UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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33ACROSS, INC.
Petitioner

v.

LEFTSNRIGHTS, INC. D/B/A LIQWID
Patent Owner

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Case IPR 2018-1480

U.S. Patent No. 9,575,934

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# PATENT OWNER'S AMENDED NOTICE OF APPEAL

Office of the General Counsel
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

Patent Owner LeftsnRights, Inc. d/b/a Liqwid, ( "Patent Owner") hereby notices its appeal, pursuant to 35 U.S.C. §§ 141 and 142 and 37 C.F.R. §§ 90.2 and 90.3, to the United States Court of Appeals for the Federal Circuit from the Board's Decision Denying Patent Owner's Request for Rehearing entered July 29, 2020 (Paper 57, Exhibit 2) and the Board's Final Written Decision entered February 7, 2020 (Paper 54, Exhibit 1), which were the subject of the Original Notice of appeal filed on September 25, 2020, from the Order by Andrew Hirshfeld, Commissioner for Patents, Performing the Functions and Duties of the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office entered on October 29, 2021 denying review of the Final Written Decision (Paper 60, Exhibit 3), and from all underlying findings, orders, decisions, ruling, and opinions, including without limitation the institution decision entered February 28, 2019 (Paper 8).

The issues for appeal include but are not limited to the determination of the Patent Trial and Appeal Board (the "Board") at institution that Claims 1-19 were reasonably likely to be shown unpatentable; the Board's final determination that Claims 1-19 were shown to be unpatentable; the Board's denial of Patent Owner's motions in limine; the Board's claim constructions, both as stated and as applied; the Board's rejection of objective evidence of nonobviousness; the Board's analysis of expert testimony, the field of the invention, the knowledge and level of skill of a

person of ordinary skill in the art of the invention, prior art, and other evidence in the record; the Board's factual findings and conclusions of law relating to the preceding matters; the Board's violation of the U.S. Constitution by entering a judgment against Patent Owner's lawfully issued U.S. Patent No. 9,575,934, without due process of law and without compensation; the unconstitutional appointment of the Board's administrative patent judges that presided over IPR2018-1480; whether the Order denying review violated the Federal Vacancies Reform Act, the Appointments Clause, separation of powers, the deadlines imposed under 35 U.S.C. § 316(a)(11), or the Supreme Court's mandate in *United States v. Arthrex, Inc.*, 141 S. Ct. 1970 (2021).

In accordance with 35 U.S.C. § 142 and 37 C.F.R. 90.2, Patent Owner is filing this Notice with the Director, with the Board, and with the Clerk of the United States Court of Appeals for the Federal Circuit.

Dated: December 28, 2021

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Paper 54
Date: February 7, 2020

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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33ACROSS, INC.,
Petitioner,

v.

LEFTSNRIGHTS, INC. d/b/a LIQWID,
Patent Owner.

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IPR2018-01480
Patent 9,575,934 B2

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Before JEAN R. HOMERE, JONI Y. CHANG, and BRIAN J. McNAMARA, *Administrative Patent Judges*.

CHANG, *Administrative Patent Judge.*

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

# I. INTRODUCTION

33Across, Inc. ("Petitioner") filed a Petition requesting an *inter partes* review of claims 1–19 ("the challenged claims") of U.S. Patent No. 9,575,934 B2 (Ex. 1001, "the '934 patent"). Paper 2 ("Pet."). LeftsnRights, Inc. ("Patent Owner") filed a Preliminary Response. Paper 5 ("Prelim. Resp."). Pursuant to our authorization, Petitioner filed a Reply (Paper 6) and Patent Owner filed a Sur-Reply (Paper 7).

After institution, Patent Owner filed a corrected Response (Paper 29, "PO Resp."); Petitioner filed a Reply (Paper 32); and Patent Owner filed a corrected Sur-reply (Paper 38). An oral hearing was held on November 19, 2019, and the transcript of the oral hearing has been entered into the record as Paper 53 ("Tr.").

For the reasons provided below, we conclude that Petitioner has demonstrated by a preponderance of the evidence that claims 1−19 of the '934 patent are unpatentable.

## *A. Related Matters*

The parties indicate that the '934 patent also is involved in *LeftsnRights, Inc. v. 33Across, Inc.*, Case No. 5:18-cv-00736-WHO (N.D. Cal.). Pet. 2; Paper 3, 2.

## *B. The '934 Patent*

The '934 patent relates to leveraging unused space on a client display to present secondary content (e.g., advertisements). Ex. 1001, 2:19−36, 7:58−63. According to the '934 patent, an application (e.g., a web browser) displaying primary content (e.g., a web page) may include unused space, and

the unused space is identified and leveraged to display secondary content (e.g., advertisements) on the client display along with the primary content. *Id*. at Abstract, 2:45−48.

Figure 1A is reproduced below (with color highlighting added).

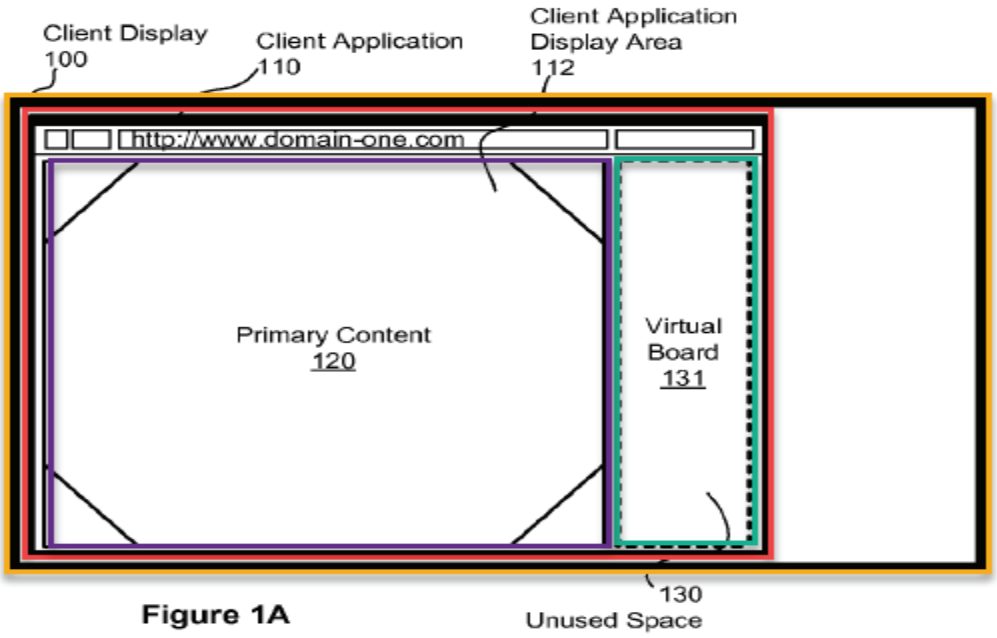


**Figure 1A**

Highlighted Figure 1A above depicts client display 100 (in yellow) of a client device (e.g., a personal computer). As depicted in Figure 1A above, client application 110 (e.g., a web browser) renders primary content 120 (in purple) in client application display area 112 (shown in red) within client display 100. *Id*. As shown above, primary content 120 does not utilize the full client application display area 112, leaving unused space 130 (in green) in client application display area 112, also within client display 100. *Id*. Unused space 130 is identified and/or represented by virtual board 131 (placeholder). *Id*. "In some embodiments, the primary content 120/122 includes a 'tag' (or other identifier) that references code configured to

identify unused space in the rendered primary content 120/122 and to create virtual boards representing the unused space. Secondary content may be displayed in the unused space." *Id*. at 4:55−60.

Figure 4 of the '934 patent is reproduced below.

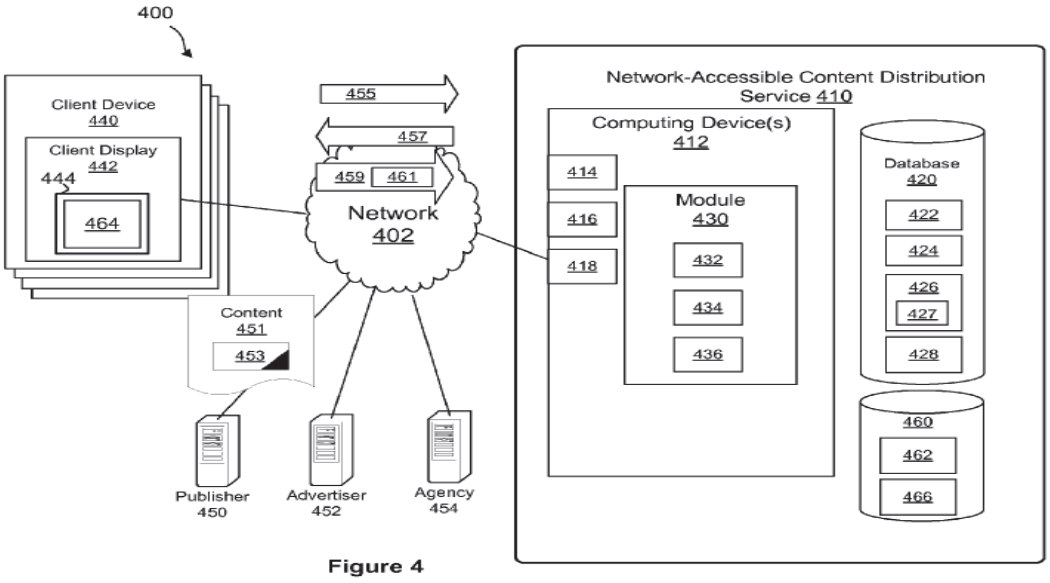


**Figure 4**

Figure 4 of the '934 patent illustrates a block diagram of a system for leveraging unused space on a client display to display secondary content. In Figure 4, system 400 includes network-accessible content distribution system (CDS) 410 that comprises computing device 412 (e.g., a web server), database 420, and placement database 460. *Id*. at 7:42−45, 7:64−8:3, 13:21−23. Content publishers 450, advertisers 452, and agencies 454 may register an account with CDS 410. *Id*. at 7:49−51. Publishers 450 may use CDS 410 to include secondary content in primary content 451 provided to client devices 440 over network 402. *Id*. at 7:51−53. Primary content 451 may comprise web pages or other suitable types of content (e.g., video, audio, etc.). *Id*. at 7:53−55. Advertisers 452 and/or agencies 454 may

provide secondary content (advertising content) to be displayed within the unused space of client display 442 in conjunction with primary content 451 of registered publishers 450. *Id*. at 7:58−61.

### *C. Illustrative Claim*

Of the challenged claims, claims 1, 8, and 15 are independent. Claim 1 is directed to a method, claim 8 is directed to a non-transitory computer-readable storage medium, and claim 15 is directed to a system. Claim 2−7 depend from claim 1, claims 9−14 depend from claim 8, and claims 16−19 depend from claim 15. Claim 1 is illustrative:

> 1. A method, comprising:
>
> [1(a)] providing computer-readable code configured for execution by a processor of a client computing device, the computer-readable code configured to cause the client computing device to,
>
> [1(b)] identify unused space, *the identified unused space to exist within a display of the client computing device when an application presents primary content within the display*
>
> [1(c)] modify markup data corresponding to the primary content at the client computing device, wherein the markup data is modified to create *an element configured to represent the identified unused space in the modified markup data*, and
>
> [1(d)] *insert secondary markup data into the element* created within the modified markup document such that the application processes the modified markup data, including the secondary markup data, to present the primary content and secondary content within the display.

Ex. 1001, 21:6−25 (bracketed text and emphases added).

### *D. Prior Art Relied Upon*

Petitioner relies upon the references listed below. Pet. 5.

| Reference | Date | Exhibit No. |
|---|---|---|
| Ramanathan , US 2010/0211467 A1 | Aug. 19, 2010 | 1005 |
| Parkinson, US 2008/0306824 A1 | Dec. 11, 2008 | 1006 |
| David Flanagan, *JavaScript – The Definitive Guide* (O'Reilly 25th Ed.) | 2006 | 1007 |

### *E. Asserted Grounds of Unpatentability*

Petitioner asserts the following grounds of unpatentability (Pet. 2−3):

| Claims Challenged | 35 U.S.C. § | Reference(s)/Basis |
|---|---|---|
| 1−19 | 102 | Ramanathan |
| 1−19 | 103 | Ramanathan, ordinary knowledge and skill in the art |
| 15−19 | 103 | Ramanathan, Flanagan |
| 1−19 | 103 | Parkinson, Ramanathan |

## II. DISCUSSION

### *A. Claim Construction*

The instant Petition was filed prior to the effective date of the rule change that replaces the broadest reasonable interpretation ("BRI") standard. *See* Changes to the Claim Construction Standard for Interpreting Claims in

Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340, 51,358 (Oct. 11, 2018) (amending 37 C.F.R. § 42.100(b) effective November 13, 2018) (now codified at 37 C.F.R. § 42.100(b) (2019)) ("This rule is effective on November 13, 2018 and applies to all IPR, PGR and CBM petitions filed on or after the effective date."). We, therefore, apply the BRI standard in this proceeding. Under this standard, claim terms in an unexpired patent are given their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 42.100(b) (2018). And, claim terms generally are given their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *See In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007).

*1. "unused space to exist within a display"*

Claim 1 recites "identify unused space, the identified *unused space to exist within a display* of the client computing device when an application presents primary content within the display." Ex. 1001, 21:11−14 (emphasis added). Similarly, claim 8 recites:

> identifying *unused space to exist within a client display* when an application operating on the computing device presents primary content on the client display, the primary content corresponding to a markup document.

*Id.* at 21:47−50 (emphases added). Claim 15 recites "identify[ing] *empty space* corresponding to presentation of the primary content on the display of the client computing device." *Id.* at 22:43−45 (emphasis added).

The Specification discloses that "[a]n application displaying primary content, such as a web-page, may include unused space." *Id*. at Abstract. The Specification also discloses that "[t]he unused space may exist within the application displaying the primary content (e.g., within the browser window) or on other portions of the display (e.g., outside of the browser window)." *Id.* The Specification further discloses that "[t]he unused space is identified and leveraged to display secondary content on the client display along with the primary content." *Id.* Advertisers may provide secondary content (advertisements) to be display within the unused space of a display in conjunction with the primary content. *Id.*

In addition, the Specification states that "[a]s used herein, unused space refers to a portion of a display that is not being used to display rendered 'primary' content." *Id.* at 2:10−12. The primary content "may comprise web pages or other suitable types of content (e.g., video, audio, etc.)." *Id.* at 7:53−55. The Specification also states that "[a]s used herein, 'content' refers to any form of renderable content, including, but not limited to, Hyper Text Markup Language (HTML) content . . . , graphical content (e.g., images), video content, text content, or the like." *Id.* at 2:12−17.

The definition of "unused space" set forth in the Specification does not exclude empty spaces on a web page that includes both text or image contents (e.g., a new article) and empty spaces. *Id.* at Abstract, 4:55−64, 7:41−57. For example, Figure 1E is reproduced below (with color highlighting added).

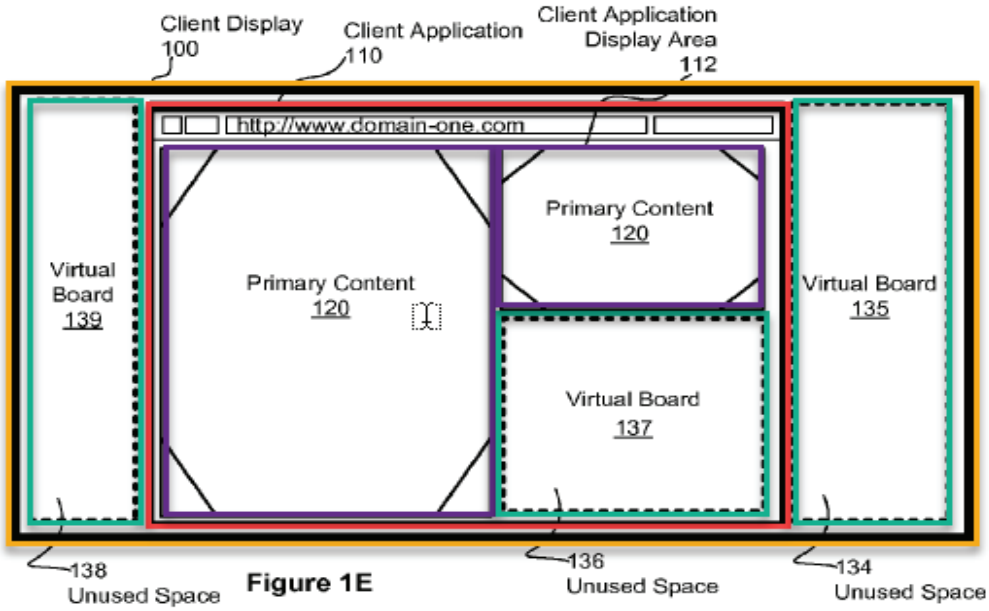


**Figure 1E**

Highlighted Figure 1E above shows client application 110 (e.g., a web browser) that renders primary contents 120 (in purple) in client application display area 112 (in red) within client display 100 (in yellow). Ex. 1001, 2:37−3:21. As depicted above, primary contents 120 do not utilize the full client application display area 112, leaving unused space 136 (in green). *Id.* Unused space 136 also exists within client display 100 because the entire client application display area 112 (or the display area of the web browser) exists within client display 100. *Id.* This embodiment shows that unused space 136 on a web page exists within the client display, along with primary content 120.

In the Decision on Institution, we noted that the parties' dispute centers on whether the claim term "unused space to exist within a display" encompasses empty spaces on *a web page*. In its Preliminary Response, Patent Owner argued that "unused space" by definition excludes empty spaces on a web page. Prelim. Resp. 13−15. In particular, Patent Owner

argued that "unused spaces in a web page . . . are *part of the 'primary' content* . . . and are distinguished *by definition* from unused space within the display." *Id.* at 14.

In light of the claim language and Specification, we rejected Patent Owner's arguments and determined in the Institution Decision that the claim term "unused space to exist within a display" encompasses empty spaces on a web page. Dec. 7−12, 19−23; *see, e.g.*, Ex. 1001, 7:53−55 (The primary content "may comprise web pages or other suitable types of content.").

Subsequent to institution, Petitioner agrees with our determination, asserting that "[a]s in the Institution Decision, unused space must be construed to encompass unused space on a web page, whether or not that space is currently 'visible' on the display." Reply 5−7.

In its Response, Patent Owner disagrees with our determination in the Institution Decision regarding the term "unused space to exist within a display." PO Resp. 16. Nevertheless, Patent Owner acknowledges that "[o]ne embodiment describes 'unused space' that *encompasses empty space on a web page* as a portion of the display not being used to display rendered primary content." *Id.* at 17 (emphasis added). Dr. Steven Kursh, Patent Owner's declarant, also admits that "[t]he '934 Patent recognizes that *unused space . . . can encompass empty space on a web page* when the empty space on a web page comprises a portion of the display not being used to display rendered primary content." Ex. 2034 ¶ 102 (citing Ex. 1001, 4:55−64, Fig. 1B) (emphasis added). In its Sur-reply, Patent Owner further concedes that it "is not making or relying on those arguments [presented in

its Preliminary Response] anymore," and "Dr. Kursh does not make those arguments." Sur-reply 20.

In light of the claim language ("unused space *to exist* within a display . . . *when* an application presents primary content within the display") and Specification, we agree with Petitioner's assertion that "[a]s in the Institution Decision, unused space must be construed to encompass unused space on a web page, whether or not that space is currently 'visible' on the display" (Reply 7). Ex. 1001, 21:11−14 (emphases added). Consistent with the Specification, we also determine that the claim term "unused space" refers to "a portion of a display that is not being used to display rendered 'primary' content," and the claim term "primary content" "may comprise web pages or other suitable types of content (e.g., video, audio, etc.)." Ex. 1001, 2:10−12; 7:53−55. The definition of "unused space" in the Specification does not exclude empty or unused spaces on a web page. For example, if a web page to be displayed in a web browser includes both content and empty space, the content is the "primary content" and the empty space is the "unused space." *Id.* at 2:12−17.

