IN THE UNITED STATES DISTRICT COURT

FOR THE EASTERN DISTRICT OF VIRGINIA

Alexandria Division

DIALECT, LLC,
Plaintiff,

v. Civil No. 1:23cv581 (DJN)

AMAZON.COM INC., *et al.*,
Defendants.

MEMORANDUM OPINION

In this patent dispute, Plaintiff Dialect, LLC brings claims against Defendants Amazon.com, Inc. and Amazon Web Services, Inc. (together, "Amazon") over the alleged infringement of six patents by Amazon's signature virtual assistant, Alexa.[1] The parties dispute the proper construction of various terms in five of those patents;[2] in connection with those disputes, Amazon seeks to have several claims deemed invalid for indefiniteness. The Court, after carefully considering the evidence and arguments presented, stands ready to resolve the parties' controversies and construe the disputed terms as a matter of law. This Memorandum Opinion sets forth the reasons for its conclusions.

I. BACKGROUND

Dialect initiated this lawsuit on May 1, 2023 (ECF No. 1) and filed an Amended Complaint as of right on July 31, 2023 (ECF No. 35). On August 14, 2023, Amazon moved to

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[1] The operative complaint alleges infringement of seven patents, but only six of those patents remain in controversy.

[2] U.S. Pat. Nos. 7,693,720 (the "'720 Patent"); 8,015,006 (the "'006 Patent"); 8,195,468 (the "'468 Patent"); 9,263,039 (the "'039 Patent") and 9,495,957 (the "'957 Patent") (collectively, the "Disputed Patents"). The parties do not dispute the construction of any terms in the sixth patent at issue in this case, U.S. Pat. No. 8,140,327.

dismiss six counts of the Amended Complaint on the ground that the patent claims asserted in those six counts were directed to patent-ineligible abstract ideas. (ECF No. 37); *see Alice Corp. Pty. Ltd. v. CLS Bank Int'l*, 573 U.S. 208, 216–17 (2014) (describing the "abstract idea" exception to patent eligibility implicit in 35 U.S.C. § 101).

On November 8, 2023, Senior District Judge T.S. Ellis, III, granted Amazon's motion in part and deferred it in part. (ECF No. 59.) Judge Ellis found that one of Dialect's asserted claims, Claim 1 of U.S. Pat. No. 9,031,845 (the "'845 Patent"), was directed to the abstract idea of "using context to execute a spoken request." *Dialect, LLC v. Amazon.com, Inc.* (*Dialect I*), __ F. Supp. 3d __, 2023 WL 7381551, at *4 (E.D. Va. Nov. 8, 2023) (ECF No. 58). Judge Ellis reasoned that the process disclosed by Claim 1 of the '845 Patent, which he described as "understanding language using context, determining whether an on-or off-board processor is to handle that language, and then using that processor to execute the language" was just as abstract as claims invalidated by binding Federal Circuit case law. *Id.* Because Judge Ellis also found that Claim 1 contained no inventive concept, he found Claim 1 invalid as a matter of law. *Id.* at *6. Judge Ellis's decision deferred the remainder of Amazon's motion. *Id.* at *1. In his view, "claim construction and discovery may helpfully inform the [eligibility] analysis." *Id.* at *6. He therefore opted to reevaluate the subject-matter eligibility of Amazon's five remaining challenged patents on summary judgment.

On January 18, 2024, this matter was transferred to the undersigned. (ECF No. 137.) Since that date, the parties have engaged in claim construction briefing (ECF Nos. 158, 159, 170, 171). The Court presided over a claim construction hearing on April 8, 2024. (ECF No. 184.) During that hearing, the Court proposed constructions of the parties' disputed terms and ordered supplemental briefing on those proposed constructions. (ECF No. 185 ("Suppl. Br. Order").)

That briefing has since taken place.[3] (ECF Nos. 198 ("Defs.' Suppl. Br."), 199 ("Pl.'s Suppl. Br.").) The terms at issue thus stand ripe for construction.

II. LEGAL STANDARDS

A. Guiding Principles of Claim Construction

"The proper construction of a patent" constitutes a question of law "exclusively within the province of the court." *Markman v. Westview Instruments, Inc.* (*Markman II*), 517 U.S. 370, 372 (1996). This principle holds true even though "subsidiary factfinding is sometimes necessary" to properly construe a patent term. *Teva Pharms. USA, Inc. v. Sandoz, Inc.*, 574 U.S. 318, 326 (2015). Courts operate independently in this area and "are not bound by the parties' arguments as to claim construction." *Sony Corp. v. Iancu*, 924 F.3d 1235, 1240 (Fed. Cir. 2019). Accordingly, a court "may adopt a definition not proposed by either party" if that construction "best fits" the evidence before it. *Homeland Housewares, LLC v. Whirlpool Corp.*, 865 F.3d 1372, 1376 (Fed. Cir. 2017).

Federal Circuit precedent establishes the legal framework that governs claim construction. To begin, "[c]laim terms are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art." *Unwired Planet, LLC v. Apple Inc.*, 829 F.3d 1353, 1358 (Fed. Cir. 2016). In other words, claim terms must be presumed to carry "the meaning that the term would have to a person of ordinary skill in the art in question at the time of the invention, i.e., as of the effective filing date of the patent application." *Phillips v. AWH Corp.*, 415 F.3d 1303, 1313 (Fed. Cir. 2005) (en banc). Thus, because patents are not written for

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[3] The parties' supplemental briefs accede to the Court's proposed constructions of various terms. (Defs.' Suppl. Br. at 1 ("Amazon does not propose below any changes to the Court's constructions of [seven terms]."); Pl.'s Suppl. Br at 1 (accepting the Court's proposals for two terms).) To provide a full explanation of the Court's reasoning, this Memorandum Opinion discusses each term as it was originally contested by the parties, even if a party later agreed with the Court's alternative construction.

lawyers or laymen, "the court must apply the same understanding as that of persons knowledgeable in the field of the invention." *Merck & Co. v. Teva Pharms. USA, Inc.*, 347 F.3d 1367, 1370 (Fed. Cir. 2003).

To determine the ordinary and customary meaning of a claim term, a court must begin "by considering the language of the claims themselves." *Trs. of Columbia Univ. v. Symantec Corp.*, 811 F.3d 1359, 1362 (Fed. Cir. 2016). However, a court cannot end there, as "claims must be read in view of the specification, of which they are a part." *Phillips*, 415 F.3d at 1315 (quoting *Markman v. Westview Instruments, Inc.* (*Markman I*), 52 F.3d 967, 979 (Fed. Cir. 1995) (en banc), *aff'd*, 517 U.S. 370 (1996)). The specification — that is, the "written description of the invention" that must accompany a patent application, 35 U.S.C. §§ 111(a)(2)(A), 112, ¶ 1 — serves as the "single best guide to the meaning of a disputed term." *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996). These sources of meaning — the claim language and specification — compose "intrinsic evidence,"[4] the court's primary and most important tool of claim construction.

When construing claims, courts may reach beyond intrinsic evidence and consult "extrinsic evidence" not in the patent itself. *Phillips*, 415 F.3d at 1317. "[E]xpert and inventor testimony, dictionaries, and learned treatises" constitute the most common forms of extrinsic evidence. *Id.* (quoting *Markman I*, 52 F.3d at 980). Extrinsic evidence is generally viewed as "less reliable" than intrinsic evidence. *Id.* at 1318. For instance, although "technical dictionaries . . . can assist the court in determining the meaning of particular terminology to those of skill in

[4] As part of the intrinsic evidence inquiry, a court "should also consider the patent's prosecution history, if it is in evidence." *Phillips*, 415 F.3d at 1317 (quoting *Markman I*, 52 F.3d at 980). Here, the parties placed no prosecution history into evidence, so the Court does not take prosecution history into account.

the art of the invention," "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 1318, 1321. Expert testimony should also be treated with caution, as "expert reports and testimony [are] generated at the time of and for the purpose of litigation and thus can suffer from bias that is not present in intrinsic evidence." *Id.* at 1318. Treatises, in turn, "may not be written by or for skilled artisans and therefore may not reflect the understanding of a skilled artisan in the field of the patent." *Id.* For these reasons, although extrinsic evidence may be consulted, it generally has "less significance" than intrinsic evidence and cannot be used to contradict an unambiguous intrinsic record. *Profectus Tech. LLC v. Huawei Techs. Co.*, 823 F.3d 1375, 1380 (Fed. Cir. 2016).

Once ordinary and customary meaning has been determined by reference to intrinsic and extrinsic evidence, that determination usually governs. However, "when a patentee sets out a definition and acts as [its] own lexicographer," that definition displaces ordinary and customary meaning. *Kyocera Senco Indus. Tools Inc. v. Int'l Trade Comm'n*, 22 F.4th 1369, 1378 (Fed. Cir. 2022) (quoting *Thorner v. Sony Computer Ent. Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012)). "'To act as its own lexicographer, a patentee must clearly set forth a definition of the disputed claim term other than its plain and ordinary meaning' and must 'clearly express an intent to redefine the term.'" *Id.* Phrases akin to "'as used herein' and 'refer to'" typically disclose a "definitional intent" and thereby satisfy this rule. *Parkervision, Inc. v. Vidal*, 88 F.4th 969, 976 (Fed. Cir. 2023). Where such language appears in the specification, the patentee's lexicography defeats the general rule of ordinary and customary meaning. *Id.*

B. Indefiniteness and Means-Plus-Function Claiming

If a patent claim fails to "particularly point[] out and distinctly claim[]" its subject matter, the claim is indefinite and violates the Patent Act. 35 U.S.C. § 112, ¶ 2.[5] "[F]ailure to comply" with this requirement results in the "[i]nvalidity of the patent or any claim in suit" and may be asserted as an affirmative defense to infringement. 35 U.S.C. § 282(b)(3)(A).[6] "[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention." *Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). Specifically, an indefiniteness analysis must adopt the perspective "of a skilled artisan at the time of the patent application, not that of a court viewing matters *post hoc*." *Id.* at 911. In other words, if a claim's language fails to "provid[e] clarity such that a person of ordinary skill in the art could determine whether or not an accused product or method infringes the claim," that claim cannot be enforced. *Niazi Licensing Corp. v. St. Jude Med. S.C., Inc.*, 30 F.4th 1339, 1346–47 (Fed. Cir. 2022).

