx585 (Abstract); Appx594 ([0021]); *see also* Appx593 ([0008]-[0009]). The “attributes” that Kitts’s system analyzes include, for example, “an internet protocol (IP) address of the client-computing device” making the web-page request and “cookies...sent back to the web server” from the client-computing device. Appx596 ([0046]-[0048]). These attributes are what the ’008 patent calls “passive” data, including data that are normally sent in a web-page request and do not require special monitoring software to be installed on the client-computing device. Appx387-388 ([0061]); Appx452-453 ([0182]-[0183]); Appx458 ([0193]).

Kitts explains that “[s]uch information can be an important tool in determining whether the user requesting the web page has a propensity for click fraud.” Appx596 ([0047]). For example, cookies can indicate “if the user has clicked on an advertisement—thus requesting the advertisement web page—thousands of times in a short amount of time,” which is characteristic of a bot. Appx596 ([0047]). And the IP address can indicate, for example, “the geographic location of the client-computing device,” which can be matched to areas known to harbor fraudulent bot activity. Appx596-597 ([0048]); *see* Appx612 ([0051]-[0054]); Appx418 ([0118]). Such passive-data attributes are both an “important tool” and desirably convenient and unintrusive to collect via conventional cookies and information that is present in “the page request itself.” Appx596-597 ([0047]-[0048]).

D. Proceedings Before the Board

1. The Parties’ Arguments for Claim 19

In its petition, Google argued that Kitts anticipates independent claim 19. Appx185-193. During the trial, the lone dispute between the parties centered on whether Kitts discloses the first step of the method claim, *i.e.*, “***acquiring interest data from the client computing device prior to delivery of issued data by the server to the client computing device.***” Appx61.

Nobots argued that the phrase “*acquiring interest data*” within the first step should be interpreted narrowly to “require[] the retrieval of interest data comprising

at least some active data.” Appx1220. Under that interpretation, Kitts does not anticipate because its system acquires only passive data from a computing device, *e.g.*, the device’s IP address. Conversely, if the phrase “*acquiring interest data*” is interpreted to encompass acquiring passive data (with or without active data), then Nobots has never disputed that Kitts anticipates the claim. Appx1382.

Before the Board, Google argued that the limitation has a straightforward meaning in view of the claim’s plain language and the specification. As Google explained (Appx188), the specification explicitly defines “*interest data*” as “compris[ing] active *or* passive data.” Appx60 (3:41-43); *see also* Appx1377. And, of course, the ordinary meaning of “*acquiring*” is well known, *i.e.*, retrieving. Google thus argued that the phrase “*acquiring interest data*” encompasses retrieving active or passive data, which Kitts indisputably discloses by retrieving passive data. Appx188; Appx1378-1382.

To justify its narrow interpretation, Nobots argued that the patentee acted as his own lexicographer and gave “*acquiring*” a unique meaning. Appx1220. Specifically, Nobots focused on the following passage in the specification:

[T]he term “acquired data”, its equivalents and verb forms comprises data associated with a computing device’s operation and its interaction with a computing environment, such as the Internet, that is generally not recorded within the computing device and/or by other devices that have been affected by the computing device’s operation, but at least some data of which has/have been recorded and/or transmitted to a remote location, such as a server—this is a type of active data.

Appx60 (3:24-32).

Nobots argued that “acquiring data” was a verb form of the term “acquired data,” and from there argued that when the word “*acquiring*” is used in the phrase “*acquiring interest data*,” the word’s plain meaning no longer applies and instead is used to limit “*interest data*” to active data. Appx1220-1222. According to Nobots, “while interest data may be either active or passive, the addition of the ‘acquired’ modifier necessarily limits what is required by this specific limitation to retrieving *active* interest data.” Appx1224 (emphasis original).

In response, Google explained that, whatever the patent meant by “equivalents and verb forms,” the phrase “*acquiring interest data*” was not a verb form of the phrase “acquired data.” Appx1378-1379. Google further demonstrated that the specification used the individual word “acquired” consistent with its plain meaning when the word was not used within the defined phrase “acquired data.”

For example, Google highlighted the following passage in the specification which describes two “series of embodiments”:

With the foregoing definitions in mind, operation of the various invention embodiments can be better understood. In a first series of embodiments, a comparison between *interest data, acquired prior to delivery of issued data* to the client computing device, and model data is performed to ascertain the likely status of the client computing device, i.e., human user or bot 130, 420. In a second series of embodiments, a comparison between monitored data, by definition *acquired after delivery of issued data* to the client computing device, and model data is performed to ascertain the likely status of the client computing device, i.e., human user or bot 130, 420. In both series of

embodiments, acquired and/or available data may be used for comparison with suitable model data.

Appx60 (3:47-60).

As Google explained, the above-quoted passage uses the word “acquired” according to its plain meaning, *i.e.*, simply retrieved. Appx1379-1382. This usage was especially telling because the “first series of embodiments,” Google explained, aligns directly with the language of claim 19. Appx1380. In the “first series of embodiments” and in claim 19, “interest data” is simply “acquired prior to delivery of issued data to the client computing device.”³ Appx60 (3:47-53); Appx61 (claim 19).

Google further highlighted the concluding sentence in the above-quoted passage, *i.e.*, “In both series of embodiments, acquired and/or available data may be used for comparison with suitable model data.” Appx1381 (quoting Appx60 (3:58-60)). As Google explained, that concluding sentence makes clear that the “interest data” that is “acquired prior to delivery of issued data” in the first series of embodiments—the one that aligns with claim 19—may be either “acquired data” (*i.e.*, active data) or “available data” (*i.e.*, passive data).⁴ Appx1381.

³ “Issued data” is data that can be “generated by a server.” Appx60 (3:33-37).

⁴ The ’008 patent defines “available data” as “a type of passive data.” Appx60 (3:18-24).

Google also noted that in district court litigation, Nobots had taken the position that “*acquiring interest data*” encompasses simply acquiring browser cookies or IP addresses, both of which are forms of passive data. Appx1378 (citing Appx1915). Nobots’s infringement position was thus that “*acquiring*” should be given its ordinary meaning and that “*acquiring interest data*” only required obtaining “*interest data*,” whether it be passive or active. Because claims must be construed the same for patentability and infringement, Google argued that Nobots should be held to the interpretation it had advanced for purposes of infringement. Appx1378.

2. The Board’s Final Written Decision

The Board found that claims 1-17 and 20 were unpatentable, but found that independent claim 19 was not unpatentable over Kitts.⁵ Appx50.

For the critical phrase “*acquiring interest data*,” the Board agreed with Nobots’s proposed construction and held that the phrase “must encompass the retrieval of some active data.” Appx17. The Board then found claim 19 not unpatentable over Kitts “because Kitts discloses only the retrieval of passive data.” Appx49.

⁵ The Board also found that dependent claim 18 was not proven unpatentable. Appx50. Google is no longer appealing that finding.

In reaching its claim construction, the Board focused principally on the specification's statement "that 'acquired data' and 'its equivalents and verb forms' is 'a type of active data.'" Appx16 (quoting Appx60 (3:25-32)). The Board reasoned that "*acquiring*" is a verb form of "acquired data," and therefore when "*acquiring*" is used in the claims, it must be limited to at least some active data. Appx16-17.

The Board never addressed the instances Google had identified in which the specification used "acquired" according to its plain meaning, *e.g.*, when discussing the patent's two "series of embodiments." Appx1379-1381. Nor did the Board explain why it was permissible for Nobots to advance one claim construction for purposes of infringement, but a different one for patentability purposes.

SUMMARY OF THE ARGUMENT

The Board’s finding that Kitts did not anticipate claim 19 rests on the Board’s construction of “*acquiring interest data*” to require “the retrieval of some active data.” Appx17. That construction is wrong, and the Board’s patentability finding should be reversed.

The phrase “*acquiring interest data*” has a plain meaning when read in view of the specification. The word “*acquiring*” is a non-technical word with a well-known meaning, *i.e.*, retrieving, and the term “*interest data*” is a term the patent explicitly defines. That definition says that “*interest data*” “comprises active ***or passive data***.” Appx60 (3:41-60). The disputed phrase “*acquiring interest data*” thus has a straightforward meaning: retrieving active or passive data.

This straightforward understanding of “*acquiring interest data*” is fully consistent with the specification. In particular, the patent describes a “first series of embodiments” that aligns with claim 19, and that description uses the individual word “*acquire*” in accordance with its plain meaning, *i.e.*, retrieving. Appx60 (3:48-51) (“In a first series of embodiments, a comparison between interest data, ***acquired*** prior to delivery of issued data to the client computing device...”). That same description also clarifies that “acquired and/***or available data*** may be used” in the “first series of embodiments,” and the patent says “available data” ***is*** passive data.

Appx60 (3:18-24; 3:58-65). The specification thus makes clear that the embodiment to which claim 19 is directed can perform its method with *only* passive data.

The Board never addressed the specification’s “first series of embodiments” disclosure, and instead focused myopically on the specification’s definition of a term “acquired data” that appears *nowhere* in claim 19. Although the specification says its definition of “acquired data” applies to the term’s “equivalents and verb forms,” neither the word “*acquiring*” nor the three-word phrase “*acquiring interest data*” is a verb form of “acquired data.”

Nonetheless, the Board said the patent’s definition of “acquired data”—which limits such data to active data—was sufficient to re-define the word “*acquiring*” such that the “*interest data*” in claim 19 must include active data. The Board’s liberal application of lexicography—allowing the definition of one specific term to control a different word—is incompatible with the exacting standard for lexicography that this Court employs. If the patentee had wanted to re-define the word “*acquiring*” to have a novel meaning, then it needed to set forth that definition clearly, deliberately, and precisely. The Nobots patentee did no such thing.

Other traditional claim construction principles further highlight the error in the Board’s narrow construction. For example, as explained above, the term “*interest data*” is explicitly defined in the patent to include active data, passive data, or both. Appx60 (3:41-42). The Board’s construction, however, limits the “*interest*

data” of claim 19 to active data which effectively erases “*interest data*” from the claim. That is, the Board re-wrote the phrase “*acquiring interest data*” to read simply “acquiring data,” thereby ignoring the patentee’s explicit choice to use the broader term “*interest data*,” not the narrower term “acquiring data” or “acquired data.” The Board’s construction thus fails to give “*interest data*” meaning, contrary to this Court’s precedent. *Merck & Co. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) (“A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.”).

Dependent claim 20 also highlights the error in the Board’s construction. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1314 (Fed. Cir. 2005) (*en banc*) (“Other claims of the patent in question...can also be valuable sources of enlightenment as to the meaning of a claim term.”). That dependent claim limits “*the interest data*” to interest data that “*consists of available data*,” *i.e.*, passive data. Appx61. This additional language should have been dispositive—if “*the interest data*” in dependent claim 20 must “*consist[]*” of available (*i.e.*, passive) data, then independent claim 19’s phrase “*acquiring interest data*” must encompass the embodiment acquiring only such passive data too.

The Board brushed aside claim 20’s dispositive language because claim 20 has an obvious typographical error—as written, the claim says it depends from independent claim 1 rather than independent claim 19. The Board seized on this

error, and found claim 20's requirement that "*the interest data consists of available data*" irrelevant to resolving whether claim 19's "*acquiring interest data*" can encompass acquiring passive data.

But reading claim 20 as depending from claim 1 (rather than the immediately preceding independent claim 19) makes no sense as there is no antecedent basis in claim 1 for claim 20's "*the interest data*." Claim 1 does not recite "*interest data*" **at all**. The only antecedent basis for "*the interest data*" in claim 20 is the phrase "*acquiring interest data*" in claim 19. That claim 20 follows immediately after claim 19 only reinforces this straightforward reading of the claim. Once corrected for its obvious typographical error, claim 20 depends from claim 19 and the dependent claim's language confirms that the phrase "*acquiring interest data*" means retrieving active or passive data.

Finally, the Board never reconciled its construction with the fact that Nobots had taken the position in district court proceedings that Google's software performs the "*acquiring interest data*" step by allegedly acquiring ***passive data***. Only after confronted with Kitts's anticipatory disclosure did Nobots reverse course and argue that "*acquiring interest data*" was limited to retrieving at least some active data. But claim language is not a nose of wax to be treated one way for infringement and another for invalidity.

Once the phrase “*acquiring interest data*” is properly construed to mean retrieving active or passive data, there is no dispute that Kitts anticipates claim 19. Remand is unnecessary, and the Board’s patentability determination should be reversed.

STANDARD OF REVIEW

Claim construction is a question of law. *Markman v. Westview Instruments, Inc.*, 517 U.S. 370, 384 (1996).

Absent disavowal or lexicography, “[t]he words of a claim are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art when read in the context of the specification and prosecution history.” *Thorner v. Sony Comput. Ent. Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012). For a patentee to have acted as its own lexicographer, the patentee “must ‘clearly express an intent’ to redefine the term.” *Id.* (quoting *Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1381 (Fed. Cir. 2008)). The standard for finding lexicography is exacting. *GE Lighting Sols., LLC v. AgiLight, Inc.*, 750 F.3d 1304, 1309 (Fed. Cir. 2014).

ARGUMENT

A. The Board Erred in Finding That Kitts Does Not Anticipate Independent Claim 19.

The Board found that Kitts does not anticipate independent claim 19 because Kitts allegedly does not disclose claim 19’s first step—*i.e.*, step a)—which recites: “*acquiring interest data from the client computing device prior to delivery of issued data by the server to the client computing device.*” That finding is based entirely on the Board’s construction of “*acquiring interest data*,” which the Board construed to “require[] the retrieval of at least some active data” such that the phrase “cannot be met solely by the retrieval of passive data.”⁶ Appx49. Because Kitts only discloses the retrieval of passive data, *e.g.*, IP addresses, it does not anticipate under the Board’s construction. That construction, however, is wrong.

The plain meaning of “*acquiring interest data*” is simply retrieving “*interest data*,” a phrase the patentee explicitly defined in the specification as comprising “active or passive data.” Appx60 (3:41-46). The claim phrase “*acquiring interest data*” thus encompasses retrieving active data or passive data (or both), and Kitts indisputably teaches retrieving at least passive data.

⁶ As explained *supra* pp. 8-9, active data includes “pointing device vector movements,” “key stroke combinations,” etc. Appx59-60 (2:60-3:9). Passive data includes IP addresses, browser cookies, etc. Appx60 (3:9-17).

The Board arrived at its erroneous construction by applying the patentee’s definition of a different phrase—“acquired data”—that is not recited in claim 19 and thus has no bearing on the meaning of the disputed claim phrase “*acquiring interest data*.” The Board erred by employing an overly relaxed standard for lexicography and allowing the patentee’s definition of one term to control the meaning of an entirely different phrase. That the specification repeatedly uses forms of the word “*acquiring*” in accordance with its plain meaning—including in its description of the embodiment to which claim 19 is directed—confirms the error in the Board’s construction.

1. The Board Misconstrued the Phrase “*Acquiring Interest Data*.”

a. The Claim Language Is Clear on Its Face.

“It is a bedrock principle of patent law that the claims of a patent define the invention to which the patentee is entitled the right to exclude.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (internal quotation marks omitted). For that reason, claim construction “begins and ends in all cases with the actual words of the claim.” *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1248 (Fed. Cir. 1998) (citations omitted). Here, the plain language of claim 19 makes clear that the patentee used the word “*acquiring*” in accordance with its ordinary meaning, *i.e.*, retrieving.

Independent claim 19 is reproduced in full below:

19. A method for assessing a confidence level that an operator of a client computing device interacting with a server is a human being rather than an autonomic computer application, the method comprising:

- a) acquiring interest data from the client computing device prior to delivery of issued data by the server to the client computing device;
- b) comparing the interest data to model data relating to human interaction with a computing device prior to the time in which the interest data is acquired; and
- c) generating a value that represents a confidence level that a human user rather than an autonomic user operated the client computing device prior to the time in which the interest data is acquired.

As seen above, the claim is a method claim with three steps that each begin with a gerund: acquiring, comparing, and generating. In brief, the claim recites the steps of (a) “*acquiring*” interest data, (b) “*comparing*” that interest data to model data, and then (c) “*generating*” a value representing a confidence level that the operator of a computing device is a human, not a bot. On its face, the claim uses “*acquiring*,” “*comparing*,” and “*generating*” according to their ordinary meaning.

The full text of the first step, *i.e.* step a), further confirms that the patentee used “*acquiring*” in accordance with its ordinary meaning and not to impose an independent restriction on the type of data to acquire. By its plain language, step a) recites “*acquiring **interest data** [i.e., a first type of data] from the client computing device prior to delivery of **issued data** [i.e., a second type of data] by the server to the client computing device.*” Step a) thus restricts “*interest data*” in two ways: (1)

it limits *from where* to acquire the interest data (“*from the client computing device*”), and (2) it limits *when* to acquire it (“*prior to delivery of*[the second type of data] *by the server to the client computing device*”). But nothing in the plain language of step a) limits *what* type of data to acquire other than “*interest data*,” which (as discussed *infra* p. 28) the specification defines as being active data, passive data, or both.

There can be no genuine dispute that the claim language—on its face—uses “*acquiring*” in accordance with its ordinary meaning, *i.e.*, retrieving. Nothing in the claim language would suggest to the public that the patentee intended for “*acquiring*” to have a unique meaning that limits the *type* of data that is retrieved.

b. Far from Re-Defining “*Acquiring*,” the Specification Uses the Word in Accordance with Its Ordinary Meaning.

Although the words of a claim are generally given their plain meaning, “the patentee can, by acting with *sufficient clarity*, disclaim such a plain meaning or prescribe a special definition.” *World Class Tech. Corp. v. Ormco Corp.*, 769 F.3d 1120, 1123 (Fed. Cir. 2014). In this case, the patentee did not re-define the word “*acquiring*” or disclaim its plain meaning *at all*—much less do so with sufficient clarity. Indeed, the specification confirms that the patentee intended for the word “*acquiring*” to be used in accordance with its plain meaning.