2. *"element configured to represent the identified unused space"*

Claim 1 recites:

> [1(c) – the "create" step:] modify markup data corresponding to the primary content at the client computing device, wherein the markup data is modified *to create an element configured to represent the identified unused space in the modified markup data*, and
>
> [1(d) – the "insert" step:] *insert secondary markup data into the element* created within the modified markup document

> such that the application processes the modified markup data, including the secondary markup data, to present the primary content and secondary content within the display.

Ex. 1001, 21:15−25 (bracketed text and emphases added). Claims 8 and 15 each recite similar limitations. *Id.* at 21:51−59, 22:46−50.

Apart from the claims, "an element configured to represent the identified unused space" does not appear in the Specification. Ex. 1001, 21:17−19. Nor does this language appear in the original claims submitted with the application that issued as the '934 patent. Ex. 1002, 55−57. The Specification uses the term "element" to describe "elements on the client display," but not for representing unused space. *See, e.g.*, *id.* at Abstract. Both parties agree that the term "element," as recited in the limitation "creat[ing] an *element* configured to represent the identified unused space," refers to the "virtual board" described in the Specification. Pet. 19−21; Ex. 1003 ¶ 64; Prelim. Resp. 16; PO Resp. 12.

The Specification discloses that "[a]s used herein, a virtual board refers to a placeholder that represents identified unused space within the client display 100, such as the unused space 130." Ex. 1001, 2:62−65. The Specification also discloses that "virtual board 131 *may indicate* the position, size, proportions, *and/or* orientation of the unused space 130 within the client display 100." *Id.* at 2:65−67 (emphases added). "In some embodiments, the primary content 120/122 *includes a 'tag' (or other identifier)* that references code configured to . . . *create virtual boards* representing the unused space." *Id*. at 4:55−63 (emphasis added). The Specification further discloses that "[c]reating the virtual board may comprise including [hypertext markup language ('HTML')], or other

markup, into the primary content page (e.g., as *a  tag*, frame, or the like)." *Id.* at 17:61−63 (emphasis added).

In light of the Specification, we interpret the term "element," as recited in the claims, to encompass "a tag, a  tag, or other identifier." And, we interpret "creat[ing] an element configured to represent the identified unused space" to mean "creating a placeholder (e.g., a tag, a  tag, or other identifier) that represents the identified unused space by indicating the position, size, proportions, and/or orientation of the identified unused space," consistent with the Specification. As the Federal Circuit has explained, "[t]he correct inquiry in giving a claim term its broadest reasonable interpretation in light of the specification . . . is an interpretation that corresponds with what and how the inventor describes his invention in the specification, *i.e.*, an interpretation that is consistent with the specification." *In re Smith Int'l, Inc.*, 871 F.3d 1375, 1382−83 (Fed. Cir. 2017) (citation and quotation marks omitted).

In our Institution Decision, we applied the plain and ordinary meaning of the claim limitation "creat[ing] an element configured to represent the identified unused space," consistent with the Specification. Dec. 13−14. Subsequent to institution, Patent Owner maintains that the plain and ordinary meaning of the claim terms should apply, and no further claim construction is needed. PO Resp. 10−11; Sur-reply 11−13.

Nevertheless, through its arguments, Patent Owner advances a claim construction that improperly imports extraneous limitations into the claims. PO Resp. 10−15, 19−24; Sur-reply 11−13. The U.S. Court of Appeals for the Federal Circuit (the "Federal Circuit") "has repeatedly cautioned against

limiting the claimed invention to preferred embodiments or specific examples in the specification." *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1346–47 (Fed. Cir. 2015). "[I]t is the *claims*, not the written description, which define the scope of the patent right." *Id*. at 1346.

In our analysis below, we address each of Patent Owner's arguments concerning its proposed claim construction in turn.

*a. An end  tag is not required*

Patent Owner argues that the term "element" "typically refers to an object in the [Document Object Model] DOM," citing to Dr. Kursh's testimony for support. PO Resp. 12, 19−24 (citing Ex. 2034 ¶ 107). Patent Owner avers that "[a]n element of the DOM typically includes not only a markup language start tag but also includes an end tag and a relationship with other elements in the DOM." *Id.*

However, as Petitioner notes (Reply 8), Patent Owner's construction that requires the claim term "element" to include a start tag, an end tag, and a relationship with other elements in the DOM, is inconsistent with the claim language and Specification. Notably, the claims do not recite a start tag and an end tag, much less a start tag, an end tag, and a relationship with other elements in the DOM. Nor does the Specification disclose a set of tags or DOM. Ex. 1001. Moreover, Patent Owner's construction contradicts its own explanation that DOM "standards were not universally accepted or supported by client applications at the time of the invention." Prelim. Resp. 7 (citing Ex. 1007 ("*JavaScript – the Definitive Guide*"), 312−13 (describing properties and methods that pertain to different document elements); *id.* at

336 (explaining that the inner HTML property have never been included in DOM standards); *id.* at 342−44 (describing inconsistent implementation of DOM standards)).

To support Patent Owner's construction, Dr. Kursh testifies that the term "element" means "the combination of a set of tags (a start tag and an end tag), together with any content between the tags, and any attributes the tags may have," citing to a dictionary definition, instead of the Specification. Ex. 2034 ¶ 107 (citing Ex. 1019, 189 (Microsoft Computer Dictionary's definition of "element"). However, both Dr. Kursh's testimony and the dictionary definition are extrinsic evidence.

The Federal Circuit has recognized that "extrinsic evidence consisting of expert reports and testimony is generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1318−19 (Fed. Cir. 2005) (en banc). And, "heavy reliance on the dictionary divorced from the intrinsic evidence risks transforming the meaning of the claim term to the artisan into the meaning of the term in the abstract, out of its particular context, which is the specification." *Id.* at 1321. "Although definitions based on dictionaries, treatises, industry practice, and the like often are important aids in interpreting claims, they may not be used to contradict claim meaning that is unambiguous in light of the intrinsic evidence." *Arcelormittal v. AK Stell Corp.*, 700 F.3d 1314, 1320 (Fed. Cir. 2012). The Federal Circuit has recognized that the specification "is the single best guide to the meaning of a disputed term," and "[u]sually, it is dispositive." *Phillips*, 415 F.3d at 1315.

Here, the claim term "element" refers to the "virtual board" described in the Specification. Ex. 1001, 2:60−65. The Specification discloses that "[i]n some embodiments, the primary content 120/122 *includes a 'tag' (or other identifier)* that references code *configured to . . . create virtual boards representing the unused space*." *Id*. at 4:55−63 (emphases added). The Specification also discloses that "[c]reating the virtual board may comprise including [hypertext markup language ("HTML")], or other markup, into the primary content page (e.g., as *a  tag*, frame, or the like)." *Id.* at 17:61−63 (emphasis added).

The Specification does not indicate that "a  tag" requires an end  tag. *Id.* Nor does the Specification use the term  element. *Id.* The evidence of record shows that an end  tag is not required in certain situations. Ex. 1018, 83 ("End tag ; usually omitted in HTML")[1]; Ex. 1027 ¶¶ 27−29; *cf* Ex. 1031, 8; Ex. 2023, 2. Therefore, in view of the Specification, we decline to import a limitation that requires both a start tag ( ) and an end tag ( ) from extrinsic evidence (e.g., Ex. 2034 ¶ 107; Ex. 1019, 189; Ex. 1031, 8; Ex. 2023, 2) into the claims. *Phillips*, 415 F.3d at 1318−19, 1321; *Arcelormittal*, 700 F.3d at 1320.

In light of the claim language and Specification, we decline to adopt Patent Owner's construction that requires the claim term "element" to include a start tag, an end tag, and a relationship with other elements in the DOM. Rather, we interpret the term "element," as recited in the claims, to

[1] Our citations to Ex. 1018 refer to the page number added by Petitioner on the bottom, right corner of the page.

encompass "a single tag,  tag, or other identifier," consistent with the claim language and Specification. To be clear, the claim term "element" does not require a set of tags (both a start tag and an end tag).

*b. Full spatial representation is not required*

Patent Owner argues that the claim language "configured to represent the identified unused space" requires full spatial representation, citing to exemplary virtual boards shown in Figures 1A-1O for support. PO Resp. 11−13 (citing Ex. 1001, Figs. 1A−1O).

However, Patent Owner's construction improperly imports specific examples from the Specification into the claims. *See Williamson*, 792 F.3d at 1346–47. The claim language itself does not require full spatial representation. Patent Owner's construction also is inconsistent with the Specification, which uses the broad permissive terms "may" and "and/or" when describing that "virtual board 131 *may indicate* the position, size, proportions, *and/or* orientation of the unused space 130 within the client display 100." Ex. 1001, 2:65−67 (emphases added). Therefore, we decline to adopt Patent Owner's construction that requires full spatial representation.

In view of the claim language and Specification, we interpret "an element configured to represent the identified unused space" to mean "a placeholder (e.g., a tag,  tag, or other identifier) that represents the identified unused space by indicating the position, size, proportions, and/or orientation of the identified unused space."

*c. The recited steps may occur simultaneously*

Patent Owner argues that the "create" step must be *complete* before the "insert" step begins, citing Dr. Kursh's testimony for support. PO Resp. 14−15, 19−24; Sur-reply 11−13 (citing Ex. 2034 ¶¶ 109−111). Patent Owner also asserts that the order of these steps requires both an end  tag to be created *and* the positioning coordinates of the claimed "element" to be set at the identified unused space *prior to* inserting the secondary markup data. PO Resp. 14−15, 19−24; Sur-reply 11−13.

However, Patent Owner's construction improperly imports extraneous limitations into the claims, and is inconsistent with the Specification. As discussed above, the claimed "element" does not require an end  tag.

We recognize that "[a] method claim can also be construed to require that steps be performed in order where the claim implicitly requires order, for example, if the language of a claimed step refers to the completed results of the prior step." *Kaneka Corp. v. Xiamen Kingdomway Group Co.*, 790 F.3d 1298, 1306−07 (Fed. Cir. 2015). The court in *Kaneka* explained that "it is not required that any one step be carried out separately or independently of any other step," and it is not necessary that "the [prior] step has to be complete before the [later] step begins." *Id.* When the claims do not exclude a continuous process, the later step may be initiated as soon as at least some product from the previous step forms, while previous steps are still ongoing. *Id.*

Like *Kaneka*, the claims here do not exclude a continuous process or a process in which the steps are occurring simultaneously. To the contrary, the Specification contemplates a continuous process in which an end 

tag may be added *after* the secondary markup data is inserted. Ex. 1001, 17:61−63. The Specification discloses that creating a virtual board may comprise including "a  tag," but it is silent as to whether an end  tag is required. *Id.* The evidence of record consistently shows that, if an end  tag is used, the content is inserted *after* the start  tag, *but before* the end  tag. Ex. 1003 ¶ 67 (" body_content "); Ex. 1018, 83; Ex. 1031, 9[2]; Ex. 2023, 2, 3 (" . . . ")[3]. Patent Owner admits that "material to the right of the closing angle bracket is contents of the div *element* (contained between the start tag and the closing tag)." PO Resp. 23. Read in light of the knowledge of one of ordinary skill in the art, the Specification contemplates a continuous process in which the "create" step and the "insert" step are occurring simultaneously—e.g., the secondary markup data is inserted *after* a start  tag is created, but *before* an end  tag is created. Therefore, the "create" step is not required to be complete before the "insert" step begins, as Patent Owner alleges.

In addition, the Specification also contemplates a continuous process in which the position of a virtual board may be finalized after the secondary content is inserted. *Id.* at Abstract, 3:54−4:12, Figs. 1K, 1M. The Specification discloses that the unused space and virtual board may be "updated (shifted and reduced in size)" in response to certain user manipulations. *Id.* at 3:59−60. For example, a user may drag or resize the

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[2] The citations to Exhibit 1031 refer to the page number added by Petitioner, on the bottom, right corner.

[3] The citations to Exhibit 2023 refer to the page number added by Patent Owner, on the bottom, right corner.

application window or scroll the web page, or the primary content "may be dynamically updated (re-rendered), resulting in updates to the identified unused space and/or corresponding virtual boards." *Id.* at 3:65−67. The Specification also discloses that the secondary content "may be adaptable to conform to different sizes and/or configurations of the unused space," and that the "secondary content may be updated as the user interacts with elements on the client display." *Id.* at Abstract. In short, the Specification makes clear that the position of a virtual board may be finalized *after* the secondary content has been inserted.

Accordingly, in light of the Specification, we determine that, although the "create" step must begin before the "insert" step begins, the "create" step is not required to be complete before the "insert" step begins. We decline to adopt Patent Owner's proposed claim construction that requires the "create" step to be *complete* before the "insert" step begins. *See* PO Resp. 14−15, 19−24; Ex. 2034 ¶¶ 109−111. We also disagree with Patent Owner that the order of these steps requires both an end  tag to be created *and* the positioning coordinates of the claimed "element" to be set at the identified unused space *prior to* inserting the secondary markup data. *See* PO Resp. 14−15, 19−24; Sur-reply 11−13.

*d. Summary*

For the foregoing reasons, we interpret "an element configured to represent the identified unused space" to mean "a placeholder (e.g., a tag,  tag, or other identifier) that represents the identified unused space by indicating the position, size, proportions, and/or orientation of the identified

unused space" consistent with the Specification. We do not interpret the claim language "configure to represent the identified unused space" to require full spatial representation. In addition, we determine that, although the "create" step must begin before the "insert" step begins, the "create" step is not required to be complete before the "insert" step begins.

*B. Principles of Law Concerning Anticipation and Obviousness*

To establish anticipation, each and every element in a claim, arranged as recited in the claim, must be found in a single prior art reference. *Net MoneyIN, Inc. v. VeriSign, Inc*., 545 F.3d 1359, 1371 (Fed. Cir. 2008). There is no requirement that the prior art must use the same words to describe a claim element in order to teach or disclose that claim element. Identity of terminology is not required, for a claim element to be anticipated by the prior art, without resort to obviousness. *See In re Gleave*, 560 F.3d 1331, 1334 (Fed. Cir. 2009); *In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990). Even in a nonobviousness setting, it is proper to take into account not only the literal and specific teachings of the reference, but also the inferences which one skilled in the art would reasonably be expected to draw therefrom. *In re Preda*, 401 F.2d 825, 826 (CCPA 1968). For anticipation, the dispositive question is whether one skilled in the art would reasonably understand or infer from a prior art reference that every claim element is disclosed in that reference. *Eli Lilly and Co. v. Los Angeles Biomedical Res. Inst. At Harbor-UCLA Med. Ctr.*, 849 F.3d 1073, 1074–75 (Fed. Cir. 2017).

A patent claim is unpatentable under 35 U.S.C. § 103 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 ordinary skill in the art; and (4) objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

### *C. Level of Ordinary Skill in the Art*

In determining the level of ordinary skill in the art, various factors may be considered, including the "type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field." *In re GPAC, Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted). Petitioner asserts that a person with ordinary skill in the art would have had "a bachelor's degree from an accredited institution in computer science or the equivalent, and at least two years of experience with development of web applications, including markup languages such as HTML and client-side scripting languages such as JavaScript." Pet. 18 (citing Ex. 1003 ¶¶ 36−38).

Patent Owner agrees with Petitioner's assessment, except adding "two years of experience with (or equivalent knowledge of) the market requirements, standards, and methods for internet ad distribution." PO Resp. 7 (citing Ex. 2034 ¶¶ 88−90). Patent Owner argues that this informs the

problems encountered in the art as well as the solution to those problems, including those described in Ramanathan and Parkinson. *Id.* 7−8. Upon review of the evidence in the entire record, we note that the prior art of record reflects the appropriate level of ordinary skill in the art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1354–55 (Fed. Cir. 2001). Therefore, we do not discern a meaningful difference between the parties' assessments of the level of ordinary skill in the art for purposes of this Decision. As such, we apply Petitioner's assessment and hold that the level of ordinary skill in the art is reflected by the prior art of record. *Okajima*, 261 F.3d at 1355; *GPAC*, 57 F.3d at 1579 (finding that the Board did not err in concluding that the level of ordinary skill in the art was best determined by the references of record).

### *D. Overview of Prior Art References*

Ramanathan

Ramanathan discloses a method and system for utilizing effectively the empty-spaces on web pages. Ex. 1005, Abstract. In particular, Ramanathan discloses a computerized method for displaying an advertisement within an area of empty space in a column of a web page that is rendered on a user's web browser. *Id*. ¶ 10.

Figure 1 of Ramanathan is reproduced below.

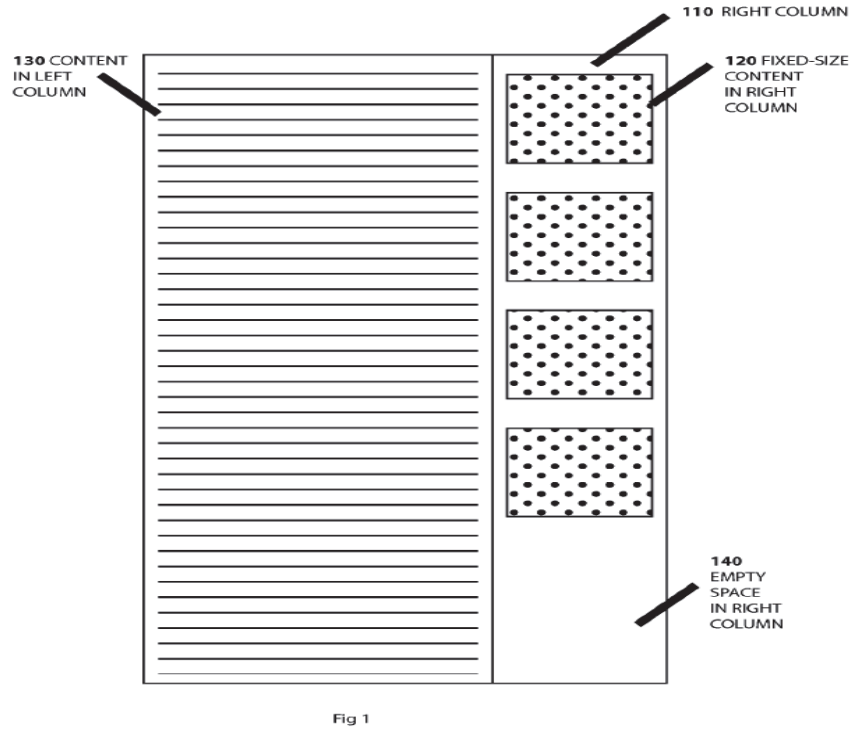



Figure 1 above illustrates a web page with empty space. *Id.* ¶ 42. Right column 110 contains items 120 that are of a specified size. *Id.* Because the sizes are specified, "their dimensions are known precisely." *Id.* Left column 130 contains text content of unspecified height. *Id.* The width of left column 130 is known, but the height can vary from browser to browser. *Id.* In this example, because left column 130 is longer than right-column 110, empty space 140 is formed at the end of right-column 110. *Id.* Furthermore, if the text content in the left column is shorter than the contents in the right column, the empty space would be formed at the end of the left column. *Id.* ¶ 43, Fig. 2.

Parkinson

Parkinson discloses enabling a web page "to display advertisements in the empty space that is present in conjunction with normal content." Ex. 1006, Abstract. Figure 6 of Parkinson is reproduced below.