Claims can be "invalid for indefiniteness under 35 U.S.C. § 112, [¶] 2" if they contain limitations that recite only function without "disclos[ing] any structure corresponding to [that]

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[5] In 2011, Congress recodified 35 U.S.C. § 112, ¶ 2, as 35 U.S.C. § 112(b). Leahy-Smith America Invents Act (the "AIA"), Pub. L. No. 112-29, § 4(c)(2)(A), 125 Stat. 284, 296; *see id.* at § 4(e), 125 Stat. at 297 (applying this amendment to "any patent application" filed over a year after the AIA's effective date). Each of the Disputed Patents was filed before the AIA entered into force, so the parties' briefing cites the pre-AIA paragraphs. Although nothing turns on the Court's terminology, the Court does the same.

[6] Because a patent and each of its claims "shall be presumed valid," "[t]he burden of establishing invalidity of a patent or any claim thereof" falls on "the party asserting such invalidity." 35 U.S.C. § 282(a). Where invalidity depends on questions of fact, the party asserting invalidity must prove those facts "by clear and convincing evidence." *Microsoft Corp. v. i4i Ltd. P'ship*, 564 U.S. 91, 95 (2011); *see id.* at 114 (Breyer, J., concurring) (emphasizing that the clear and convincing standard "has no application" where validity turns on how legal standards "apply to the facts as given").

function." *Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1354 (Fed. Cir. 2015) (en banc in part). Such limitations, commonly called "means-plus-function" limitations, are governed by 35 U.S.C. § 112, ¶ 6 (recodified prospectively as 35 U.S.C. § 112(f) by AIA § 4(c)(6), 125 Stat. at 296). Under Paragraph 6, "an applicant can describe an element of his invention by the result accomplished or the function served, rather than describing the item or element to be used (e.g., 'a means of connecting Part A to Part B,' rather than 'a two-penny nail')." *Warner-Jenkinson Co., Inc. v. Hilton Davis Chem. Co.*, 520 U.S. 17, 27 (1997). However, "such [a] claim shall be construed to cover [only] the corresponding structure, material, or acts described in the specification." 35 U.S.C. § 112, ¶ 6. The Patent Act thus gives patentees two different options:

> (1) recite, in the claim, a function without reciting structure for performing the function and limit the claims to the structure, materials, or acts disclosed in the specification (or their equivalents), in which case [Paragraph] 6 applies, or (2) recite both a function and the structure for performing that function in the claim, in which case [Paragraph] 6 is inapplicable.

Dyfan, LLC v. Target Corp., 28 F.4th 1360, 1365 (Fed. Cir. 2022).

Paragraph 6 indefiniteness analysis proceeds in two steps. *Id.* First, the court must determine whether Paragraph 6 applies — that is, whether the claim limitation qualifies as a means-plus-function term. *Williamson*, 792 F.3d at 1349. If the limitation in question uses the word "means," there exists a rebuttable presumption that Paragraph 6 governs the construction of the limitation. *Rain Computing, Inc. v. Samsung Elecs. Am., Inc.*, 989 F.3d 1002, 1007 (Fed. Cir. 2021). Conversely, "[t]he failure to use the word 'means' creates a rebuttable presumption that [Paragraph] 6 does not apply." *Zeroclick, LLC v. Apple Inc.*, 891 F.3d 1003, 1007 (Fed. Cir. 2018). In the latter case, a patent challenger bears the burden of establishing that Paragraph 6 applies "by a preponderance of the evidence." *Advanced Ground Info. Sys., Inc. v. Life360, Inc.*, 830 F.3d 1341, 1347 (Fed. Cir. 2016). A challenger can carry this burden by demonstrating "that the claim term fails to recite sufficiently definite structure or else recites function without

reciting sufficient structure for performing that function." *Williamson*, 792 F.3d at 1348. In other words, if a limitation lacks the word "means," the essential inquiry becomes whether the limitation features "a sufficiently definite meaning as the name for structure" to a person of ordinary skill in the art. *Id.* If it does not, Paragraph 6 governs.

If Paragraph 6 governs a limitation, a court must apply the statute by determining "what structure, if any, disclosed in the specification corresponds to the claimed function." *Id.* at 1351. "Under this second step, structure disclosed in the specification is corresponding structure only if the specification or prosecution history clearly links or associates that structure to the function recited in the claim." *Sony Corp.*, 924 F.3d at 1239. If corresponding structure can be found, the limitation must be construed to cover only that corresponding structure, as Paragraph 6 requires. However, if no adequate corresponding structure appears in the specification, the claim is indefinite and therefore void. *Rain Computing*, 989 F.3d at 1007.

III. PERSON OF ORDINARY SKILL IN THE ART

At the outset, the parties dispute the level of education needed for a person to have "ordinary skill in the art." Dialect proposes the following level of education and experience: "at least a bachelor-level degree in computer science, computer engineering, electrical engineering, engineering, or a related field, and two years of experience with speech recognition, natural language processing, engineering, and/or equivalent education, research experience, or knowledge." (ECF No. 159 ("Pl.'s Br.") at 8.) Amazon's expert, by contrast, opines that a person of ordinary skill in the art at the relevant time "would have had a Bachelor's degree in Computer Science, Computer Engineering, Electrical Engineering, or a related field in computing technology, and at least two years of computer science (or related) experience with automatic speech recognition and natural language understanding, or equivalent education, research, experience, and knowledge," although "with more experience, less education may be

needed, and vice versa." (ECF No. 158-1 ("Johnson Decl.") ¶ 45.) Amazon objects to Dialect's standard, because in its words, "Dialect's definition of the level of ordinary skill in the art is overly broad." (ECF No. 175 ("Defs.' Reply") at 3 n.4.)[7] As Amazon sees it, Dialect's definition of a person with ordinary skill in the art goes too far by allowing "anyone with a bachelor's degree in any kind of engineering and two years of experience in any kind of engineering," because "[t]he patents are directed to the specific fields of voice recognition and natural language understanding — not engineering in general." (*Id.* (cleaned up).)

The Court finds Amazon's argument convincing. Each of the patents in this case concerns computer engineering and computer programming. Dialect's standard would allow a civil engineer with two years of experience designing bridges to qualify as a person of ordinary skill in the art. Such a person would struggle to understand the circuits, flowcharts and modules described in the patents here. The "field of the invention" should not be drawn that broadly. *Merck & Co.*, 347 F.3d at 1370.[8] Accordingly, to the extent that this question remains disputed, the Court will adopt Amazon's view of the level of experience possessed by a person of ordinary skill in the art.

IV. CLAIM CONSTRUCTION ANALYSIS

A. "Context"

The noun "context"[9] appears frequently in each of the five Disputed Patents. Dialect asserts that "[t]he term 'context' needs no construction," because it "has a plain and ordinary

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[7] Dialect disagrees with Amazon's definition, but it maintains that its arguments "apply with equal force" regardless of which standard the Court adopts. (ECF No. 170 ("Pl.'s Reply") at 1 n.1.)

[8] Indeed, Dialect argues elsewhere that the claim terms at issue should be construed in the specific technological context of "natural language understanding." (Pl.'s Reply at 5–6.)

[9] '720 Pat. cls. 1, 31; '006 Pat. cls. 1, 2, 4, 5, 10; '468 Pat. cls. 19, 28; '039 Pat. cls. 17, 18.

meaning that is easily understood by a person of ordinary skill in the art." (Pl.'s Br. at 9; ECF No. 199 ("Pl.'s Suppl. Br.") at 1 & n.1.) Amazon, by contrast, argues for a technical meaning: "a domain or application area that defines a set of questions that can be activated or deactivated during a conversation." (ECF No. 158 ("Defs.' Br.") at 4.)

In large part, the parties' disagreement finds fuel in the specifications' use of both a broad, lay meaning of "context" and a narrower, more technical meaning, resulting in a tangle of terms that can be unraveled by focusing on the Disputed Patents' use of definite and indefinite articles.[10] The Disputed Patents frequently refer to "the context" of an utterance or input in a manner that associates that term with the lay meaning of the noun "context." By contrast, the Disputed Patents refer to "a context" to identify a specialized meaning for the term. Only the latter, technical meaning ("a context") appears in the Disputed Patents' claims. The parties' confusion thus arises from their attempts to construe the word "context" alone.

In the Court's view, both parties' constructions of the bare term "context" are wrong. Dialect's construction exploits the specifications' occasional use of the broad meaning of "context" to argue that the word's lay meaning must govern everywhere. Amazon's construction would import limitations from the specifications back into the claims and render "context" largely redundant of "domain." The Court, after distinguishing "the context" from "a context" and articulating the flaws in the parties' proposals, proceeds to adopt its own construction.