The specification sets forth definitions of six different types of data: “model data,” “available data,” “acquired data,” “issued data,” “monitored data,” and “interest data.” Appx59-60 (2:54-58, 3:18-47). Each of these phrases is defined as

a type of data. For each of these defined terms, the specification also says that the definition applies not just to the defined term itself but also to its “equivalents and verb forms.” *Id.* What exactly “equivalents and verb forms” means in this context is not entirely clear, as at least the term “interest data” has no verb form that either party’s expert could identify. Appx1451; Appx1622 (¶54).

Of the six defined terms, two appear in step a) of claim 19: “*issued data*” and “*interest data*.”⁷ Per its definition, “*issued data*” is data generated by a computer that is not the same as the computer whose user status (*i.e.*, human vs. bot) is being assessed. Appx60 (3:33-37). The definition of “*issued data*” is largely irrelevant to Google’s appeal as Nobots has never disputed that Kitts discloses “*issued data*.”

The definition of “*interest data*,” however, is highly relevant. That phrase is defined as follows:

“interest data”, its equivalents and verb forms ***comprises active or passive data***, whether available or acquired, that correlates to any data within model data, whether obtained prior to or after the generation of issued data.

Appx60 (3:41-45).

In no uncertain terms, the specification defines “*interest data*” as including “active or passive data.” Nobots has never disputed this. *See, e.g.*, Appx1224

⁷ “*model data*” also appears in step b) of claim 19. None of the other defined phrases (*i.e.*, no other defined types of data) appear in the claim.

(“interest data may be either active or passive”). It follows that “*acquiring interest data*” means simply retrieving active data or passive data (or both).

Applying the patent’s definitions of “*interest data*” and “*issued data*” to the language of step a) results in an entirely logical method step: “*acquiring [passive or active data] from the client computing device prior to delivery of [server-generated data] by the server to the client computing device.*” In view of the specification’s definitions and the claim’s plain language, step a) simply requires retrieving passive or active data from the computer that is being assessed before server-generated data is delivered to that computer. Nothing in the claim’s plain language or the definitions of “*interest data*” and “*issued data*” suggest that the “*interest data*” must be limited to including at least some active data.

The Board reached a contrary conclusion based on a ***different*** defined term, one that does not appear in claim 19. Appx16-17. Specifically, the Board focused on the patent’s definition of “acquired data” which is reproduced below:

“acquired data”, its equivalents and verb forms comprises data associated with a computing device's operation and its interaction with a computing environment, such as the Internet, that is generally not recorded within the computing device and/or by other devices that have been affected by the computing device's operation, but at least some data of which has/have been recorded and/or transmitted to a remote location, such as a server—***this is a type of active data.***

Appx60 (3:25-32).

The Board reasoned that the word “*acquiring*” in the larger disputed claim phrase “*acquiring interest data*” is a verb form of the word “acquired,” and from there reasoned that the patent’s definition of “acquired data” applies to the claim term “*acquiring*” too. Appx16-17. Stated simply, the Board held that the word “*acquiring*” has a novel meaning in the context of the ’008 patent, and that that meaning limits the type of data that is retrieved to being active data. *Id.* This was erroneous.

The defined phrase in the specification that the Board seized upon is “acquired data.” The word “*acquired*,” by itself, is not defined. And the larger disputed claim phrase “*acquiring interest data*” is not defined either. Moreover, neither “*acquiring*” nor “*acquiring interest data*” is a verb form of “acquired data.” In reaching a different conclusion, the Board employed a relaxed standard for lexicography that this Court’s precedent does not support.

This Court’s cases are clear that the bar for lexicography is “exacting,” such that lexicography only applies where the patentee “clearly set[s] forth a definition *of the disputed claim term*” and “clearly express[es] an intent to redefine the term.” *Thorner v. Sony Comput. Ent. Am. LLC*, 669 F.3d 1362, 1365-65 (Fed. Cir. 2012) (cleaned up). Although the Nobots patentee set forth *a* definition in the specification, that definition was for the term “acquired data,” not the disputed word “*acquiring*” or the disputed phrase “*acquiring interest data*.”

“The patentee’s lexicography must...appear ‘with reasonable clarity, deliberateness, and precision’ before it can affect the claim.” *Renishaw PLC v. Marposs Societa’ per Azioni*, 158 F.3d 1243, 1249 (Fed. Cir. 1998); *Markman v. Westview Instruments, Inc.*, 52 F.3d 967, 980 (Fed. Cir. 1995) (“[A]ny special definition given to a word must be clearly defined in the specification.”). There is no such clear, deliberate, and precise definition of the **word** “*acquiring*” or the **phrase** “*acquiring interest data*” in the specification. See *Merck & Co. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1370 (Fed. Cir. 2005) (finding no lexicography where alleged definition was “ambiguous” and thus did not support construing a term in a narrow and “counterintuitive” manner).

The only clearly, deliberately, and precisely defined term found in the disputed claim phrase “*acquiring interest data*” is the term “*interest data*.” And that definition permits the claimed “*interest data*” to be active data, passive data, or both. Appx60 (3:41-45). In contrast, the word “*acquiring*” itself is never defined in the specification, and therefore its plain meaning applies. That plain meaning in no way limits the type of data that the “*interest data*” comprises.

To the extent the definition of “acquired data,” including its reference to “verb forms,” creates ambiguity as to whether the word “*acquiring*” as used in claim 19 has a novel meaning in the context of the ’008 patent, the specification eliminates that ambiguity because, outside of the specific defined term “acquired data,” the

specification uses forms of the word “*acquiring*” in accordance with the word’s ordinary meaning, including in the very same context in which claim 19 uses the word. *Allergan, Inc. v. Apotex Inc.*, 754 F.3d 952, 957-58 (Fed. Cir. 2014) (resolving potential ambiguity in “patentee’s own lexicography” by looking to the specification’s use of the term).

When summarizing “various invention embodiments,” the specification highlights two “series of embodiments,” and its description of those embodiments uses the word “acquired” in accordance with its plain meaning. Appx60 (3:48-60). Specifically, after defining the patent’s various terms, the specification explains:

With the foregoing definitions in mind, operation of the various invention embodiments can be better understood. In a first series of embodiments, a comparison between interest data, *acquired* prior to delivery of issued data to the client computing device, and model data is performed to ascertain the likely status of the client computing device, i.e., human user or bot 130, 420.

Appx60 (3:47-53).

This “first series of embodiments” aligns with what claim 19 recites. In both this “first series of embodiments” and claim 19, “interest data” is “acquired prior to delivery of issued data to the client computing device,” and the interest data is then compared to model data.⁸ *Compare* Appx60 (3:47-53) *with* Appx61 (6:48-51). The

⁸ “Model data” is defined as “compris[ing] data indicative of human interaction with a computing environment and that can be received by a computing device that is

passage uses “acquired” in its ordinary sense, *i.e.*, retrieved. On its face, the passage places no limit on what type of “interest data” is compared with model data; it only requires that the “interest data” (whether it be active or passive) be retrieved prior to delivery of issued data.

The specification then describes a second series of embodiments:

In a second series of embodiments, a comparison between monitored data, by definition ***acquired*** after delivery of issued data to the client computing device, and model data is performed to ascertain the likely status of the client computing device, *i.e.*, human user or bot 130, 420.

Appx60 (3:53-58).⁹

This “second series of embodiments” aligns with claim 1. *Compare* Appx60 (3:53-58) *with* Appx61 (5:43-46). And just like the passage describing the “first series of embodiments,” this passage also uses “acquired” in its ordinary sense, *i.e.*, retrieved. The passage likewise places no limit on what type of “monitored data” is compared with model data; it only requires that the “monitored data” (whether it be active or passive) be acquired after delivery of issued data.

The above two passages both use the word “acquired” to describe the system retrieving interest data or monitored data (and to describe ***when*** the data is retrieved),

physically remote from the sample computing environment and equivalents,” and such data includes both active and passive data. Appx59 (2:54-60).

⁹ “Monitored data” is defined as “compris[ing] active or passive data, whether available or acquired, obtained from the computing device, or as a result of its external interactions, after the generation of issued data.” Appx60 (3:37-41).

and neither passage suggests that the word imposes a limitation on the type of interest data or monitored data that is retrieved, *i.e.*, passive data versus active data. Indeed, the very next sentence in the specification ***confirms this fact***.

That sentence says: “In both series of embodiments, acquired and/or available data may be used for comparison with suitable model data.” Appx60 (3:58-60). The sentence’s use of the phrase “and/***or***” means that the “interest data” or “monitored data” that is “acquired” and then compared to model data in the first and second embodiments can be simply “available data,” and the specification explicitly defines “available data” as “comprising ***passive data***.” Appx60 (3:18-24). If, as the Board reasoned, all data that has been “acquired” is necessarily “acquired data” (and thus active data), then there would have been no sensible reason for the patentee to say that “available data” (and thus passive data) may be used by itself in the two embodiments in which data is only described as having been “acquired.” The Board’s reasoning is incompatible with what the specification actually says.

The specification’s description of the patent’s two “series of embodiments” makes clear that, when “*acquiring*” is used outside of the defined term “acquired data,” the word is afforded its plain meaning and does not limit the type of data that is retrieved. In reaching its contrary conclusion, the Board did not even discuss—much less reconcile its construction with—the “two series of embodiments” passage. Google identified the issue (Appx1379-1381), but the Board ignored it.

Other portions of the specification also confirm that when an individual word, like “*acquiring*,” is used by itself, that word is not limited by the specification’s definition of a larger term containing that same word, like “acquired data.” For example, as noted above, the patent defines the phrase “available data” and its verb forms as comprising “passive data.” Appx60 (3:18-24). Under the Board’s logic, this definition would re-define the word “available” (or any related “verb forms”) such that any data described as being “available” (or as being “made available”) must be passive data. But the specification confirms this is not true. It describes “active model data,” indisputably a form of active data, as being data that is “monitored and stored...by a program...which makes the data ***available*** to another program.” Appx59-60 (2:60-3:9). The “active model data” is a form of active data even though the specification says that the data is made “available.”

The individual word “available” thus is not limited to passive data when the word is used outside of the defined term “available data,” even when the word is used in connection with “data” (and neither is the verb-phrase “makes the data available” limited to passive data). In the same way, the individual word “*acquiring*” is not limited to requiring at least some active data when the word is used outside of the defined term “acquired data,” even when the word is used in a “data”-related phrase like “*acquiring interest data*.”

Giving “*acquiring*” its plain meaning is the “correct construction” because it is the construction that “stays true to the claim language and most naturally aligns with the patent’s description of the invention.” *Phillips*, 415 F.3d at 1316 (quoting *Renishaw*, 158 F.3d at 1250). Although the patentee defined various terms, the patentee chose not to define the word “*acquiring*” or the phrase “*acquiring interest data*.” The consequence of that choice is that those words should be given their plain meaning which encompasses retrieving passive data or active data. The Board’s contrary construction of the disputed claim phrase should be reversed.

c. The Board’s Construction Impermissibly Re-Writes the Claim.

Under the Board’s construction, “*acquiring interest data*” requires the retrieval “of some active data.” Appx17. On its face, the Board’s construction seemingly leaves open the possibility that the phrase would allow for the retrieval of some passive data *too* so long as that passive data was retrieved along with active data, but the Board’s reasoning precludes such a possibility. According to the Board, nothing in the patent “alter[s] the contours of ‘acquired’ data to also encompass ‘passive’ data where that premise is entirely absent from” the specification. Appx16. In other words, if the definition of “acquired data,” *i.e.*, “a type of active data” (Appx60 (3:24-32)), controls, then no data that is acquired can be passive data. The Board’s construction (and the rationale behind it) therefore requires the retrieval of active data alone, and does not permit the retrieval of passive data.

With this understanding of the Board’s construction, it is clear that the Board effectively re-wrote the claim to recite “acquiring data” rather than “*acquiring interest data*,” and therefore the Board gave the claim term “*interest data*” no meaning, which is contrary to this Court’s precedent. *Merck & Co. v. Teva Pharms. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) (“A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.”).

Per the patent’s definitions, “acquired data” is a “type of active data,” whereas “interest data” comprises “active or passive data.” Appx60 (3:25-32, 3:41-46). “Interest data” is thus a broader term that encompasses both forms of data—that is a principal distinction between the two defined terms. The Board’s construction, however, effectively limits “*interest data*” to a form of active data, thereby eliminating that distinction between the two terms. Stated differently, the Board’s construction effectively re-writes claim 19 to recite “acquiring data” rather than “*acquiring interest data*,” even though the patentee intentionally elected to use the broader term “*interest data*.” That is improper, and highlights yet another flaw in the Board’s claim construction analysis. *VLSI Tech. LLC v. Intel Corp.*, 53 F.4th 646, 655 (Fed. Cir. 2022) (reversing Board’s construction that ignored express claim language because the “phrase was meant to serve some purpose and should be construed to have some independent meaning”); *Vederi, LLC v. Google, Inc.*, 744 F.3d 1376, 1382-83 (Fed. Cir. 2014) (finding claim construction that “effectively

read[s]...out” a claim term is erroneous); *Aspex Eyewear, Inc. v. Marchon Eyewear, Inc.*, 672 F.3d 1335, 1348 (Fed. Cir. 2012) (reversing claim construction that “effectively reads [a] term...out of the limitation”).

The error in the Board’s construction of “*acquiring interest data*” is further highlighted by the fact that the construction *also* effectively re-writes claim 19 to recite “*active model data*” rather than the broader term “*model data*.”

Step b) of claim 19 requires “*comparing the interest data to model data....*” “*Model data*” is a defined term in the patent and, like “*interest data*,” is a broad term that covers “two main categories: *active* model data 220 and *passive* model data 210.” Appx59 (2:54-60). By reciting “*model data*” rather than a particular category of model data, the plain language of claim 19 covers comparing the interest data to *either* category of model data, *i.e.*, active model data or passive model data. That understanding is reinforced by dependent claims (depending from a different independent claim) that restrict model data to particular categories of model data. For example, claim 2 narrows claim 1’s “*model data*” to “*comprise[] active model data*,” whereas claim 4 narrows claim 1’s “*model data*” to “*comprise[] passive model data*.” Thus, the patentee knew how to claim “*active* model data” when it wanted to, but the patentee elected for claim 19 to recite “*model data*” broadly, without restricting it to the active category.

The Board’s construction ignores the choice the patentee made. By effectively limiting the “*interest data*” that must be compared to “*model data*” to *active* interest data, the Board effectively rewrites claim 19 to require comparing active interest data to active model data, even though the patentee specifically elected to claim a comparison of “*interest data*” to “*model data*” broadly, without restricting either term to active data. This further confirms the flaws in the Board’s analysis.

d. Dependent Claim 20 Further Highlights the Error in the Board’s Construction.

Dependent claim 20 is poorly drafted, yet it nonetheless provides further support for construing “*acquiring interest data*” to encompass retrieving passive data. *Phillips*, 415 F.3d at 1314-15 (“Other claims of the patent in question...can also be valuable sources of enlightenment as to the meaning of a claim term.”).

Although it appears immediately after independent claim 19, dependent claim 20 ostensibly depends from claim 1 as it recites: “*The method of claim 1 wherein the interest data consists of available data.*” However, there is an obvious problem with claim 20 depending from claim 1—claim 1 lacks *any* antecedent basis for “*the interest data*” recited in claim 20.

The only claim that introduces “*interest data*” is independent claim 19. POSAs would thus have understood claim 20’s reference to “claim 1” to be a mistake and would have understood that claim 20 was instead intended to depend from claim

19. Appx457 (¶191); Appx1626-1628 (¶¶65-68); *see also Pavo Sols. LLC v. Kingston Tech. Co.*, 35 F.4th 1367, 1373, 1375 (Fed. Cir. 2022) (explaining typographical errors can be judicially corrected via claim construction where the error is “evident on the face of the patent,” and reviewing such corrections *de novo* on appeal); *Fitbit, Inc. v. Valencell, Inc.*, 964 F.3d 1112, 1119-20 (Fed. Cir. 2020) (finding that the Board has authority to correct clear errors in claim dependency).

Once dependent claim 20 is construed to depend from independent claim 19, it unequivocally confirms the error in the Board’s claim construction. Dependent claim 20 limits the “*interest data*” recited in the disputed claim phrase “*acquiring interest data*” to data that “*consists of available data*,” and the specification expressly defines “*available data*” as “a type of passive data.” Appx60 (3:18-24). If “*interest data*” in the dependent claim must “***consist[] of available data***,” then the term when used in the broader independent claim must encompass acquiring such data as well. *AK Steel Corp. v. Sollac and Ugine*, 344 F.3d 1234, 1242 (Fed. Cir. 2003) (“If the dependent claims expressly recite ‘up to about 10%’ silicon, then the independent claims, which must be at least as broad as the claims that depend from them, must include aluminum coatings with ‘up to about 10%’ silicon.”).

Construing claim 20 as dependent from claim 19 also matches the specification’s language, which states that (as in claim 19) “[i]n a first series of embodiments, a comparison between interest data, acquired prior to delivery of

issued data to the client computing device, and model data is performed,” and that (as in claim 20) in this “series of embodiments, ...*available data* may be used for comparison with suitable model data.” Appx60 (3:48-60); Appx1627-1628 (¶68). The specification thus fully supports interpreting claim 20 as dependent from claim 19.