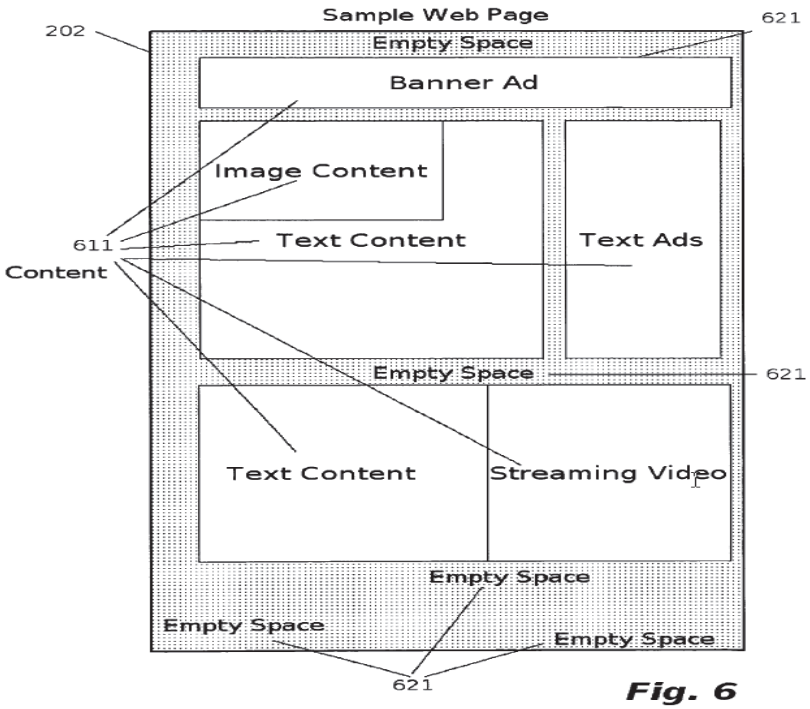



Fig. 6

Figure 6 above depicts web page 202 displaying different types of content 611 and various examples of empty space 621. *Id.* ¶ 58. Advertisements could be placed in empty space 621 to increase revenues. *Id*. Multiple ads may appear within empty space 621, and display is determined by where the user's mouse position 731 is located. *Id*.

Flanagan

Flanagan, titled "*JavaScript – The Definitive Guide*," is a reference guide for using JavaScript programming language. Ex. 1007; Ex. 2001. According to Petitioner, Flanagan describes well-known technologies such

as HTML, dynamic modification of web pages inside a browser, and directly writing to a mark-up document (i.e., a web page) as it is being parsed and displayed. Pet. 17−18.

*E. Ground 1 – Anticipation by Ramanathan*

Petitioner asserts that claims 1–19 are unpatentable under 35 U.S.C. § 102 as anticipated by Ramanathan. Pet. 21–40. To support its contentions, Petitioner provides detailed explanations as to how Ramanathan discloses every limitation of the claims, citing Dr. Chatterjee's testimony for support. *Id*.; Ex. 1003. Patent Owner counters that Ramanathan does not disclose several limitations recited in the claims. PO Resp. 17−33.

For the reasons provided below, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1–19 are anticipated by Ramanathan.

Independent claims 1, 8, and 15

*Identifying unused space*

Claim 1 recites

> [1(a)] providing *computer-readable code* configured for execution by a processor of a client computing device, the computer readable code *configured to cause the client computing device to*,
>
> [1(b)] *identify unused space*, the identified unused space *to exist within a display* of the client computing device when an application presents primary content within the display.

Ex. 1001, 21:6−14 (bracketed text and emphases added). Claims 8 and 15 recite similar limitations. *Id*. at 21:44−50, 22:30−45.

As discussed above in our claim construction analysis in Section II.A.1, we determine that the claim term "unused space" refers to "a portion of a display that is not being used to display rendered 'primary' content," and that the claim term "primary content" "may comprise web pages or other suitable types of content (e.g., video, audio, etc.)." *Id.* at 2:10−17; 7:53−55.

To account for these limitations, Petitioner asserts that Ramanathan discloses providing computer-readable code (e.g., JavaScript) configured for execution by a processor of a client computing device (e.g., a web browser running on a processor), wherein the computer-readable code causes the client computing device to identify unused space when primary content is presented within the display. Pet. 21−23, 41−44 (citing Ex. 1005, Abstract, ¶¶ 10, 38, 51, 52 (describing the method of measuring empty space illustrated in Fig. 5)). Petitioner notes that Ramanathan discloses a process for measuring empty space on a web page that is displaying the primary content. *Id.* To support Petitioner's arguments, Dr. Chatterjee testifies that one of ordinary skill in the art would have understood JavaScript to be computer-readable code that is executed by the processor of the client computer where the web browser runs. Ex. 1003 ¶ 75.

In light of the evidence of record, we determine that Petitioner has shown sufficiently that Ramanathan describes providing computer-readable code configured to cause the client computing device to identify unused space, as recited in claims 1, 8, and 15. Ex. 1005 ¶¶ 38, 51, 52.

Patent Owner counters that Ramanathan does not disclose computer-readable code configured to cause the client computer device to

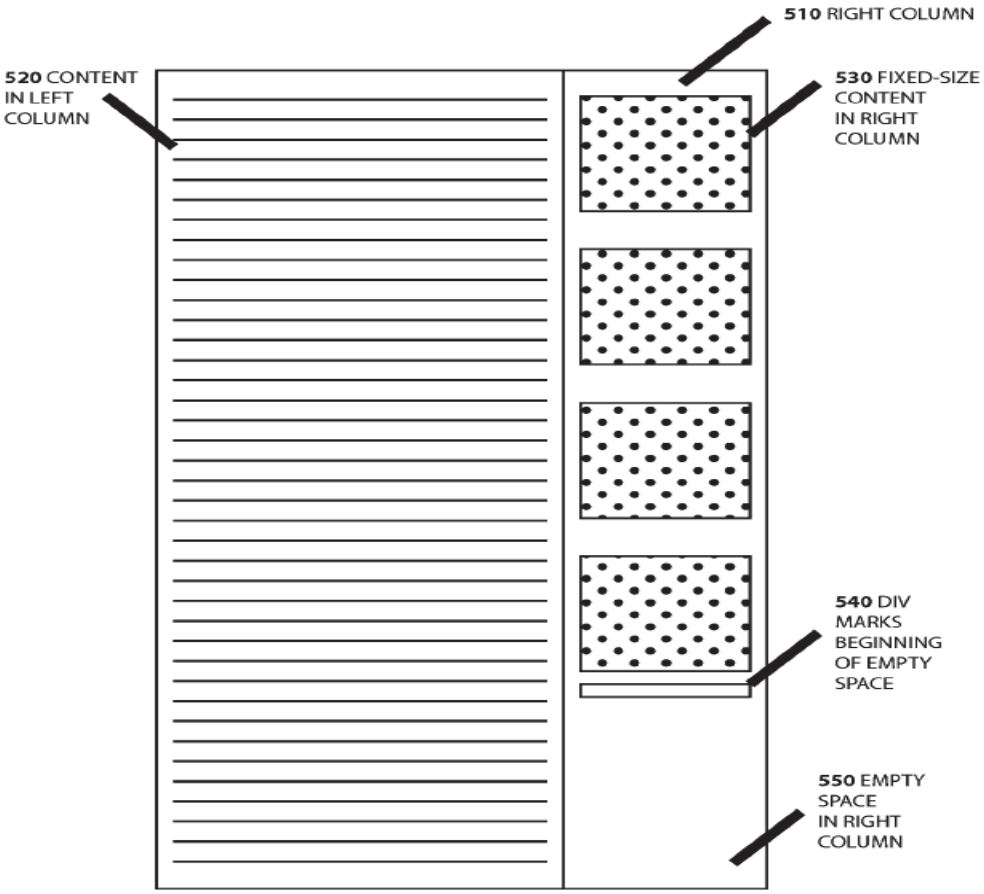
identify unused space, citing Dr. Kursh's testimony for support. PO Resp. 18−19, 24; Sur-reply 17−20 (citing Ex. 2034 ¶¶ 49−58, 119, 124, 134−137). Patent Owner argues that "Ramanathan's description of locating and using empty space in a markup document or web page does not amount to identifying unused space as used in the '934 Patent." PO Resp. 24; Sur-reply 19−20. Patent Owner avers that Ramanathan is limited to measuring the height of a space, and "does not use computer code to identify the location of empty space in a web page." PO Resp. 18−19. According to Patent Owner, "all of Ramanathan's exemplary code listings rely on a div element in the primary content that defines the location of empty space." Sur-reply 18−19 (citing Ex. 1005 ¶¶ 82, 90; Exs. 2024−2031). Dr. Kursh testifies that "Ramanathan is limited to measuring a space whose location and width are static (not dynamically identified by computer-readable code)." Ex. 2034 ¶¶ 119, 124, 135−137.

We are not convinced by Patent Owner's arguments and Dr. Kursh's testimony. Patent Owner and Dr. Kursh improperly import extraneous limitations into the claims. Nothing in the claims requires identifying the unused space "*dynamically*." The limitation "the computer-readable code configured *to cause* the client computer device to identify unused space" also does not require the code itself to measure both the height and width of the unused space. Nor does the limitation exclude using a DIV placeholder after the unused space has been identified. Moreover, each claim uses the open-ended transitional term "comprising," which does not exclude additional, unrecited elements. *See Genentech, Inc. v. Chiron Corp.*, 112 F.3d 495, 501 (Fed. Cir. 1997). "It is improper for a court to add

'extraneous' limitations to a claim, that is, limitations added 'wholly apart from any need to interpret what the patentee meant by particular words or phrases in the claim.'" *Hoganas AB v. Dresser Indus., Inc*., 9 F.3d 948, 950 (Fed. Cir. 1993) (citing *E.I. Du Pont de Nemours & Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1433 (Fed. Cir. 1988)).

In addition, Patent Owner and Dr. Kursh narrowly focus on a few lines of the exemplary code listing in Ramanathan, failing to consider other portions of Ramanathan where necessary to appreciate its teachings including Ramanathan's explanations of the exemplary code listing. Notably, Ramanathan in the Background and Summary Sections makes clear that its invention includes a computerized method "for *displaying* an advertisement within an area of empty space in a column of a web-page that is *rendered on a user's web-browser*" *within a display* for people (e.g., a user) to browse the web to read the information, not merely an empty space on a web page, as Patent Owner argues (PO Resp. 43). Ex. 1005 ¶¶ 10−13; *see also id.* ¶ 3 ("People browse the web to read information from portals"), ¶ 6 ("Showing more advertisements on each page can help a website earn more revenue from the same traffic.").

Figure 5 of Ramanathan is reproduced below.




As shown in Figure 5 of Ramanathan above, the web page contains text content 520 in the left column and fixed-size content 530 in right column 510. *Id.* More importantly, empty space 550 where an advertisement (secondary content) will be inserted and displayed with contents 520, 530 (primary content) describes the claimed "unused space" ("a portion of a display that is not being used to display rendered 'primary' content"). *Id.* at Figs 1, 5. Empty space 550 is *not* being used to display primary contents 520, 530. *Id.* Therefore, empty space 550 for displaying an advertisement in a web browser within a display discloses "unused space"

as used in the '934 patent. *Id.* Accordingly, Patent Owner's argument and Dr. Kursh's testimony that Ramanathan does not disclose a method for identifying unused space, as used in the '934 patent, are unavailing.

In addition, we disagree with Patent Owner's argument that Ramanathan does not use computer code to identify the location of the empty space. Significantly, Ramanathan discloses using JavaScript (computer-readable code) to measure the dimension of elements and identify the location of the empty space rendered in a web browser. Ramanathan describes that "[s]ince the dimensions of text elements in a HTML web-page are dependent on so many factors, a good way to determine the size of an element is to wait until the element has been rendered in the particular user's browser and then *measure the dimensions of the element using javascript* (or any other browser scripting language)." Ex. 1005 ¶ 38 (emphasis added).

Dr. Chatterjee testifies, and Patent Owner does not dispute, that JavaScript is computer-readable code because "it is a programming language that is executed by a computer (ultimately, by a processor of a computer), and further that it would be a client computer (computer device) because it is described as a type of 'browser scripting language.'" Ex. 1003 ¶ 75. According to Dr. Chatterjee, a relevant artisan would have known that "'browser' refers to a web browser, a program that runs on a client computer, as opposed to a program that runs on a server computer, such as the web server." *Id*. We credit Dr. Chatterjee's testimony (Ex. 1003 ¶ 75) as it appears consistent with the prior art of record. *See, e.g.*, Ex. 1005 ¶¶ 38, 75−89. Therefore, Ramanathan describes "providing computer-

readable code configured for execution by a processor of a client computer device," as recited in claims 1, 8, and 15.

Furthermore, Ramanathan also discloses a process of measuring the empty space of a web page displaying primary content rendered in the user's web browser. Ex. 1005, Abstract, ¶¶ 10, 51, 52, Fig. 5. As noted above, Ramanathan discloses that "a good way to determine the size of an element is to wait until the element has been rendered in the particular user's browser and then *measure the dimensions of the element using javascript* (or any other browser scripting language)." *Id.* ¶ 38 (emphasis added). Ramanathan explains that, because text content 520 in the left column, as shown in Figure 5 (reproduced above) is longer than fixed-size content 530 in right column 510, empty space 550 is located at the end of right column 510. *Id.* ¶¶ 42, 51. Therefore, Ramanathan describes using JavaScript to identify the *location* of the empty space that is displaying with primary content (text content 520 and fixed-size content 530) in the user's web browser.

In addition, Ramanathan describes two ways of determining the *quantity* of the empty space. *Id.* ¶ 51. Specifically, Ramanathan discloses:

> To determine the quantity of empty space, we have a marker DIV 540 which marks the end of the content in the right-column and the beginning of the empty space. We find the y-location of this DIV. We also find the total height of the page. The difference between the two is the amount of empty space.

*Id*. DIV element 540 is a "*placeholder*" that is inserted into the empty space *after* the JavaScript code identifies the location and amount of the empty space. *See, e.g.*, *id.* ¶ 82 ("If there is enough empty space (more than 250 pixels) then line 50 inserts a placeholder into the

right-column."), ¶ 90 ("Observe that we are using the placeholder to indicate the location of the empty space."). Therefore, Patent Owner's argument that "all of Ramanathan's exemplary code listings rely on a div element in the primary content that defines the location of empty space" is conclusory and not supported by Ramanathan.

Dr. Kursh also fails to consider[4] Ramanathan's "[a]lternative means to find the quantity of empty space may be employed" without using a DIV placeholder. Ex. 1005 ¶ 52. Contrary to Dr. Kursh's characterization of this disclosure as "boilerpate language" (Ex. 2034 ¶ 119), Ramanathan specifically teaches computing the height of text content 130 in left column and the height of fixed-size content 530 in right column 520, and that "[t]he difference is the height of the empty area." Ex. 1005 ¶ 52. Moreover, Ramanathan discloses that "an alternative to comparing the height of the item with the empty space is to check if addition of the item will reduce the total amount of empty space on the page." *Id.* ¶ 57. Therefore, Ramanathan describes how to determine the *quantity* of the empty space by using JavaScript.

In light of the foregoing, we determine that Petitioner has shown sufficiently that Ramanathan describes providing computer-readable code configured to cause the client computing device to identify unused space, as required by claims 1, 8, and 15.

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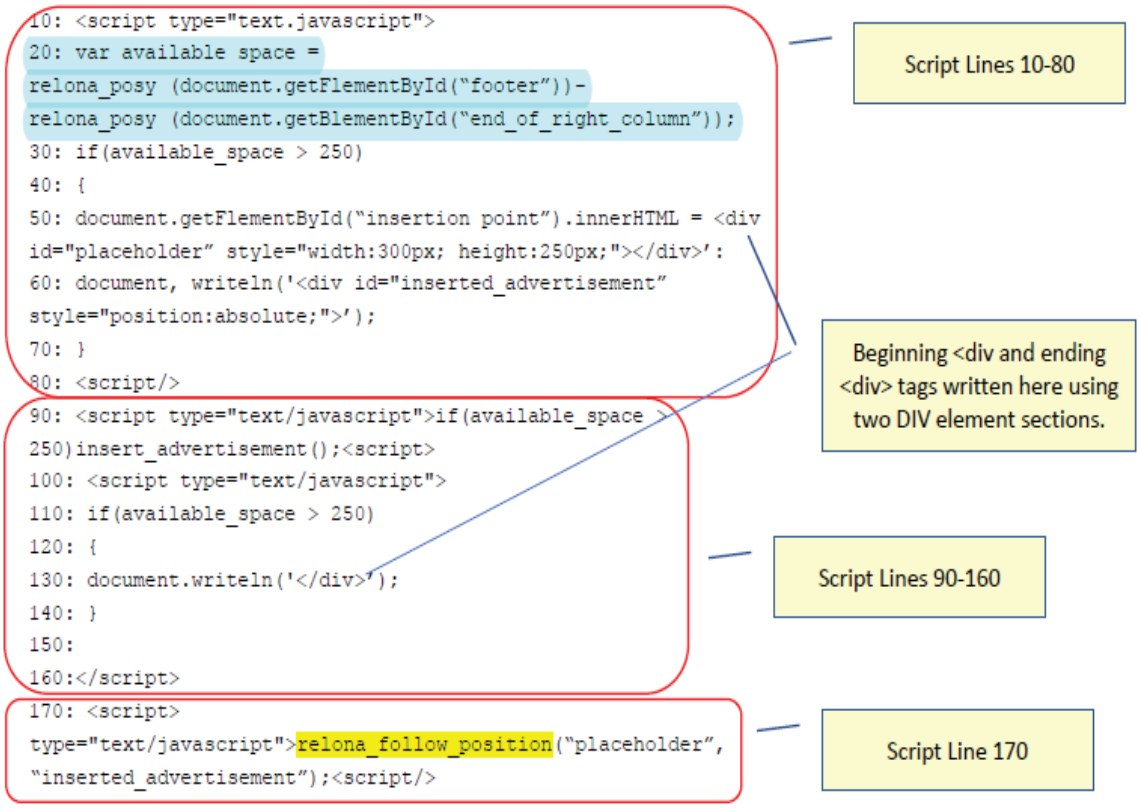
[4] Dr. Kursh states that "[a]lthough Ramanathan states that alternatives could be used [in Ex. 1005 ¶¶ 52, 57, 60, 69], this kind of boilerplate language indicates the description related to non-limiting examples and does not teach additional methods." Ex. 2034 ¶ 199.

Patent Owner's arguments and Dr. Kursh's testimony that Ramanathan is limited to measuring the height of a space, and "does not use computer code to identify the location of empty space in a web page" do not undermine Petitioner's showing. PO Resp. 18−19, 24; Sur-reply 17−20; Ex. 2034 ¶¶ 49−58, 119, 124, 134−137.

In addition, the portions of Ramanathan relied upon by Patent Owner and Dr. Kursh do not support their contention that Ramanathan does not disclose computer-readable code configured to cause the client computer device to identify unused space. In those cited portions (Ex. 1005 ¶¶ 80, 82, 90), Ramanathan clearly shows that DIV element 540 is inserted into the empty space merely as a "placeholder" *after* the location and amount of the empty space have been identified using JavaScript, contrary to Patent Owner's argument that DIV element 540 "defines the location of empty space" (Sur-reply 18).

For example, paragraph 82 of Ramanathan discloses that "[l]ine 20 *computes the amount of empty space* available" and "[i]f there is enough empty space (more than 250 pixels) *then line 50 inserts a placeholder* into the right-column." *Id.* ¶ 82 (emphases added). Dr. Kursh concedes that line 20, which "computes the amount of empty space available," is part of the JavaScript code. Ex. 2034 ¶ 119. Dr. Kursh's annotated JavaScript code listing is reproduced below (with blue highlighting added). *Id.* (quoting Ex. 1005 ¶ 80).