1. Dialect's Construction

Dialect asserts that "[t]he term 'context' needs no construction," because it "has a plain and ordinary meaning that is easily understood by a person of ordinary skill in the art." (Pl.'s Br. at 9.) Dialect quotes extensively from the claims and specifications in support of this position,

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[10] Counsel for Amazon acknowledged this overlap at oral argument, though counsel for Dialect did not. (ECF No. 191 ("Hr'g Tr.") at 13:23–25 (Amazon), 14:16–20 (Dialect).)

but it nowhere explains in writing what this supposed "plain and ordinary meaning" actually is. Dialect's reply and supplemental brief double down, asserting that "context" has some plain and ordinary meaning that Dialect refuses to disclose.[11] (Pl.'s Reply at 2; Pl.'s Suppl. Br. at 1.) But Dialect's position, if accepted, would result in both an error of discretion and an error of construction. The Court must set it aside.

a. Failing to Adopt a Construction Would Constitute Error

The Court cannot decline to construe "context" entirely; doing so would fail to resolve the parties' dispute and impermissibly delegate the task of construction to the jury. The Court must instead guarantee that "questions of the scope of the patent claims are not left to the jury" by ensuring that "disputes concerning the scope of the patent claims are fully resolved." *Every Penny Counts, Inc. v. Am. Express Co.*, 563 F.3d 1378, 1383 (Fed. Cir. 2009). "A determination that a claim term 'needs no construction' or has the 'plain and ordinary meaning' may be inadequate when a term has more than one 'ordinary' meaning or when reliance on a term's 'ordinary' meaning does not resolve the parties' dispute." *O2 Micro Int'l Ltd. v. Beyond Innovation Tech. Co.*, 521 F.3d 1351, 1361 (Fed. Cir. 2008). As the Federal Circuit has repeatedly made clear, punting in such a manner would constitute "legal error." *Eon Corp. IP Holdings v. Silver Spring Networks*, 815 F.3d 1314, 1319 (Fed. Cir. 2016) (collecting cases and citing *O2 Micro*, 521 F.3d at 1362). Disputed terms must be construed.

Seeking to avoid this conclusion, Dialect argues that the Court need not "construe 'context' simply because Amazon disputes its meaning." (Pl.'s Suppl. Br. at 1 n.1.) Dialect

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[11] Only at oral argument did Dialect state that, in its view, the plain and ordinary meaning of "context" was "the setting or situation in which an event or user input occurs." (Hr'g Tr. at 13:15–16.) Because Dialect never articulated or defended this definition in any of its three briefs, the Court declines to undertake its own analysis of whether that construction would be proper.

submits, for example, that *O2 Micro* does not mean what it says, because in that case, the trial court failed to resolve the parties' dispute "over the plain and ordinary meaning" of the claim term itself rather than choosing between ordinary and specialized meaning. (*Id.* (citing *O2 Micro*, 521 F.3d at 1361–62).) Dialect insists that *Eon Corp.*'s holding was "similar." (*Id.* (citing *Eon Corp.*, 815 F.3d at 1319–20).)

Dialect misconstrues *Eon Corp.* There, the Federal Circuit made clear that "simply rejecting one proposed construction does not mean that a general jury instruction to give terms their plain and ordinary meaning resolves the relevant dispute." *Eon Corp.*, 851 F.3d at 1320. As that case held, a court errs by "simply instructing the jury" to give disputed terms "their plain and ordinary meaning" where that instruction fails to "provide the jury with a clear understanding of the disputed claim scope." *Id.* Dialect, it seems, pushes this Court to go even farther than the district court reversed by the Federal Circuit in *Eon Corp.* As that case's dissenting opinion noted, the district court there at least "referred" to "two dictionary definitions" to define the disputed terms for the jury. *Id.* at 1324 (Bryson, J., dissenting). Here, Dialect does not provide even that much, and it gives the Court no reason to doubt Amazon's argument that simply intoning "plain and ordinary meaning" would "confuse the jury and invite an improper battle of the experts at trial." (Defs.' Reply at 8.) The Court will not make such a mistake.

b. Even if "Plain and Ordinary Meaning" Were a Permissible Construction, It Would Be Wrong

Even if "plain and ordinary meaning" could be adopted under these circumstances, such a construction of "context" would not account for the intrinsic evidence present in the Disputed Patents. Dialect's position must be conclusively rejected.

First, Dialect argues from authority, but that authority fails to persuade. Dialect's briefing relies on a decision by the District of Delaware in a related case. (Pl.'s Br. at 9; Pl.'s

Reply at 3–4 (quoting and citing *VB Assets, LLC v. Amazon.com, Inc.*, C.A. No. 19-1410, 2021 WL 2582347, at *1, *5 (D. Del. June 23, 2021)).) There, the court declined to construe the term "context" in a different lawsuit over a distinct patent family developed by the inventors of the Disputed Patents. But the *VB Assets* Court's decision to do so leaves little reasoning for this Court to follow. The *VB Assets* Court's claim construction decision came in the form of an unpublished memorandum order whose analysis of the term "context" runs only two paragraphs long. In addition, the patents construed there used "context" in a manner more clearly tied to its lay meaning. *See, e.g.*, U.S. Pat. No. 8,073,681 col. 19, ll. 39–40 (reciting "one or more words that have different meanings in different contexts"); U.S. Pat. No. 7,818,176 col. 12, ll. 26–28 (reciting that "interpreting the recognized words or phrases includes establishing a context for the natural language utterance"). The Court respectfully declines to defer to the *VB Assets* Court's conclusion.

By contrast with the claims before the *VB Assets* Court, the claims in which "context" appears in this case use the term in a manner farther from its lay meaning. The following excerpts are representative:

- "[T]he parser interprets the recognized words or phrases by[] determining *a context* for the natural language speech utterance [and] selecting at least one of the plurality of domain agents based on the determined context." '720 Pat. col. 32, ll. 54–59 (emphasis added).

- "[P]arsing . . . the one or more recognized words or phrases to determine . . . *a context* associated with the request contained in the utterance," with that "determined context" being associated with "the one or more recognized words or phrases" as well as "a domain agent." '006 Pat. col. 26, ll. 5–16 (emphasis added).

- "[D]etermining *a most likely context* for the multi-modal input . . . [and] identifying a domain agent associated with the most likely context for the multi-modal input." '468 Pat. col. 40, ll. 64–67 (emphasis added).

In ordinary language, determining "context" requires considering all the circumstances that surround a particular statement or act — here, a user input.[12] Because every user input is generated in a different setting, at a different time, in a different place, by a different person and with different surrounding statements, there can be potentially infinite contexts for a particular user input. In other words, "context" (or "the context") usually denotes a gestalt, a bespoke sum of the circumstances unique to the thing being contextualized. Here, however, the claims transform "context" into a discrete term, i.e., into a data type that a computer can understand. The fact that the term "context stack" refers to a data structure only reinforces this conclusion. *See infra* Section IV.B. In order for a context stack to "include[] one or more contexts," "context" must refer to some variable that can be stored in as computer code. '039 Pat. col. 31, ll. 12–13. "Context" in its lay sense (that is, "the context" of an input) has no such discrete form.

A recurring example used by the Disputed Patents provides additional evidence against a "plain and ordinary" reading of "context." Each of the Disputed Patents' specifications describes a hypothetical situation where a user provides the invention the ambiguous question "what about flight one hundred and twenty too?" '720 Pat. col. 28, ll. 57–62.[13] In each hypothetical, the user's question may plausibly refer to (i) Flight 100 and Flight 20, too; (ii) Flight 100 and Flight 22; or (iii) Flight 122. The specifications then recite that the invention's "parser and

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[12] *See, e.g.*, *Context (n.)*, sense 4.a, Oxford Eng. Dict. (last updated July 2023) ("The whole structure of a connected passage regarded in its bearing upon any of the parts which constitute it; the parts which immediately precede or follow any particular passage or 'text' and determine its meaning.") [https://doi.org/10.1093/OED/9743317229]; *Context (n.)*, sense 1, Am. Heritage Dict. (5th ed. 2011) ("The part of a text or statement that surrounds a particular word or passage and determines its meaning."); *id.* at sense 2 ("The circumstances in which an event occurs; a setting.").

[13] Each of the hypotheticals provided has substantively identical content. '006 Pat. col. 18, ll. 43–49; '468 Pat. col. 34, l. 66–col. 35, l. 4; '957 Pat. col. 35, ll. 58–63; '039 Pat. col. 22, ll. 10–17. This passage treats the '720 Patent's specification as representative.

domain agent use flight information in the database and network information *along with* context to determine the most plausible interpretation." '720 Pat. col. 28, ll. 58–61 (emphasis added). However, in contrast with the specifications' usage, a layperson would expect database and network information to qualify as "context." For instance, if flight information in the database indicates that no Flight 122 services the airport at issue, that fact would constitute relevant context in the lay sense. If the specifications used the lay sense of "context," the quoted passage might instead have recited that the invention's "parser and domain agent use context such as flight information in the database and network information to determine the most plausible interpretation." But the Disputed Patents say something different. By stating that flight information operates alongside context rather than constituting an example of it, the specifications imply that the meaning of "context" has insufficient breadth to cover flight information. Thus, the proper construction of "context" in the Disputed Patents appears to be narrower than and different from its lay meaning.

A final piece of intrinsic evidence reinforces that "context," as used in the claims, cannot bear its "plain and ordinary" meaning and that "a context" cannot mean "the context." The '006 Patent recites determining "a context" for an utterance by parsing recognized words or phrases in that very same utterance. '006 Pat. col. 26, ll. 5–16. In ordinary lay speech, however, the context of an utterance necessarily lies *outside* the utterance itself. For all these reasons, Dialect's position regarding "context" — as used in these particular claims of these particular patents — cannot be correct.