The Board sidestepped Google’s claim dependency argument by reading claim 20 as dependent from claim 1.¹⁰ The Board did not directly resolve the antecedent basis issue, but seemingly endorsed Nobots’s argument that the antecedent basis for “*the interest data*” in the dependent claim is “*the model data*” recited in claim 1. Appx11-12.¹¹ But that is an unreasonably strained reading of claim 20 as “model data” and “interest data” are two separately defined terms in the specification. Appx59-60 (2:54-56, 3:41-46). It defies credibility to contend that the antecedent basis for one defined claim term is another differently defined term.

The Board also noted that the applicant consistently misidentified claim 20 as depending from claim 1 during prosecution. Appx12. A repeated mistake is a

¹⁰ The Board found claim 20, when read as dependent on claim 1, would have been obvious in view of Kitts and another reference (Willner). Appx39-40. If claim 20 is read to depend from claim 19, then Kitts indisputably anticipates the claim because Kitts’s “*interest data*,” *i.e.*, an IP address, is a form of “*available data*.” Appx60 (3:9-24); *see also* Appx193-194. Nobots has never disputed this.

¹¹ Nobots also suggested that claim 20 was indefinite because it was subject to “multiple interpretations.” Appx1950-1951; Appx2022. The Board did not address this argument.

mistake, nonetheless. Moreover, the error the applicant made is simple. Issued claims 19-20 were originally filed as claims 20-21 (Appx239), and thus the error the applicant made was simply omitting a “0” such that what was intended to read as “The method of claim 20” mistakenly said “The method of claim 2,” and claim 2 eventually issued as claim 1. Appx237-239; Appx1627 (¶67). That the applicant’s attorney perpetuated this error in prosecution instead of noticing and correcting it (Appx291-292) makes it no less an error.

As demonstrated *supra* Sections A.1.a-A.1.c, the claim’s plain language and the specification’s teachings are more than enough—by themselves—to support Google’s proposed construction and thus this Court need not conclusively resolve whether claim 20 depends from claim 1 or claim 19. Regardless, should the Court consider the issue, the error in claim 20 is readily apparent, and the language of dependent claim 20 requires construing “*acquiring interest data*” in independent claim 19 to mean retrieving passive data or active data.

e. Nobots Should Not Be Permitted to Treat the Claim Language Like a Nose of Wax.

Although not intrinsic or extrinsic evidence *per se*, the Court should nonetheless take into consideration the fact that Nobots’s claim construction before the Board—where it sought to preserve the patentability of its claim—is inconsistent with the interpretation it advanced in district court—where it sought to cover Google’s products. As this Court has explained before, treating claim language like

a “nose of wax” is impermissible, as the construction proper for infringement is also the one that is proper for assessing patentability. *Data Engine Techs. LLC v. Google LLC*, 10 F.4th 1375, 1381 (Fed. Cir. 2021) (“We have repeatedly rejected efforts to twist claims, like a nose of wax, in one way to avoid invalidity and another to find infringement.”) (cleaned up).

Prior to Google filing its petition, Nobots alleged in district court litigation that Google infringes, *inter alia*, claims 19 and 20. Appx1914-1923. When purporting to map step a) of claim 19 to Google’s CAPTCHA software, Nobots alleged the following:

Each of the Accused Methods involves one or more Google servers obtaining interest data in the form of browser cookies, the user agent of the browser, and/or one or more IP address prior to transmitting issued data in the form of a webpage from the server to the computing device.

Appx1915.

Nobots thus explicitly interpreted “*acquiring interest data*” to be satisfied by retrieving “browser cookies” and “one or more IP address,” both of which the patent identifies as forms of *passive data*. Appx60 (3:9-17). There is no ambiguity in Nobots’s statement—Nobots was clearly interpreting “*acquiring interest data*” in accordance with its plain meaning, *i.e.*, retrieving passive data or active data. *See also* Appx1916 (“The use of other interest data, such as cookies and device history, is further demonstrated....”).

Notably, when attempting to map dependent claim 20 to Google’s software, Nobots treated the dependent claim as depending from claim 19 as it said the following:

As demonstrated by Claim 19, above, each of the Accused Methods involves one or more Google servers obtaining interest data in the form of browser cookies, the user agent of the browser, and/or one or more IP address, which constitute available data as defined in the specification.

Appx1923.

This allegation (1) reaffirms that Nobots understood “*interest data*” to include “browser cookies” and “IP address[es],” *i.e.*, two forms of passive data, (2) admits that the “*interest data*” that claim 19 recites acquiring “constitute[s] available data as defined in the specification,” *i.e.*, passive data, and (3) undercuts Nobots’s contention that POSAs would immediately appreciate that claim 20 was intended to depend from claim 1, not claim 19. That Nobots interpreted claim 19 (and claim 20) in the same manner that Google advanced before the Board reinforces the correctness of Google’s proposed construction.

Nobots chose to use the word “*acquiring*” in claim 19 and chose to use it in a manner that is fully consistent with the word’s plain meaning, *i.e.*, retrieving. Nothing in that plain meaning limits the type of data that can be retrieved to require at least some active data. This understanding of “*acquiring*” and claim 19 is fully

consistent with the specification which describes a “first series of embodiments” that aligns with claim 19 and which unequivocally says that the system can retrieve passive data in the form of “available data” by itself. Appx60 (3:47-65). And although Nobots defined certain terms, it did not re-define “*acquiring*” to mean anything other than retrieving.

“The construction that stays true to the claim language and most naturally aligns with the patent’s description of the invention will be, in the end, the correct construction.” *Phillips*, 415 F.3d at 1316 (quoting *Renishaw*, 158 F.3d at 1250). Here, the correct construction for “*acquiring interest data*” is one that encompasses retrieving passive data or active data. This Court should reverse the Board’s contrary claim construction.

2. Once Properly Construed, There Is No Dispute That Kitts Anticipates Claim 19.

Once “*acquiring interest data*” is properly construed to mean retrieving interest data (*i.e.*, active data or passive data), the Board’s holding that claim 19 was not proven unpatentable in view of Kitts should be reversed.

There is no dispute that Kitts anticipates claim 19 under Google’s proposed construction. Both parties agree that “*interest data*,” as defined in the ’008 patent, encompasses passive data (with or without active data). Appx60 (3:41-45); Appx188; Appx1224 (“interest data may be either active or passive”). Both parties also agree that Kitts discloses retrieving passive data. Appx49. Nobots has never

disputed that Kitts meets all other elements of the claim. *See, e.g.*, Appx1233-1234; Appx1382.

Because Kitts indisputably anticipates claim 19 under Google’s proposed construction, reversal is warranted. *Corning v. Fast Felt Corp.*, 873 F.3d 896, 901 (Fed. Cir. 2017) (“On the evidence and arguments presented to the Board, there is only one possible evidence-supported finding: the Board’s rejection of [petitioner’s] challenge, when the correct construction is employed, is not supported by substantial evidence.”).

CONCLUSION

The Board’s finding that claim 19 was not proven unpatentable should be reversed.

Respectfully submitted,

Date: July 1, 2024

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ADDENDUM

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571-272-7822

Paper 38
Entered: November 29, 2023

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

NOBOTS LLC,
Patent Owner.

IPR2022-00940
Patent 9,595,008 B1

Before JOSIAH C. COCKS, BARBARA A. PARVIS, and
ROBERT J. WEINSCHENK, *Administrative Patent Judges*.

COCKS, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 318(a)

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I. INTRODUCTION

A. Background

Google LLC (“Petitioner”) filed a Petition (Paper 2, “Pet.”) requesting *inter partes* review of claims 1–20 (“the challenged claims”) of U.S. Patent No. 9,595,008 B1 (Ex. 1001, “the ’008 patent”). We instituted the petitioned review. Paper 13 (“Institution Decision” or “Inst. Dec.”).¹

Nobots LLC (“Nobots” or “Patent Owner”) filed a Patent Owner Response (Paper 18, “PO Resp.”) to oppose the Petition. Petitioner filed a Reply (Paper 24, “Pet. Reply”) to the Patent Owner Response. Patent Owner filed a Sur-reply (Paper 28, “PO Sur-reply”) to the Reply. We conducted an oral hearing on August 31, 2023. A transcript has been entered into the record. Paper 34 (“Tr.”).

We have jurisdiction under 35 U.S.C. § 6(b)(4) and § 318(a). This Decision is a final written decision under 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73 as to the patentability of claims 1–20 of the ’008 patent. We determine Petitioner has shown by a preponderance of the evidence that claims 1–17 and 20 are unpatentable. Petitioner, however, has not shown by a preponderance of the evidence that claims 18 and 19 are unpatentable.

¹ We note that prior to our Institution Decision, Patent Owner filed a Preliminary Response (Paper 7) and, with authorization from the panel, Petitioner filed a Preliminary Reply to Patent Owner’s Preliminary Response (Paper 10, “Pet. Prelim. Reply”) and Patent Owner filed a Preliminary Sur-reply (Paper 11, “PO Prelim. Sur-reply”). Those additional authorized briefings addressed, in relevant part, matters of claim construction, and are referenced in this Final Written Decision.

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B. Related Matters

The parties state that the '008 patent was asserted in *Nobots LLC v. Google LLC*, Civil Action No. 6:21-cv-01290 (W.D. Tex., Waco Division). Pet. xi; Paper 5, 1.² Patent Owner further states that the '008 patent was asserted in *Nobots LLC v. Google LLC*, No. 1:22-cv-00585 (W.D. Tex., Austin Division). Paper 6, 1. Patent Owner also identifies IPR2022-00941 as a related proceeding. Paper 6, 1.³

C. The '008 Patent

The '008 patent is titled “Systems, Methods, Apparatus for Evaluating Status of Computing Device User.” Ex. 1001, code (54). The Abstract of the '008 patent is reproduced below:

Methods, systems and apparatus for assessing the likely user status of a client computing device interacting with a server where the computing device is in bi-directional operative communication with the server, wherein the likely user status is one of a human operator or a computer executable program such as a “bot”. By presenting issued data from the server to the client computing device and monitoring at least some of the data generated at the client computing device in response to the issued data, a comparison can be made between the monitored data and model data relating to human interaction with or in response to the issued data. The results of the comparison can lead to a value that represents the likelihood that the monitored data results from human interaction with or in response to the issued data. Modeled data includes, but is not limited to, data indicative of

² In its filing of updated mandatory notices, Patent Owner indicates that the noted proceeding is “now terminated.” Paper 6, 1.

³ The Petition in IPR2022-00941 was filed on the same day as the Petition in the instant proceeding, and involves a related patent (U.S. Patent No. 10,423,885 B2).

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human interaction with a computing environment, whether active or passive.

Id. at code (57).

The '008 patent further summarizes its disclosure as being “for assessing the likely user status of a computing device interacting with a server where computing device is in bi-directional operative communication with the server wherein the status is one of a human operator or a computer executable program (also referred to herein as a ‘bot’).” *Id.* at 2:13–18.

By way of background, the '008 patent explains that it became necessary for builders of web sites to develop “tests” to distinguish between human users and bots. The '008 patent further describes the following:

Carnegie Mellon University coined the term “CAPTCHA” (Completely Automated Public Turing test to tell Computers and Humans Apart) for these types of tests. A common type of CAPTCHA requires that the user type the letters, digits or characters of a distorted image appearing on the screen. The objective is to create an image that a bot cannot easily parse but that is discernable by a human. Such efforts have been successful in preventing non-adaptive software from recognizing the imaged characters, but people intent on abusing these sites have designed ways to circumvent the CAPTCHA, such as through specially tuned character recognition programs.

Id. at 1:22–33.

“Current CAPTCHA technology is visual or auditory in nature, requiring the human user to answer a test that should be simple to most humans but difficult for non-humans, e.g., bots.” *Id.* at 1:54–56. The '008 patent describes additional assessment measures, beyond an auditory or visual CAPTCHA test, involving a comparison of “acquired and/or available data relating to the operation of the computing device to suitable models

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embodying human user derived data (model data).” *Id.* at 2:18–21.

“[A]cquired” data can include “active” data such as “pointing device vector movements,” “key stroke combinations,” or “time differentials” between “stimulus” (e.g., dialog box displays or radio buttons on a computer screen) and a user response’s response to such stimulus. *Id.* at 2:60–3:5.

“[A]vailable” data can include “[p]assive” data such as “browser cookies,” “destination IP histories,” and a computer’s “IP address.” *Id.* at 3:9–17.

Assessment of such data may be used to establish “a probability value” as to whether a particular operator is a human or a bot. *Id.* at 2:18–25.

D. Challenged Claims

Petitioner challenges claims 1–20 of the ’008 patent. Claims 1 and 19 are independent claims. Claim 1 is representative and is reproduced below:

1. A method for assessing a confidence level that an operator of a client computing device interacting with a server is a human being rather than an autonomic computer application, the method comprising:

- a) a single user of a client computing device requesting data from a server;
- b) the server presenting data issued by the server to the client computing device;
- c) monitoring at least some data generated by the user at the client computing device in response to the issued data;
- d) comparing the monitored data to model data relating to human interaction with or in response to the issued data; and
- e) generating a value that represents a confidence level that the monitored data is a result of human interaction on the client computing device rather than that of an autonomic user with or in response to the issued data.

Ex. 1001, 5:35–5:52.

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E. Alleged Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. §	Reference(s)/Basis
1–3, 6–18	102/103	Willner ⁴
1–18, 20	103	Willner, Kitts ⁵
1–18, 20	102/103	O’Connell ⁶
1–18, 20	103	O’Connell, Kitts
19, 20	102/103	Kitts

Pet. 1.

F. Testimonial Evidence

Petitioner relies on the Declaration (Ex. 1003) and Reply Declaration (Ex. 1042)⁷ of Daniel P. Lopresti, Ph.D.

Patent Owner relies on the Declaration of Dr. Samuel Russ (Ex. 2011).⁸

II. ANALYSIS

A. Principles of Law

A petition must show how the construed claims are unpatentable under the statutory grounds it identifies. 37 C.F.R. § 42.104(b)(4).

⁴ U.S. Patent Application Publication No. US 2009/0024971 A1 published Jan. 22, 2009 (“Willner,” Ex. 1005).

⁵ U.S. Patent Application Publication No. US 2008/0114624 A1 published May 15, 2008 (“Kitts,” Ex. 1009).

⁶ U.S. Patent Application Publication No. US 2007/0239604 A1 (published Oct. 11, 2007) (“O’Connell,” Ex. 1007).

⁷ Exhibit 1042 was submitted in conjunction with Petitioner’s Reply.

⁸ Patent Owner indicates that a prior Declaration of Dr. Samuel Russ (Ex. 2001) is withdrawn. PO Resp. ii.

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To establish anticipation under 35 U.S.C. § 102, “all of the elements and limitations of the claim must be shown in a single prior art reference, arranged as in the claim.” *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001).

A claim is unpatentable under § 103(a) if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective indicia of non-obviousness (i.e., secondary considerations). *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

In an instituted *inter partes* review, a petitioner has the burden to show unpatentability by a preponderance of the evidence. 35 U.S.C. § 316(e). The burden of persuasion never shifts to Patent Owner. *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

B. Level of Ordinary Skill in the Art

In determining the level of skill in the art, we consider the type of problems encountered in the art, the prior art solutions to those problems, the rapidity with which innovations are made, the sophistication of the technology, and the educational level of active workers in the field. *Custom*

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Accessories, Inc. v. Jeffrey-Allan Indus., Inc., 807 F.2d 955, 962 (Fed. Cir. 1986); *Orthopedic Equip. Co. v. U.S.*, 702 F.2d 1005, 1011 (Fed. Cir. 1983).

Petitioner contends that a person of ordinary skill in the art at the time of the invention of the '008 patent “would have had a bachelor’s degree in computer science or a related field with coursework relating to computer science, plus two years’ academic and/or industry experience in computer security. More education could substitute for experience, and vice versa.” Pet. 4 (citing Ex. 1003 ¶¶ 36–40). Patent Owner does not dispute this proposed level of skill. PO Resp. 2.

We adopt Petitioner’s proposal as reasonable and consistent with the prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art may reflect an appropriate level of skill in the art).

C. Claim Construction

We construe claims in the same manner used in a civil action under 35 U.S.C. § 282(b) “including construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” 37 C.F.R. § 42.100(b). When applying that standard, we interpret the claim language as it would have been understood by one of ordinary skill in the art in light of the specification. *Wasica Fin. GmbH v. Cont’l Auto. Sys., Inc.*, 853 F.3d 1272, 1279–80 (Fed. Cir. 2017). Thus, we give claim terms their ordinary and customary meaning as understood by an ordinarily skilled artisan. *See Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (en banc). Only terms that are in controversy need to be construed, and then only to the extent necessary to resolve the controversy. *Nidec*

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Motor Corp. v. Zhongshan Broad Ocean Motor Co., 868 F.3d 1013, 1017
(Fed. Cir. 2017).

1. Mis-lettered Steps

As we discussed in the Institution Decision, both parties identified a disparity in the lettering of steps in dependent claims 6, 11, 12, and 15–18 that is said to have arisen during prosecution in which claim 1 was amended to add a new step “a).” *See* Inst. Dec. 8–9. We noted the following in that respect:

[C]laim 1 originally included letters steps “a)” through “d),” but after amendment, those steps became steps “b)” through “e).” *See* Pet. 5; Prelim. Resp. 15–18. Claims 6, 11, 12, and 15–18, however, which refer to at least one of the original lettered steps “a)” through “d),” were not updated to reflect the resulting shift in step lettering. Patent Owner contends that the “mistake” is clear, and the claims should be regarded with the “reasonable correction” of simply regarding the steps referenced in claims 6, 11, 12, and 15–18 as having been “shifted forward by one letter.” Prelim. Resp. 15. For its part, Petitioner acknowledges that those claims “were never updated,” but expresses that we need not “decide between the possible interpretations” as the “Petition’s grounds meet the claims under both interpretations.” Pet. 5.

Id.