**Exhibit 16. Ramanathan Patent Application JavaScript Placeholder Listing**[88]




As shown in Dr. Kursh's annotated JavaScript code listing above, line 20 (highlighted in blue) which "computes the amount of empty space available" is part of Ramanathan's JavaScript code. *See also* Ex. 1005 ¶¶ 80, 82. Moreover, the DIV placeholder is inserted at line 50 *after* the location and amount of empty space have been identified using the JavaScript code. *Id.* Dr. Kursh also admits that the JavaScript code computes the location of the DIV placeholder which, according to Ramanathan (Ex. 1005 ¶ 90), "is equivalent to computing the location of the empty space." Ex. 2034 ¶¶ 132, 133 (citing Ex. 2029 (Ramanathan listing7.txt)) (Dr. Kursh testifying that "[t]he above script listing verifies the Ramanathan JavaScript only finds the upper left-hand location of the DIV script.").

In addition, we are not convinced by Dr. Kursh's testimony that "Ramanathan relies on *prescribing* the location and width of the empty space in the web page" and that Ramanathan's code only measures the *height* of the unused space or checks only in the *vertical* direction for the "available space." Ex. 2034 ¶¶ 135−137 (citing Ex. 1005 ¶ 80 (lines 10−30 of the JavaScript code)). As noted above, the claim limitation "the computer-readable code configured to cause the client computing device to identify unused space" does not require the code itself to measure both the height and width of the unused space, as alleged by Dr. Kursh. Further, Dr. Kursh narrowly focuses on three lines of the JavaScript code listing, ignoring Ramanathan's disclosure that "[t]he width of the left-column *is known*" in this example, "but the height can vary from browser to browser," and that the dimensions of the fixed-size content in right column are also known. Ex. 1005 ¶ 42 (emphasis added). Moreover, line 30 of the JavaScript code checks whether "there is enough empty space (*more than 250 pixels*)" before inserting the placeholder into the right column in line 50. *Id.* ¶ 82. Therefore, Ramanathan's JavaScript code checks the dimension of the empty space for the available space.

Further, we are not convinced by Dr. Kursh's testimony that Ramanathan "require[s] that the website publisher [] prescribe the location of empty spaces for advertising in the layout of the web page." Ex. 2034 ¶ 124. Ramanathan discloses "the formation of empty space in a web-page caused by the differences in the rendering behavior of different browsers." Ex. 1005 ¶ 40; *see also id.* ¶¶ 38 ("the dimensions of text elements in a HTML web-page are dependent on so many factors"). Ramanathan

expressly recognizes that "[t]he actual height of a paragraph element depends on the browser, the browser-settings, the browser-version, the operating system and other such factors that are not entirely under the control of the designer of the web-page." *Id.* ¶ 36. Ramanathan further explains that "[a]nother cause of empty space is content which is itself variable" and "[s]ince the content can be changed by users, the text itself can change each time the page is rendered in a browser," resulting "in the formation of large areas of empty space on the page." *Id.* ¶ 40. Therefore, Dr. Kursh's testimony that Ramanathan "require[s] that the website publisher [] prescribe the location of empty spaces for advertising in the layout of the web page" is unavailing.

For the reasons discussed above, we determine that Petitioner has shown sufficiently that Ramanathan describes the aforementioned limitations, including providing computer-readable code configured to cause the client computing device to identify unused space. We also do not find Patent Owner's arguments and Dr. Kursh's testimony undermine Petitioner's showing.

*Creating an element and inserting secondary markup data*

Claim 1 recites:

> [1(c) – the "create" step:] modify markup data corresponding to the primary content at the client computing device, wherein the markup data is modified *to create an element configured to represent the identified unused space in the modified markup data*, and
>
> [1(d) – the "insert" step:] *insert secondary markup data into the element* created within the modified markup document

> such that the application processes the modified markup data, including the secondary markup data, to present the primary content and secondary content within the display.

Ex. 1001, 21:15−25 (bracketed text and emphases added). Claims 8 and 15 each recite similar limitations. *Id.* at 21:51−59, 22:46−50.

As noted in Section II.A.2, we interpret "an element configured to represent the identified unused space" to mean "a placeholder (e.g., a tag,  tag, or other identifier) that represents the identified unused space by indicating the position, size, proportions, *and/or* orientation of the identified unused space," consistent with the Specification. We also determine that, although the "create" step must begin before the "insert" step begins, the "create" step is not required to be complete before the "insert" step begins.

To account for these limitations, Petitioner asserts that Ramanathan discloses a process for displaying advertisements in empty spaces on a web page that is rendered on a web browser, in which markup data corresponding to the primary content is modified to create an HTML DIV 650 (as shown in Figure 6 of Ramanathan). Pet. 24−25 (citing Ex. 1005 ¶¶ 75, 76, 82; Ex. 1003 ¶¶ 77, 78). Petitioner explains that a relevant artisan would have understood that DIV 650 describes "an element configured to represent the identified unused space in the modified markup data," as required by the claims, because its coordinates are set to be the empty space. *Id.*

In addition, Petitioner asserts that Ramanathan inserts secondary markup data representing secondary content (e.g., an advertisement) into DIV 650. *Id.* at 25−26. Petitioner explains that Ramanathan discloses that "[i]f there is sufficient space, we create a new <DIV> tag using document.writes() insert the advertisement by calling the appropriate

function such as insert_advertisment( ) and then we write out the closing </DIV> tag using document.write( ),” and “[t]he coordinates of this newly created DIV (which contains the advertisement we are inserting) is set to be the empty space.” *Id*. (citing Ex. 1005 ¶ 76). Petitioner contends that Ramanathan’s method ultimately results in the primary content and secondary content being presented within the display in the browser window. *Id*. at 26.

Upon review of the evidence in this entire record, we find that Petitioner has shown sufficiently that Ramanathan discloses the aforementioned limitations in claims 1, 8, and 15.

In its Response, Patent Owner counters that Ramanathan does not disclose the aforementioned limitations, advancing several arguments. PO Resp. 19−24, 27−32; Sur-reply 7−13, 15.

First, relying on its proposed claim construction, Patent Owner argues that “the new element does not exist in Ramanathan until *after* the secondary markup data is added to the document.” *Id.* at 19−20 (citing Ex. 2034 ¶ 149, 150). Patent Owner contends that a start tag is a component of an element, not an element itself, and “Ramanathan describes ‘DIV 650’ as an element . . . comprising a start tag, an end tag, and contents between the two tags.” *Id.* at 21, 22 (Ex. 1005 ¶¶ 75, 76); Sur-reply 7−9. According to Patent Owner, “[b]ecause Ramanathan writes the advertisement to the page *prior* to writing the associated closing  tag, the div element delimited by the opening and closing  tags in Ramanathan comes into existence (i.e., is ‘created’) with the desired content (the advertisement) already present inside the div element.” PO Resp. 19−20 (citing Ex. 2034 ¶¶ 143, 149, 150).

However, Patent Owner's argument improperly rests on its proposed construction that requires the "create" step to be *complete* before the "insert" step begins. *See In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) (It is well established that limitations not appearing in the claims cannot be relied upon for patentability.). As discussed in Section II.A.2.c, we do not adopt Patent Owner's construction and determine that these steps may occur simultaneously—e.g., the secondary markup data is inserted *after* a start  tag has been created, but *before* an end  tag is included. The Specification discloses that creating a virtual board ("an element") may comprise a  tag. Ex. 1001, 17:61−63. Patent Owner admits that "material to the right of the closing angle bracket is contents of the div *element* (contained between the start tag and the closing tag)." PO Resp. 23.

As Petitioner notes (Pet. 24−26), Ramanathan discloses that "the amount of empty space has been measured using the marker 640 and a new DIV 650 has been placed in the empty space." Ex. 1005 ¶ 75. Ramanathan also discloses that "[i]f there is sufficient space, we create *a new <DIV> tag* using document.write( ) *insert the advertisement* by calling the appropriate function such as insert_advertisement( ) and then we write out *the closing </DIV> tag* using document.write( )." *Id.* ¶ 76 (emphases added). Patent Owner admits that "Ramanathan describes 'DIV 650' as an element (as that term is ordinarily used in the art) comprising a start tag, an end tag, and contents between the two tags," and that, in Ramanathan, "the desired content (the advertisement) [is] already present *inside the div element*" prior to writing the closing </DIV> tag. PO Resp. 20−22 (emphasis added). Therefore, Petitioner has shown sufficiently that Ramanathan describes

modifying the markup data "to create an element configured to represent the identified unused space in the modified markup data," as recited in claims 1, 8, and 15. Patent Owner's argument that "the new element does not exist in Ramanathan until *after* the secondary markup data is added to the document" does not undermine Petitioner's anticipation showing.

Second, relying on its proposed construction again, Patent Owner argues that "because Ramanathan builds the new div element with the advertising content inside and then *subsequently* moves this newly constructed div element to a position associated with the empty space," "Ramanathan does not insert the secondary markup data into an element 'configured to represent the identified unused space,' as required by claim 1." PO Resp. 20−22 (citing Ex. 1005 ¶¶ 80−90, Ex. 2034 ¶ 156); Sur-reply 8−9 (Ex. 2034 ¶¶ 141−142). According to Patent Owner, Ramanathan's start tag itself without the position coordinates associated with the empty space does not represent the empty space because a div element does not inherently represent anything. Sur-reply 8−9 (citing Ex. 1027 ¶ 37; Ex. 1031).

Patent Owner's argument again rests on its proposed construction, which we decline to adopt for the reasons discussed in Section II.A.2.c. Patent Owner and Dr. Kursh also narrowly focus on a few lines of the exemplary code listing in Ramanathan, failing to consider portions of Ramanathan that are necessary to appreciate its teachings including Ramanathan's explanations of the exemplary code listing.

As Petitioner notes (Pet. 24), Ramanathan discloses that "[u]sing the marker DIV method illustrated in FIG. 5, the amount of empty space has

been measured using the marker 640 and a new DIV 650 has been placed in the empty space." Ex. 1005 ¶ 75. Significantly, Ramanathan explains that the coordinates can be set later *or* "within the tag itself" *before* inserting the advertisement. Ex. 1005 ¶ 85. Ramanathan also makes clear, in its Summary Section and claims, that its invention includes a method comprising: (1) "measuring the location and dimensions of said area of empty space"; (2) "*writing the opening tag with [Cascading Style Sheets (CSS)]-styles specifying coordinates of a point within said area of empty space*" *before*; (3) "calling a script function to write said advertisement"; and (4) "repeatedly determining location of said area of empty space and updating coordinates of said advertisement to be within said area of empty space." *Id.* at ¶ 12, claims 1 and 3 (emphasis added). In short, although Ramanathan discloses setting coordinates *after* inserting the advertisement, Ramanathan also undeniably discloses setting coordinates *before* inserting the advertisement.

Therefore, we are not convinced by Dr. Kursh's testimony and Patent Owner's arguments that "Ramanathan builds the new div element with the advertising content inside and then *subsequently* moves this newly constructed div element to a position associated with the empty space," and that the start tag without the coordinates does not represent the empty space. PO Resp. 20−22; Sur-reply 8−9; Ex. 2034 ¶¶ 141−142, 156.

To be clear, as discussed in Section II.A.2, we determine that although the "create" step must begin before the "insert" step begins, the "create" step is not required to be complete before the "insert" step begins. Therefore, it is not required to set the coordinates before inserting the secondary markup

data. Even if Ramanathan were to set the coordinates after inserting the advertisement, the new DIV would still describe the claimed "element." Notably, Ramanathan describes that "[t]he coordinates of this newly created DIV (which contains the advertisement *we are inserting*) is set to be the empty space." Ex. 1005 ¶ 76 (emphasis added). Ramanathan explains that the new DIV is set to be in the empty space and adjusted so that it will always be in the empty space even if the layout were to change or shift later. *Id.* ¶ 90. Reading Ramanathan as a whole, a person of ordinary skill in the art would have understood that the DIV element describes "an element configured to represent the identified unused space." *See Eli Lilly*, 849 F.3d at 1074−75 (noting that, for anticipation, the dispositive question is whether one skilled in the art would reasonably understand or infer from a prior art reference that every claim element is disclosed in that reference).

For the foregoing reasons, we determine that Petitioner has demonstrated sufficiently that Ramanathan discloses modifying markup data "to create an element configured to represent the identified unused space," and "insert[ing] secondary markup data into the element," as recited in claims 1, 8, and 15.

*Providing computer-readable code responsive to a web browser*

Claim 15 recites:

> wherein the content distribution server is configured to provide computer-readable code to an application operating on a client computing device through the electronic communication network *responsive to* the application

> processing markup data for presentation of primary content on a display of the client computing device.

Ex. 1001, 22:35−41 (emphasis added).

Petitioner asserts that Ramanathan discloses this limitation, citing Dr. Chatterjee's testimony for support. Pet. 35−36 (citing Ex. 1005 ¶¶ 38, 49; Ex. 1003 ¶ 105). Patent Owner does not provide separate arguments for this limitation in claim 15. PO Resp. 30−32. We agree with Petitioner and Dr. Chatterjee's unrebutted testimony. As Petitioner explains, Ramanathan discloses providing computer-readable code (JavaScript) to an application on a client computer device (a web browser) that processes markup data (HTML) for presentation of primary content on a web page. Pet. 35−36 (citing Ex. 1005 ¶ 38). Petitioner also notes that Ramanathan discloses that "[t]he changes in the web-page to reduce empty space are made either after the page has completely loaded, or *while the page is still loading*." Ex. 1005 ¶ 49 (emphasis added). Dr. Chatterjee testifies that a relevant artisan would have understood that "the JavaScript code would necessarily have been provided from a web server, over an electronic communication network," and that "the code is provided responsive to the application processing markup data for presentation of primary content." Ex. 1003 ¶ 105.

Upon consideration of the evidence in this entire record, we determine that Petitioner has shown sufficiently that Ramanathan discloses the aforementioned limitation recited in claim 15.

*Generating a request for advertising content*

Claim 15 recites "generat[ing] a request for advertising content to be inserted into placeholder element of the modified markup data." Ex. 1001,

22:48−50. Petitioner argues that Ramanathan discloses this limitation. Petitioner notes that, in Ramanathan, "[a]dvertisements are usually to be placed on web-pages using a call to a javascript function" and "[e]ach advertisement-server or advertisement network will have a different javascript function to call." Pet. 37 (quoting Ex. 1005 ¶¶ 73, 74). Dr. Chatterjee testifies that one of ordinary skill in the art would have understood that the JavaScript functions for the advertisement servers or networks would generate a request for advertising content, and that the returned content is then inserted into the placeholder element. Ex. 1003 ¶ 108 (citing Ex. 1005 ¶ 76).

For this limitation, Patent Owner relies upon the same arguments in connection with creating an element and inserting secondary markup data into the element. PO Resp. 31−32. We already addressed those arguments in our analysis above, and we find those arguments unavailing here for the reasons stated above.

Upon consideration of the evidence in this entire record, we determine that Petitioner has shown sufficiently that Ramanathan discloses "generat[ing] a request for advertising content to be inserted into placeholder element of the modified markup data," as recited in claim 15.

*Selecting advertising content*

Claim 15 recites:

> the content distribution server is further configured to *select advertising content in response to the request* from the client computing device, wherein the application processes the modified markup data, including the selected advertising content inserted into the placeholder element thereof, for presentation of the primary content

> and the selected advertising content on the display of the client computing device.

Ex. 1001, 22:51−58 (emphasis added).

Petitioner argues that Ramanathan discloses this limitation. Pet. 38. We agree. As Petitioner notes, Ramanathan discloses that "content comprising HTML is requested from the advertisement server or network (*i.e.*, the content distribution server) by a JavaScript function call," and "[e]ach advertisement-server or advertisement network will have a different javascript function to call." Ex. 1005 ¶¶ 73, 74. Ramanathan also discloses that "[t]he call to the function insert_advertisement( ) will use document.write( ) to insert new code at that location for displaying the advertisement." *Id.* ¶ 74. Dr. Chatterjee testifies that a pertinent artisan would have understood that in order to return content based on a request, the server would have to select what content to return. Ex. 1003 ¶ 109. We credit Dr. Chatterjee's unrebutted testimony.

For this limitation, Patent Owner relies upon the same arguments in connection with the limitation "identifying unused space." PO Resp. 32. We already addressed those arguments in our analysis above, and we find those arguments unavailing here for the reasons stated above.

Based on the evidence of record, we determine that Petitioner has shown sufficiently that Ramanathan discloses the aforementioned "selecting advertising content" limitation, as recited in claim 15.

*Conclusion as to claims 1, 8, and 15*

In light of the foregoing, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1, 8, and 15 are anticipated by Ramanathan.

Dependent claims 2−5, 9−11, 14, 16, and 17

Claim 2−5 depend from claim 1; claims 9−11 and 14 depend from claim 8; and claims 16 and 17 depend from claim 15. Petitioner has accounted for the limitations recited in each of these dependent claims. Pet. 26−46. For these claims, Patent Owner relies upon the same arguments presented for claims 1, 8, and 15, and does not make any additional arguments. PO Resp. 24, 29, 32. We already addressed those arguments in our analysis above, and we find those arguments unavailing here for the reasons stated above.

Upon consideration of the evidence in this entire record, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 2−5, 9−11, 14, 16, and 17 are anticipated by Ramanathan. More specifically, claim 2 recites "wherein the secondary content comprises content of a third-party advertiser." Claim 11 recites "wherein inserting the secondary markup data comprises inserting a reference to a server of a third party." Claim 16 recites "wherein the content distribution server is configured to select advertising content of a third-party advertisement content distributor." With respect to these claims, Petitioner notes that Ramanathan discloses that although "some websites generate revenue through subscription fees, the majority rely on advertising for their revenue." Pet. 26, 31, 39 (citing Ex. 1005 ¶ 4). Petitioner also notes that Ramanathan

discloses that "[a]dvertisers pay websites a fee for the privilege of presenting their message to the website's audience." *Id.* Dr. Chatterjee testifies that one of ordinary skill in the art would have understood that the advertisers' "message" (the advertisement) is content of a third party other than the website operator. Ex. 1003 ¶ 81. Petitioner further avers that "[e]ach advertisement-server or advertisement network will have a different javascript function to call" (a reference to a server of a third party). Pet. 31 (quoting Ex. 1005 ¶ 74; citing Ex. 1003 ¶ 92). Based on the evidence before us, we determine that Petitioner has shown sufficiently that claims 2, 11, and 16 are anticipated by Ramanathan.

Claim 3 recites "wherein the secondary content comprises fixed-size content." Claim 5 recites "wherein the secondary content comprises one or more fixed-size images." Claim 17 recites "wherein the selected advertising content includes one or more images." As to these claims, Petitioner argues that Ramanathan discloses that the secondary content (e.g., an advertisement) comprises one or more fixed-size image contents. Pet. 26, 39. Ramanathan discloses that "[a]dvertisements are usually rectangular animations or graphic-images," and that "[g]raphics are usually in GIF, JPEG, or PNG format." Ex. 1005 ¶ 5. Ramanathan also discloses that graphic images are examples of "fixed size elements." *Id.* ¶ 39. Dr. Chatterjee testifies that a person of ordinary skill in the art would have understood that images in GIF, JPEG, or PNG format have a fixed size. Ex. 1003 ¶ 82. Based on the evidence before us, we determine that Petitioner has shown sufficiently that claims 3, 5, and 17 are anticipated by Ramanathan.