2. Amazon's Construction

Amazon's briefs correctly and accurately recite the way that the various specifications deploy the term "context." However, usage by itself does not automatically constitute meaning. The Federal Circuit has warned lower courts to heed the important "distinction between using the

specification to interpret the meaning of a claim and importing limitations from the specification into the claim," difficult as that fine line may be to discern. *Phillips*, 415 F.3d at 1323. Amazon's arguments fall on the wrong side of that line.

Amazon's reading must fail, because adopting it would inappropriately import specific embodiments into the claims.[14] Amazon argues that "context" should be construed to require "defin[ing] a set of questions," because "[t]he claims consistently recite using the determined context to identify a question." (Defs.' Br. at 4–5.) In support of this construction, Amazon relies on a recurring sentence from the Disputed Patents' specifications: "The voice query language may be sensitive to the contents of the context stack, wherein a context defines a set of questions that can be activated or deactivated during a conversation." (*Id.* at 5 (quoting '468 Pat. col. 32, ll. 55–38)); *see* '039 Pat. col. 20, ll. 1–4 (same); '957 Pat. col. 33, ll. 44–47 (same). However, Amazon neglects to mention that, in each of its quoted paragraphs, the specifications use the word "may" and refer only to "one embodiment" of the invention. *Id.* Amazon's specific language thus originates from one specific embodiment of the invention disclosed in the patents rather than a general, all-purpose definition of the term "context" itself. The Federal Circuit has "repeatedly cautioned" lower courts that "claims should not be limited to preferred embodiments or specific examples in the specification." *VLSI Tech. LLC v. Intel Corp.*, 53 F.4th 646, 652 (Fed. Cir. 2022) (quotation omitted). Adopting Amazon's "defines a set of questions"

[14] Embodiments constitute specific examples of the invention claimed by a patent. *See, e.g.*, *Thorner*, 669 F.3d at 1364 & fig.2 (displaying "many different embodiments of the invention").

clause would disregard the Federal Circuit's cautions and thereby "import[] limitations from the specification into the claim." *Phillips*, 415 F.3d at 1323.[15]

Once the Court sets aside Amazon's "defines a set of questions" clause, all that remains of Amazon's construction of "context" is the bare phrase "a domain or application area." (Defs.' Br. at 4.) That construction cannot be right. Both "context" and "domain" appear frequently in the claims and specifications; nothing suggests that the patentees used the terms interchangeably. Were the Court to hold otherwise, serious redundancy would result, and the resulting construction would disregard the principle that distinct terms should carry distinct meanings. *See Kyocera Senco*, 22 F.4th at 1382 (stating that where "claims list [two] elements separately," the Federal Circuit "presum[es] that those components are distinct"); *SimpleAir, Inc. v. Sony Ericsson Mobile Commc'ns AB*, 820 F.3d 419, 431 (Fed. Cir. 2016) (a construction that "would equate" two terms "is implausible"). Indeed, as Amazon itself notes, the specifications state that context *determines* domain. (*Id.* at 5 (quoting '720 Pat. col. 27, ll. 60–65).) It stands to reason that "context" and "domain" cannot refer to the same concept. Amazon's construction of "context," like Dialect's, therefore falls short.

3. The Court's Construction

Both parties' constructions invite legal error, so the Court must strike out on its own. The foregoing discussion indicates that the "determined context" of an utterance, as used in the claims at issue, must be distinct from "domain," must be able to be stored in a "context stack"

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[15] Additionally, if the ordinary and customary meaning of "context" incorporated defining a set of questions, that meaning would be disfavored as redundant, because there would then be no need for the Disputed Patents to specify that "a context defines a set of questions that can be activated or deactivated during a conversation." (Defs.' Br. at 5 (quoting '468 Pat. col. 32, ll. 55–58).) On Amazon's reading, that entire clause would be surplusage — a highly disfavored result. *See Intel Corp. v. Qualcomm Inc.*, 21 F.4th 801, 809–10 (Fed. Cir. 2021) (collecting cases disfavoring constructions that render terms "void, meaningless, or superfluous.").

and must be able to be derived from the utterance itself. The specifications prove instructive in narrowing the meaning of "a context" further. An especially pertinent passage of the '720 Patent's specification follows:

> The context of a question or command may determine the domain and thereby, the domain agent **156**, if any, to be invoked. For example, a question with the keyword[] "temperature" implies *a context value* of weather for the question. Within a different dialog, the keyword "temperature" can imply a context for a measurement.

'720 Pat. col. 27, l. 63–col. 28, l. 1 (emphasis added). This passage teaches that the "context value" for an utterance containing the word "temperature" could be "weather" or "measurement." Such a single-word "context" can serve well as a variable, storable in a data structure, that identifies a set of subroutines to handle a request. "Context," as used here, summarizes and categorizes an input rather than, as its lay meaning would suggest, accounting for all the circumstances surrounding it. In this sense, "context" more closely resembles the theme or subject matter of a user input rather than the all-things-considered milieu in which it can be found.

Dialect objects to characterizing "context" as a theme or subject, because in its words, such a construction "excludes [] information that is not a subject matter area, but is nevertheless associated with [an] input and is used to determine the subject matter area and meaning of the input." (Pl.'s Suppl. Br. at 3.) Dialect's objections do not persuade the Court. Dialect points to various passages in the Disputed Patents' specifications that appear to refer to information such as "the identity of the speaker, the time and location of the query, the previous questions, and [the] user's history and interests" as "context." (*Id.*) But each of Dialect's quoted passages refers to such information as "context" in the colloquial sense; to give just one example, the '039 Patent describes all the parameters cited by Dialect as "the context in which [a] query and/or command has been submitted." '039 Pat. col. 25, ll. 40–41. That use tracks the separate and

distinct lay meaning of the term, as indicated by the quoted passage's use of "the context" rather than "a context."

The language and context of the claims themselves, which "provide substantial guidance as to the meaning of particular claim terms" separate and apart from the Disputed Patents' specifications, tell a quite different story from Dialect's. *Phillips*, 415 F.3d at 1314. For instance, Claim 31 of the '720 Patent recites "recognizing . . . at least one of words or phrases from [an] electronic signal . . . [using] a history of a current dialog and one or more prior dialogs associated with the user," and only then, in a separate limitation, "determining . . . a context" for the user input. '720 Pat. col. 35, ll. 29–41. That claim language makes clear that the input can have one and only one context, and that user history does not constitute that context but rather identifies it. In the same way, Claim 1 of the '006 Patent recites using "an identity associated with a user" to "recognize . . . one or more words or phrases" and only later "parsing . . . [those] recognized words or phrases to determine a meaning associated with the utterance and a context associated with the request contained in the utterance." '006 Pat. col. 25, ll. 54–65; *id.* at col. 26, ll. 5–8. User identity in the '006 Patent, like user history in the '720 Patent, *identifies* "context" instead of constituting a form of it. Dialect's arguments cannot account for the way in which the claims at issue treat "a context" and "the determined context."

Summarizing and distilling all the preceding analysis, the Court concludes that the best construction of the noun "context," as used in phrases like "a context" ('720 Pat. cls. 1, 31; '006 Pat. cls. 1, 2, 4, 5, 10), "a most likely context" ('468 Pat. cls. 19, 28) or "one or more contexts" ('039 Pat. cls. 17, 18) is "<u>the subject matter area to which a particular user input is directed and</u>

which is used to determine the meaning of the user input."[16, 17] The notion of "subject matter" ably captures the summarizing function of ("a" or "the determined") "context"; the concept of "determin[ing] meaning" captures context's interpretative function in the claims; and, overall, this construction serves the principle of parsimony by not diverging more than necessary from a common understanding of the term's meaning, that is, "[t]he circumstances in which an event occurs." *Context (n.)*, sense 2, Am. Heritage Dict. (5th ed. 2011).[18] The Court, in short, believes that the foregoing construction constitutes the "ordinary and customary meaning" that a "person of ordinary skill in the art" would assign to the term "context" following a fulsome and careful analysis of "the entire patent, including the specification." *Phillips*, 415 F.3d at 1313. The term will be so construed.

B. "Context Stack"

The parties dispute whether the term "context stack"[19] should be construed to mean "an ordered list of elements, each element storing or referencing a context" (Amazon) or simply be given its plain and ordinary meaning, that is, "a data structure that stores or references contexts" (Dialect). The Court largely agrees with Dialect. The intrinsic evidence does not support

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16 To be clear, this construction has no direct application to Claims 1 and 7 of the '957 Patent, which use "context" exclusively as an adjective rather than as a noun.

17 The Court initially proposed construing context as "the subject matter area to which a particular utterance is directed and which determines the meaning of the utterance." (Suppl. Br. Order at 1.) Responding to this proposed construction, Dialect recommended that the Court "clarify the construction to include non-speech user input" and "clarify that a context is used to determine the meaning of [a] user input, as opposed to wholly determining the meaning on its own." (Pl.'s Suppl. Br. at 2, 3.) The construction adopted above incorporates these thoughtful suggestions.

18 In doing so, the Court's construction does not stray far from Dialect's belatedly proposed construction of "context," namely, "the setting or situation in which an event or user input occurs." *See supra* n.11.

19 '006 Pat. cl. 2; '468 Pat. cls. 19, 28; '039 Pat. cl. 17; '957 Pat. cls. 1, 3, 4, 7.