As was consistent with the position of both parties, we concluded that the record reasonably conveyed that claims 6, 11, 12, and 15–18 should be regarded “as having been ‘updated’ or corrected in the manner made explicit by Patent Owner and implicitly acknowledged by Petitioner in this proceeding.” *Id.* In its Patent Owner Response, Patent Owner reiterates its view that the pertinent claims should be regarded as updated in that manner.

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PO Resp. 12–14. During the oral argument, Petitioner did not express any objection to that conclusion when questioned about it. *See, e.g.*, Tr. 26.⁹ We further note that in similar circumstances where a “conspicuous” error appears in claims of a patent and whose correction is not subject to reasonable debate, the Federal Circuit determined that the proper course of action is for the Board to treat the claims as corrected. *See Fitbit, Inc. v. Valencell, Inc.*, 964 F.3d 1112, 1119–20 (Fed. Cir. 2020) (holding that the Board erred in not correcting a “conspicuous” and undisputed error related to antecedent basis). We conclude that treating the claims as corrected is the appropriate approach here.

Accordingly, as a part of this Final Written Decision, we regard the claims corrected or updated in the manner noted above.

2. Claim 20

Claim 20 is reproduced below:

20. The method of claim 1 wherein the interest data consists of available data.

Ex. 1001, 6:58–59.

Thus, on its face, claim 20 states that it depends from claim 1. Petitioner acknowledges that claim 20 “recites dependency from claim 1,” but notes that “there is no antecedent basis in claim 1 for ‘the interest data’ in claim 20.” Pet. 60. Petitioner also alternatively contends that claim 20 may instead be interpreted to depend from independent claim 19. *Id.* In its Reply, Petitioner is more equivocal in its belief that claim 20 should be

⁹ We also observe that Petitioner provides no further discussion of this matter as a part of its Reply (Paper 24). *See generally* Pet. Reply.

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interpreted to depend from claim 19. *See* Pet. Reply 25–27.¹⁰ In that respect, Petitioner re-emphasizes the antecedent basis issue arising in connection with the recitation of “the interest data” in claim 20. *Id.* at 26. Petitioner also postulates that during prosecution a typographical error arose in connection with claim 21 introduced by amendment, which ultimately issued as claim 20. *Id.* at 27 (citing Ex. 1042 ¶ 67).¹¹ Patent Owner contends that claim 20 depends from claim 1 as written, and disagrees with Petitioner’s view that claim 20 instead was intended to depend from claim 19. Patent Owner supports its position with citation to the prosecution history (Ex. 1002) of the ’008 patent, and also Dr. Russ’s Declaration (Ex. 2011). PO Resp. 14–16 (citing Ex. 1002, 84–85; Ex. 2011 ¶¶ 68–70); *see also* PO Sur-reply 12 (“Petitioner is mistaken that claim 20 depends from claim 19.”). Patent Owner contends that “a POSA^[12] would understand that ‘the interest data’ from claim 20 refers to ‘the model data’ of claim 1. *Id.* at 15. Patent Owner also contends that Petitioner’s and Dr. Lopresti’s “speculation” that a typographical error occurred is insufficient to outweigh the evidence of record that “patentee intended claim 20 to depend from claim 1.” PO Sur-reply 13.

The parties’ positions as to the appropriate dependency of claim 20 are not in alignment. Patent Owner’s assessment of the prosecution history (buttressed by Dr. Russ’s Declaration) provides a credible basis for

¹⁰ Petitioner applies prior art to claim 20 on the basis of either proposed dependency. *See, e.g.*, Pet. 32–33, 49, 60–61; Pet. Reply 25–27.

¹¹ “As issued claims 19-20 were originally filed as claims 20-21 (POR, 15), the error the applicant made is simple: a ‘0’ was incorrectly omitted and ‘The method of claim 20’ became ‘The method of claim 2’.” Pet. Reply 27.

¹² “POSA” is an acronym for person of ordinary skill in the art.

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concluding that claim 20 should be understood as depending from claim 1 in the manner that it is written, even if with the unconventional circumstance of intervening independent claim 19 and the antecedent concern in referring to “interest data.” *See* PO Resp. 14–16; PO Sur-reply 12. As Patent Owner notes, the record reflects that during prosecution, Patent Owner actively grouped pending claims 3–19 and 21 together as being dependent on pending “independent claim 2,” which ultimately became independent claim 1 in the ’008 patent. *See* PO Resp. 15 (citing Ex. 1002, 84–85; Ex. 2011 ¶¶ 68–70). Pending claim 21 became claim 20 in the ’008 patent and was presented as being dependent on independent claim 1.

We are mindful that Petitioner’s proposed view has, perhaps, some facial appeal in seemingly addressing the potential “interest data” antecedent matter, but, at its core, the view rests on speculation by both Petitioner and Dr. Lopresti that an unintended typographical error occurred in the drafting of proposed claim 21 that became claim 20 of the ’008 patent, and was maintained during prosecution. *See* Pet. Reply 25–27. As noted above, however, evidence of record in connection with the underlying prosecution of the ’008 patent (*see* Ex. 1002, 84–85) conveys that the patentee did not regard the claim dependency that emerged in the ’008 patent as incorrect, and instead was the intended outcome. Accordingly, we conclude that the evidence of record more readily supports Patent Owner’s view that claim 20 should be regarded as depending from claim 1, as written.

Accordingly, we construe claim 20 as depending from claim 1.

3. *Claim Terms*

In the Institution Decision, we expressly addressed the meaning of some claim terms. To that end, we agreed with Petitioner that the ’008

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patent sets forth the ordinary and customary meaning of the following terms: “model data”; “available data”; “issued data;”; “monitored data”; and “interest data.” Inst. Dec. 10. We also discussed in more detail the meaning of the term “issued data,” and also addressed the meaning of the terms “single user instance” and “acquiring interest data.” *Id.* at 11–13, 30–31. We expressly address the meaning of some of those terms in some capacity below as a part of this Final Written Decision.

a) “issued data”

As to “issued data,” in the Institution Decision, we noted that the ’008 patent defines the term as “data generated by a server or other computing device that is not the same as the computing device for which the assessment as to user status is being performed.” Inst. Dec. 11 (citing Ex. 1001, 3:33–37). With that definition in mind, we expressed the following:

It is apparent from the Petition, as also explained in Petitioner’s subsequent briefing,^[13] that Petitioner’s position is that data collected from one or more “webpages” of a website that is issued from a server associated with that website may constitute the issued data encompassed by the claims. *See, e.g.,* Pet. Prelim. Reply 3. On this record we agree with that position. In particular, it follows readily that such data, even if collected from more than one webpage of a website, is regarded reasonably as constituting “data generated by a server or other computing device that is not the same as the computing device for which the assessment as to user status is being performed.”

Inst. Dec. 11–12 (quoting Ex. 1001, 3:33–37).

Although Patent Owner initially expressed disagreement with Petitioner’s position as a part of its Preliminary Sur-reply, as a part of the trial now instituted, Patent Owner no longer presents any dispute as to that

¹³ That “subsequent briefing” is Petitioner’s Preliminary Reply.

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position. *See In re NuVasive, Inc.*, 842 F.3d 1376, 1381 (Fed. Cir. 2016) (explaining that a patent owner forfeits an issue presented in its preliminary response if it fails to renew the issue in its response after trial is instituted). With respect to this Final Written Decision, we maintain our above-noted understanding of the meaning of the term “issued data.”

b) “single user instance”

In the Institution Decision, we addressed the meaning of “single user instance” to the extent that we disagreed with Patent Owner’s position that the term “means only a single webpage to the exclusion, for instance, of a source that is a website and includes multiple webpages.” Inst. Dec. 12–13. During trial, neither party raises any objection to that expressed understanding of the meaning of “single user instance.” Accordingly, we maintain that understanding of the term “single user instance.”

c) “acquiring interest data”

In the Institution Decision, we expressed the following in connection with the term “acquiring interest data” that appears in claim 19:

We discern that there is considerable ambiguity on the present record as to the meaning of “acquiring interest data,” and, in particular, whether the pertinent step is accounted for in Kitts based only on passive data. For instance, although, as Petitioner notes, the ’008 patent defines “interest data” as “active *or passive* data” (Pet. Prelim. Reply 3 (quoting Ex. 1001, 3:41–42)), the patent also seems to define “acquired data” and “its equivalents and verb forms” as constituting “a type of active data” (Ex. 1001 3:25–32). On this record, there is uncertainty as to why the recitation in claim 19 of “acquiring” a type of data, i.e., interest data, should take on a general meaning that is divorced from the particular definition of “acquired data” and its “verb forms” provided in the ’008 patent. *See* Pet. Prelim. Reply 3–4; Ex. 1001, 3:25.

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Patent Owner’s view that “acquiring interest data” constitutes a “verb” form of “acquired data” where the particular type of data involved is “interest” data seemingly has merit. Pet. Prelim. Reply 3–4. Yet, left wanting from Patent Owner’s position is how the confusion that then arises from statements in the specification as to “interest data” can be so readily dismissed. In particular, consider the following statement in the specification of the ’008 patent: “‘*interest data*’ . . . *comprises active or passive data*, whether available or *acquired*, that correlates to any data within model data.” Ex. 1001, 3:41–43 (emphasis added); *see* PO Prelim. Sur-reply 4. A plausible reading of that statement conveys that the ’008 patent specifically contemplates that interest data may be passive data even if it is acquired.

Inst. Dec. 30–31.

In its Patent Owner Response and its Patent Owner Sur-reply, Patent Owner discusses at length the meaning of “acquiring interest data.” *See* PO Resp. 3–12; PO Sur-reply 7–12. In short, Patent Owner contends that the Specification of the ’008 patent explicitly sets forth that “‘acquired data’ (including its verb forms and equivalents)” necessarily must include “active data,” such that a person of ordinary skill in the art would understand “acquiring interest data” as necessarily acquiring at least some interest data that is active data. *See, e.g.*, PO Resp. 3–12; PO Sur-reply 7–12. In so presenting that view, Patent Owner notes that the ’008 patent includes “repeated association of ‘acquired’ and ‘acquiring’ with ‘active data.’” PO Resp. 5.

With respect to the sentence appearing at column 3, lines 41–43 of the ’008 patent, Patent Owner contends, in-part, the following:

[A] POSA would not understand the cited statement—“comprises **active or passive data**, whether available or acquired”—to mean that “acquired passive data” can exist. [Ex. 2011] ¶59. Instead, POSA would understand that the clause

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“whether available or acquired” to simply mean that the preceding “active...data” may be “acquired” and the preceding “passive data” may be “available.” *Id.* In other words, a POSA would understand that the “whether” clause simply clarifies that “interest data” may include “active data” (whether *acquired* or not) and/or “passive data” (whether *available* or not). *Id.* This is the only interpretation consistent with the express definitions of “available data,” “acquired data,” “active data” and “passive data” and their uniform usage in the specification. *Id.*

PO Resp. 9.

In considering Patent Owner’s explanation, and upon further reflection, we agree with Patent Owner’s reading of the pertinent sentence. In that regard, consistent with the remainder of the Specification of the ’008 patent, it follows that the noted sentence does not alter the contours of “acquired” data to also encompass “passive” data where that premise is entirely absent from other portions of the Specification. Rather, as Patent Owner explains, the sentence is consistent with the understanding that it is “active data” that is connected to the word “acquired” and “passive data” that is connected to the word “available.” *See, e.g., id.* Patent Owner’s explanation alleviates the ambiguity that was postulated in the Institution Decision.

We have considered Petitioner’s views to the contrary (*see, e.g.,* Pet. Reply 21–25) but find them unavailing. In particular, Petitioner does not reconcile its position that, although acknowledging that “acquired data” is defined in the ’008 patent, the term “acquiring” is not so defined and should be regarded as an “individual word” whose meaning is somehow entirely unconnected to “acquired.” *See, e.g.,* Pet. Reply 21. We note, as we did in the Institution Decision, that the ’008 patent states that “acquired data” and “its equivalents and verb forms” is “a type of active data.” *See* Inst. Dec. 30 (citing Ex. 1001, 3:25–32). We are not persuaded by Petitioner’s view (*see,*

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e.g., Pet. Reply 21–22) that “acquiring” is somehow not immediately identifiable as a verb form of “acquired.” *See* PO Sur-reply 8. We determine that, in the context of the ’008 patent, it clearly is.

Having considered the competing views of Petitioner and Patent Owner, we conclude that Patent Owner’s construction of the term “acquiring interest data” is consistent with, and supported by, the Specification of the ’008 patent. In that regard, we conclude that, as is advanced by Patent Owner, “acquiring interest data” must encompass the retrieval of some active data.

d) Remaining Claim Terms

We determine that it is unnecessary to expressly construe any other claim term. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (Only terms in controversy must be construed and only to the extent necessary to resolve the controversy.); *see also Nidec*, 868 F.3d at 1017 (citing *Vivid Techs* in the context of an *inter partes* review).

D. Ground Based on Willner Alone

Petitioner contends that claims 1–3 and 6–18 are either anticipated or would have been obvious based on Willner. Pet. 6–27.

1. Summary of Willner

Willner is titled “Cursor Path Vector Analysis for Detecting Click Fraud.” Ex. 1005, code (54). Willner’s Abstract is reproduced below:

A system and method for detecting click fraud where data is received corresponding to a tracking movement of a cursor on a web page. The movement of the cursor is associated with at least one vector. The at least one vector represents at least a portion of the cursor movement. A confidence level useable in

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the determination of click fraud is determined. The confidence level is responsive to analysis of the at least one vector representing at least a portion of the cursor movement.

Id. at code (57).

Willner's Figures 2 and 3 are reproduced below:

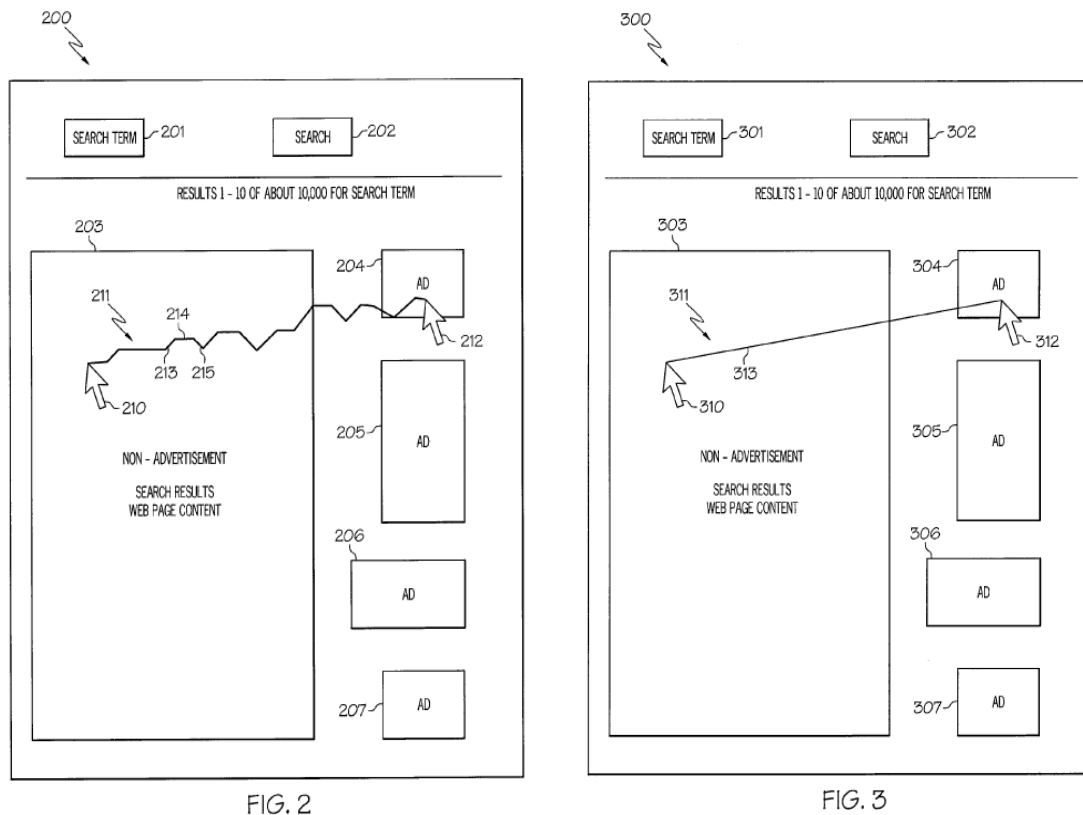


Figure 2 above shows a diagram of a web page illustrating a human-like cursor movement according to an embodiment. *Id.* ¶ 17. Figure 3 above is a diagram of a web page showing cursor movement resembling click fraud, i.e., movement by a bot, according to an embodiment. *Id.* ¶ 18. The path traveled by a cursor (211 in Figure 2, 311 in Figure 3) may be mapped into vectors and analyzed to assess whether the cursor movement has been provided by a human operator or a bot. *Id.* ¶¶ 46–48. Willner explains the following:

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[I]n embodiments according to the present invention, the vectors associated with a journey to initiate a click may be stored as a linked list of vectors on a server hosting the web page associated with the click action. These vectors may each be associated with a storage or hash code, where the hash can be decoded to provide at least some identifying information about the vector. The journey to initiate a click can be decoded to provide at least some identifying information about the vector. The journey to initiate a click can then be represented as a sequence of hash codes. Subsequent clicks that implement analogous hash sequence patterns can then be dismissed as an automation tool attempting to simulate the actions of a user, as it would be extraordinarily difficult for an automation tool to implement code to derive unique and discernible user patterns that would map to an individualistic set of vectors.

Ex. 1005 ¶ 38.