Claim 4 recites "wherein markup data comprises Hyper Text Markup Language (HTML) data, and wherein the secondary markup data comprises HTML data." Claim 9 recites similar limitations. Claim 10 recites "wherein the secondary markup data . . . comprises *one or more [HTML] data*, eXtensible Markup Language (XML) data, and a link." In this regard, Petitioner notes that Ramanathan discloses that the markup data of the primary content (a web page) and the secondary content (advertisement) may comprise HTML. Pet. 27, 31. Ramanathan also discloses "[w]eb-pages are designed using HTML elements such as P (paragraph), DIV, SPAN, TABLE, and so on." *Id.* (quoting Ex. 1005 ¶ 36). As to secondary markup data (of the advertisement), Petitioner notes that Ramanathan discloses that "[t]he call to the function insert_advertisement( ) will use document.write( ) to insert new code at that location for displaying the advertisement," and that "[t]he new code might include iframe tags, embed tags, script tags *or any other HTML element*." *Id.* (quoting Ex. 1005 ¶ 74). Based on the evidence before us, we determine that Petitioner has shown sufficiently that claims 4, 9 and 10 are anticipated by Ramanathan.

Claim 14 recites:

> wherein the application is configured to generate the markup document corresponding to the primary content in response to *processing at least a portion* of electronic markup data of the primary content, and wherein processing the portion of the electronic markup data comprises the application executing a *script to identify the unused space* to and to modify the markup document to *include the element* representing the unused space.

Ex. 1001, 22:21−29 (emphases added).

In this regard, Petitioner explains that Ramanathan discloses a JavaScript code that identifies unused space and modifies the markup document to include a new <DIV> tag (an element representing the unused space) in the empty space to contain an advertisement. Pet. 33 (citing Ex. 1005 ¶¶ 12, 51, 52, 73−76; Ex. 1003 ¶ 95−98). Petitioner also explains that Ramanathan discloses that the script can execute "either after the page has completely loaded, or *while the page is still loading*," *i.e.*, "in response to *processing at least a portion* of electronic markup data of the primary content." *Id.* at 33, 34 (citing Ex. 1005 ¶ 49; Ex. 1003 ¶¶ 99, 100). Petitioner avers that "[a]fter doing so, a markup document corresponding to the primary content (and also any secondary content) has been generated within the browser." *Id.* Based on the evidence before us, we determine that Petitioner has shown sufficiently that claim 14 is anticipated by Ramanathan.

For the foregoing reasons, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 2−5, 9−11, 14, 16, and 17 are anticipated by Ramanathan.

Dependent claims 6, 7, 12, 18, and 19

Claim 6 recites "wherein the provided computer-readable code is configured to cause the client computing device to modify one or more of the element created within the modified markup data and the secondary markup data inserted into the element *in response to detecting a change pertaining to the display*." Ex. 1001, 21:35−40 (emphases added). Claim 7 recites "wherein the change comprises one or more of *scrolling*

within a browser window and *resizing* the browser window." *Id.* at 21:41−43 (emphasis added). Claims 12, 18, and 19 recite a limitation that requires scrolling or resizing a browser window. *Id.* at 22:7−16, 22:64−23:8.

For these claims, Petitioner argues that Ramanathan discloses that "the client display is an application window—a browser window." Pet. 32 (citing Ex. 1005 ¶ 36). Petitioner notes that Ramanathan discloses a function "repeatedly checks the location of the placeholder and adjusts the position of the advertisement to be always above the placeholder element" so that "the advertisement will always be over the placeholder even if the layout were to change or shift at some later point in time." *Id.* at 23, 32, 40 (citing Ex. 1005 ¶ 90). Ramanathan also discloses that "[s]ince the location of the empty space might change over time, the location of the empty space is recomputed repeatedly and the advertisement moved if necessary so that it remains within the empty space." Ex. 1005 ¶ 11. Dr. Chatterjee testifies that a pertinent artisan would have understood that Ramanathan's DIV (the claimed "element") "is modified by changing its location or positon in response to a change to the display—for example if the browser window is scrolled or resized—a change which would cause the layout to 'change' or 'shift.'" Ex. 1003 ¶¶ 43, 84, 93, 114, 115.

In light of the foregoing, we determine that Petitioner has shown sufficiently that claims 6, 7, 12, 18, and 19 are anticipated by Ramanathan.

For these claims, Patent Owner relies upon the same arguments presented in connection with independent claims 1, 8, and 15. PO Resp. 24,

29, 33. We already addressed those arguments in our analysis above, and we find those arguments unavailing here for the reasons stated above.

In addition, Patent Owner argues that Ramanathan does not teach modifying the claimed "element" "in response to detecting a change pertaining to the display," as recited in claim 6, or in response to scrolling or resizing a browser window, as recited in claims 7, 12, 18, and 19, citing Dr. Kursh's testimony for support. PO Resp. 24−27 (citing Ex. 2034 ¶¶ 162, 163, 166, 168). Patent Owner avers that Ramanathan's JavaScript function does not detect a change, and that scrolling or resizing a browser window has no impact on the web page layout. *Id.*

Patent Owner's arguments and Dr. Kursh's testimony are conclusory and not supported by Ramanathan. Patent Owner and Dr. Kursh narrowly focus on sample code listings that contain specific settings, ignoring portions of Ramanathan where necessary to appreciate its teachings. PO Resp. 24−27; Ex. 2034 ¶¶ 162, 163, 166, 168.

As Petitioner notes (Pet. 28), Ramanathan discloses that the DIV containing the advertisement is placed in the empty space on the placeholder, and that the JavaScript function "repeatedly checks the location of the placeholder and adjusts the position of the advertisement to be always above the placeholder element." Ex. 1005 ¶ 90; *see also id.* ¶¶ 75, 76 ("The coordinates of this newly created DIV (which contains the advertisement we are inserting) is set to be the empty space."). Ramanathan also discloses that the advertisement in the DIV "will always be over the placeholder *even if the layout were to change or shift at some later point in time*." *Id.* ¶ 90 (emphasis added).

Patent Owner and Dr. Kursh admit that Ramanathan's function sets the coordinates of a "follower" (the DIV containing the advertisement) to match the coordinates of a "leader" (the placeholder in the empty space), and that "Ramanathan sets this function to run recurrently, every 100 milliseconds." PO Resp. 25; Ex. 2034 ¶ 162. Dr. Chatterjee testifies that the term "detect" is generally understood to mean "to discover or determine the existence, presence, or fact of" and that this is consistent with Ramanathan's teachings of repeatedly checking the location of the placeholder. Ex. 1027 ¶ 58 (quoting Ex. 1030, 340). Therefore, we are not convinced by Patent Owner's argument and Dr. Kursh's testimony that Ramanathan's function does not detect a change. PO Resp. 25; Ex. 2034 ¶ 163.

Furthermore, Patent Owner's argument and Dr. Kursh's testimony that Ramanathan's teaching is limited to the two-column layout of the web page are unsupported. PO Resp. 25, 26; Ex. 2034 ¶¶ 163, 168. As Petitioner explains (Pet. 32), Ramanathan discloses that "the client display is an application window—a browser window." Ex. 1005 ¶ 36. Ramanathan makes clear that the disclosed "layout" is the layout of a web page *rendered on a web browser within a display of a client computing device*. Ramanathan describes *displaying* the "layout" in a *web browser* so people can browse the web to read information. *See, e.g.*, Ex. 1005 ¶ 3 ("People browse the web to read information from portals"), ¶ 6 ("Showing more advertisements on each page can help a website earn more revenue from the same traffic."). Ramanathan discloses "a computerized method . . . for *displaying* an advertisement within an area of empty space in a column of a

web-page that is *rendered on a user's web-browser*." Ex. 1005 ¶¶ 10−13. Ramanathan also discloses that "[t]he method comprises the steps of waiting until layout of the column of the web-page *on the user's web browser is complete*, measuring the dimensions of the area of empty space that is *formed on the user's web browser*." *Id.* ¶ 13. Ramanathan further explains that "[s]ince the location of the empty space might change over time, the location of the empty space is recomputed repeatedly and the advertisement moved if necessary so that it remains within the empty space." *Id.* ¶¶ 11, 90. Therefore, Patent Owner's argument and Dr. Kursh's testimony that Ramanathan's teaching is limited to the two-column layout of the web page are unsupported. PO Resp. 25, 26; Ex. 2034 ¶¶ 163, 168.

In light of the foregoing, we determine that Petitioner has demonstrated sufficiently that Ramanathan discloses that "the provided computer-readable code is configured to cause the client computing device to modify one or more of the element created within the modified markup data and the secondary markup data inserted into the element *in response to detecting a change pertaining to the display*," as recited in claim 6.

As to claims 7, 12, 18, and 19 that require the change to be resizing or scrolling a browser window, the parties agree that Ramanathan does not expressly use the exact claim terminology "resizing" or "scrolling" a browser window. Ex. 2032, 194:20; Ex. 2034 ¶ 168. However, identity of terminology is not required for a claim element to be met by a prior art reference, without resort to obviousness. *Gleave*, 560 F.3d at 1334. For anticipation, the dispositive question is whether one skilled in the art would

reasonably understand or infer from a prior art reference that every claim element is disclosed in that reference. *Eli Lilly*, 849 F.3d at 1074–75.

Here, the parties' main dispute is whether a person of ordinary skill in the art would have reasonably understood that Ramanathan describes modifying the position of the DIV that contains the advertisement in response to detecting a change that comprises resizing or scrolling the web browser window, as recited in claims 7, 12, 18, and 19.

In this regard, Dr. Chatterjee testifies that a person of ordinary skill in the art would have understood that Ramanathan's teaching of the "layout were to change or shift" could be accomplished by a limited number of activities, including resizing the browser window. Ex. 1003 ¶ 84; Ex. 1027 ¶ 59. We credit the testimony of Dr. Chatterjee, which is supported by Ramanathan. Ex. 1005 ¶¶ 11, 13, 36, 90.

Patent Owner counters and Dr. Kursh testifies that resizing a browser window would have no impact on the web page layout or the coordinates of the placeholder element, relying on Dr. Kursh's examination of the exemplary code listings. PO Resp. 24−27; Ex. 2034 ¶¶ 162, 163, 166, 168. According to Dr. Kursh, he "confirmed this by using standard Internet Explorer Ver. 11 browser to render each of Ramanathan's code listings as a web page," displaying a sample content and a sample placeholder that "represents an adver[tisement] content created dynamically." Ex. 2034 ¶ 166.

We are not convinced by Dr. Kursh's testimony. Ramanathan's code listings are merely exemplary codes with specific settings. Importantly, Ramanathan's express teaching makes clear that the layout of the web page

rendered on the web browser window depends on the size of the browser window. Ramanathan discloses that "[t]he actual height of a paragraph element *depends on the browser [and] the browser-settings*" and that, "[i]f the width of the containing element of the paragraph has not been specified, then the height of the paragraph will also *depend on the width of the browser window*." Ex. 1005 ¶ 36 (emphasis added). Ramanathan also discloses that "[t]he method comprises the steps of waiting until *layout* of the column of the web-page *on the user's web-browser is complete*, measuring the dimensions of the area of *empty space that is formed on the user's web browser*." *Id.* ¶ 13 (emphases added).

Ramanathan explains that "[s]ince the location of the empty space might change over time, the location of the empty space is recomputed repeatedly and the advertisement moved if necessary so that it remains within the empty space." *Id.* ¶ 11. Ramanathan discloses that the JavaScript "function repeatedly checks the location of the placeholder and adjusts the position of the advertisement to be always above the placeholder element," "even if the layout were to change or shift at some later point in time." *Id.* ¶ 90. Ramanathan's teaching makes clear that the layout of the web page rendered on the web browser window *depends on the size of the browser window*, and if the browser window is resized, the layout and the location of the empty space may change or shift. Therefore, Patent Owner's argument and Dr. Kursh's testimony that resizing a browser window has no impact on the web page layout or the coordinates of the placeholder element, are conclusory and unsupported by Ramanathan's disclosure.

We also are not convinced by Dr. Kursh's testimony that a relevant artisan would have understood that "a layout change or shift in Ramanathan to refer to content being added or removed from one of the columns, causing the placeholder element to move vertically up (if content is removed) or down (if content is added)." Ex. 2034 ¶ 165. Ramanathan's layout of a web page *rendered on a web browser window* may change or shift depends on the size or resizing of the web browser window, not only when the content is added or removed. Ex. 1005 ¶¶ 11, 13, 36, 90.

Upon consideration of the evidence in this entire record, we are not convinced by Patent Owner's argument that Ramanathan does not teach modifying the claimed "element" "in response to detecting a change pertaining to the display," as recited in claim 6, or in response to scrolling or resizing a browser window, as recited in claim 7, 12, 18, and 19. In sum, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 6, 7, 12, 18, and 19 are anticipated by Ramanathan.

Dependent claim 13

Claim 13 depends from claim 8 and recites "selecting secondary markup data to insert within the element based on a size of the identified unused space." In this regard, Petitioner argues that in Ramanathan, the secondary content (advertisement) is selected depending on whether it fits in the measured empty space, *i.e.*, "based on a size of the identified unused space," as recited in claim 13. Pet. 32−33 (citing Ex. 1005 ¶ 56). Ramanathan discloses that "[w]e measure the amount of empty space available," and that "[i]f there is sufficient space, we create a new <DIV>

tag using document.write( ) insert the advertisement by calling the appropriate function." Ex. 1005 ¶ 76. In light of the evidence in this entire record, we determine that Petitioner has demonstrated sufficiently that claim 13 is anticipated by Ramanathan.

Patent Owner counters that Ramanathan does not disclose "selecting secondary markup data to insert within the element based on a size of the identified unused space" as recited in claim 13, because Ramanathan merely "discloses a decision to insert, or not to insert, an [advertisement] of a given height (250 pixels in one embodiments)." PO Resp. 30. In Patent Owner's view, choosing whether or not to insert an advertisement is different from "the claim requirement of selecting from among multiple secondary markup data," citing Dr. Kursh's testimony for support. *Id.* (citing Ex. 2034 ¶ 94).

However, Patent Owner's argument and Dr. Kursh's testimony improperly import a limitation into the claim. Claim 13 does not recite "selecting from among multiple secondary markup data." It is well established that limitations not appearing in the claims cannot be relied upon for patentability. *Self*, 671 F.2d at 1344.

Furthermore, Ramanathan discloses "[a]dvertisements are usually to be placed on web pages using a call to a javascript function." Ex. 1005 ¶ 73. As Petitioner notes (Pet. 32−33), Ramanathan discloses that "[w]e measure the amount of empty space available," and that "[i]f there is sufficient space, we create a new <DIV> tag using document.write( ) insert the advertisement by calling the appropriate function." *Id.* ¶ 76. Also, as Dr. Chatterjee testifies, a relevant artisan would have understood that Ramanathan teaches

that "based on the size of the available (empty or unsued) space, secondary markup data is selected (or not selected) for insertion." Ex. 1003 ¶ 94.

For these reasons, we are not convinced by Patent Owner's arguments and Dr. Kursh's testimony (Ex. 2034 ¶ 180). For claim 13, Patent Owner also relies upon the same arguments presented in connection with independent claim 8. PO Resp. 30. We already addressed those arguments in our analysis above in connection with claim 8, and we find those arguments unavailing here for the reasons stated above.

In light of the foregoing, we determine that Petitioner has shown by a preponderance of the evidence that claim 13 is anticipated by Ramanathan.

Conclusion on Anticipation

In light of the foregoing, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1−19 are anticipated by Ramanathan.

### *F. Ground 2 – Obviousness based on Ramanathan in view of Ordinary Knowledge and Skill in the Art*

Petitioner asserts that claims 1−19 are unpatentable under § 103 as obvious over Ramanathan in view of ordinary knowledge and skill in the art. Pet. 41−44. Petitioner argues that, to the extent that Ramanathan's process is found not to disclose the claimed subject matter in claims 1−19, an ordinarily skilled artisan would have recognized that "it would be equally possible to create the Div, set its coordinates, and then write the advertising content into it using the 'innerHTML' property—which Ramanathan also

describes." Pet 42−43 (citing Ex. 1005 ¶ 82; Ex. 1003 ¶¶ 119, 120). Patent Owner opposes. PO Resp. 37−38; Sur-reply 13−15.

As discussed above in Section II.A.2, we decline to adopt Patent Owner's proposed claim construction to require an end  tag. We also determine that, although the "create" step must begin before the "insert" step begins, the "create" step is not required to be complete before the "insert" step begins.

We determine that, even if an end tag is used, the secondary content may be inserted *after* the start  tag, *but before* the end  tag so that the secondary content is inserted between the tags. Ex. 1003 ¶ 67 (" body_content "); Ex. 1018, 83; Ex. 1031, 9; Ex. 2023, 78, 79 (" . . . "). We do not interpret the claims to require setting the positioning coordinates of the claimed "element" (e.g., a tag) at the identified unused space *prior to* insertion of the secondary markup.

As discussed above in our anticipation analysis in Section E, even if the claims require setting the coordinates prior to inserting the secondary markup data, we determine that Ramanathan discloses all of the limitations, including "identifying unused space," "creating an element," "inserting secondary markup data" into the element, as recited in the claims. Therefore, it would not be necessary to modify Ramanathan to render the claimed subject matter in claims 1−19 obvious.

Furthermore, even if the modifications to Ramanathan as proposed by Petitioner are necessary to render the claims obvious, we are not convinced by Patent Owner's arguments. PO Resp. 37−38, Sur-reply 13−15.

Patent Owner argues that a person of ordinary skill in the art would not have been motivated to move away from the ordered building process described in Ramanathan in light of specific contractual restrictions discussed in paragraph 71 of Ramanathan, citing Dr. Kursh's testimony for support. PO Resp. 33−41; Sur-reply 13−15 (citing Ex. 1005 ¶ 71; Ex. 2034 ¶ 222).

However, Patent Owner and Dr. Kursh fail to consider portions of Ramanathan where necessary to appreciate its teachings. Tellingly, in the very next paragraph of Ramanathan (Ex. 1005 ¶ 72), Ramanathan explains that "most contracts permits publishers to use CSS positioning to set the page-coordinates of elements that contain advertisements."

Significantly, as discussed above, Ramanathan discloses a method for displaying an advertisement within an empty space of a web page that is rendered on a user's web browser within a display. Ex. 1005, Abstract, ¶ 10. As Petitioner notes (Pet. 24), Ramanathan discloses that "[u]sing the marker DIV method illustrated in FIG. 5, the amount of empty space has been measured using the marker 640 and a new DIV 650 has been placed in the empty space." Ex. 1005 ¶ 75. Ramanathan explains that the coordinates can be set later *or* "within the tag itself" *before* inserting the secondary markup data. Ex. 1005 ¶ 85. Ramanathan also makes clear, in its Summary Section and claims, that its invention includes a method comprising: (1) "measuring the location and dimensions of said area of empty space"; (2) "*writing the opening tag of a new element with CSS-styles specifying coordinates of a point within said area of empty space*" *before*; (3) "calling a script function to write said advertisement"; and (4) "repeatedly determining location of

said area of empty space and updating coordinates of said advertisement to be within said area of empty space." *Id.* at ¶ 12, claims 1 and 3. In short, although Ramanathan discloses setting coordinates *after* inserting the advertisement, Ramanathan also undeniably discloses setting coordinates *before* inserting the advertisement.

Ramanathan makes clear that its invention would increase effective usage of space on web pages and reduce wastage of high-value space on web pages by filling empty space in web pages with advertisement. *Id.* Reading Ramanathan as a whole, a person of ordinary skill in the art would have had a reason to "writ[e] the opening tag of a new element with CSS-styles specifying coordinates of a point within said area of empty space" before inserting the advertisement, as taught by Ramanathan. *Id.* Therefore, Patent Owner's arguments are unavailing.

Patent Owner also argues that Ramanathan does not teach or suggest the missing limitations, relying on the same arguments presented in connection with Ground 1 for the independent claims 1, 8, 15. PO Resp. 33−41; Sur-reply 13−15. We already addressed those arguments in our anticipation analysis above in connection with Ground 1 (claims 1−19 are anticipated by Ramanathan), and we find those arguments unavailing here for the reasons stated above.