Amazon's construction, and although the extrinsic evidence appears at first glance to be univocal, on closer inspection it comports just as well with Dialect's reading.

To begin with, the Court agrees that a "context stack" constitutes a data structure. The claims at issue require by their plain language that a "context stack" be capable of storing "contexts." *See* '006 Pat. col. 26, ll. 32–33 ("a context stack that includes one or more recent contexts"); '039 Pat. col. 31, l. 13 ("a context stack that includes one or more contexts"). "Contexts" in the relevant sense are made up of data. For a "context stack" to include contexts, it must be a data structure.

The intrinsic evidence discloses little else regarding the nature of a "context stack," but what little illumination can be found proves sufficient to reject Amazon's construction. Seeking to demonstrate that a "context stack" is an "ordered list," Amazon cites to a recurring passage from the Disputed Patents' specifications. (Defs.' Br. at 8; Defs.' Reply Br. at 9.) That passage states that "[a]gents **106** may update a context stack, that includes an ordered list of command contexts." (*Id.* (citing and quoting '468 Pat. col. 20, ll. 10–11; '957 Pat. col. 20, ll. 44–46; '039 Pat. col. 14, ll. 7–9).) That passage lacks clarity, but all signs indicate its description of "context stack" indicates optional function rather than essential nature, as signaled by the word "may." The word "includes" perhaps indicates that "an ordered list" constitutes an essential aspect of a "context stack" in that particular embodiment, but Amazon points to no evidence demonstrating that a context stack must necessarily have that trait in *every* embodiment. The Court thus gives little weight to Amazon's quoted language.

Dialect puts Amazon's argument to bed by pointing to other intrinsic evidence. Specifically, Dialect invokes Claim 3 of the '957 Patent, which recites "[t]he system of claim **1**, wherein the plurality of context entries *are ordered in the context stack.*" '957 Pat. col. 40,

ll. 9–10 (emphasis added). The '957 Patent thus requires that a "context stack" be capable of being ordered; otherwise, Claim 3 would not recite a different arrangement of context entries but rather a different kind of context stack. However, the requirement of a particular order in Claim 3 suggests that the "context stack" has no particular order elsewhere, since "the presence of a dependent claim that adds a particular limitation gives rise to a presumption that the limitation in question is not present in the independent claim." *Phillips*, 415 F.3d at 1315.[20] Dialect's intrinsic evidence demonstrates that although a context stack need not be an ordered list, it must be a data structure that can be ordered.

Amazon next turns to extrinsic evidence to demonstrate that a "stack" must have a particular kind of internal structure, but Dialect rebuts that contention with extrinsic evidence of its own. Amazon's extrinsic evidence indicates that a stack denotes "[a] list in which items are appended to and retrieved from the same end of the list." (Defs.' Reply at 9 (citing *Stack*, sense 1(A), IEEE 100: The Authoritative Dict. of IEEE Standards Terms 1093 (7th ed. 2000)).) In other words, as Amazon would have it, stacks "store information on a last-in-first-out basis," much like "a stack of papers in an inbox." (Defs.' Br. at 8 (quoting *Nazomi Commc'ns, Inc. v. Nokia Corp.*, 739 F.3d 1339, 1340 (Fed. Cir. 2014)).)

Dialect attacks Amazon's evidence in two ways. First, Dialect correctly points out that nothing in the Disputed Patents references or depends on "context stacks" being structured in a last-in-first-out way. (Pl.'s Reply at 5.) Second, and more importantly, Dialect's supplemental

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[20] Amazon responds by emphasizing that this principle, the doctrine of claim differentiation, can be "overcome by a contrary conclusion dictated by the written description." *Retractable Techs., Inc. v. Becton, Dickinson & Co.*, 653 F.3d 1296, 1305 (Fed. Cir. 2011) (quoting *Seachange Int'l, Inc. v. C–COR, Inc.*, 413 F.3d 1361, 1369 (Fed. Cir. 2005)); (*see* Defs.' Reply at 9 (making this argument)). However, as already discussed, the portions of the specifications that Amazon cites have insufficient force to overcome the claim differentiation doctrine.

briefing provides good reason to believe that "the term 'context stack' is not just a composition of the word 'context' and a stack data structure." (ECF No. 199-1 ("Jagadish Suppl. Decl.") ¶ 9.) Dialect's supplemental briefing provides many examples demonstrating that, in the relevant art, a term that combines an adjective with the word "stack" means something different from the word "stack" alone. The single word "stack" usually denotes "a linear list for which all insertions and deletions . . . are made at one end of the list." 1 Donald E. Knuth, *The Art of Computer Programming* § 2.2.1, at 239 (3d ed. 1997); (*but see* Jagadish Suppl. Decl. Ex. 1 (IEEE Standards Bd., IEEE Standard Glossary of Computer Hardware Terminology 87 (approved June 14, 1994)) (noting that a "stack" "[c]an be implemented using either last-in-first-out or first-in-first-out")). On the other hand, the compound form that appends an adjective to the word "stack" simply refers to a collection of components.[21] Literature published close to the "effective filing date of the [relevant] patent application[s]," *Phillips*, 415 F.3d at 1313, took advantage of that compound form by using the term "context stack" to refer to a "generic architecture" constituting "a reference model for context-aware systems."[22] (Jagadish Suppl. Decl. Ex. 8 at 3 (Daqing Zhang, Tao Gu & Xiaohang Wang, *Enabling Context-aware Smart Home with Semantic Web Technologies*, 6 Int'l J. Hum.-Friendly Welfare Robotic Sys. 12 (2005)).) Neither intrinsic nor

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[21] For instance, Dialect marshals evidence demonstrating that scholarly publications used the term "software stack" to denote no more than "a combination of individual programs and libraries." (Jagadish Suppl. Decl. Ex. 4 at 3 (S. Vijay Kartik et al., *Measurements of the LHCb Software Stack on the ARM Architecture*, 513 J. Physics: Conf. Series, No. 052014, at 1 (2014) [https://doi.org/10.1088/1742-6596/513/5/052014]); *see also* Jagadish Decl. Ex. 3 at 2 (Paul M. Zagacki et al., *Architecture of a 3D Software Stack for Peak Pentium® III Processor Performance*, Intel Tech. J., no. 2, 1999, at 11) (referring to a "conventional 3D graphics software stack" as comprising an "application, library, and graphics driver").)

[22] *See* 35 U.S.C. § 100(i)(1) (defining "effective filing date"); '006 Pat. [63] (effective filing date of June 3, 2003); '468 Pat. [62] (effective filing date of Aug. 29, 2005); '039 Pat. [63] (effective filing date of Aug. 5, 2005); '957 Pat. [60] (effective filing date of Aug. 29, 2005).

extrinsic evidence supports limiting the term "context stack" to the specific structure that the sole word "stack" denotes in Amazon's sources.

The term "context stack" demonstrates that the "virtually unbounded universe of potential extrinsic evidence" can easily create a misleading impression. *Phillips*, 415 F.3d at 1318. Intrinsic evidence, together with a properly contextualized understanding of the extrinsic evidence, leads the Court to reject Amazon's proposed construction. Dialect's supplemental briefing persuasively demonstrates that a person of ordinary skill in the art would not necessarily understand "context stack" to mean anything more particularized than a collection of contexts given the loose manner that the Disputed Patents themselves use the term. The Court will thus construe "context stack" as "a data structure that stores or references contexts in a manner that can be ordered."

C. "Entries"

1. "Entries in a Context Stack"

Amazon proposes that "entries in a context stack"[23] be construed to mean "elements of an ordered list, each element storing or referencing a context." (Defs.' Br. at 9.) Dialect, by contrast, argues for "plain and ordinary meaning," or, in the alternative, "contexts or references to contexts." (Pl.'s Br. at 11.) Little distinguishes these two constructions. The parties agree that the "entries" in question must be "contexts or references to contexts." (Defs.' Br. at 9.) In substance, they dispute only whether the entries "must be elements of an ordered list" — and that dispute stems the parties' dispute over the term "context stack" rather than anything particular to the concept of "entries." (*Id.*)

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[23] '468 Pat. cl. 19.

The Court need not struggle to resolve this dispute. If the construction of "entries in a context stack" simply incorporates the already-construed term "context stack," the parties' disagreement vanishes. And because the terms "context" and "context stack" have already been construed, their definitions need not be repeated in the construction of "entries in a context stack." The Court will construe "entries in a context stack" to mean "elements of a context stack that store or reference contexts."

2. "Context Entries"

It should come as no surprise that the Court's construction of "context entries"[24] closely tracks its construction of "entries in a context stack." Because the '957 Patent specifically states that "context entries" must be stored in a "context stack," the Court's construction of "context stack" resolves any dispute about whether "context entries" need to be ordered. '957 Pat. col. 39, ll. 42–45; *id.* at col. 40, ll. 45–47 (reciting that "the context stack includes a plurality of context entries").

Amazon, however, submits that "context entries" and "entries in a context stack" should be construed differently, with the latter being necessarily "associated with a prior utterance." Here, as before, Amazon correctly recites claim limitations but incorrectly interprets them. The claims in which the term "context entries" appears recite "a context stack comprising context information that corresponds to a plurality of prior utterances, wherein the context stack includes a plurality of context entries." '957 Pat. col. 39, ll. 42–45. Those claims later recite "identify[ing], from among the plurality of context entries, one or more context entries . . . wherein the context information includes the one or more context entries." *Id.* at ll. 52–55.

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24 '957 Pat. cls. 1, 3, 4, 5, 7.