2. Claims 1–3 and 6–17

Petitioner lays out in detail where it believes all the features of claims 1–3 and 6–17 are found in Willner. Pet. 9–26. During trial, Patent Owner presented no arguments challenging Petitioner’s proposed ground of unpatentability of claims 1–3 and 6–17 based on Willner. During oral argument, upon questioning, counsel for Patent Owner expressed that “We did not present any arguments on Claims 1 to 3, 6 to 17 on Ground 1.” Tr. 30:3–4.

We determine that Petitioner, via its Petition, has established adequately where all the features of claims 1–3 and 6–17 are present in Willner. *See* Pet. 9–26. Given that determination, and in the absence of any argument during trial challenging Petitioner’s ground of unpatentability based on Willner as to those claims, we conclude that Petitioner has shown by a preponderance of the evidence that claims 1–3 and 6–17 are unpatentable under 35 U.S.C. § 102 based on Willner.

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3. *Claim 18*

Claim 18 recites “[t]he method of claim 1 further comprising repeating a)-c) and comparing the first instance of the value of d) to the second instance of the value of d).” Ex. 1001, 6:41–43.

a) Summary of Petitioner’s Arguments

With respect to claim 18, in its Petition, Petitioner contends the following:

Willner discloses or renders obvious repeating [1A]-[1E]. In doing so, Willner compares hash values of first and second click movements, which are generated in the comparison of [1D]. A POSA would further have been motivated to compare confidence values generated in [1D]-[1E] for first and second clicks to identify scenarios where a first click is too close to call but a subsequent click lowers the confidence such that click fraud is indicated.

Pet. 26–27 (citing Ex. 1005 ¶¶ 38–39; Ex. 1003 ¶¶ 115–116).

In its Reply, Petitioner contends that if claim 18 is interpreted as reciting “of d),”¹⁴ then comparing Willner’s hash values is sufficient to account for claim 18. Pet. Reply 17–18. Alternatively, Petitioner contends that if claim 18 is changed to recite “of e),” then the limitation “was within the POSA’s knowledge” and that “[t]he only possible support claim 18 is via POSA’s background knowledge that comparing confidence values from

¹⁴ As discussed above, the record clearly reflects that the step lettering in claim 18 should be shifted forward, such that each of steps a)–d) are understood to refer to each of steps b)–e) of claim 1. *See supra* § II.C.1. Nevertheless, as both parties have presented alternative theories as to claim 18, i.e., interpreted as reciting either “of d)” or “of e),” we consider below both scenarios.

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repeated tests of user activity for bot detection was routine and readily apparent.” *Id.* at 18. Petitioner also contends the following:

It was common knowledge that statistical classification systems like Willner’s have a “reject option” to defer decisions on difficult cases with higher uncertainty about class membership, by waiting for a later input with lower uncertainty. EX1042, [0048]-[0050] (citing corroborating EX1044, 42; EX1043, 19, 26-27; EX1045, 24); EX1040, 27 (Nobots’s expert lacks experience with statistical classifiers). POSAs knew to “repeat the steps” of testing and analyzing subsequent inputs “to make a more accurate determination.” Petition, 25-26, citing EX1003, [0110]-[0111], quoting Broder, [0059]. Applying the POSA’s background knowledge to Willner thus meets claim 18.

Id. at 19.

b) Summary of Patent Owner’s Arguments

In its Patent Owner Response, Patent Owner first contends the following as to claim 18:

First, Petitioner ignores the fact that claim 18 contains a clear error and that a POSA would understand its claim steps to be shifted forward by one letter to refer to first and second instance values “of e)” (rather than “of d)”). Step [1E] recites “a value that represents a confidence level” and, therefore, the first instance and second instance of the value “of e)” must also represent a confidence level. Russ-Declaration ¶74. Willner’s hash values do not “represent a confidence level,” but instead simply represent mouse vectors. *Id.* (citing Ex-1005 ¶¶[0038]-[0039]). Thus, Willner does not disclose claim 18 under the appropriate construction.

PO Resp. 18.

As also noted by Patent Owner (*id.* at n.9), in the Institution Decision, we expressed that “we do not discern, at this time, that either Petitioner or Dr. Lopresti provides adequate explanation as to why Willner’s ‘hash

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values’ are understood to be representative of that confidence level.” Inst. Dec. 20–21.

Patent Owner also alternatively contends the following:

Second, Willner still would not satisfy the claim even if claim 18 were not corrected. Russ-Declaration ¶75. In that scenario, the claim would *still* require the first and second values to be “of d).” *Id.* Because [1D] recites “comparing the monitored data to model data,” first and second values “of d)” would have to be generated based on that claimed comparison. *Id.* However, the hash values identified by Petitioner are generated based on mouse vectors, not any form of comparison. *Id.* (citing Ex-1005 ¶¶[0038]-[0039]). In other words, while the hash values are compared *to one another* as part of Willner’s fraud detection, those hash values are not themselves generated from any sort of comparison. *Id.* Thus, the hash values would not satisfy claim 18 even if the first and second values were “of d)”. *Id.*

PO Resp. 18–19.

In its Sur-reply, Patent Owner contends that Willner does not anticipate claim 18 for the following reasons:

If claim 18 recites “of d)”: Contrary to Petitioner’s representation (Reply, 17-18), Nobots disputes that Willner’s “hash values are generated *as part of the step* meeting [1D].” Paper 18 (“Response”), 18-19. The “hash values” are clearly generated *before* any comparison occurs, not as “part of” a comparison. *Id.* (citing Ex-1005 ¶¶[0038]-[0039]). That there is “no antecedent ‘value’ recited in [1D]” only shows that the claim must be corrected; it certainly does not mean that the “value of d)” can somehow be created *before* the claimed comparison.

If claim 18 recites “of e)”: Petitioner does not dispute that Willner’s hash values do *not* “represent a confidence level.” *Id.*, 18; Reply, 17-18; [Inst. Dec.], 20-21.

PO Sur-reply 1.

Patent Owner also argues that Petitioner has not shown that claim 18 would have been obvious over Willner. *Id.* at 2–5. In so arguing, Patent

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Owner contends that Petitioner relies on improper new arguments and evidence in its Reply that are not present in the Petition in attempting to demonstrate the obviousness of claim 18. *Id.* at 2. Patent Owner further argues that even considering Petitioner’s new arguments and evidence (1) Patent Owner has disputed that the pertinent requirements of claim 18 were “within the POSA’s knowledge,” are accounted for by “common knowledge,” or are based on a “known technique,” and (2) Petitioner’s arguments lack adequate supporting evidence. *Id.* at 2–5.

c) Discussion

(1) Interpreting claim 18 as reciting “of e)”

At the outset, we note that the record demonstrates that claim 18 should be understood to refer to “of e).” *See supra* § II.C.1. Based on that understanding, claim 18 requires the comparison of a first instance of a value that represents a “confidence level” that monitored data is the result of human activity with a second instance of such a value. In our Institution Decision, we saw merit in Patent Owner’s preliminary arguments that the Petition does not adequately account for what is required by claim 18. *See* Inst. Dec. 20–21. Specifically, we noted that, in connection with Petitioner’s positions in the Petition, “[a]lthough Willner separately discusses assessment of a confidence level (*see, e.g.,* Ex. 1005, code (57)), we do not discern, at this time, that either Petitioner or Dr. Lopresti provides adequate explanation as to why Willner’s ‘hash values’ are understood to be representative of that confidence level.” *Id.*

Patent Owner presents similar arguments as a part of its Patent Owner Response and Patent Owner Sur-reply, making persuasive challenges as to why Willner’s hash values amount to the first and second instances of values

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of a confidence level that are compared as is required by claim 18 (in its “of e)” interpretation). *See* PO Resp. 18 (“Willner’s hash values do not ‘represent a confidence level,’ but instead simply represent mouse vectors.” (citing Ex. 1005 ¶¶ 38–39)); PO Sur-reply 1 (“Petitioner does not dispute that Willner’s hash values do not ‘represents a confidence level.’” (citing PO Resp. 18; Pet. Reply 17; Inst. Dec. 20–21)).

As noted above, in its Reply, Petitioner now advances a different theory than was offered in the Petition as to the unpatentability of claim 18. In lieu of any reliance on Willner’s hash values to account for claim features, Petitioner now presents a theory that based on a “POSA’s background knowledge . . . comparing confidence values from repeated tests of user activity for bot detection was routine and readily apparent.” Pet. Reply 18 (citing Ex. 1042 ¶ 47). Petitioner also contends the following:

It was common knowledge that statistical classification systems like Willner’s have a “reject option” to defer decisions on difficult cases with higher uncertainty about class membership, by waiting for a later input with lower uncertainty. EX1042, [0048]-[0050] (citing corroborating EX1044, 42; EX1043, 19, 26-27; EX1045, 24); EX1040, 27 (Nobots’s expert lacks experience with statistical classifiers). POSAs knew to “repeat the steps” of testing and analyzing subsequent inputs “to make a more accurate determination.” Petition, 25-26, citing EX1003, [0110]-[0111], quoting Broder, [0059]. Applying the POSA’s background knowledge to Willner thus meets claim 18.

Pet. Reply 18–19.

Petitioner, thus, now presents a general theory that “background knowledge,” “common knowledge,” and “routine technique” to account for comparing confidence values as a part of Willner’s disclosure interpretation involving “of e).” *See, e.g.*, Pet. Reply 18–19. Petitioner’s new theory relies

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on argument and evidence (Exs. 1042–1045) newly presented as a part of the Reply.

As an initial matter, we agree with Patent Owner that Petitioner’s new theory is essentially an attempt to “improperly gap-fill” inadequacies of the Petition. *See* PO Sur-reply 2–5. Petitioner expressed in its Petition that it was aware of both possible interpretations of claim 18 and proposed grounds of unpatentability for claim 18 that “meet the claims under both interpretations,” i.e., either “of d)” or “ of e)” in claim 18. *See* Pet. 5; *see also* Ex. 1003 ¶ 167 (“Willner meets claim 18, regardless of whether the ‘a)-c)’ and ‘d)’ recited in claim 18 refer to [1A]-[1D] or instead to [1B]-[1E]”). Petitioner’s approach in the Petition was to rely on Willner’s “hash values” to account for claim 18. *See, e.g.*, Pet. 26–27. In response to Patent Owner’s arguments that those hash values do not constitute values that represent a “confidence level” as required by claim 18 (*see, e.g.*, PO Resp. 18), Petitioner has changed theories mid-stream to focus on the “background knowledge” of a skilled artisan in ascertaining and comparing values of confidence levels as required by claim 18.

Although a petitioner may respond to patent owner’s arguments as a part of a Reply (*see* 37 C.F.R. § 42.23), it is not appropriate in a reply to introduce entirely new argument and evidence that is necessary to address evidentiary gaps successfully identified by a patent owner, and which could have been previously presented by a petitioner. *See also* Consolidated Trial Practice Guide (Nov. 2019), 73 (“Petitioner may not submit new evidence or argument in reply that it could have presented earlier, e.g., to make out a *prima facie* case of unpatentability.”) To that end, we do not regard Petitioner’s Reply on this matter to be properly responsive to either the Patent Owner Response or the Institution Decision. We conclude that

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Petitioner's new argument and evidence presented in the Reply in connection with claim 18 are improper and untimely.

Nevertheless, even considering Petitioner's new argument and evidence on the matter, we note that Petitioner's proposed approach presented in the Reply as to why Willner's teachings coupled with common or general knowledge would have led a skilled artisan to the requirements of claim 18 is, in our view, unmoored from the actual claim requirements of claim 18. Claim 18 (interpreted to recite "of e)") requires repeating certain steps set forth in claim 1: to generate first and second values that represent confidence levels that monitored data is a result of human interaction on a client computing device rather than that of an autonomic user with or in response to issued data, and then comparing those values. We take note of Patent Owner's contention, and agree with it, that Petitioner's new obviousness theory is "untethered from underlying facts of data in evidence." *See* PO Sur-reply 4. Patent Owner also contends the following:

Even if this improper argument and evidence is considered, at best it could demonstrate merely that POSAs knew to "defer decisions on difficult cases" and "wait[] for a later input with lower uncertainty." Reply, 19. But claim 18 not only requires repeating claim steps, but also **comparing** values. None of the new art discloses comparing as claimed. Petitioner is thus **still** left without any evidence that comparing confidence values was known in the art. Because Petitioner fails to provide any evidence that comparing confidence values was known in the art, Petitioner cannot demonstrate that claim 18 is unpatentable.

Petitioner's new arguments and evidence only further show that its theory is premised on hindsight bias. Response, 21-22. The Reply argues that rejecting "higher uncertainty" decisions and waiting for a "lower uncertainty" input was well known. Reply, 19. Even accepting this as true, Petitioner does not explain why POSAs would have been motivated to compare confidence values—a feature that Petitioner has been unable to

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show in any prior art—given that the “reject option” was allegedly a well-known solution to the problem of “too close to call” scenarios.

Id. at 4–5.

We agree with Patent Owner’s contentions that it is not entirely clear how a general recognition of a “reject option” for a “higher uncertainty” and waiting for a “lower uncertainty” decision, even if true, amounts to what is required by claim 18.

Further still, we note Petitioner’s argument that general background knowledge of a skilled artisan must intrinsically be regarded as accounting for claim 18 because of an alleged “*lack of any description* matching claim 18’s recitation in Nobots’s specification.” *See* Pet. Reply 18 (emphasis in original). Yet, we agree with Patent Owner (*see* PO Sur-reply 2–3) that Petitioner’s argument does not square with Petitioner’s burden to come forward in its Petition with a suitable evidentiary basis showing that a particular claim limitation was recognized in the prior art. We reject Petitioner’s argument.

Thus, on this record, we are not persuaded that Petitioner’s new arguments and evidence (i.e., Exs. 1042–1045) demonstrate that general background knowledge combined with Willner’s teachings to arrive at claim 18 (when the claim is understood to refer to “of e).”

(2) Interpreting claim 18 as reciting “of d)”

Alternatively, even regarding claim 18 as written in referring to “of d),” Petitioner provides little meaningful elucidation as to why Willner’s “hash values” account for that version of claim 18.¹⁵ Part and parcel with

¹⁵ We reiterate here that as written in referring to “of d),” claim 18 makes little sense. In that respect, claim 1’s step “d)” is itself a step of

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the non-sensical nature of claim 18 as written is that the first and second instances of values in the claim have no corollary in claim 1's step d), such that Petitioner does not meaningfully articulate how Willner's "hash values" amount to what is required by claim 18. Moreover, as is apparent from Patent Owner's Response (pp. 18–19) and Sur-reply (pp. 2–5), Patent Owner clearly does dispute that Willner renders obvious claim 18 as a part of its "of d)" iteration, contrary to Petitioner's argument (*see* Pet. Reply 17–18). We find Patent Owner's arguments persuasive that Petitioner does not account adequately for claim 18 as written in referring to "of d)." *See* PO Resp. 18–19; PO Sur-reply 1–5.

Accordingly, we conclude that Petitioner has not shown by a preponderance of the evidence that claim 18 is unpatentable over Willner, based on Petitioner's grounds premised on either anticipation or obviousness even if the claim is interpreted as reciting "of d)."

4. Conclusion

For the foregoing reasons, we conclude that Petitioner has shown by a preponderance of the evidence that claims 1–3 and 6–17 are unpatentable based on Willner. Petitioner has not shown by a preponderance of the evidence that claim 18 is unpatentable over Willner.

"comparing" data and does not refer to any particular "value of d)" or indicate that any "value" results from the comparison performed in step d). Claim 18's recitation then of "comparing" two values as a part of the "comparing" aspect of step d) that does not generate a value is non-sensical.

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E. Ground Based on Willner and Kitts

1. Summary of Kitts

Kitts is titled “Click-Fraud Protector.” Ex. 1009, code (54). Kitts summarizes its disclosure below:

Determining the probability that a user or program fraudulently initiated a web-page request is described herein. A web service executing on a server includes a data-mining component, computation component, and auction component. The data-mining component is configured to determine attributes associated with the web-page request. The computation component is configured to calculate a probability that the web-page request was fraudulently initiated. To calculate this probability, the attributes and other parameters are fed into a statistical model. The auction component is configured to locate one or more advertisements to display on the web page based on the probability. The auction component is also configured to restrict the advertisements for display based on advertiser-specified target criteria. Once an advertisement is located, the advertisement is rendered along with the web page.

Ex. 1009 ¶ 9.

Kitts further describes that the types of attributes that can be analyzed “include, without limitation, an internet protocol (IP) address of the client-computing device, . . . date, time, geographic location, metadata, key words, HTML tabs, or other characteristics associated with the page request.” *Id.* ¶ 46.

2. Introduction—Willner and Kitts Ground

Petitioner contends that claims 1–18 and 20 would have been unpatentable based on Willner and Kitts. Pet. 27–33. Petitioner submits that “[t]he Willner-Kitts combination meets claims 1–3 and 6–18 for the same reasons as Willner alone discussed *supra* [in the Petition], which are unchanged in the combination.” *Id.* at 29 (citing Ex. 1003 ¶ 119). Petitioner

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applies Kitts to account for aspects of claims 4, 5, and 20. As discussed above, during trial, Patent Owner does not dispute that Willner accounts for all the features of claims 1–3 and 6–17. We discern that Patent Owner does dispute aspects of Petitioner’s proposed grounds based on Willner and Kitts applied to claims 4, 5, 18, and 20. Accordingly, we address the claims below in the following groupings: (1) claims 4 and 5; (2) claim 20; (3) claim 18; and (4) claims 1–3 and 6–17.

3. Claims 4 and 5

Claims 4 and 5 are reproduced below:

4. The method of claim 1 wherein the model data comprises passive model data.

5. The method of claim 4 wherein the passive model data comprises browser cookies; destination IP histories; originating IP address; originating IP address traffic data; originating IP address physical location; and/or third party data regarding abusers comprising originating IP address and physical locations.