In light of the foregoing, we determine that Petitioner has demonstrated sufficiently that Ramanathan in view of the ordinary knowledge and skill in the art teaches all of the limitations recited in the claims and provides a rationale to combine the prior art teachings.

Objective evidence of nonobviousness

We next turn to Patent Owner's evidence and arguments relating to secondary considerations of nonobviousness. Factual inquiries for an obviousness determination include secondary considerations based on evaluation and crediting of objective evidence of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17 (1966). Notwithstanding what the teachings of the prior art would have suggested to one with ordinary skill in the art at the time of the invention, the totality of the evidence submitted, including objective evidence of nonobviousness, may lead to a conclusion that the claimed invention would not have been obvious to one with ordinary skill in the art. *In re Piasecki*, 745 F.2d 1468, 1471–1472 (Fed. Cir. 1984). Secondary considerations may include any of the following: long-felt but unsolved needs, failure of others, unexpected results, commercial success, copying, licensing, and praise. *See Graham*, 383 U.S. at 17. "For objective evidence of secondary considerations to be accorded substantial weight, its proponent must establish a nexus between the evidence and the merits of the claimed invention." *ClassCo, Inc. v. Apple, Inc.*, 838 F.3d 1214, 1220 (Fed. Cir. 2016). "A nexus may not exist where, for example, the merits of the claimed invention were readily available in the prior art." *Id.* Ultimately, "[t]he patentee bears the burden of showing that a nexus exists." *WMS Gaming, Inc. v. Int'l Game Tech.*, 184 F.3d 1339, 1359 (Fed. Cir. 1999).

*Long-felt but unsolved need*

The relevance of long-felt need to the issue of obviousness depends on several factors. First, the need must have been a persistent one that was

recognized by those of ordinary skill in the art. *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1383 (Fed. Cir. 1983). Second, the long-felt need must not have been satisfied by another before the invention by the patent owner. *Newell Cos. v. Kenney Mfg. Co.*, 864 F.2d 757, 768 (Fed. Cir. 1988). Third, the invention must in fact satisfy the long-felt need. *In re Cavanagh*, 436 F.2d 491, 496 (CCPA 1971). Moreover, an allegation of failure of others is not sufficient evidence of nonobviousness, unless it is shown that widespread efforts of skilled workers having knowledge of the prior art had failed to find a solution to the problem. *In re Allen*, 324 F.2d 993, 997 (CCPA 1963).

Here, Patent Owner contends that "there was a long-felt industry need for 'viewable' ads as well as a demand for better utilization of unused space." PO Resp. 51. Patent Owner argues that, as reflected in Ramanathan and Parkinson, "there has been a long-felt need for better utilization of empty spaces for online advertising." *Id.* at 51, 52 (citing Ex. 1005 ¶ 9; Ex. 1006 ¶ 9). According to Patent Owner, the '934 patent "addresses the long-felt need for higher quality inventory by only delivering an ad if the delivery service has identified a portion of the display, not being used to display primary content, where the ad can be placed," citing Dr. Kursh's testimony for support. *Id.* at 53 (citing Ex. 2034 ¶ 298). Patent Owner avers that "the invention claimed in the '934 Patent reverses the traditional approach by first identifying a portion of the display not being used to display rendered primary content ('unused space') *before* delivering the ad." *Id.*

However, "once another supplied the key element, there was no long-felt need or, indeed, a problem to be solved." *Newell*, 864 F.2d at 768. As Petitioner notes (Reply 25), the purported long-felt need was solved by others before the '934 patent's earliest priority date, January 24, 2011. Notably, Ramanathan discloses a method "for displaying an advertisement within an area of empty space of a web-page that is rendered on a user's web browser." Ex. 1005 ¶¶ 2, 3, 6, 10−13. As discussed above in Section E, claims 1−19 are anticipated by Ramanathan, which discloses all of the claim limitations, including identifying "unused space," as defined in the '934 patent, before inserting an advertisement into the unused space. *Id.* ¶¶ 10−13, 75, 76. Therefore, the named inventors of the '934 patent are not the first to meet the purported long-felt need.

Furthermore, Patent Owner's arguments and Dr. Kursh's testimony narrowly focus on the problems identified in the Background Sections of Ramanathan and Parkinson, but fail to appreciate that those are the stated problems that are to be solved by the inventions disclosed in Ramanathan and Parkinson. Patent Owner and Dr. Kursh ignores the known technological advancements disclosed in Ramanathan and Parkinson.

For the foregoing reasons, the objective evidence proffered by Patent Owner regarding long-felt but unsolved needs is accorded little weight.

*Industry praise*

Patent Owner argues that it "has won considerable industry acclaim for its Liqwid Ads internet advertising platform—a commercial embodiment of the claims of the '934 Patent," citing to the Declaration of Mr. Nik

Mentchoukov, who is a named inventor of the '934 patent, for support. PO Resp. 53 (citing Ex. 2003 ¶¶ 6−8; Exs. 2009−2012). Mr. Mentchoukov testifies that "Liqwid Ads has won awards from the Web Marketing Association (WMA) and from the WMA's Internet Advertising Competition (IAC)." Ex. 2003 ¶ 7. Mr. Mentchoukov further testifies that each of the Liqwid website and ads that received an award uses code that practiced the claims of the '934 patent. *Id.*

However, "[a] nexus may not exist where, for example, the merits of the claimed invention were 'readily available in the prior art.'" *ClassCo,*, 838 F.3d at 1220. "[T]he identified objective indicia must be directed to what was not known in the prior art." *Henny Penny Corp. v. Frymaster LLC*, 938 F.3d 1324, 1333 (Fed. Cir. 2019). As discussed above in Section E, the elements of claims 1−19 of the '934 patent are disclosed in Ramanathan. *Id.* ¶¶ 10−13, 75−90. Therefore, Patent Owner fails to establish a nexus between the objective evidence and the merits of the claimed invention.

In the absence of an established nexus with the claimed invention, objective evidence is entitled little weight, and generally has no bearing on the legal issue of obviousness. *See In re Vamco Machine & Tool, Inc.*, 752 F.2d 1564, 1577 (Fed. Cir. 1985). Accordingly, Patent Owner's objective evidence concerning industry praise is accorded little weight.

*Commercial success*

Patent Owner argues that Liqwid Ads are commercially successful. PO Resp. 53. Mr. Mentchoukov testifies that "[b]etween 2012-2017, the

revenue from Liqwid Ads has, on average, at least doubled annually." Ex. 2003 ¶ 9.

However, "[i]f commercial success is due to an element in the prior art, no nexus exists." *Tokai Corp. v. Easton Enters., Inc.*, 632 F.3d 1358, 1369 (Fed. Cir. 2011). As discussed above in Section E, the elements of claims 1−19 of the '934 patent are disclosed in Ramanathan. Ex. 1005 ¶¶ 10−13, 75−90. Therefore, Patent Owner fails to establish a nexus between the objective evidence regarding commercial success and the merits of the claimed invention. In the absence of an established nexus with the claimed invention, objective evidence is entitled little weight, and generally has no bearing on the legal issue of obviousness. *See Vamco*, 752 F.2d at 1564. Accordingly, Patent Owner's objective evidence concerning commercial success is accorded little weight.

In addition, even if the required nexus were established, Patent Owner's objective evidence concerning commercial success is not sufficient to support nonobviousness of the claims of the '934 patent. Patent Owner does not provide any data pertaining to overall market share or the percentage of the market it has acquired, and there is no indication that Patent Owner's sales number represents a substantial quantity in the overall market share. *See In re Baxter Travenol Labs*, 952 F.2d 388, 392 (Fed. Cir. 1991) ("[I]nformation solely on numbers of units sold is insufficient to establish commercial success."). A primary consideration in demonstrating actual commercial success is whether sales of the claimed invention have captured a substantial share of the marketplace. *In re Huang,* 100 F.3d 135,

140 (Fed. Cir. 1996) ("[E]vidence related solely to the number of units sold provides a very weak showing of commercial success, if any.").

Therefore, Patent Owner's objective the evidence also does not demonstrate adequately that Patent Owner's product was commercially successful. As such, we determine that Patent Owner's evidence does not add sufficiently to the record to warrant a conclusion of nonobviousness.

*Conclusion on objective evidence of nonobviousness*

We have weighed Patent Owner's objective evidence of nonobviousness against the evidence of obviousness in the present record. Based on the evidence in this entire record, we conclude that, on balance, the strong evidence of obviousness outweighs the weak evidence of nonobviousness. *See Leapfrog Enters., Inc. v. Fisher-Price, Inc.,* 485 F.3d 1157, 1162 (Fed. Cir. 2007) (holding that the objective considerations of nonobviousness presented, including substantial evidence of commercial success, praise, and long-felt need, were inadequate to overcome a strong showing of primary considerations that rendered the claims at issue invalid); *see also Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1372 (Fed. Cir. 2007) (The Federal Circuit held "that even if Pfizer showed . . . unexpectedly superior results, this secondary consideration does not overcome the strong showing of obviousness in this case. Although secondary considerations must be taken into account, they do not necessarily control the obviousness conclusion.").

Conclusion on Obviousness over Ramanathan

In view of the foregoing, we conclude that Petitioner has established by a preponderance of the evidence that claims 1−19 are unpatentable under § 103 as obvious over Ramanathan in view of the ordinary knowledge and skill in the art.

*G. Ground 3 − Obviousness based on Ramanathan and Flanagan*

Petitioner asserts that claims 15−19 are unpatentable under § 103 as obvious over Ramanathan in view of Flanagan. Pet. 44−46. Petitioner relies upon Ramanathan to teach all of the limitations in claims 15−19, except the limitation discussed below. *Id.* Petitioner argues that, to the extent that Ramanathan is found not to disclose this limitation, the combination of Ramanathan and Flanagan teaches this limitation. Pet. 44−46. Upon consideration of Petitioner's contentions and evidence, we also find Petitioner has demonstrated sufficiently that Ramanathan in view of Flanagan renders claims 15−19 obvious.

As discussed above in Sections E and F, we determine that Petitioner has shown sufficiently that Ramanathan discloses all of the limitations recited in claims 15−19 or renders them obvious.

Claim 15 recites:

> wherein the content distribution server is configured to provide computer-readable code to an application operating on a client computing device through the electronic communication network *responsive to* the application processing markup data for presentation of primary content on a display of the client computing device.

Ex. 1001, 22:35−41 (emphasis added).

Petitioner notes that Flanagan teaches that "[t]here are a number of advantages" to using the "src" attribute to place complex JavaScript code into a separate file, such as simplifying HTML files by removing large blocks of JavaScript from them, making code maintenance easier, and allowing HTML files to be cached by the browser to increase speed. Ex. 1007, 244. Dr. Chatterjee testifies that it would have been obvious to a person of ordinary skill in the art to provide code "responsive to the application processing markup data," as taught by Flanagan. Ex. 1003 ¶ 127. Dr. Chatterjee also testifies that such an artisan would have recognized the benefits of placing Ramanathan's JavaScript code, which identifies empty space and inserts secondary content, in a separate file. *Id.* ¶ 129. Dr. Chatterjee explains that the content distribution server (hosting the JavaScript source code file) would provide the code to the browser when the browser opened the connection to download it, which would be responsive to the browser starting to process the markup data of the web page. *Id.* ¶ 130. Petitioner notes that Flanagan specifically discloses advertising as a relevant use of this technique. Ex. 1007, 244. Petitioner asserts that a person of ordinary skill in the art would have been motivated to combine the teachings of Ramanathan to have the code provided by the server in a separate file, identified by a "src=" tag on the web page, as taught by Flanagan. Pet. 45 (citing Ex. 1003 ¶ 129).

In light of the evidence in this entire record, we determine that Petitioner has shown sufficiently that Ramanathan in combination with Flanagan teaches the aforementioned "responsive" limitation, as recited in claim 15.

Patent Owner does not present separate arguments for this limitation. Rather, Patent Owner argues that Flanagan, either alone or in combination with Ramanathan, does not remedy the purported deficiencies of Ramanathan, relying on the same arguments in connection with Grounds 1 and 2. PO Resp. 41; Sur-reply 14, 17, 20. We already addressed those arguments in our analysis above, and we find those arguments unavailing here for the reasons stated above.

In light of the foregoing, we determine that Petitioner has demonstrated by a preponderance of the evidence that Ramanathan in light of Flanagan teaches all of the limitations recited in claims 15−19 and provides a rationale to combine the prior art teachings.

Patent Owner relies upon the same arguments and evidence of secondary considerations of nonobviousness presented in connection with Ground 2. PO Resp. 51–54; Ex. 2034 ¶ 298; Ex. 2003 ¶¶ 6−9; Exs. 2009−2012. Accordingly, Patent Owner's objective evidence is accorded little weight. We conclude that, on balance, the strong evidence of obviousness based on Ramanathan outweighs the weak evidence of nonobviousness. *See Leapfrog,* 485 F.3d at 1162; *Pfizer*, 480 F.3d at 1372.

In view of the foregoing, we conclude that Petitioner has established by a preponderance of the evidence that claims 1−19 are unpatentable under § 103 as obvious over Ramanathan and Flanagan.

### *H. Ground 4 − Obviousness based on Parkinson and Ramanathan*

Petitioner asserts that claims 1−19 are unpatentable under § 103 as obvious over Parkinson and Ramanathan. Pet. 46−69. To support its

contentions, Petitioner provides detailed explanations as to how the combination of Parkinson and Ramanathan discloses every limitation of the claims, and articulates a rationale to combine the prior art teachings, citing Dr. Chatterjee's testimony for support. *Id.*; Ex. 1003. Patent Owner counters that the prior art combination does not teach several limitations recited in claims 1, 8, and 15, and that Petitioner fails to establish a motivation to combine the teachings. PO Resp. 42−54.

For the reasons provided below, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1–19 are obvious over Parkinson and Ramanathan. Our analysis below focuses on the deficiencies argued by Patent Owner.

Independent Claims 1, 8, and 15

*Identifying unused space*

Petitioner asserts that Parkinson discloses computer-readable code configured to cause a client computer device to identify unused space when an application (web browser) presents primary content within the display (a browser window), as recited in claims 1, 8, and 15. Pet. 46−49, 58, 59, 65.

Patent Owner counters that Parkinson fails to identify unused space because it does not identify either the location or the size of unused space, citing Dr. Kursh's testimony for support. PO Resp. 42−43; Sur-reply 21; Ex. 2034 ¶¶ 42, 79, 112, 113, 127, 236, 247, 248, 252, 253. Patent Owner avers that Parkinson addresses "empty space of web page," not a portion of the display not being used to display primary content, as in the '934 patent. PO Resp. 43; Ex. 2023 ¶ 241.

Upon consideration of the parties' arguments and evidence, we determine that Petitioner has shown sufficiently that Parkinson teaches identifying "unused space," as recited in claims 1, 8, 15. We do not find that Patent Owner's arguments and Dr. Kursh's testimony undermine Petitioner's showing.

As Petitioner notes (Pet. 47), Parkinson discloses that "a web browsing agent on a client computer loads a web page that has opted to serve empty space advertisement" and that "[w]hen the web page loads, client side executable code embedded in the web page executes via a client side code interpreter." Ex. 1006 ¶ 11. Parkinson also describes a client-side module, which "is executable code intended to run on the client computer 131." *Id.* ¶ 35. "[T]he client side code module 204 is [] written in JavaScript (JS) and includes the systems for *detecting empty space*, retrieving advertisements, displaying advertisement, and sending usage data to the ad server 101." *Id.* (emphasis added); Ex. 1003 ¶ 137.

In addition, Parkinson discloses identifying unused space using "[c]omponents within the client side code module [that] are configured to dynamically detect the layout of the content so as to present advertisements in the empty space of a web page." Ex. 1006 ¶ 49. Parkinson also discloses that "[t]he client side code module 204 includes the empty space detection system 301," and "the system detects when the [] user's mouse 212 position on web page 202 is currently selecting content or empty space," allowing "the advertisement to appear at only the times where the user's mouse position is selecting empty space." *Id.* ¶ 52. Parkinson also discloses that the empty space detection system "is used for margin ads 751," which "are

static advertisements that appear in the margins of a given web page." *Id.* ¶¶ 53, 58, Fig. 6.

Figure 6 of Parkinson is reproduced below.

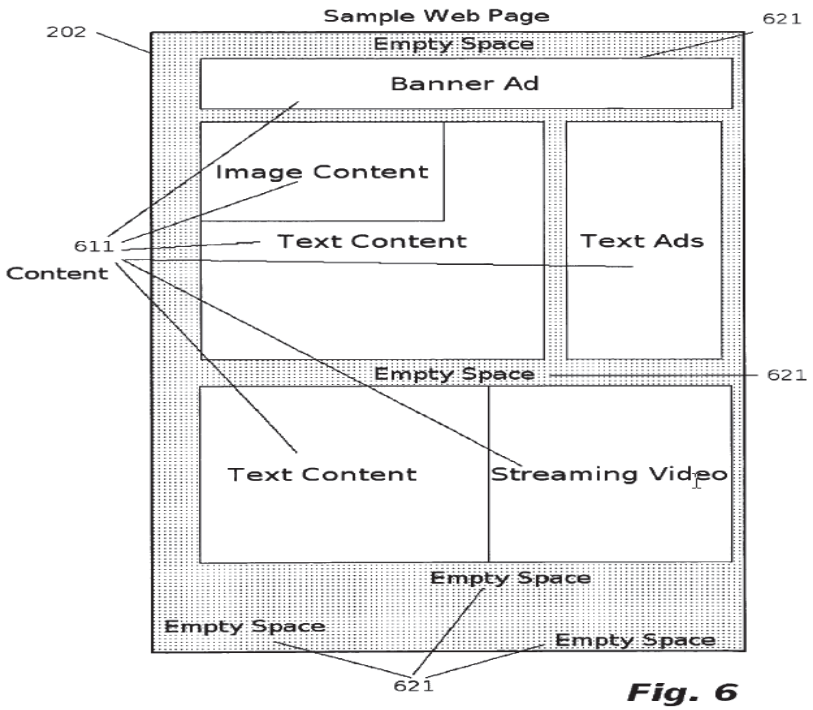



Fig. 6

Figure 6 above depicts web page 202 displaying different types of content 611 and various examples of empty space 621, and advertisements could be placed in empty space 621 to increase revenues for the website owner. *Id.* ¶ 58. Parkinson discloses that "multiple ads may appear within the empty space 621, and display is determined by where the user's mouse position 731 is located." *Id.*

In light of Parkinson's teachings, we determine that Petitioner has demonstrated sufficiently that Parkinson discloses identifying "unused space," as recited in claims 1, 8, and 15.

We are not convinced by Patent Owner's argument and Dr. Kursh's testimony that Parkinson fails to identify unused space because it does not identify either the location or the size of unused space. PO Resp. 42−43; Sur-reply 21; Ex. 2034 ¶¶ 42, 79, 112, 113, 127, 236, 247, 248, 252, 253. Nothing in the claims requires identify both the location and the size of unused space. Patent Owner and Dr. Kursh improperly import extraneous limitations into the claims. *See Hoganas*, 9 F.3d at 950. As discussed above, Parkinson identifies the location of the unused space. Ex. 1006 ¶¶ 35, 49, 52, 53, 58, Fig. 6. As shown in Figure 6 (reproduced above), Parkinson discloses that empty space 621 is on a portion of the display not being used to display primary content 611. *Id.* Parkinson also identifies empty space 621 sufficiently for presentation system 303 to display advertisements in the empty space. *Id.*; *see also id.* ¶ 35 ("[T]he client side code module 204 is a written in JavaScript (JS) and includes the systems for detecting empty space, retrieving advertisements, displaying advertisements."), ¶ 53 ("The system then calculates the dimensions of the ad to be displayed and the margins of the web page. The system takes these two inputs and determines where in the margins of a web page the ad may appear without overlapping other content.").