Amazon argues that this means that context entries must categorically constitute "context information" and therefore correspond to prior utterances.

The Court disagrees. The terms "comprising" and "including" "have the same meaning, namely, that the listed elements (i.e., method steps) are essential but other elements may be added." *Lucent Techs., Inc. v. Gateway, Inc.*, 525 F.3d 1200, 1214 (Fed. Cir. 2008). The first passage quoted above therefore means that the context stack contains *both* "context information that corresponds to a plurality of prior utterances" and "a plurality of context entries." There must be some overlap between those two categories, as the second quoted passage recites choosing a subset ("one or more") of "the plurality of context entries" that are included in "the context information." But all that entails, as a matter of Federal Circuit precedent, is that *some* context entries constitute *part* of a set that collectively corresponds "to a plurality of prior utterances." What is true of the whole need not be true of each part, so the claim language does not support the categorical inference that Amazon draws.

Because Amazon's reasoning falls flat, the Court sees no reason to construe "context entries" any differently from "entries in a context stack." Such a construction has the added benefit of construing similar terms in the '468 and '957 Patents ("entries in a context stack" and "context entries," respectively) to carry the same meaning. The Court will accordingly construe "context entries" to mean "elements of a context stack that store or reference contexts."

D. "Grammar"

The term "grammar"[25] appears in three of the Disputed Patents, and the parties seek to give that term a uniform construction. The most felicitous approach to construction of that term begins with its ordinary meaning in computer science: "a set of rules governing acceptable

[25] '720 Pat. cls. 1, 31; '006 Pat. cls. 1, 5, 10; '039 Pat., cl. 13.

inputs." That ordinary meaning informs the Court's construction of "grammar" as used by the '720 and '006 Patents. However, the '039 Patent presents an additional twist. That patent uses the word "grammar" only in the context of the phrase "context description grammar."[26] That phrase constitutes a specialized term of art deserving of its own, more complex construction.

1. "Grammar"

The parties' proposed constructions of "grammar" closely resemble one another. Amazon proposes construing the term to mean "a formal specification of the permissible structures for a language" (Defs.' Br. at 10), while Dialect advocates for its understanding of the term's plain and ordinary meaning, "a set of principles that govern an acceptable input or request" (Pl.'s Br. at 7). The Court's begins with the parties' common ground, and it need not stray far to arrive at its preferred construction.

"Grammar" has a well-established ordinary and customary meaning in the art, and that ordinary meaning may be derived by analogy from the term's lay meaning. Just as humans use language to communicate with one another, computer engineers use programming "languages" to communicate with computers. And just as human languages have grammars that determine what structures are and are not permissible, so too do programming languages have "grammars" that, in the words of Amazon's extrinsic sources, "specif[y] [] the permissible structure for the [programming] language."[27] (Defs.' Br. at 11 (quoting Xuedong Huang, Alex Acero & Hsiao-

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26 '039 Pat. cl. 13.

27 Dialect attacks Amazon's extrinsic evidence as disfavored by *Phillips* and rests its own argument exclusively on the claims themselves. (Pl.'s Reply at 8.) But *Phillips* does not place extrinsic evidence entirely out of bounds. As that case made clear, the Court is not "barred from considering any particular sources or required to analyze sources in any specific sequence, as long as those sources are not used to contradict claim meaning that is unambiguous in light of the intrinsic evidence." *Phillips*, 415 F.3d at 1324. Amazon's citations to treatises are not out of line, especially where (as here) the term to be construed has a settled meaning in the art.

Wuen Hon, *Spoken Language Processing: A Guide to Theory, Algorithm, and System Development* 545–46 (2001)).) In short, within the relevant field, "grammar" refers to a set of rules that governs acceptable inputs.

The intrinsic evidence builds on the definition above. For instance, Claim 1 of the '720 Patent recites "a parser" that "transform[s]" natural language into "a grammar that the selected domain agent uses to process the formulated question." '720 Pat. col. 32, ll. 51, 60–64. It appears self-evident from this text that "grammar," as used here, must necessarily be "use[d]" by the "domain agent" — a chunk of computer code — to "process" a command. The parser thus takes a natural language utterance and translates it into a language that the selected domain agent can understand — that is, the domain agent's native grammar.[28] This usage accords with the ordinary meaning of "grammar" to a person of skill in the art.

As the parties' near-identical constructions of "grammar" make clear, the intrinsic and extrinsic evidence leave little to be resolved by the Court. The only difference between Dialect's and Amazon's constructions appears to be that Amazon's recites "a formal specification" while Dialect's recites merely "a set of principles." Dialect's supplemental briefing explains the reason for the parties' disagreement: In Dialect's view, "a 'grammar' may also rely on probabilities," because the '720 and '006 Patents "rely on probabilistic and inferential decision-making methods." (Pl.'s Suppl. Br. at 7–8.)

In the Court's view, Dialect's objection rests on a category error. As Dialect points out, the '720 and '006 Patents specify that "probabilistic or fuzzy reasoning" may be used "[t]o

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[28] The '006 Patent uses the term no differently. That patent, like the '720 Patent, speaks of a "parser" that "formulat[es]" a "request . . . in accordance with a grammar used by a domain agent." '006 Pat. col. 26, ll. 14–16. Just as in the '720 Patent, "grammar" denotes a particular way that a computer program takes inputs.

formulate a question or command in the regular grammar used by agents." (*Id.* at 8 (quoting '720 Pat. col. 28, ll. 27–43).) But that probabilistic or fuzzy reasoning would be used in the claims' recited process of "*transforming* . . . words or phrases" into "a question or command . . . [that] is formulated in a grammar." '720 Pat. col. 32, ll. 60–63 (emphasis added). "Grammar" describes the structure that the output of the "transformation" must have; it does not describe the method by which that transformation is effected. With this clarification, nothing remains to the parties' disagreement. The Court will therefore construe "grammar" in accordance with its usage in the '720 and '006 Patents, namely, as "a set of rules governing how inputs and requests to a domain agent should be structured."

2. "Context Description Grammar"

The term "context description grammar" appears exclusively in the '039 Patent, and intrinsic evidence proves that it cannot simply incorporate the construction of "grammar" adopted above. In the '720 and '006 Patents, a parser takes a natural language utterance that has already been interpreted and reformulates that utterance in the relevant domain agent's grammar. The claims of the '039 Patent, by contrast, never once mention "grammar" outside of the phrase "context description grammar." '039 Pat. cols. 29–32. That those three words so frequently travel together raises the possibility that the '039 Patent uses this phrase as its own term of art. In the following passage, the '039 Patent's specification further feeds that suspicion:

> [A] command or request may be compared against a context description grammar to identify a match. Any active grammars in the context description grammar may be scored against the command or request and a best match may be sent to a response generator module.

'039 Pat. col. 3, ll. 23–27. This passage clearly indicates that a "context description grammar" *contains* multiple "active grammars." The '039 Patent's specification elsewhere indicates that those active grammars constitute "entries in a context description grammar." *Id.* at col. 13,

ll. 64–66. If the '039 Patent used "grammar" to mean "a set of rules governing acceptable inputs," this passage would confusingly suggest that a set of rules for acceptable inputs must contain multiple sets of rules for acceptable inputs. Moreover, if the grammars "in" the context description grammar govern acceptable inputs to a domain agent, as the "grammars" decribed by the '720 and '006 Patents do, then those grammars cannot serve their designated function in the '039 Patent, namely, analyzing a natural language input. Something different must be happening here.

The Court finds it likely that the phrase "entries in a context description grammar" stands analogous to the phrase "entries in a context stack." *See supra* IV.C.1 (construing that term). Just as the entries in a context stack "store or reference contexts," entries in a context description grammar likewise store, reference or constitute *context grammars*. In other words, when Claim 13 of the '039 Patent recites "comparing [] text combinations to entries in a context description grammar" and generating a relevance score therefrom, the claim requires (i) taking several sets of rules describing the structure of words in a particular context and then (ii) assessing which of those sets of rules most closely matches the utterance being analyzed. '039 Pat. col. 30, ll. 48–54. Therefore, in Claim 13 of the '039 Patent, "entries in a context description grammar" refers to "entries constituting or referencing sets of rules, wherein each of those sets describes the structure of natural language in a particular context," and "context description grammar" must refer to "a data structure containing 'entries in a context description grammar.'" Putting the two constructions together, the Court will construe "context description grammar" to mean "<u>a data structure containing entries constituting or referencing sets of rules,</u>

wherein each of those sets describes the structure of natural language in a particular context."[29] The '039 Patent's use of "context description grammar" as a term of art requires this special construction.

E. "Domain Agent"

The term "domain agent"[30] appears in four of the Disputed Patents. The parties appear to agree that the bare term "agent" lacked a concrete, agreed-upon definition in the art during the relevant time period. *See* Hyacinth S. Nwana, *Software Agents: An Overview*, 11 Knowledge Eng'g Rev. 205, 208–09 (1996) (describing a lack of consensus among scholars); (Defs.' Br. at 13 (acknowledging that "agent" appears to lack a "generally understood meaning" to a person of skill in the art)). The patentees, perhaps acknowledging this fact, helpfully illuminate their own understanding of the term "agent" in the patents themselves. That intrinsic evidence provides all the guidance that the Court needs to assign meaning to the term "domain agent," wherever that term may appear. After tackling each patent individually and construing each disputed claim on its own terms, the Court concludes that differences between the four patents' specifications require the adoption of patent-specific definitions of the term "domain agent."