Claims 4 and 5, thus, specify the type of model data referenced in claim 1 as certain types of “passive model data.”

a) Summary of Petitioner’s Arguments

In the Petition, Petitioner explains how the combination of Willner and Kitts account for all the features of claims 4 and 5. Pet. 30–31. As we observed in our Institution Decision, “Petitioner primarily applies Kitts’s teachings in conjunction with Willner to account for the ‘passive’ data aspects of” claims 4 and 5. Inst. Dec. 23.

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In arguing that a person of ordinary skill in the art would have had reason to combine the teachings of Willner and Kitts, Petitioner contends in its Petition the following:

A POSA would have been motivated to add Kitts's statistical model analysis and use of passive model data (Kitts's "attributes") to determining the confidence level in Willner's method. Willner and Kitts address the same problem of preventing automated click fraud on webpage advertisements (*supra* §§ III.A, IV.A), and both analyze data regarding the client device's interaction with the webpage to determine a value (Willner's "confidence level" or Kitts's "quality score") indicating whether the user is likely a human or bot. *Supra* §§ III.B.1, III.B.6 (Willner); Kitts, [0031]-[0032], [0049], [0067]-[0068]; Lopresti- Declaration, [0118]. Kitts ([0068]) teaches that "[a]dditionally, other user or program parameters may also be used in conjunction with the attributes to determine the probability[.]"

Pet. 28.

Petitioner also contends the following:

a POSA would have been motivated to improve Willner's performance in detecting automated click fraud by analyzing passive data as Kitts teaches, in addition to active data as Willner teaches. Lopresti- Declaration, [0118]. Kitts ([0047]) teaches that "[s]uch information can be an important tool in determining whether the user requesting the web page has a propensity for click fraud," and it was well known to POSAs that analyzing passive data could help differentiate humans from bots. Lopresti- Declaration, [0118], citing as corroboration Broder, [0009], [0042]-[0043], [0051]-[0054], [0068]-[0069]; Ex. 1014 ("Ge"), [0082]-[0083]; Ex. 1015 ("English"), 3:17-29.

Id. at 28–29.

In its Reply, Petitioner contends that the Petition established adequate motivation to combine the teachings of Willner and Kitts (Pet. Reply 1–6), and also a reasonable expectation of success in so combining those teachings (*id.* at 6–10).

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b) Summary of Patent Owner's Arguments

During trial, Patent Owner does not challenge Petitioner's contentions that all of the limitations of claims 4 and 5 emerge from a combination of Willner and Kitts. Rather, Patent Owner bases its arguments first on a position that Petitioner has not offered adequate explanation of a reasonable expectation of success in modifying Willner based on Kitts's teachings. *See* PO Resp. 35–41; PO Sur-reply 14–18. Patent Owner also contends that Petitioner has not demonstrated a motivation to combine the teachings of Willner and Kitts. *See* PO Resp. 41–43; PO Sur-reply 20–22. For instance, Patent Owner criticizes Petitioner for not having explained how the “benefits” attributed to adding Kitts's passive data statistical model would outweigh any “drawbacks.” PO Resp. 42; PO Sur-reply 21–22. Patent Owner notes that Willner describes its system as “‘actually impossible’ for bots to perpetuate click fraud on,” reasons that characterizes Kitts's passive model analysis as “complex,” and concludes that a skilled artisan would “be less inclined” to attempt to further improve Willner's system “by add[ing] Kitts' statistical model analysis and use of passive data.” *See, e.g.*, PO Resp. 34–35.

c) Discussion

In light of Petitioner's above-noted contentions as to reasons to combine the teachings of Willner and Kitts, we made the following determination at the Institution stage:

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We find persuasive, on this record, Petitioner’s contentions and Dr. Lopresti’s testimony that a skilled artisan would have recognized reasonably that types of data understood as “passive” (e.g., browser cookies, IP addresses, IP histories, geographic location, etc.) are known in the art as data used in the pursuit of click fraud detection.

Inst. Dec. 24.

Furthermore, in observing that the parties were in agreement “that a person of ordinary skill in the art has considerable education and experience in the areas of computer science and computer security,” we determined that “[t]he record reflects that Kitts’s express teachings would have conveyed to a person of ordinary skill in the art involved in computer science and security that ‘passive data’ can be useful as an ‘important tool’ in the realm of evaluating the possibility that click fraud is occurring.” *Id.* at 25 (citing Ex. 1009 ¶ 47; Ex. 1003 ¶ 118).

Lastly, we assessed the following:

Furthermore, a person of ordinary skill in the art is also a person of ordinary creativity. *KSR*, 550 U.S. at 421. It follows reasonably from Kitts’s teachings that one of ordinary skill and creativity would have appreciated that passive data would have had recognized benefits in detecting click fraud in the type of system conveyed in Willner (*see* Ex. 1009 ¶ 47; *see also* Ex. 1003 ¶ 118), even if harnessing those benefits in such a system would require addressing issues of “complexity” as urged by Patent Owner. *See, e.g.*, Prelim. Resp. 49. That is reasonably so even if Willner expresses praise for its own system’s effectiveness in detecting bots engaging in click fraud. There is no plausible indication on the record at hand that employing a particular type of data, i.e., passive data, in a click fraud detection system would have been beyond the skill of a skilled artisan so as to suggest non-obviousness. *See KSR*, 550 U.S. at 417 (“if a technique has been used to improve one device, and a person of ordinary skill in the art would recognize that it would improve similar devices in the same way, using the technique is obvious unless its actual application is beyond his or her skill.”). On this record, we find

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credible, and adequately supported by record evidence, Dr. Lopresti's testimony that use of passive data was well known "to help differentiate humans from bots." *See, e.g.,* Ex. 1003 ¶ 118. We further credit Dr. Lopresti's testimony that a person of ordinary skill in the art would have had adequate motivation to combine Willner's and Kitts teachings (*see, e.g., id.*), and also conclude, at this time, that the record reasonably conveys that there would have been a reasonable expectation of success in doing so.

Id. at 25–26.

Thus, for purposes of instituting trial, we found persuasive Petitioner's arguments (and credible Dr. Lopresti's supporting testimony) that a skilled artisan would have had adequate motivation to combine the teachings of Willner and Kitts, and also that the record conveyed "a reasonable expectation of success in doing so." *Id.* at 26.

As to Patent Owner's challenge to Petitioner's proffered motivation to combine the teachings of Willner and Kitts, we find that Patent Owner does not present persuasive arguments that undermine the reasoning (and underlying support for that reasoning) offered in the Petition, which, as discussed above, we found persuasive in instituting trial. The record, and specifically Kitts's teachings, amply conveys that "passive" data has a recognized role in connection with bot detection systems. *See, e.g.,* Ex. 1009 ¶¶ 46–47; Ex. 1003 ¶ 118. We also agree with Petitioner here that a showing of "obviousness does not require a combination to be 'an "improvement" in a categorical sense.'" Pet. Reply 3 (quoting *Intel Corp. v. PACTXXP Schweiz AG*, 61 F.4th 1373, 1381 (Fed. Cir. 2023)). Petitioner credibly explains that one of ordinary skill in the art would have recognized the benefit of employing additional data, e.g., Kitts's passive data, specifically intended for bot detection in other systems, such as Willner's, that may not themselves make explicit that such data is used. *See, e.g.,* Pet.

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28–29; Pet. Reply 1–3. That is reasonably so, even if harnessing those improvements or benefits may require a skilled artisan to puzzle out solutions to potential problems or setbacks. For instance, even if “complexity,” “cost,” and “security” are the types of issues that a skilled artisan would need to evaluate in combining Willner’s and Kitts’s teachings, as Patent Owner suggests (*see, e.g.*, PO Resp. 42), we agree with Petitioner the record does not convey that evaluating or addressing such issues is beyond the skill of one of ordinary skill in the art. *See* Pet. Reply 3–6.

With respect to Patent Owner’s contention that the Petition “offers no analysis or evidence of reasonable expectation of success” (*see, e.g.*, PO Resp. 35), we do not agree. In our Institution Decision, we concluded that Petitioner’s arguments, and Dr. Lopresti’s testimony, credibly provided a basis for determining that a skilled artisan would have had a reasonable expectation of success in combining the teachings of Willner and Kitts. *See* Inst. Dec. 25–26. We reached that determination even though the Petition did not use the phrase “reasonable expectation of success.” We take note that the Federal Circuit has observed that, while motivation to combine the teachings of the prior art requires an explicit analysis, “a finding of reasonable expectation of success can be implicit.” *Elektro Limited v. Zap Surgical Systems, Inc.*, 81 F.4th 1368, 1376 (Fed. Cir. 2023). Moreover, “[e]vidence of reasonable expectation of success, just like evidence of a motivation to combine, ‘may flow from the prior art references themselves, the knowledge of one of ordinary skill in the art, or in some cases, from the nature of the problem to be solved.’” *Id.* at 1377 (quoting *Brown & Williamson Tobacco Corp. v. Philip Morris Inc.*, 229 F.3d 1120, 1125 (Fed. Cir. 2000); *see also Merck & Cie v. Gnosis S.P.A.*, 808 F.3d 829, 836 (Fed.

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Cir. 2015) (“*KSR* does not require an explicit statement of a reasonable expectation of success in every case.”).

Here, we conclude that: (1) the parties’ recognized level of ordinary skill in the art (*see* Pet. 4; PO Resp. 2); (2) the knowledge of a skilled artisan as set forth by record evidence, including the teachings of Willner and Kitts; and (3) the nature of the problem addressed in both of those references, i.e., click fraud detection, all support a determination that a skilled artisan would have had adequate reasons to combine Willner and Kitts, and would have had a reasonable expectation in doing so. To that end, we find persuasive Petitioner’s arguments in the Petition as to the proposed reasoning to combine Willner and Kitts, and also credit Dr. Lopresti’s supporting testimony. *See* Pet. 28–29; Ex. 1003 ¶ 118.

We are mindful of the contrasting testimony referenced by Patent Owner’s declarant, Dr. Russ. *See, e.g.*, PO Resp. 38 (citing Ex. 2011 ¶¶ 107–110). Dr. Russ testifies that, in his view, there are “practical” and “technical” “considerations” in combining Willner and Kitts that a “POSA would have had to consider in determining whether a reasonable expectation of success exists, none of which are addressed or discussed in the Petition.” *See* Ex. 2011 ¶¶ 107–110. The example considerations listed by Dr. Russ are reproduced below:

1. How Kitts’ passive data could be collected and stored in conjunction with the mouse vector data already being collected by Willner;
2. How to collectively analyze fundamentally different types of data—Willner’s mouse vector data on one hand, and Kitts’ passive data on the other;
3. How to generate a useful confidence score that is more accurate than the scores already generated by Willner, again taking into consideration that passive data is a fundamentally different type of data than active data;

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4. How to develop an algorithm to perform the required assessment using the complex statistical model of Kitts; and
5. To what extent additional computer hardware would be necessary to enable the combined system to effectively operate and whether such hardware could be reasonably implemented, taking into consideration both cost and feasibility.

Ex. 2011 ¶ 108.

Those considerations are generally directed to collection and use of one particular type of data, i.e., “passive data,” alongside another type of data, i.e., “active data.” We find, however, that the record establishes that resolving these considerations would have been within the ordinary skill of the person of ordinary skill in the art. *See, e.g.*, Pet. 28–29; Ex. 1003 ¶ 118; Pet. Reply 8–9; Ex. 1042 ¶¶ 19–24.

Furthermore, any or all particular “considerations” that a skilled artisan would have contemplated as a part of an obviousness analysis need not be made explicit in a Petition in order to satisfy the reasonable expectation of success inquiry. Dr. Russ’s criticisms as to alleged lacking of reasonable expectation of success seem to be that the Petition’s alleged deficiency lies in not describing every particular modification that might be contemplated by a skilled artisan in combining the teachings of Willner and Kitts. In our view, that is akin to a challenge as to how Kitts’s teachings would have been “bodily incorporated” into Willner’s system, yet that is not a requirement to demonstrate obviousness. *See Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016) (quoting *In re Keller*, 642 F.2d 413, 425 (CCPA 1981)) (“The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference[.]”)

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Stated somewhat simply, Petitioner’s reliance on Kitts’s teachings is for the premise that a person of ordinary skill in the art would have appreciated that “passive” data is a known type of data used in the pursuit of detecting the presence of a bot. It flows reasonably from Kitts’s teachings, and the record at hand, that one of ordinary skill in the art would successfully expect to incorporate the use of such data in other bot detection systems, such as Willner’s.

We further discern that, in response to the challenges posed by Patent Owner pertaining to motivation to combine and reasonable expectation of success, Petitioner provides additional explanation and evidence. *See* Pet. Reply 1–10. Patent Owner characterizes the new argument and evidence as “improper.” *See* PO Resp. 18–20. Although a reply may incorporate new evidence in response to arguments made in a patent owner response, it is certainly the case that new evidence in a reply cannot go beyond what is permitted, such as to operate as a “gap-filler” for necessary evidence entirely lacking from a petition.¹⁶ In this circumstance, however, Petitioner’s introduction and discussion of additional evidence is tied directly to an initial determination made in the Institution Decision as to Petitioner’s establishment of reasonable expectation of success, and also is directed specifically to arguments challenging that establishment made by Patent Owner in the Patent Owner Response. Nevertheless, even discounting Petitioner’ argument and evidence made in the Reply as to this issue, we

¹⁶ Indeed, we note that such was our determination, discussed in section II.D.3.C above, in connection with evidence and argument newly made for claim 18 as a part of its proposed ground based on Willner taken alone.

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conclude that the Petition adequately demonstrates a reasonable expectation of success in combining the teachings of Willner and Kitts.

We have considered the parties' respective positions on the question of whether Petitioner has shown that claims 4 and 5 are unpatentable based on the teachings of Willner and Kitts. We conclude that Petitioner has shown by preponderance of evidence that claims 4 and 5 are unpatentable over Willner and Kitts.

4. *Claim 18*

The issues pertaining to Petitioner's proposed ground for claim 18 based on Willner and Kitts are the same as those discussed above in connection with the ground based only on Willner. *See supra* § II.D.3. As discussed above, we are not satisfied that Petitioner has shown by a preponderance of the evidence that claim 18 is unpatentable over Willner. Petitioner does not rely on Kitts to address any of the deficiencies that we note above. Accordingly, relying on the same reasons discussed above (§ II.D.3), we also conclude that Petitioner has not shown by a preponderance that claim 18 would have been unpatentable over Willner and Kitts.

5. *Claim 20*

Claim 20 is reproduced below:

20. The method of claim 1 wherein the interest data consists of available data.

Ex. 1001, 5:59–6:6, 6:58–59.¹⁷

¹⁷ As discussed above, although there is some dispute between the parties, we conclude that, given the circumstances here, claim 20 should be regarded as being dependent on claim 1, as written. *See supra* § II.C.2.

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Claim 20, thus, refers to “interest data,” as being “available data.”¹⁸ It is clear from the specification of the ’008 patent that “available data” is understood to be a type of “passive data.” *See, e.g.*, Ex. 1001, 3:18–24.

In the Petition, Petitioner explains its view as to how claim 20 is unpatentable over Willner and Kitts. Pet. 32–33. During trial, Patent Owner does not appear to offer any explicit challenges pertaining to claim 20, but Patent Owner’s view that Petitioner has not shown adequate motivation to combine Willner and Kitts or a reasonable expectation of success in doing so seemingly also applies to claim 20. *See, e.g.*, PO Rep. 35–43; PO Sur-reply 20–22.¹⁹

As discussed above, we do not agree with Patent Owner that Petitioner’s showing of motivation to combine Willner and Kitts, and a reasonable expectation of success in doing so, are deficient. *See supra* § II.E.3.

On this record, we conclude that Petitioner has shown, by a preponderance of the evidence, that claim 20 is unpatentable based on Willner and Kitts.

6. Claims 1–3 and 6–17

As discussed above, Patent Owner does not dispute that Willner alone accounts for all the requirements of claims 1–3 and 6–17. *See supra* § II.D.2. We also do not agree with Patent Owner that Petitioner has not

¹⁸ We note that claim 1 does not recite “interest data,” but does refer to “model data.” Patent Owner contends that the reference to “interest data” should instead be to “model data.” PO Resp. 15.

¹⁹ In its Reply, Petitioner contends that “[i]f claim 20 is interpreted as dependent from claim 1, Nobots does not separately dispute its unpatentability beyond the arguments addressed *supra* §III.” Pet. Reply 25.

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shown adequate motivation to combine Willner and Kitts or a reasonable expectation of success in so combining those teachings. *See supra* § II.E.3. Accordingly, we conclude that Petitioner has shown, by a preponderance of the evidence, that claims 1–3 and 6–17 are unpatentable based on Willner and Kitts.

7. Conclusion

For the foregoing reasons, we conclude that Petitioner has shown by a preponderance of the evidence that claims 1–17 and 20 are unpatentable over Willner and Kitts. Petitioner has not shown that claim 18 is unpatentable over Willner and Kitts.

F. Grounds Based on O’Connell

1. Summary of O’Connell

O’Connell is titled “User-Browser Interaction-Based Fraud Detection System.” Ex. 1007, code (54). O’Connell’s Abstract is reproduced below:

Systems, methods and media for detecting fraudulent behavior during an Internet commerce session are disclosed. Embodiments of a method may include establishing an e-commerce session with a user and requesting fraud detection analysis of user-browser interaction during the e-commerce session. Embodiments may also include receiving fraud detection results for the e-commerce session, where the fraud detection results may provide an indication of a comparison between the user's interaction with a browser during the e-commerce session and known fraudulent behavior. Embodiments may also include performing an action based on the fraud detection results. Determining the fraud detection results may include determining user-browser interaction data associated with the session and comparing the user-browser interaction data to known fraudulent human or automated program behavior. Performing the action based on fraud detection results may include one or more of completing an e-

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commerce transaction, requesting additional authentication, denying the requested action, etc.