We also are not convinced by Patent Owner's argument and Dr. Kursh's testimony that Parkinson addresses "empty space of web page," not a portion of the display not being used to display primary content as in the '934 patent. PO Resp. 43; Ex. 2034 ¶ 241. As Dr. Chatterjee testifies, Parkinson detects the position of the user's mouse, which is always within the display and, therefore, a person of ordinary skill in the art would have

understood that the empty space identified based on the mouse position is necessarily "on the display." Ex. 1027 ¶ 62; Ex. 1006 ¶¶ 49, 52. Furthermore, as shown in Figure 6 of Parkinson (reproduced above), empty space 621 is on a portion of the display not being used to display primary content 611. Ex. 1006 ¶¶ 49, 52, 53, 58, Fig. 6.

For the foregoing reasons, Patent Owner's arguments and Dr. Kursh's testimony are unavailing. We determine that Petitioner has shown sufficiently that Parkinson in view of Ramanathan discloses providing computer-readable code configured to cause the client computer device to identify unused space, as recited in claims 1, 8, and 15.

*Creating an element and inserting secondary markup data*

Petitioner asserts that the combination of Parkinson and Ramanathan teaches or suggests creating an element and inserting secondary markup data into the element, as recited in claims 1, 8, and 15. Pet. 50−53. Petitioner argues Parkinson discloses that the client computer "may display the advertisement by executing the client side executable code." *Id.* at 50 (citing Ex. 1006 ¶ 26). According to Petitioner, the client side module (code) in Parkinson may be written in JavaScript and achieves the result that "given any web page, advertisements could be inserted dynamically after the page is already rendered in the regions where empty space exists." *Id.* ¶¶ 35, 49.

Petitioner acknowledges that Parkinson does not expressly describe any particular method of inserting the advertisements. Pet 50. Nevertheless, Petitioner argues that Ramanathan teaches creating a new Div tag, and then inserting the secondary markup data (advertisement) into the new Div, as

discussed in its anticipation analysis for Ground 1. *Id.* (citing Ex. 1005 ¶¶ 75, 76; Ex. 1003 ¶¶ 141, 173).

Upon consideration of the evidence in this entire record, we determine that Petitioner has shown sufficiently that the combination of Parkinson and Ramanathan teaches creating an element and inserting secondary markup data into the element, as recited in claims 1, 8, and 15.

Patent Owner opposes and advances several arguments. PO Resp. 43−54. First, Patent Owner argues that Parkinson does not disclose inserting the advertisement into a web page because Parkinson describes loading the advertisement with the web page (Ex. 1006 ¶¶ 36, 39) and the advertisement is shown or hidden based on a user's activity (*id.* ¶¶ 52−54). PO Resp. 43−44. However, Petitioner did not rely on these portions of Parkinson. Pet. 50−53; Reply 19.

Second, Patent Owner argues that Parkinson does not describe any method of dynamically inserting an advertisement. PO Resp. 44. However, Patent Owner's argument improperly attacks Parkinson individually. Petitioner's asserted ground here is based on a combination of Parkinson and Ramanathan. The test for obviousness is whether the references, taken as a whole, would have suggested the claimed subject matter to a person of ordinary skill in the art at the time the invention was made. *See In re Merck & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986); *In re Keller*, 642 F.2d 413, 426 (CCPA 1981) (noting that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references). Further, as noted above, the claim does not require *dynamically* inserting an advertisement.

Third, Patent Owner argues that Ramanathan does not teach inserting secondary content into the element, relying on the same arguments as in Ground 1. PO Resp. 45. We already addressed those arguments in our anticipation analysis above in Section E, and we find those arguments unavailing here for the reasons stated above.

In light of the foregoing, we determine that Petitioner has shown sufficiently that the combination of Parkinson and Ramanathan teaches creating an element and inserting secondary markup data into the element, as recited in claims 1, 8, and 15. We do not find that Patent Owner's arguments undermine Petitioner's obviousness showing.

*Motivation to combine Parkinson and Ramanathan*

Petitioner asserts that a person of ordinary skill would have been motivated to use Ramanathan's technique in Parkinson because placing the advertisements within a Div tag provides a number of organizational benefits. Pet. 51−53. Dr. Chatterjee testifies that the use of a Div tag would allow users to view a clean organizational structure of the page, dividing the document into discrete sections, which allows identifying the advertisements from the rest of the original content of the page easily. Ex. 1003 ¶ 177 (citing Ex. 1018, 82 ("As defined in the HTML 4.01 and XHTML 1.0 and 1.1 standards, a  tag divides your document into separate, distinct sections. It may be used strictly as an organizational tool [and] it becomes more effective if you add the id and class attributes to label the divisions.")). Dr. Chatterjee testifies that Ramanathan teaches the use of standard HTML,

CSS, and JavaScript, all of which were well known in the art at the time of the invention. *Id.* ¶ 174.

Upon consideration of the evidence in this entire record, we determine that Petitioner has articulated a sufficient reason to combine Parkinson and Ramanathan.

Patent Owner counters that Petitioner fails to establish a motivation to combine the teachings, advancing several arguments. PO Resp. 45−51. First, Patent Owner argues that "Ramanathan *teaches away from* any other methods of inserting or moving advertising content in the web page since other methods are less likely to satisfy the need to deliver ads according to strict requirements for counting the number of impressions of each advertisement." PO Resp. 46−47.

"A reference may be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant." *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994). Thus, the "mere disclosure of alternative designs does not teach away." *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). Furthermore, just because better alternatives exist in the prior art does not mean that an inferior combination is inapt for obviousness purposes. *Gurley*, 27 F.3d at 553.

Patent Owner's theory of teaching away is unavailing. Nothing in Ramanathan teaches away from using Ramanathan's technique of creating a Div element and inserting secondary markup data into the element. Patent Owner's reliance on the contractual restrictions discussed in Ramanathan is

misplaced. PO Resp. 46−47 (citing Ex. 1005 ¶ 71). Ramanathan expressly teaches that "most contracts permit publishers to use CSS positioning to set the page-coordinates of elements that contain advertisements" and a method for inserting advertisements using CSS positioning. Ex. 1005 ¶¶ 72−90; *see also id.* ¶¶ 84, 85 ("Instead of CSS-style of position:absolute, we can also use CSS-style of position:relative" and "we can also choose to write the position coordinates in a CSS-style within the tag itself."). Therefore, the purported contractual restrictions are not applicable to Ramanathan's technique that uses CSS positioning.

Second, Patent Owner argues that one of ordinary skill in the art would not reasonably expect success in using Ramanathan's technique of inserting advertisements in Parkinson because such an artisan would have understood that "Parkinson's 'empty space detection system' is used to display/hide ads, but that Ramanathan expressly rejects this approach by stating that 'advertisements cannot be hidden or made-visible by scripts on the browser-client because of *contractual obligation*,'" relying on Dr. Kursh's testimony for support. PO Resp. 47 (quoting Ex. 2034 ¶ 251) (emphasis added).

However, Patent Owner's argument and Dr. Kursh's testimony are misplaced. Contractual obligation is not a technological incompatibility. PO Resp. 47 (quoting Ex. 2034 ¶ 251). The Federal Circuit has explained that "the fact that the two disclosed apparatus would not be combined by businessmen for economic reasons is not the same as saying that it could not be done because skilled persons in the art felt that there was some technological incompatibility that prevented their combination. Only the

latter fact is telling on the issue of nonobviousness." *Orthopedic Equip. Co., Inc. v. United States*, 702 F.2d 1005, 1013 (Fed. Cir. 1983); *see also Fulton*, 391 at 1200 (Federal Circuit "case law does not require that a particular combination must be the preferred, or the most desirable, combination described in the prior art in order to provide [the] motivation for the current invention."). As noted above, the purported contractual obligation is not applicable to Ramanathan's technique that uses CSS positioning.

Third, Patent Owner argues that "Parkinson requires non-trivial alterations before integrating Ramanathan's ad-appending technique" because "Parkinson downloads ad content and ad modules for a web page at the same time as first loading the web page itself, whereas Ramanathan appends the ad to the web page after the rest of the web page has loaded." PO Resp. 47−48. Patent Owner avers that "[i]f Parkinson were modified to identify empty space only once, that would render the empty space detection system of Parkinson inoperable." *Id.* at 49.

However, "[i]t is well-established that a determination of obviousness based on teachings from multiple references does not require an actual, physical substitution of elements." *In re Mouttet*, 686 F.3d 1322, 1332 (Fed. Cir. 2012); *see In re Etter*, 756 F.2d 852, 859 (Fed. Cir. 1985) (en banc) (noting that the criterion for obviousness is not whether the references can be combined physically, but whether the claimed invention is rendered obvious by the teachings of the prior art as a whole). In that regard, one with ordinary skill in the art is not compelled to follow blindly the teaching of one prior art reference over the other without the exercise of independent judgment. *Lear Siegler, Inc. v. Aeroquip Corp.*, 733 F.2d 881, 889 (Fed.

Cir. 1984); *see also KSR*, 550 U.S. at 420–21 (stating that a person with ordinary skill in the art is "a person of ordinary creativity, not an automaton," and "in many cases . . . will be able to fit the teachings of multiple patents together like pieces of a puzzle").

More importantly, Petitioner merely relies on Ramanathan's technique for creating a Div element and inserting the advertisement into the Div element where Parkinson has identified an empty space. Pet. 50. Ramanathan's technique addresses the needs for increasing effective usage of space on web pages, and reducing waste of high-value space on web pages by filling empty spaces with advertisements. Ex. 1005 ¶¶ 2, 10. "[I]f a technique has been used to improve one device, and a person of ordinary skill in the art would have recognized 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." *KSR*, 550 U.S. at 417.

Here, the evidence of record shows that creating a Div element and inserting markup data (advertisement) into the Div element is not beyond the skill of a pertinent artisan. Ex. 1018, 82, 83. In fact, Patent Owner's evidence discloses that "[t]he div element gives structure and context to any block-level content in a document," that "the author is free to give meaning to each particular div element by virtue of the element's attribute settings and nested content," and that "[i]t is most convenient to use the div element as a wrapper for multi-element content." Ex. 2023, 2, 3. As we discussed in Section E, Ramanathan also teaches how to create a Div tag and insert the markup data into the Div tag to increase "effective usage of space on web-pages" and reduce "wastage of high-value space on web-pages by

filling empty spaces in web-pages with content or advertisement." Ex. 1005 ¶¶ 2, 75, 76. "[W]hen a patent 'simply arranges old elements with each performing the same function it had been known to perform' and yields no more than one would expect from such an arrangement, the combination is obvious." *KSR*, 550 U.S. at 418 (*quoting Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282 (1976)).

Fourth, Patent Owner argues that Parkinson was not deficient in its organization, and that Petitioner fails to provide a reason to insert the advertisement into an element that specifically represents identified unused space within the display. PO Resp. 48. Patent Owner avers that Petitioner does not identify any known problems with Parkinson. *Id.* 50.

However, as Petitioner notes (Pet. 50) and Patent Owner admits (PO Resp. 40), Parkinson does not expressly describe any particular method of inserting the advertisements. Petitioner relies on Ramanathan's technique for creating a Div element and inserting the advertisement into the Div element where Parkinson has identified an empty space. Pet. 50. Ramanathan discloses a known technique for inserting advertisements using a HTML Div element and CSS positioning to increase "effective usage of space on web-pages" and reduce "wastage of high-value space on web-pages by filling empty spaces in web-pages with content or advertisement." Ex. 1005 ¶¶ 2, 75, 76, 84, 85.

A reason to combine or modify the prior art may be found explicitly or implicitly in market forces, design incentives, the "'interrelated teachings of multiple patents,'" "'any need or problem known in the field of endeavor at the time of invention and addressed by the patent,'" and the background

knowledge, creativity, and common sense of the person of ordinary skill. *Perfect Web Techs., Inc. v. InfoUSA, Inc*., 587 F.3d 1324, 1328–29 (Fed. Cir. 2009) (quoting *KSR*, 550 U.S. at 418–21). Dr. Chatterjee testifies that using a Div element would allow users to view a clean organization structure of the page, dividing the document into discrete sections, which allows identifying the advertisements from the rest of the original content of the page easily. Ex. 1003 ¶ 177 (citing Ex. 1018, 82). Indeed, it was well known in the art that "[a]s defined in the HTML 4.01 and XHTML 1.0 and 1.1 standards, a  tag divides your documents into separate, distinct sections," and that "[i]t may be used strictly as an organizational tool [and] it becomes more effective if you add the id and class attributes to the label the divisions." Ex. 1018, 82. Patent Owner's evidence confirms that "[t]he div element gives structure and context to any block-level content in a document," and "[i]t is most convenient to use the div element as a wrapper for multi-element content." Ex. 2023, 2, 3. We credit Dr. Chatterjee's testimony (Ex. 1003 ¶ 177) as it is supported by other evidence of record (Ex. 1018, 82; Ex. 2023, 2, 3).

For the foregoing reasons, we determine that Petitioner has articulated a sufficient reason to combine Parkinson and Ramanathan with supporting evidence. We do not find that Patent Owner's argument and Dr. Kursh's testimony undermine Petitioner's reason to combine the prior art teachings.

*Conclusion as to claims 1, 8, and 15*

In light of the foregoing, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1, 8, and 15 are obvious over Parkinson and Ramanathan.

Dependent claims 2−7, 9−14, and 16−19

Petitioner has accounted for the limitations further recited in each of these dependent claims, citing Dr. Chatterjee's testimony for support. Pet. 53−69. For these claims, Patent Owner relies upon the same arguments presented in connection with independent claims 1, 8, and 15, and does not make any additional arguments. PO Resp. 24, 29, 32. We already addressed those arguments in our analysis above in connection with claims 1, 8, and 15, and we find those arguments unavailing here for the reasons stated above.

Remaining Limitations and Claims

Petitioner accounts for the remaining limitations recited in claims 1, 8, and 15, as well as the limitations recited in claims 2−7, 9−14, and 16−19. Pet. 46−69. Patent Owner does not make any additional arguments regarding these remaining limitations and claims.

Upon consideration of the record, we are persuaded by Petitioner's showing. Petitioner provides detailed explanations as to how the combination of Parkinson and Ramanathan teaches or suggests these remaining limitations and claims, citing Dr. Chatterjee's testimony for support. Pet. 46−69; Ex. 1003 ¶¶ 142−182.

For example, with respect to claims 6, 7, 12, 18, and 19, Petitioner notes that Parkinson discloses that the newly created element is modified (e.g., repositioned) based on a change pertaining to the display (e.g., moving the mouse). Pet. 55−57, 61, 69. Parkinson also discloses that "the system detects when the user's mouse . . . is currently selecting content or empty space" and that "[t]his detection allows the advertisement to appear at only the times where the user's mouse position is selecting empty space." Ex. 1006 ¶ 52. According to Parkinson, "[t]his implementation works by registering mouse listeners and capturing mouse move events." *Id.* Parkinson further discloses that "display characteristics, such as width, height, color depth, and the like . . . may also change periodically, such as if a user *resizes the window*." *Id.* ¶ 50 (emphasis added). Dr. Chatterjee testifies that a person of ordinary skill in the art would have known that moving, showing, or hiding the secondary content is accomplished by changing certain properties, i.e., modifying the markup data. Ex. 1003 ¶ 147. Dr. Chatterjee also testifies that browser windows are typically resized or scrolled using the mouse, and the mouse movement would be detected by Parkinson's "mouse listeners [] capturing mouse move events." *Id.* ¶ 148. Dr. Chatterjee further testifies that a skilled artisan would have understood that advertisements displayed in the empty space would need to be modified (repositioned or hidden), or otherwise the advertisements may obscure the content rather than appear in the empty space. *Id.* ¶ 149. In light of the foregoing, we determine that Petitioner has shown sufficiently that Parkinson in combination with Ramanathan teaches modifying the claimed "element" "in response to detecting a change pertaining to the

display" and in response to scrolling or resizing a browser window, as recited in claims 6, 7, 12, 18, and 19.

As another example, Petitioner asserts that Parkinson in view of Ramanathan discloses selecting content based on the size of the unused space, as recited in claim 13. Pet. 61. Petitioner notes that Parkinson's secondary content is selected for display based on whether it fits in the measured empty space. *Id.* (citing Ex. 1006 ¶ 53 ("The system then calculates the dimensions of the ad to be displayed and the margins of the web page. The system takes these two inputs and determines where in the margins of a web page the ad may appear without overlapping other content."); Ex. 1003 ¶ 157). We determine that Petitioner has shown sufficiently that Parkinson in view of Ramanathan teaches selecting secondary markup data based on a size of the identified unused space, as recited in claim 13.

Upon review of the evidence in this entire record, we determine that Petitioner has shown sufficiently that the combination of Parkinson and Ramanathan teaches all of the limitations recited in claims 1−19, and has articulated a rationale to combine the prior art teachings. We credit Dr. Chatterjee's unrebutted testimony on this subject (Ex. 1003 ¶¶ 142−182).

Objective evidence of nonobviousness

Patent Owner relies upon the same arguments and evidence of secondary considerations of nonobviousness presented in connection with Ground 2. PO Resp. 51–54; Ex. 2034 ¶ 298; Ex. 2003 ¶¶ 6−9;

Exs. 2009−2012. Accordingly, Patent Owner's objective evidence is accorded little weight. We conclude that, on balance, the strong evidence of obviousness based on Parkinson and Ramanathan outweighs the weak evidence of nonobviousness. *See Leapfrog,* 485 F.3d at 1162; *Pfizer*, 480 F.3d at 1372.

Conclusion on Obviousness over Parkinson and Ramanathan

In view of the foregoing, we conclude that Petitioner has established by a preponderance of the evidence that claims 1−19 are unpatentable under § 103 as obvious over Parkinson and Ramanathan.

## *I. Patent Owner's Motion to Exclude*

Patent Owner filed a Motion to Exclude Evidence (Paper 40, "Mot."), seeking to exclude: (1) the statement, "End tag: ; usually omitted in HTML," on page 59 of Exhibit 1018, Chuck Musciano and Bill Kennedy, *HTML & XML: The Definitive Guide*, O'Reilly Media, Inc. (2007) (the "HTML Guide"); (2) Exhibit 1030, the definitions for "detect," "identify," and "measure" from *Merriam-Webster's Collegiate Dictionary* (11th ed. 2004); and (3) portions of Exhibits 1003 and 1027, Declarations of Dr. Chatterjee in support of the Petition and Petitioner's Reply to Patent Owner's Response, respectively. Mot. 1. Petitioner filed an Opposition to Patent Owner's Motion to Exclude Evidence. Paper 43 ("Opp."). Patent Owner filed a Reply to Petitioner's Opposition to its Motion to Exclude Evidence. Paper 49 ("PO Reply").

Patent Owner, as the party moving to exclude evidence, bears the burden of proof to establish that it is entitled to the relief requested—

namely, that the material sought to be excluded is inadmissible under the Federal Rules of Evidence ("FRE"). *See* 37 C.F.R. §§ 42.20(c), 42.62(a) (2018). For the reasons stated below, Patent Owner's Motion is *denied*.

Exhibit 1018 – The HTML Guide

Patent Owner moves to exclude the statement, "End tag: ; usually omitted in HTML," on page 59 of the HTML Guide, Exhibit 1018, as hearsay under FRE 802 and 37 C.F.R. § 42.61(c) to the extent it is relied upon for the truth of the statements. Mot. 5, 6; Ex. 1018, 59.