1. The '720 and '006 Patents

The specifications of the '720 and '006 Patents expressly define the term "domain agent." The following passage proves instructive:

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[29] Dialect asks that the Court's construction indicate that "a context description grammar may also rely on probabilities." (Pl.'s Suppl. Br. at 9.) The Court hereby clarifies that the "rules" referenced by the Court's construction may be probabilistic in nature. To the extent that the parties dispute the meaning of the term "grammar" itself in the '039 Patent, the Court hereby construes that term to mean "a set of rules that describes the structure of natural language in a particular context."

[30] '720 Pat. cls. 1, 31; '006 Pat. cls. 1, 2, 5, 10; '468 Pat. cls. 19, 30, 32; '039 Pat. cls. 13, 14.

> According to some aspects of the invention, domain specific behavior and information are organized into agents. *Agents are executables that receive, process and respond to user questions, queries and commands.* The agents provide convenient and re-distributable packages or modules of functionality, typically for a specific domain. Agents can be packages of executable code, scripts, links to information, data, and other data forms, required to provide a specific/package of functionality, usually in a specific domain. In other words, an agent may include everything that is needed to extend the functionality of the invention to a new domain.

'720 Pat. col. 4, ll. 5–15 (emphasis added). The Court need interpret little when the specification expressly defines the term in question. Such language "clearly set[s] forth a definition of the disputed claim term" and thus requires application of the lexicographer canon. *Kyocera Senco*, 22 F.4th at 1378. The specification of the '006 Patent contains a very similar definition: It declares that "[a]gents are autonomous executables that receive, process and respond to user questions, queries[] and commands." '006 Pat. col. 2, ll. 56–57. That language in both patents expressly states "a special definition given to a claim term by the patentee"; in such a case, the special definition governs. *Phillips*, 415 F.3d at 1316.[31]

This express definition of "agent" comports with domain agents' functions in the claims of the '720 and '006 Patents. Claim 1 of the '006 Patent recites "processing [a] formulated request with [a] domain agent . . . to generate a response." '006 Pat. col. 26, ll. 17–19. And Claim 1 of the '720 Patent recites "a parser" that "transform[s]" natural language into "a question or command" and passes that question or command to a "selected domain agent," which "process[es] the formulated question or command" and "create[s] a response." '720 Pat. col. 32, ll. 51, 60–64; *id.* at col. 33, ll. 3–5. In both claims, a domain agent receives, processes and

[31] Even if the quoted language did not "clearly express an intent" to define "agent," the Court would find that passage to be highly probative of the term's ordinary and customary meaning in the context of the '720 and '006 Patents. *Kyocera Senco*, 22 F.4th at 1378.

responds to a question, query or command, just as the specification's definition of "agent" requires.

Finally, as the parties agree, the patents' specifications indicate that "domain agents" must be domain specific. The specification of the '720 Patent recites that "[t]he software behavior and data in an agent can be of a general-purpose nature or specific to a domain." '720 Pat. col. 4, ll. 25–26. It then goes on to describe "system agents" that have "general-purpose functionality" and contrasts them with "[d]omain specific agents [that] include the behavior and data required for a specific area of functionality." *Id.* at ll. 27–38. Finally, it drops the word "specific" and refers to such domain specific agents simply as "domain agents": "Domain specific agents include the behavior and data required for a specific area of functionality. More specialized domain agents can use the functionality of more generalized domain agents." *Id.* at ll. 37–40. It seems clear both to the parties and to the Court that a domain agent is an agent specific to a domain. That resolves the dispute as to the '720 and '006 Patents. Accordingly, the Court will construe "domain agent," as used in those two patents, to mean "<u>executables associated with a specific domain that receive, process and respond to user questions, queries and commands</u>."[32]

2. The '468 and '039 Patents

The '468 and '039 Patents define "agent" differently, and that fact requires a different construction of "domain agent." Specifically, these two patents assign the '720 and '006 Patents' definitions of "agent" to a different term by declaring that "[d]ata managers are autonomous executables that receive, process and respond to user questions, queries and commands." '468 Pat. col. 5, ll. 7–8; '039 Pat. col. 3, ll. 64–66. Adopting the '720 and '006 Patents' definition of

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[32] The parties do not object to this construction. (Defs.' Suppl. Br. at 1; Pl.'s Suppl. Br. at 9–10.)

"agent" here would require giving an identical construction to "agent" and "data manager." The Federal Circuit has cautioned district courts to avoid such surplusage. *Intel Corp. v. Qualcomm Inc.*, 21 F.4th 801, 809–10 (Fed. Cir. 2021).

Amazon contends that the '468 and '039 Patents' shared definition of "data manager" "does not impact the construction of 'domain agent' for either patent," but its argument runs counter to the language of the relevant claims. (Defs.' Suppl. Br. at 1.) Amazon points out that, in all the relevant claims, "a response is generated from content gathered or identified by the domain agent." (*Id.*) But Amazon's proposed construction specifies something different — that a domain agent itself "receives, processes and responds" to user inputs. (Defs.' Br. at 13.) The claims themselves carefully avoid such a limitation. Claim 19 of the '468 Patent recites "communicating a request to [an] identified domain agent[] and generating a response to the user from content provided by the identified domain agent as a result of processing the request." '468 Pat. col. 41, ll. 1–5. That language suggests that a domain agent must receive and process a user input, but it also suggests that the domain agent need not generate a response to that input.

Claim 13 of the '039 Patent proves even farther off point: It recites "selecting one or more domain agents based on results from [a] relevance score; obtaining content that is gathered by the selected domain agents; and generating a response from the content." '039 Pat. col. 30, ll. 55–61. Unlike the relevant claims of the '720 and '006 Patents, this claim does not require domain agents to receive, process or respond to user queries. In the '039 Patent, domain agents stand too far removed from the user's question, query or command. The '468 and the '039 Patents' claims thus support rather than refute the negative inference provided by the specifications' definition of "data manager."

Other intrinsic evidence in the '468 and '039 Patents indicates the proper patent-specific construction of "domain agent." In both patents, a domain agent must be associated with a particular domain, because "[t]he context of a question or command determines the domain and thereby, the domain agent **156**, if any, to be evoked." '039 Pat. col. 21 ll. 18–20. In addition, in the '468 Patent, as in the '720 and '006 Patents, the specification appears to use "domain specific agents" and "domain agents" interchangeably, defining the former as the latter: "The domain specific agents may provide complete, convenient and re-distributable packages or modules for each application area. *In other words*, the domain agents may include data that is needed to extend or modify the functionality of the system **90** in a current or new domain." '468 Pat. col. 27, ll. 18–23 (emphasis added). The '039 Patent reproduces this text almost exactly, omitting only the words "specific" and "may." '039 Pat. col. 14, ll. 43–47.[33] Finally, the '039 Patent recites that "[t]he invention may organize domain specific behavior and information into agents," language that the abstract of the '468 Patent repeats almost verbatim. '039 Pat. col. 14, ll. 40–41; '468 Pat. [57] ("The invention may organize domain specific behavior and information into agents").

The term "domain agent," as used in the '468 and '039 Patents, proves to be very broad. The relevant claims require only that domain agents "provide content," and the specifications impose few other criteria. With respect to these two patents, the Court finds that the term "domain agent" functions almost as a nonce word. Accordingly, the Court will construe "domain

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[33] Specifically, the relevant portion of the '039 Patent reads as follows:

> The domain agents provide complete, convenient and re-distributable packages or modules for each application area. In other words, the domain agents include data that is needed to extend or modify the functionality of the system **90** in a current or new domain.

'039 Pat. col. 14, ll. 43–47.

agent," as used in the '468 and '039 Patents, to mean "software with domain-specific behavior and information," as Dialect requests.[34]

V. INDEFINITENESS ANALYSIS

At the outset, Dialect attempts to block Amazon's indefiniteness challenges on procedural grounds, but neither one of its contentions prevails. First, Dialect insists that "Amazon must prove indefiniteness 'by clear and convincing evidence.'" (Pl.'s Br. at 21.) This misstates the rule. The "clear and convincing" burden of proof applies only to *facts*, not to questions of law. *See supra* n.6 (discussing the presumption of validity). Here, Dialect points to no facts that Amazon must prove by clear and convincing evidence. Judge Ellis rejected this precise argument at the motion to dismiss stage, and the Court now does the same. *See Dialect I*, 2023 WL 7381551, at *4 n.6. Next, Dialect argues that the Court should "defer a decision" on Amazon's indefiniteness challenge "until at least summary judgment." (Pl.'s Br. at 21.) The Court finds that unwise. Because "the indefiniteness issue in this case is intertwined with claim construction," the Court sees no reason to defer the issue, and Dialect provides none. *Media Rts. Techs., Inc. v. Cap. One Fin. Corp.*, 800 F.3d 1366, 1371 (Fed. Cir. 2015).

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[34] The Court originally proposed giving "domain agent" different constructions in the '468 and '039 Patents. (Suppl. Br. Order at 2.) The Court suggested construing "domain agent," as used in the '039 Patent, as "software that provides packages or modules to expand or modify the functionality of the system in a specific domain" and solicited the parties' comments. (*Id.*); *see supra* n.33 (quoting '039 Pat. col. 14, ll. 43–47). In response, Dialect pointed out similarities between the specifications of the '468 and '039 Patents and suggested that a more uniform construction "would be easier for the jury." (Pl.'s Suppl. Br. at 10.)

The Court remains unwilling to disregard the '720 and '006 Patents' express definitions. However, on reflection, the Court stands convinced that the construction of "domain agent" that it proposed for the '039 Patent would produce unnecessary confusion. The Court concludes that a uniform construction of "domain agent" should govern the '468 and '039 Patents and hereby adopts Dialect's suggestion in part.