Id. at code (57).

O’Connell further describes that

[f]actors that may represent potential fraudulent behavior by an automated program and thus raise potential security issues may include data that is entered too rapidly, a mouse pointer that never moves, a large form that is filled out without the browser window scrolling, data transmitted in a form without keystrokes being recorded, or other factors.

Id. ¶ 48.

2. Discussion of O’Connell-Based Grounds

Petitioner contends that claims 1–18 and 20 are unpatentable under either § 102 or § 103 based on O’Connell alone, or under § 103 based on O’Connell and Kitts. It is apparent from the Petition that Petitioner regards O’Connell’s teachings as analogous to, and alternative with, the teachings of Willner. *See, e.g.*, Pet. 33–52.

In the Institution Decision, we noted that “Patent Owner has identified potential weaknesses in the grounds based on O’Connell that may warrant additional consideration during a trial.” Inst. Dec. 29. More specifically, we expressed the following:

We discern that Patent Owner’s arguments when it comes to the absence of step 1d) in O’Connell appear more pointed or robust than those that were offered with respect to the Willner grounds. In that regard, Patent Owner contends that O’Connell employs only “simple rules-based criteria” in assessing apparent behavior of a bot rather than employing “user interaction data from a sample computing environment,” e.g., a website, as is said to be required by the claims. Prelim. Resp. 34. Although, as with the Willner grounds, Patent Owner contends that there is a “same webpage” requirement implicit to claim 1, we understand Patent Owner here to further assert that O’Connell potentially lacks

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disclosure reflecting user interaction with any sample computing environment and thus O’Connell does not disclose the “model data” required by step 1d). *See* Prelim. Resp. 33–34, 52–57.

Id. at 28–29.

During trial, Patent Owner presents arguments as to deficiencies of O’Connell in accounting for the requirements of step 1d), and deficiencies as to the “passive data” aspects of claims 4 and 5. *See* PO Resp. 29–34; PO Sur-reply 22–25.

In its Reply, Petitioner offers additional arguments pertaining to O’Connell’s accounting of step 1d) and the “passive data” requirements of claims 4 and 5. *See* Pet. Reply 10–17.

We acknowledge the parties’ disagreements, but with respect to claims 1–17 and 20, because we conclude that Petitioner has shown by a preponderance of the evidence that those claims are accounted for based on the Willner grounds (*see supra* §§ II.D.2, II.E.3, II.E.5, and II.E.6), we determine it is unnecessary to further address those claims in connection with the O’Connell grounds. *See SAS Inst. Inc. v. Iancu*, 138 S. Ct. 1348, 1359 (2018) (holding that a petitioner “is entitled to a final written decision addressing all of the claims it has challenged”); *Bos. Sci. Scimed, Inc. v. Cook Grp. Inc.*, 809 F. App’x 984, 990 (Fed. Cir. 2020) (non-precedential) (recognizing that the “Board need not address issues that are not necessary to the resolution of the proceeding” and, thus, agreeing that the Board has “discretion to decline to decide additional instituted grounds once the petitioner has prevailed on all its challenged claims”).

With respect to claim 18, however, as discussed above (*see supra* §§ II.D.3, II.E.4), we conclude that Petitioner has not shown by a preponderance of the evidence that claim 18 is unpatentable based on the

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Willner grounds. Accordingly, we consider further the O’Connell grounds as proposed for claim 18.

a) Summary of the Parties’ Arguments

In the Petition, Petitioner argued the following in connection with claim 18 as a part of its grounds based on O’Connell:

As discussed *supra* §§ V.Q-V.R^[20] (claims 16-17), O’Connell discloses or renders obvious repeating [1A]-[1E]. In so doing, a POSA would have been motivated to compare the score values generated in [1D]-[1E] for first and second interactions by the user to identify scenarios where a first interaction is too close to call but a second interaction adjusts the score to a value indicating fraud. Lopresti-Declaration, [0166]-[0167].

Pet. 49.²¹

The paragraphs 166 and 167 of Dr. Lopresti’s Declaration referenced above read as follows:

[0166] As discussed below, Willner meets claim 18, regardless of whether the “a)-c)” and “d)” recited in claim 18 refer to [1A]-[1D] or instead to [1B]-[1E]. *See* discussion of prosecution history above in Section V.B.

[0167] As discussed above in Sections X.P, X.Q (claims 16, 17), O’Connell discloses or alternatively renders obvious repeating steps [1A]-[1E]. In so doing, a POSA would have been motivated to compare the score values generated in steps [1D]-[1E] for first and second interactions by the user, in order to identify scenarios where a first interaction is too close to call but a second interaction adjusts the score to a value indicating fraud.

Ex. 1003 ¶¶166–167.

²⁰ These identified sections refer to pages 47–48 of the Petition.

²¹ We observe that in connection with claim 18, among other claims, Petitioner contends that the combination of O’Connell and Kitts meets claim 18 “for the same reasons as O’Connell alone discussed [in the Petition] . . . which are unchanged in the combination.” Pet. 51.

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Thus, with respect to the requirements of claim 18 vis-à-vis O’Connell, Petitioner and Dr. Lopresti, as a part of the Petition, make the same blanket statement, unsupported by any record citation that “a POSA would have been motivated to compare the score values generated in steps [1D]-[1E] for first and second interactions by the user, in order to identify scenarios where a first interaction is too close to call but a second interaction adjusts the score to a value indicating fraud.” *See* Pet. 49; Ex. 1003 ¶ 167.

In its Response, Patent Owner contends that the “single sentence obviousness argument” noted above at page 49 of the Petition and paragraph 167 of Dr. Lopresti’s testimony is a “conclusory assertion [that is] legally and factually insufficient to demonstrate obviousness.” PO Resp. 20. Patent Owner contends that Petitioner “provides nothing more than a hypothetical scenario created out of thin air—where ‘a first click is too close to call’—and then immediately jumps to the claimed solution.” *Id.* Patent Owner further contends that the “Petition does not identify any teaching or suggestion in Willner or O’Connell that even begins to suggest this hypothetical scenario,” and that neither reference indicates that the “‘too close to call’ scenario” is “contemplated in their system.” *Id.* (citing Ex. 2011 ¶¶ 77–78). Patent Owner further characterizes Petitioner’s “single sentence analysis [as being] improperly based on hindsight bias” and contends that Petitioner has not provided adequate evidentiary support justifying its proposed unpatentability grounds based on O’Connell. *Id.* at 21–23.

In its Reply, Petitioner simply contends the following:

Petitioner’s expert testified that O’Connell renders claim 18 obvious because POSAs would have been motivated to compare O’Connell’s confidence scores for first and second interactions to identify scenarios where a first interaction is too close to call

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but a subsequent interaction adjusts the score to a value indicating fraud. EX1003, [0166]-[0167] (cited Petition, 49). Nobots’s contrary arguments fail for the reasons discussed *supra* §IV.A—including that POSAs would not have understood O’Connell’s inventors’ characterization of their own invention as “efficient and effective” (O’Connell, [0038], cited POR, 20) as teaching that a first interaction would never be too close to call, particularly given that O’Connell generates a “score that provides an indication of the degree of *likelihood* of fraudulent behavior” (O’Connell, [0034]). EX1042, [-0051]-[0052].

Pet. Reply 20.

In its Sur-reply, Patent Owner contends that “Petitioner does not dispute that O’Connell cannot anticipate.” PO Sur-reply 1 (citing PO Resp. 19–20; Pet. Reply 20). Patent Owner also contends that Petitioner has not shown that claim 18 would have been obvious based on its “single, conclusory sentence offered by Petitioner and its expert.” *Id.* at 2. As discussed in connection with the grounds based on Willner (*see supra* § II.D.3), in disputing that claim 18 would have been obvious, Patent Owner also contends that Petitioner’s Reply improperly relies on new arguments and evidence to “gap-fill the Petition.” PO Sur-reply 2–5.

b) Discussion

Having considered the record before us, we conclude that Petitioner has not established an adequate basis for concluding that claim 18 is unpatentable based on any of the O’Connell grounds. As to Petitioner’s proposed ground of unpatentability for that claim based on “§ 102” (*see* Pet. 1), we agree with Patent Owner that “Petitioner does not dispute that O’Connell cannot anticipate.” *See* PO Sur-reply 1 (citing PO Resp. 19–20; Pet. Reply 20).

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With respect to Petitioner's proposed ground based on obviousness (i.e., § 103), we agree with Patent Owner (*see* PO Resp; PO Sur-reply 2) that the single sentence that Petitioner offers in its Petition to justify its position as to obviousness is conclusory and inadequately supported on the record.²² In its Reply, Petitioner reiterates the same conclusory sentence with a citation to the same paragraphs 166 and 167 of Dr. Lopresti's testimony (Ex. 1003) appearing at page 49 of the Petition (*see* Pet. Reply 20).

Further in the Reply, Petitioner also cites to paragraphs 34 and 38 of O'Connell and paragraphs 51 and 52 of Dr. Lopresti's Reply Declaration (Ex. 1042). Petitioner generally contends that based on those paragraphs "a first interaction would never be too close to call, particularly given that O'Connell generates a 'score that provides an indication of the degree of likelihood of fraudulent behavior.'" Pet. Reply 20. Petitioner, however, does not sufficiently link that contention, even if true, to support for the single sentence obviousness position taken in the Petition (*see* Pet. 49), or explain why that is adequate to show the obviousness of claim 18.

The noted paragraphs of Dr. Lopresti's Reply Declaration (1) express Dr. Lopresti's general disagreement with Dr. Russ's testimony at paragraphs 77–81 of his Declaration (Ex. 2011) based on to the same two of O'Connell's paragraphs (34 and 38) cited in the Petition, and (2) makes reference to Dr. Lopresti's prior unsupported testimony at paragraph 167 of his Declaration (Ex. 1003). *See* Ex. 1042 ¶¶ 51, 52. Here, too, however,

²² As discussed above, that sentence reads: "a POSA would have been motivated to compare the score values generated in steps [1D]-[1E] for first and second interactions by the user, in order to identify scenarios where a first interaction is too close to call but a second interaction adjusts the score to a value indicating fraud." *See* Pet. 49.

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Petitioner does not explain persuasively how Dr. Lopresti's prior unsupported testimony, coupled with general disagreement with Dr. Russ based on citations to the two noted paragraphs of O'Connell, provides the necessary basis to conclude that the O'Connell grounds of unpatentability as set forth in the Petition meet Petitioner's burden to show unpatentability of claim 18 by a preponderance of the evidence.

c) Conclusion

Having considered the record before us, including the respective positions of the parties, for the reasons discussed above, we conclude that Petitioner has not shown by a preponderance of the evidence that claim 18 of the '008 patent is unpatentable based on the proposed grounds of unpatentability involving O'Connell set forth in the Petition.

G. Ground Based on Kitts alone

Petitioner contends that independent claim 19 and dependent claim 20 are unpatentable based on Kitts under either § 102 or § 103. For the reasons noted above (*see supra* § II.C.2), we regard claim 20 as dependent on claim 1, as written, and conclude that Petitioner's proposed ground to claim 20 based on Kitts is not germane, because it is predicated on an interpretation of claim 20 as depending from claim 19. Accordingly, we address only Petitioner's proposed ground based on Kitts that is advanced for claim 19. Pet. 52–61; Pet. Reply 20–25.

Patent Owner does not agree with Petitioner that claim 20 is unpatentable based on Kitts. PO Resp. 16–17; PO Sur-reply 5–12. Claim 19 is independent and reproduced below:

19. A method for assessing a confidence level that an operator of a client computing device interacting with a server is

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a human being rather than an autonomic computer application, the method comprising:

a) acquiring interest data from the client computing device prior to delivery of issued data by the server to the client computing device;

b) comparing the interest data to model data relating to human interaction with a computing device prior to the time in which the interest data is acquired; and

c) generating a value that represents a confidence level that a human user rather than an autonomic user operated the client computing device prior to the time in which the interest data is acquired.

Ex. 1001, 6:44–56.

A central point of dispute between the parties rests on claim 19’s step a) recitation of “acquiring interest data.” As discussed above (*see supra* § II.C.3.c)), we conclude that the record demonstrates that “acquiring interest data” requires the retrieval of at least some active data, and, thus, cannot be met solely by the retrieval of passive data. Patent Owner contends that “[b]ecause Kitts only discloses passive data, it cannot render independent claim 19 unpatentable.” PO Resp. 17. Petitioner does not dispute that Kitts encompasses only the retrieval of passive data. Rather, Petitioner’s proposed ground is based on its view (with which we do not agree) that “acquiring interest data” in claim 19 can be met solely by retrieving passive data. *See, e.g.,* Pet. Reply 20–25.

Because we determine that “acquiring interest data” requires retrieval of at least some active data, and because Kitts discloses only the retrieval of passive data, we conclude that, on the record before us, Petitioner does not account adequately for the requirements of claim 19 based on Kitts. Accordingly, we conclude that Petitioner has not shown by a preponderance of the evidence that claim 19 is unpatentable based on Kitts.

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III. CONCLUSION

In summary, we determine that a preponderance of the evidence establishes that claims 1–17 and 20 of the '008 patent are unpatentable, but a preponderance of the evidence does not show that claims 18 and 19 are unpatentable. Those determinations are shown in the following table:²³

Claim(s)	35 U.S.C. §	References/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–3, 6–18	102/103	Willner	1–3, 6–17	18
1–18, 20	103	Willner, Kitts	1–17, 20	18
1–18, 20	102/103	O'Connell ²⁴		18
1–18, 20	103	O'Connell, Kitts ²⁵		18
19, 20	102/103	Kitts ²⁶		19

²³ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. §§ 42.8(a)(3), (b)(2).

²⁴ We do not reach the ground based on O'Connell as to claims 1–17 and 20 because we determined those claims are unpatentable based on the two Willner-based grounds.

²⁵ We do not reach the ground based on O'Connell and Kitts as to claims 1–17 and 20 because we determined those claims are unpatentable based on the two Willner-based grounds.

²⁶ We do not reach the ground based on Kitts as to claim 20 because we determined that claim 20 unpatentable based on the ground of Willner and Kitts.

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Overall Outcome			1–17, 20	18, 19
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IV. ORDER

Upon consideration of the record before us, it is:

ORDERED that claims 1–17 and 20 of the '008 patent have been shown to be unpatentable;

FURTHER ORDERED that claims 18 and 19 of the '008 patent have not been shown to be unpatentable; and

FURTHER ORDERED that, because this is a final written decision, parties to the proceeding seeking judicial review of the decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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US009595008B1

(12) **United States Patent**
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(10) **Patent No.:** **US 9,595,008 B1**

(45) **Date of Patent:** **Mar. 14, 2017**

(54) **SYSTEMS, METHODS, APPARATUS FOR
EVALUATING STATUS OF COMPUTING
DEVICE USER**

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(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 780 days.

(21) Appl. No.: **12/313,502**

(22) Filed: **Nov. 19, 2008**

Related U.S. Application Data

(60) Provisional application No. 61/003,743, filed on Nov. 19, 2007.

(51) **Int. Cl.**
G06F 9/44 (2006.01)
G06F 7/02 (2006.01)
G06N 7/06 (2006.01)
G06N 7/00 (2006.01)

(52) **U.S. Cl.**
CPC **G06N 7/005** (2013.01)

(58) **Field of Classification Search**
CPC combination set(s) only.
See application file for complete search history.

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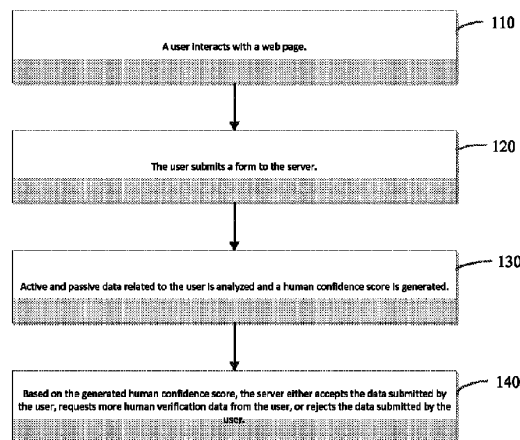
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(57) **ABSTRACT**

Methods, systems and apparatus for assessing the likely user status of a client computing device interacting with a server where the computing device is in bi-directional operative communication with the server, wherein the likely user status is one of a human operator or a computer executable program such as a “bot”. By presenting issued data from the server to the client computing device and monitoring at least some of the data generated at the client computing device in response to the issued data, a comparison can be made between the monitored data and model data relating to human interaction with or in response to the issued data. The results of the comparison can lead to a value that represents the likelihood that the monitored data results from human interaction with or in response to the issued data. Modeled data includes, but is not limited to, data indicative of human interaction with a computing environment, whether active or passive.