We are not persuaded by Patent Owner's arguments. We note that the HTML Guide is cited to support Dr. Chatterjee's testimony regarding the state of the art at the time of the invention. Ex. 1003 ¶¶ 40−53.
Dr. Chatterjee lists the HTML Guide as one of the references exemplifying the knowledge of an ordinarily skilled artisan. *Id.* ¶ 42. The HTML Guide describes how a  tag is defined and used in HTML, as defined in the HTML 4.01 standard, including the statement, "End tag ; usually omitted in HTML." Ex. 1018, 58, 59.

As the Federal Circuit explained in *Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359 (Fed. Cir. 2015), we are required to consider prior art references cited as "evidence of the background understanding of skilled artisans." *Id.* at 1365 (holding that references "can legitimately serve to document the knowledge that skilled artisans would bring to bear in reading the prior art identified as producing obviousness," and vacating the Board's decision because the Board had declined to consider a reference) (citing *Randall Mfg. v. Rea*, 733 F.3d 1355, 1362−63 (Fed. Cir. 2013)

("[The knowledge of such an artisan is part of the store of public knowledge that must be consulted.")). Therefore, we must consider the HTML Guide, including the statement, "End tag ; usually omitted in HTML," on page 59 of Exhibit 1018, because it is evidence of "the knowledge that skilled artisans would bring to bear in reading the prior art." *See id.* We decline to exclude the HTML Guide, a reference that we are required to consider in this proceeding for determining the patentability of the claims of the '934 patent.

Furthermore, the HTML Guide is admissible and not hearsay because it is offered as evidence of what it describes, not for proving the truth of the matters addressed in the reference, and the weight to be accorded the HTML Guide is the same as the weight to be accorded any of the other prior art documents. *Cf. Joy Tech., Inc. v. Manbeck*, 751 F. Supp. 225, 233 n.2 (D.D.C. 1990) ("A prior art document submitted as a "printed publication" under 35 U.S.C. § 102(a) is offered simply as evidence of what it describes, not for proving the truth of the matters addressed in the document. Therefore, it is not hearsay under Fed. R. Evid. 801(c)"), *superseded by statute on other grounds*, as stated in *Power Integrations, Inc. v. Kappos*, 6 F.Supp.3d 11, 18 (D.D.C. 2013).

Accordingly, Patent Owner's Motion to Exclude Evidence is denied as to Exhibit 1018.

Paragraphs 42 and 58 of Exhibit 1027 and Exhibit 1030

Patent Owner argues that paragraphs 42 and 58 of Dr. Chatterjee's second Declaration, Exhibit 1027, and the dictionary definitions in Exhibit

1030 should be excluded (1) "under FRE 403 for being needlessly cumulative and of little to no probative value, and as hearsay under FRE 802 and 37 C.F.R. § 42.61(c) to the extent it is relied upon for the truth of statements therein," and (2) "under FRE 402 and 403 because they are irrelevant and have little to no probative value in the context of" the '934 patent. Mot. 10−12. Patent Owner also argues that Dr. Chatterjee does not analyze the cited dictionary definitions in light of the Specification of the '934 patent. PO Reply, 4−5 (citing Ex. 1027 ¶¶ 42, 58).

We are not persuaded by Patent Owner's arguments. As Petitioner explains, the dictionary definitions of "detect," "identify," and "measure" are relevant here "because they are information that Dr. Chatterjee properly used to form his opinions, and to directly rebut the contentions of Patent Owner's expert as to the interpretation of the claims." Opp. 9−10. We do not discern, nor does Patent Owner argue, that there is a special definition for any of these terms set forth in the '934 patent or in the prior art of record, or that these terms have special meanings as used in the context of the '934 patent or prior art. We further agree with Petitioner that the dictionary definitions should not be excluded as hearsay "because they are offered as support for Dr. Chatterjee's opinions on how these common terms are used, and how Patent Owner is offering an incorrect and strained interpretation of the claims." *Id.* at 10.

Notably, Dr. Chatterjee cites to the definitions of "identify" and "measure" to rebut Dr. Kursh's testimony that "Ramanathan provides no teaching regarding '*identifying*' unused space," and that a person of ordinary skill in the art "would find that Ramanathan is limited to *measuring* a space

whose location and width are static (not dynamically identified by computer-readable code." Ex. 1027 ¶ 42 (citing Ex. 2034 ¶ 119) (emphases added). Dr. Chatterjee explains that "Dr. Kursh's admission that a person of ordinary skill would understand Ramanathan to 'measur[e] a space whose location and width are static,' demonstrates that Ramanathan anticipates or renders obvious the claim limitation 'identify unused space.'" *Id.*
Dr. Chatterjee uses the definition of "identify" ("to establish the identity of") and the definition of "measure" ("the dimensions capacity, or amount of something ascertained by measuring") to explain that "[t]he 'something' that is being measured must be identified; otherwise, if the 'something' is not first identified, it cannot be measured." *Id.* (citing Ex. 1030, 4, 5).

In addition, Dr. Chatterjee cites to the definition of "detect" to rebut Dr. Kursh's testimony that, in order meet the limitation recited in claim 6 ("modify one or more of the element . . . in response to *detecting* a change pertaining to the display"), Ramanathan must "'modify' either (1) the element created within the modified markup data and configured to represent unused space or (2) the data inserted in to that element, in response to detecting a change." Ex. 1027 ¶ 54 (quoting Ex. 2034 ¶ 160).
Dr. Chatterjee explains that "Ramanathan teaches exactly what Dr. Kursh states is required," disclosing that "[t]he function repeatedly checks the location of the placeholder and adjusts the position of the advertisement to be always above the placeholder element" and that "the advertisement will always be over the placeholder even if the layout were to change or shift at some later point in time" because the placeholder is used "to indicate the location of the empty space." *Id.* ¶ 55 (quoting Ex. 1005 ¶ 90).

Dr. Chatterjee uses the definition of "detect" ("to discover or determine the existence, presence, or fact of") to explain that it is consistent with Ramanathan's teachings of "repeatedly check[ing] the location of the placeholder." *Id.* ¶ 58 (citing Ex. 1030, 3).

We do not discern that Dr. Chatterjee's usage of the dictionary definitions is unreasonable in the context of the '934 patent and Ramanathan. Dr. Chatterjee provided detailed analysis on the level of ordinary skill and knowledge in the art in the context of the '934 patent, as well as on the teachings and claimed subject matter of the '934 patent and Ramanathan, in his Declaration. *See, e.g.,* Ex. 1003 ¶¶ 36−126.

Moreover, as a non-jury tribunal with administrative expertise, we are well-positioned to determine and assign appropriate weight to the evidence presented in this trial, without resorting to formal exclusion that might later be held reversible error. *See e.g.*, *S.E.C. v. Guenthner*, 395 F. Supp. 2d 835, 842 n.3 (D. Neb. 2005).

Accordingly, Patent Owner's Motion to Exclude Evidence is denied as to Exhibit 1030 and paragraphs 42 and 58 of Exhibit 1027, Dr. Chatterjee's Second Declaration.

Exhibits 1003 and 1027 – Declarations of Dr. Chatterjee

Patent Owner moves to exclude the statement "[t]he ' ' 'end tag' is optional and usually omitted in HTML" in paragraph 49 of Exhibit 1003, Dr. Chatterjee's first Declaration, and in paragraphs 29, 47, 52 of Exhibit 1027, Dr. Chatterjee's second Declaration. Mot. 2−4, 6, 7. According to Patent Owner, Dr. Chatterjee merely repeats the concept that a closing

 tag is optional, without applying scientific, technical or specialized knowledge, or skill in making the assertion, parroting a guidebook, which itself is inadmissible hearsay. *Id.*

We are not persuaded by Patent Owner's arguments. As discussed above, we determine the HTML Guide is not inadmissible hearsay.

In addition, we agree with Petitioner that "Dr. Chatterjee's opinions that the end tag of a Div element is optional are the result of the application his expertise and knowledge as a technical expert in the field of developing web applications." Opp. 1−5. The evidence of record shows that Dr. Chatterjee has a doctorate degree in Computer Science from the Massachusetts Institute of Technology. Ex. 1003 ¶ 7. He has twenty years of experience developing networked, mobile, and web-based software, products, and services. *Id.* ¶¶ 9−12; Ex. 1004, 2−4. Dr. Chatterjee also has extensive experience with technologies related to web-based systems and applications, including HTML and JavaScript and has developed systems that manipulate and change markup data. Ex. 1003 ¶ 9.

In his first Declaration, Dr. Chatterjee provides a description of knowledge of a person of ordinary skill in the art, including how such an artisan would use and understand certain terms and commands in HTML. Ex. 1003 ¶¶ 40−53. That description includes his discussion of how a  tag is defined and used in HTML, and his opinion that the end tag of a Div element is "optional and usually omitted in HTML." *Id.* at ¶ 49. To support his opinion, Dr. Chatterjee cites to a well-known and commonly used references on HTML, including the HTML Guide. *Id.* ¶¶ 41, 42. In his second Declaration, Dr. Chatterjee refers back to his first Declaration

including the discussion of how a  tag is defined and used in HTML. Ex. 1027 ¶¶ 29, 47, 52.

In short, Dr. Chatterjee merely cites to the HTML Guide to support his technical opinions. Indeed, our rule requires expert testimony to disclose the underlying facts or data on which the opinion is based. *See* 37 C.F.R. § 42.65(a) ("Expert testimony that does not disclose the underlying facts or data on which the opinion is based is entitled to little or no weight."). We have reviewed Dr. Chatterjee's Declarations and are not persuaded that the testimony at issue warrants the remedy of exclusion.

Accordingly, Patent Owner's Motion to Exclude Evidence is denied as to Exhibits 1003 and 1027, Dr. Chatterjee's Declarations.

### *J. Petitioner's Motion to Exclude*

Petitioner filed a Motion to Exclude Evidence (Paper 42), seeking to exclude the Declaration of Dr. Kursh (Exhibit 2034).

Under the particular circumstances in this case, we need not assess the merits of Petitioner's Motion to Exclude Evidence. As discussed above, even without excluding Patent Owner's evidence, we have determined that Petitioner has demonstrated by a preponderance of the evidence that claims 1−19 are unpatentable. Accordingly, Petitioner's Motion to Exclude Evidence is *dismissed* as moot.

## III. CONCLUSION

For the foregoing reasons, we conclude that Petitioner has established by a preponderance of the evidence that claims 1−19 of the '934 patent are unpatentable.

## IV. ORDER

For the foregoing reasons, it is

ORDERED that claims 1−19 of the ’934 patent have 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.

In summary:

| **Claims** | **35 U.S.C. §** | **Reference(s)/Basis** | **Claims Shown Unpatentable** | **Claims Not shown Unpatentable** |
|---|---|---|---|---|
| 1−19 | 102 | Ramanathan | 1−19 | |
| 1−19 | 103 | Ramanathan in view of ordinary knowledge and skill in the art | 1−19 | |
| 15−19 | 103 | Ramanathan in view of Flanagan | 15−19 | |
| 1−19 | 103 | Parkinson in view of Ramanathan | 1−19 | |
| **Overall Outcome** | | | 1−19 | |

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Paper 57
Entered: July 29, 2020

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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33ACROSS, INC.,
Petitioner,

v.

LEFTSNRIGHTS, INC. d/b/a LIQWID,
Patent Owner.

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IPR2018-01480
Patent 9,575,934 B2

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Before JEAN R. HOMERE, JONI Y. CHANG, and
BRIAN J. McNAMARA, *Administrative Patent Judges*.

CHANG, *Administrative Patent Judge.*

DECISION
Denying Patent Owner's Request for Rehearing
*37 C.F.R. § 42.71(d)*

# I. INTRODUCTION

33Across, Inc. ("Petitioner") filed a Petition requesting an *inter partes* review of claims 1–19 ("the challenged claims") of U.S. Patent No. 9,575,934 B2 (Ex. 1001, "the '934 patent"). Paper 2 ("Pet."). Upon review of the entire trial record, we entered a Final Written Decision (Paper 54, "FWD") on February 7, 2020, finding Petitioner has established by a preponderance of the evidence that the challenged claims are unpatentable. LeftsnRights, Inc. ("Patent Owner") filed a Request for Rehearing (Paper 55, "Reh'g Req.") of the Final Written Decision.

Before we rendered a decision on the Rehearing Request, Patent Owner appealed to the U.S. Court of Appeals for the Federal Circuit ("Federal Circuit") from the Final Written Decision. Paper 56 (Notice of Appeal). Subsequently, Patent Owner moved to terminate the appeal and remand to the Board. The Federal Circuit issued a Mandate on June 23, 2020, granting Patent Owner's motion and dismissing the appeal as premature. Ex. 3001 (Mandate), 2. In the Mandate, the Federal Circuit stated that it has "jurisdiction only over a final decision of the Board," and "[b]ecause LeftsnRights timely filed a request for rehearing, which remains pending with the Board, there is no final Board decision yet to review." *Id.* at 2 (citing 28 U.S.C. § 1295(a)(4)(A); *In re Arunachalam*, 824 F.3d 987, 988 (Fed. Cir. 2016) (noting finality requirement); *Stone v. INS*, 514 U.S. 386, 392 (1995) (noting that "[t]he timely filing of a motion to reconsider renders the underlying order nonfinal for purposes of judicial review")).

Accordingly, it is clear that we now have jurisdiction to act on the Patent Owner's Rehearing Request. For the reasons discussed below, Patent Owner's Request for Rehearing is denied.

## II. STANDARD OF REVIEW

The party requesting rehearing has the burden to show that the decision should be modified. 37 C.F.R. § 42.71(d). Additionally, the request for rehearing "must specifically identify all matters the party believes the Board misapprehended or overlooked, and the place where each matter was previously addressed in a motion, an opposition, or a reply." *Id.*

## III. ANALYSIS

Patent Owner argues, for the first time in its Requests for Rehearing, "the Administrative Patent Judges (APJs) assigned to this case are not constitutionally appointed, in violation of the U.S. Constitution." Reh'g Req. 2.[1] According to Patent Owner, "[a]lthough the Federal Circuit purported to amend 35 U.S.C. § 6 to address this issue, the court of appeals lacks authority to amend the patent laws, no mandate has issued from the court of appeals in connection with the *Arthrex* decision[2], and nothing appears to have changed the principal officer status of the APJs that instituted, presided over, and decided this case." *Id.* Patent Owner further

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[1] The pages in the Request for Rehearing do not include any page numbers. Our citations refer to the page number of the portable document format (PDF) electronic file.

[2] *Arthrex, Inc. v. Smith & Nephew, Inc.*, 941 F.3d 1320 (Fed. Cir. 2019).

argues that "this case has been instituted, presided over, and decided by unconstitutionally appointed APJs whose decisions are not valid." *Id.* at 3. Patent Owner "requests rehearing of this case by a constitutionally appointed panel of APJs." *Id.*

At the outset, a request for rehearing is not an opportunity to submit new arguments that were not made previously. *See* 37 C.F.R. § 42.71(d). In any event, Patent Owner's arguments are unavailing.

We issued the Final Written Decision in the instant proceeding on February 7, 2020, after the Federal Circuit issued its *Arthrex* decision on October 31, 2019. The Federal Circuit issued a mandate in *Arthrex* on April 6, 2020. *Arthrex, Inc. v. Smith & Nephew, Inc.*, No. 2018-2140, Dkt. No. 119 (Fed. Cir. April 6, 2020).

"[I]t is of no moment that the mandate in *Arthrex* did not issue until after the Board issued its decision." *Document Security Systems, Inc. v. Nichia Corp.*, 2020 WL 3168525, at 1 (Fed. Cir. June 12, 2020). As the Federal Circuit explained, "the stay of a mandate in a circuit case merely delays the return of jurisdiction to the [lower tribunal] to carry out the circuit's judgment in that case. The stay in no way affects the duty of the [tribunals] in the circuit to apply now the precedent established by the circuit case as binding authority." *Id.* at 1−2 (quoting *Martin v. Singletary*, 965 F.2d 944, 945 n.1 (11th Cir. 1992)) (quotation marks omitted).

Moreover, the Federal Circuit has rejected similar Appointments Clause challenges on the ground that the Board judges were deemed constitutionally appointed as of the date that the Federal Circuit issued its precedential decision in *Arthrex*. *Id.*; *Caterpillar Paving Products Inc. v.*

*Wirtgen America, Inc.*, 957 F.3d 1342, 1343 (Fed. Cri. 2020); *see also Arthrex, Inc. v. Smith & Nephew, Inc.*, 953 F.3d 760, 764 (Fed. Cir. 2020) (Moore, J., concurring in denial of rehearing) ("Because the APJs were constitutionally appointed as of the implementation of the severance, *inter partes* review decisions going forward were no longer rendered by unconstitutional panels."). Accordingly, we deny Patent Owner's request for a new panel.

In addition, Patent Owner argues that "the Board should dismiss this case in favor of resolution of Petitioner's arguments before a jury" because "the Seventh Amendment ensures a jury trial." Reh'g Req. 3. However, the Supreme Court of the United States held that "inter partes review does not violate Article III or the Seventh Amendment" of the Constitution. *Oil States Energy Services, LLC v. Greene's Energy Group, LLC*, 138 S. Ct. 1365, 1379 (2018). Therefore, Patent Owner's argument is unavailing.

## IV. CONCLUSION

For the foregoing reasons, Patent Owner has not demonstrated that we misapprehended or overlooked arguments or evidence in determining that Petitioner has established by a preponderance of the evidence that claims 1−19 of the '934 patent are unpatentable. Accordingly, Patent Owner's Request for Rehearing is *denied*.

Final Outcome of Final Written Decision after Rehearing:

| **Claims** | **35 U.S.C. §** | **Reference(s)/Basis** | **Claims Shown Unpatentable** | **Claims Not shown Unpatentable** |
|---|---|---|---|---|
| 1−19 | 102 | Ramanathan | 1−19 | |
| 1−19 | 103 | Ramanathan in view of ordinary knowledge and skill in the art | 1−19 | |
| 15−19 | 103 | Ramanathan in view of Flanagan | 15−19 | |
| 1−19 | 103 | Parkinson in view of Ramanathan | 1−19 | |
| **Overall Outcome** | | | 1−19 | |

## V. ORDER

Accordingly, it is

ORDERED that Patent Owner's Request for Rehearing of our Final Written Decision is *denied*; and

FURTHER ORDERED that, because this is a decision on rehearing of 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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Paper 60
Entered: October 29, 2021

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE OFFICE OF THE UNDERSECRETARY AND DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

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33ACROSS, INC.,
Petitioner,

v.

LEFTSNRIGHTS, INC. d/b/a LIQWID,
Patent Owner.

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IPR2018-01480
Patent 9,575,934 B2

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Before ANDREW HIRSHFELD, *Commissioner for Patents, Performing the Functions and Duties of the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office.*

ORDER

The Office has received a request for Director review of the Final Written Decision in this case. Ex. 3100. The request was referred to Mr. Hirshfeld, Commissioner for Patents, Performing the Functions and Duties of the Under Secretary of Commerce for Intellectual Property and Director of the United States Patent and Trademark Office.

It is ORDERED that the request for Director review is denied; and

FURTHER ORDERED that the Patent Trial and Appeal Board's Final Written Decision is the final decision of the agency.

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## CERTIFICATE OF SERVICE

The undersigned certifies service of the foregoing Patent Owner's Amended Notice of Appeal through the PTAB's E2E system and by USPS Priority Mail Express to the Director at the following:

Office of the General Counsel
United States Patent and Trademark Office
P.O. Box 1450
Alexandria, VA 22313-1450

The undersigned certifies service of the foregoing Patent Owner's Notice of Appeal via the CM/ECF system with the Clerk's Office for the Federal Circuit Court of Appeals.

The undersigned certifies service pursuant to 37 C.F.R. § 42.6(e) of the foregoing Patent Owner's Notice of Appeal via e-mail on Petitioner's counsel of record at the addresses below:

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Dated: December 28, 2021

/Elliott J. Williams/
Elliott J. Williams (Reg. No. 73,172)