20 Claims, 4 Drawing Sheets



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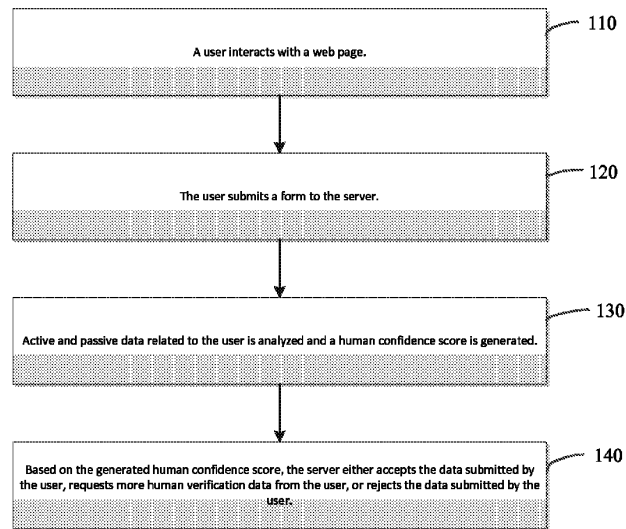


Fig 1

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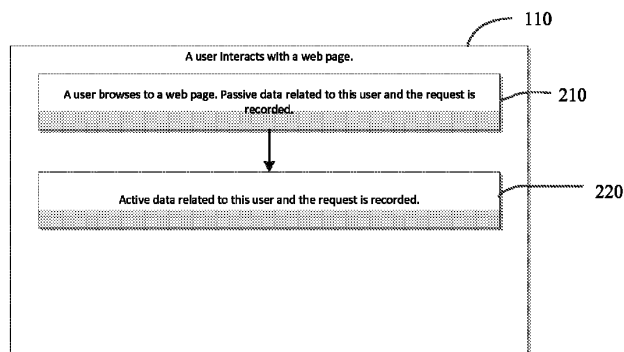


Fig 2

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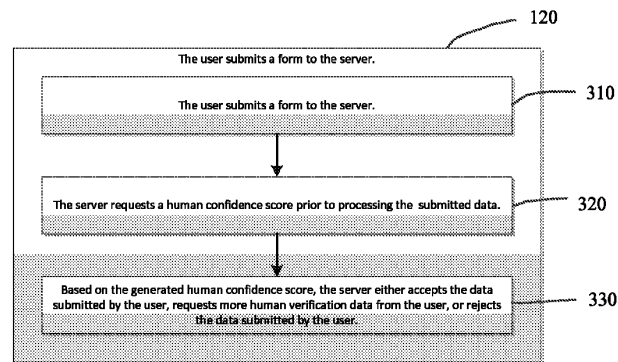


Fig 3

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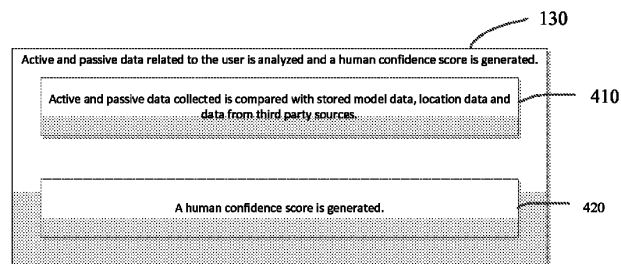


Fig 4

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SYSTEMS, METHODS, APPARATUS FOR EVALUATING STATUS OF COMPUTING DEVICE USER

BACKGROUND

The Internet is a fantastic tool for constructive web sites to gather users for a common purpose; however, the Internet is also a fantastic tool for abuse of these same web sites. People who want to take advantage of websites do so by creating automated programs employing various algorithms and routines (hereinafter “bots”) that create fictitious accounts or access content for a multitude of reasons.

In an effort to block these bots, builders of web sites have created a variety of tests to determine if the user is a bot or if the user is a human. Initial efforts required a user to simply enter an alphanumeric string into an input field. However, as character recognition engines became more available, such “tests” became easily defeated. What was needed was a more robust form of test—one that couldn’t be easily defeated.

Carnegie Mellon University coined the term “CAPTCHA” (Completely Automated Public Turing test to tell Computers and Humans Apart) for these types of tests. A common type of CAPTCHA requires that the user type the letters, digits or characters of a distorted image appearing on the screen. The objective is to create an image that a bot cannot easily parse but that is discernable by a human. Such efforts have been successful in preventing non-adaptive software from recognizing the imaged characters, but people intent on abusing these sites have designed ways to circumvent the CAPTCHA, such as through specially tuned character recognition programs. A brief survey of the Internet will reveal many resources that describe how to tune and/or use character recognition to decipher CAPTCHA including aiCaptcha, Simon Fraser University and PWNtcha.

The result of the foregoing is that while CAPTCHAs are becoming increasingly more difficult for bots, they are also becoming more difficult and/or burdensome for human users. In certain instances, the desire to defeat the bots has resulted in images that are so distorted that some human users cannot decipher the images. This is particularly true with users having a visual deficiency or imparity. As a partial solution to this escalation of perception difficulty, some web sites have begun adding a link to a sound file that will speak the characters, but these sound files are also being drastically distorted to protect against being discerned by bots through speech pattern matching algorithms. Other web sites like Facebook.com, have gone so far as to adopt a practice requiring deciphering two distorted word images to increase the complexity for bots. While perhaps achieving the stated objective, the collateral effect is to exacerbate the existing burden to human users.

Current CAPTCHA technology is visual or auditory in nature, requiring the human user to answer a test that should be simple to most humans but difficult for non-humans, e.g., bots. Visual CAPTCHA using distorted images is widely used as the primary test by nearly every top Internet site including Yahoo, Google, You Tube, Microsoft’s Live ID, MySpace, Facebook, Wikipedia, Craigs List. By using solely visual testing criteria, nearly all users will be able to invoke the requested action; not all users have functioning audio equipment or environments such as libraries may not permit such use.

A positive user experience is critical to the success and increased popularity of a given website. Designers of web sites go to great lengths to ensure their website is as user

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friendly as possible. Carnegie Mellon University estimates that 60 million CAPTCHA tests are deciphered every day and with an average time spent of 10 seconds, requiring a total of 150,000 hours of work spent every day trying to protect web sites from bots. Reducing or eliminating the requirement of a user having to decipher CAPTCHA is one more way websites can create a more positive user experience for their visitors and minimize opportunity costs.

SUMMARY OF THE INVENTION

The invention is generally directed to methods, systems and apparatus for assessing the likely user status of a computing device interacting with a server where computing device is in bi-directional operative communication with the server wherein the status is one of a human operator or a computer executable program (also referred to herein as a “bot”). This assessment comprises comparing acquired and/or available data relating to the operation of the computing device to suitable models embodying human user derived data (model data). In most embodiments, the comparison yields a probability value as to one of the status states **140**, **330**, which then may be used by a program or administrator of the server to permit or deny access and/or operation to the computing device. Because many of the invention embodiments provide a probability result as opposed to a binary result, the invention embodiments avoid the “there is only one right answer” phenomena inherent in prior art CAPTCHA tests. In other words, rather than placing the burden of proof on the user for functionality/access, which if the user is a human invokes the negative consequences of conventional CAPTCHA tests as previously described, the burden is shifted to the server side of the equation.

BRIEF DESCRIPTION OF THE DRAWINGS

The detailed description is described with reference to the accompanying figures. The use of the same reference numbers in different figures indicates similar or identical components or features.

FIG. 1 illustrates an overview of the process described in this disclosure.

FIG. 2 illustrates in more detail the first step **110** of FIG. 1 (a user interacts with a web page).

FIG. 3 illustrates in more detail the second step **120** of FIG. 1 (the user submits a form to the server).

FIG. 4 illustrates in more detail the third step **130** of FIG. 1 (active and passive data related to the user is analyzed and a human confidence score is generated).

DETAILED DESCRIPTION OF THE INVENTION

As used herein, “model data”, its equivalents and verb forms comprises data indicative of human interaction with a computing environment and that can be received by a computing device that is physically remote from the sample computing environment and equivalents. Model data comprises two main categories: active model data **220** and passive model data **210**. Active model data comprises data acquired from a computing device user’s interactions therein and within the computing environment where such data is not normally stored (logged) or transmitted to a remote location. Such model data includes, without limitation, pointing device vector movements and/or cadence, key stroke combinations and/or cadence, time differentials between stimulus (e.g., display of dialog box, radio button,

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form field, etc., and/or generation of sound) and user response (e.g., input into dialog box, selection of radio button, completion of form field, new page display request rates, etc., and/or input response to sound), and similar metrics. Generally, such data must be monitored and stored 5
210, 220 by a program operative on the computing device, which makes the data available to another program, preferably on a server **320**, or actively transmits such data to a server. Passive model data comprises data available from a computing device user's interactions therewith and within 10
the computing environment where such data is normally stored (logged) or transmitted to a remote location. Such model data includes, without limitation, browser cookies, destination IP histories, originating IP address, originating IP address traffic data, originating IP address physical location, 15
third party data regarding abusers (including originating IP addresses and physical locations), etc.

Also as used herein, the term "available data", its equivalents and verb forms comprises data associated with a computing device's operation and its interaction with a 20
computing environment, such as the Internet, that is generally recorded within the computing device and/or by other devices that have been affected by the computing device's operation—this is also a type of passive data; the term "acquired data", its equivalents and verb forms comprises 25
data associated with a computing device's operation and its interaction with a computing environment, such as the Internet, that is generally not recorded within the computing device and/or by other devices that have been affected by the computing device's operation, but at least some data of 30
which has/have been recorded and/or transmitted to a remote location, such as a server—this is a type of active data.

In addition to the foregoing, the term "issued data", its equivalents and verb forms comprises data generated by a server or other computing device that is not the same as the 35
computing device for which the assessment as to user status is being performed; "monitored data", its equivalents and verb forms comprises active or passive data, whether available or acquired, obtained from the computing device, or as a result of its external interactions, after the generation of 40
issued data; "interest data", its equivalents and verb forms comprises active or passive data, whether available or acquired, that correlates to any data within model data, whether obtained prior to or after the generation of issued data. Thus, interest data includes time independent available 45
data and acquired data, unless qualified differently.

With the foregoing definitions in mind, operation of the various invention embodiments can be better understood. In a first series of embodiments, a comparison between interest data, acquired prior to delivery of issued data to the client 50
computing device, and model data is performed to ascertain the likely status of the client computing device, i.e., human user or bot **130, 420**. In a second series of embodiments, a comparison between monitored data, by definition acquired after delivery of issued data to the client computing device, 55
and model data is performed to ascertain the likely status of the client computing device, i.e., human user or bot **130, 420**. In both series of embodiments, acquired and/or available data may be used for comparison with suitable model data. The recited comparisons can take place locally on the computing device, remotely on the originating server, or on 60
a server dedicated to performing such actions and for which subscriptions may be offered in conjunction with methods for providing services according to the methods, apparatus and systems embodiments described herein.

While available data represents data that is readily harvestable by query, for example, from the computing

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device or the computing environment in which the device operates, acquired data requires some form of information capture means. In the various embodiments described herein, the computing device is caused to monitor and retain certain data useful as acquired data for comparison purposes. Such monitoring and retaining means for acquiring data from the computing device comprises, without limitation, modification of (an) existing program(s) (e.g., such means are included in available browsers), a covert program (e.g., many 5
malware applications log keystrokes and periodically pass them to remote servers for malicious purposes; similar technology can be used to exploit necessary aspects of the invention embodiments), or a servlet/Java applet. If user privacy is a concern, the monitoring and retaining means can remain dormant until activated 10
by, for example, an enabled web site **110**.

The monitoring and retaining means may also enable transmission of some or all retained data **410**, in encrypted or unencrypted form, as may be desired for privacy and security purposes, and/or merely retain the data until requested from, for example, the server, at which time some or all data may be transmitted **120, 310**. As described above with reference to the comparison actions **130, 410**, such receiving and/or polling actions can be carried out remotely on the originating server or on a server dedicated to performing such actions, if not performed locally on the computing device.

From the foregoing, it can be seen that implementation of the invention embodiments can be accomplished exclusively from the server side; it is not necessary to distribute or install in the conventional sense client side software. Existing available browsers and operating systems provide the means necessary to temporarily install logging code, if such is 5
elected. Moreover, the methods, and associated systems and apparatus, described herein are highly transparent to the user, thereby achieving an objective of enhancing the user's experience of a web site employing bot assessment protocols.

DESCRIPTION OF AN INVENTION EMBODIMENT

A primary objective of bot creation is to autonomously access data and/or functionality of a target server as quickly as possible. By assessing user biometrics having a time domain, the time variable becomes a necessary component to accessing the data and/or functionality of the server. Because such assessment has heretofore been absent as a valid CAPTCHA marker of a human user, and more importantly because proper data input would necessarily slow the process, the likelihood of bot penetration has been significantly reduced.

An embodiment of the invention employs a first layer of testing that simply checks if there were valid mouse movements and/or key strokes inputted by the user of a computing device that is attempting to access a server resource "protected" from bots. This basic "if-then" check is essentially without overhead since there are no computations being carried out. Checking for the existence of the target activity therefore represents a first pass evaluation; if the bot is not programmed to include pseudo biometric data, further access is denied. In other words, if no activity is recorded there is a very high probability that the user is actually a bot.

A fundamental premise of robust biometrics is that a given dataset for each person is unique. Therefore, if the dataset is sufficiently robust, it is impossible to have dupli-

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cative input data unless the input data was derived from a machine. Exploiting this premise allows a second level knockout assessment to deny user access if the input data exactly (or statistically sufficiently) matches previously recorded data. Of course, the skilled practitioner employing this method can select (either explicitly or via programming) sample points of a dataset for comparison as opposed to all data, thereby reducing computational overhead and storage issues. Alternatively, if samples are used, an exact match could then invoke a more intensive comparison with the same stored datasets, where again access can be denied when an exact or statistically sufficient match is found.

In the foregoing two assessments, an object has been to ferret out bots in an efficient and low overhead manner by exploiting intrinsic design limitations. However, it is possible that a bot designer could spoof these assessment means by, for example, running many bots in parallel wherein intrinsic delays in CPU processing and bandwidth would introduce inherent time delays associated with the very inputs being assessed. Therefore, more robust assessment means may be employed to ascertain the presence of a bot.

In robust embodiments of the invention, a third layer of testing may be employed that compares recorded pointer movements and key strokes to previously recorded activity for a given input page that was knowingly created by humans. Thus, as input data is collected for a given page, patterns will emerge that are unique to human activity. Subsequently recorded activity that is inconsistent with these patterns would indicate the potential that the user is a bot. Access could then be denied, or further CAPTCHA tests presented. Alternatively, access could be granted since no lock is pick proof and an object of the invention embodiments is to minimize user exposure to CAPTCHA tests.

What is claimed:

1. A method for assessing a confidence level that an operator of a client computing device interacting with a server is a human being rather than an autonomic computer application, the method comprising:

- a) a single user of a client computing device requesting data from a server;
- b) the server presenting data issued by the server to the client computing device;
- c) monitoring at least some data generated by the user at the client computing device in response to the issued data;
- d) comparing the monitored data to model data relating to human interaction with or in response to the issued data; and
- e) generating a value that represents a confidence level that the monitored data is a result of human interaction on the client computing device rather than that of an autonomic user with or in response to the issued data.

2. The method of claim 1 wherein the model data comprises active model data.

3. The method of claim 2 wherein the active model data comprises pointing device vector movements and/or cadence; key stroke combinations and/or cadence; and/or time differentials between a display element and a response.

4. The method of claim 1 wherein the model data comprises passive model data.

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5. The method of claim 4 wherein the passive model data comprises browser cookies; destination IP histories; originating IP address; originating IP address traffic data; originating IP address physical location; and/or third party data regarding abusers comprising originating IP addresses and physical locations.

6. The method of claim 1 wherein b) comprises enabling the client computing device to record input and making such recorded input available to a computing device for comparison according to c).

7. The method of claim 6 wherein the computing device is the server.

8. The method of claim 6 wherein the computing device is the client computing device.

9. The method of claim 6 wherein the computing device is neither the server or the client computing device.

10. The method of claim 6 wherein the recorded input comprises active model data and the recorded input is delivered to a computing device that is not the client computing device.

11. The method of claim 1 wherein at least one monitoring program is operatively installed on the client computing device to perform b).

12. The method of claim 1 wherein d) is performed by neither the server nor the client computing device.

13. The method of claim 1 wherein at least some issued data is not data specific to determination of the user status.

14. The method of claim 1 wherein the issued data is in specific response to a request issued by the client computing device.

15. The method of claim 1 further comprising modifying data delivered to the client computing device subsequent to reaching a predetermined value for d) is reached.

16. The method of claim 1 further comprising repeating a)-d) for a single user instance.

17. The method of claim 1 further comprising repeating a)-d) for a single user instance until a predetermined value for d) is reached.

18. The method of claim 1 further comprising repeating a)-c) and comparing the first instance of the value of d) to the second instance of the value of d).

19. A method for assessing a confidence level that an operator of a client computing device interacting with a server is a human being rather than an autonomic computer application, the method comprising:

- a) acquiring interest data from the client computing device prior to delivery of issued data by the server to the client computing device;
- b) comparing the interest data to model data relating to human interaction with a computing device prior to the time in which the interest data is acquired; and
- c) generating a value that represents a confidence level that a human user rather than an autonomic user operated the client computing device prior to the time in which the interest data is acquired.

20. The method of claim 1 wherein the interest data consists of available data.

* * * * *

CERTIFICATE OF COMPLIANCE

I, Nathan R. Speed, counsel for Appellant, certify that the foregoing brief complies with the type-volume limitation set forth in Fed. Cir. Rule 32(b)(1). Specifically, this brief contains 9,722 words (excluding the parts of the motion exempted by Federal Rule of Appellate Procedure 32(f) and Federal Circuit Rule 32(b)(2)) as determined by the word count feature of the word processing program used to create this brief.

I further certify that the foregoing brief complies with the typeface requirements set forth in Federal Rule of Appellate Procedure 32(a)(5) and the type style requirements of Federal Rule of Appellate Procedure 32(a)(6). Specifically, this brief has been prepared using a proportionally spaced typeface using Microsoft Word 365, in 14-point Times New Roman font.

Date: July 1, 2024

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CERTIFICATE OF SERVICE AND FILING

I hereby certify that a true and correct copy of the foregoing **Principal Brief of Appellant Google LLC** has been electronically filed with the Clerk of Court using the CM/ECF system, which will serve via e-mail notice of such filing to all counsel registered as CM/ECF users, including principal counsel for Appellee.

Date: July 1, 2024

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