Having disposed of Dialect's arguments, the Court proceeds to the merits of Amazon's position. Amazon argues indefiniteness with respect to five of the ten terms presented for construction. Amazon asserts that four of those five terms are governed by 35 U.S.C. § 112, ¶ 6. Because those four terms recite similar operative language, the Court addresses them as a single category.

A. "Procedures Sensitive to the Determined Context"

The parties dispute whether "sensitive," as used in the phrase "procedures sensitive to the determined context,"[35] constitutes a binary term or a term of degree. Amazon argues that the term has no definition in the specification or in the art and fails to express "how much of an effect, if any, the determined context must have . . . in order to meet the claim limitation." (Defs.' Br. at 16.) For that reason, Amazon contends that the term lacks any objective bounds, rendering the claim in which it appears indefinite and void. Dialect disagrees that "sensitive" constitutes a term of degree and submits that "the claim simply does not require a specific degree of sensitivity." (Pl.'s Reply at 13–14.) In Dialect's view, "[i]f the procedures are sensitive *at all* to the determined context, then the claim limitation is met." (*Id.* at 15 (emphasis in original).) Dialect accordingly proposes that the term be construed to mean "procedures that consider the determined context." (Pl.'s Br. at 20.)

The Court finds both parties' readings of "sensitivity" facially plausible. A procedure that is "sensitive to [a] determined context" may refer to a procedure that is "responsive or vulnerable to changes" to that determined context. *Sensitive (adj.)*, sense 5.b., Oxford Eng. Dict. (Mar. 2024) [https://doi.org/10.1093/OED/2434304746]. For instance, a "case-sensitive" procedure would refer to a procedure that distinguishes between an uppercase input and a lowercase

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[35] '006 Pat. cl. 5.

input — in that way, the procedure would be responsive to a change in case. Alternatively, a procedure "sensitive to the determined context" could signify a procedure that is "appreciably responsive to variation" in the determined context. *Id.* at sense 6.e, [https://doi.org/10.1093/OED/1486636595]. In that situation, "sensitive" would constitute a term of degree. Because the proper construction of the term may prove dispositive of the Court's indefiniteness analysis, the Court must choose between these two possible readings.

The intrinsic evidence, though sparse, renders Dialect's reading of "sensitive" slightly more likely. The specification of the '006 Patent consistently uses "context sensitive procedure" as a synonym for "procedure sensitive to the determined context." *See* '006 Pat. col. 18, ll. 19–22 ("The criteria handlers **152** provide context sensitive procedures for extracting the criteria or parameters from the user's question or command."); *id.* at col. 25, ll. 5–7 ("A context sensitive procedure for extracting the criteria or parameters from the properly interpreted query and/or command may be used."). "Sensitive," when used in combination (e.g., "context-sensitive") appears more likely to be binary rather than a term of degree. *See, e.g.*, *Sensitive (adj.)*, sense 5, Merriam-Webster.com Dict. (accessed Apr. 23, 2024) ("having or showing concern for a specified matter[,] usually used in combination"), https://www.merriam-webster.com/dictionary/sensitive [perma.cc/9GKT-PCSZ]. It seems more likely than not that the patentee used the more awkward "procedures sensitive to" construction in the claim, because the procedures there had to be sensitive to "the determined context" rather than "context" in the abstract. In other words, the patentee likely chose to recite "procedures sensitive to the determined context," because it would have been infelicitous to instead recite "determined context–sensitive procedures"; where the patentee could refer to sensitivity to context in general rather than to "the determined context" in particular, the patentee did so. *See e.g.*, '006 Pat.

col. 18, ll. 19–22 (referring to "context sensitive procedures"); *id.* at col. 25, ll. 5–7 (same). This evidence, though slight, weighs in favor of Dialect's reading.

Even if the intrinsic evidence stood in equipoise, the Court would adopt Dialect's view as a saving construction. "If, after applying all other available tools of claim construction, a claim is ambiguous, it should be construed to preserve its validity." *Ruckus Wireless, Inc. v. Innovative Wireless Sols., LLC*, 824 F.3d 999, 1004 (Fed. Cir. 2016) (citing *Phillips*, 415 F.3d at 1327). Here, the parties insist vociferously on mutually exclusive "plain and ordinary meanings" of the claim terms at issue. Amazon's expert asserts in conclusory fashion that "'sensitive' is a term of degree and a subjective term." (Johnson Decl. ¶ 113.) Dialect's expert disagrees in equally conclusory terms, opining that "[f]or a procedure to be sensitive to a given variable . . . the only thing that is required is that it be considered by the procedure." (ECF No. 170-1 ("Jagadish Decl.") ¶ 15.) Amazon argues that the absence of any degree-of-sensitivity requirement in the specification dooms the claim to indefiniteness. (Defs.' Br. at 16.) Dialect interprets that evidence just the opposite way — as a sign that "the claim simply does not require a specific degree of sensitivity." (Pl.'s Reply at 14.) Assuming *arguendo* that all the evidence stands in equipoise, such a tie must be broken in favor of validity.

To be clear, the Court finds no tie: On the facts before the Court, the intrinsic evidence, though weak, favors Dialect's reading. Thus, the "grave validity doubts" associated with Amazon's reading "reinforce the textual objections" to Amazon's construction. *Bayer CropScience AG v. Dow AgroSciences LLC*, 728 F.3d 1324, 1330 (Fed. Cir. 2013). The Court declines to construe "sensitivity" as Amazon urges.

The Court's determination that "procedures sensitive to the determined context" should not be construed as a term of degree does not require the Court to adopt Dialect's construction

("procedures that consider the determined context"). Dialect's construction appears to state that a procedure counts as "context-sensitive" so long as it takes the determined context as an input. But a procedure lacks sensitivity to context if context can be input and then summarily ignored. *See Sensitive (adj.)*, sense 5.b, Oxford Eng. Dict. ("responsive or vulnerable to changes"). Dialect errs by proposing a construction that turns on what a "procedure" *considers*; sensitivity must instead be determined by looking to how a procedure *responds*. In other words, context must be material to the outcome of the "procedures" in question. The Court will therefore construe "procedures sensitive to the determined context" to mean "procedures that differ based on which context has been determined."[36]

The Court's construction disposes of Amazon's indefiniteness challenge. Because neither party could have accounted for the Court's construction of "procedures sensitive to the determined context," no party has briefed whether or not Claim 5 of the '006 Patent "provide[s] objective boundaries for those of skill in the art." *Interval Licensing LLC v. AOL, Inc.*, 766 F.3d 1364, 1371 (Fed. Cir. 2014) (citing *Nautilus*, 572 U.S. at 911 & n.8); *see Cox Commc'ns, Inc. v. Sprint Commc'n Co. LP*, 838 F.3d 1224, 1231 (Fed. Cir. 2016) (explaining that "the dispositive question in an indefiniteness inquiry is whether the 'claims,' not particular claim terms," pass the *Nautilus* test). Amazon remains free to rebut Claim 5's presumption of validity on summary judgment by showing that it lacks "reasonabl[y] certain[]" boundaries. *Nautilus*, 572 U.S. at 910. However, the Court declines to invalidate the claim at this time.

B. "Parser"

Amazon contends that four lengthy claim limitations found in four claims of the '720 and '006 Patents should be subject to 35 U.S.C. § 112, ¶ 6, and that each of those claims recites

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36 Dialect does not object to this construction. (Pl.'s Suppl. Br. at 1.)

insufficient structure and thus must be invalidated as indefinite under 35 U.S.C. § 112, ¶ 2.[37] Dialect objects at Step One and argues that "[b]ecause the claims are not subject to [Paragraph] 6, no further analysis is necessary." (Pl.'s Reply at 19.) The Court agrees with Dialect. Amazon has the burden of showing that Paragraph 6 applies by a preponderance of the evidence, and Amazon has not carried its burden here.

"The first step" of the Federal Circuit's Paragraph 6 analysis "is to determine whether a claim limitation is drafted in means-plus-function format." *Dyfan*, 28 F.4th at 1365. To do so, a court must ask "whether [the limitation] connotes sufficiently definite structure to a person of ordinary skill in the art." *Id.* If, like the limitations at issue here, the limitation in question does not recite the word "means," the Court must presume that Paragraph 6 does not apply. *Dyfan*, 28 F.4th at 1365. To overcome that presumption, the challenger must demonstrate "that the claim [limitation] fails to recite sufficiently definite structure or else recites function without reciting sufficient structure for performing that function." *Williamson*, 792 F.3d at 1349 (quotations omitted).

The Federal Circuit has looked at various factors when deciding whether to apply Paragraph 6. For instance, a claim limitation drafted "in a format consistent with traditional means-plus-function claim limitations" that merely "replaces the term 'means'" with another term should be looked upon with skepticism. *Id.* at 1350. In addition, "nonce words that reflect nothing more than verbal constructs" may invoke Paragraph 6 if "used in a claim in a manner that is tantamount to the word 'means.'" *Id.* On the other hand, a claim term should not be viewed with suspicion merely because it connotes "a class of structures" rather than "a single,

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37 '720 Pat. cls. 1, 35; '006 Pat. cls. 1, 5, 10.

specific structure." *Dyfan*, 28 F.4th at 1366 (quoting *Apple Inc. v. Motorola, Inc.*, 757 F.3d 1286, 1300 (Fed. Cir. 2014) (abrogated on other grounds by *Williamson*)).

Each of the claim limitations at issue recites a "parser" as the structure that performs the recited function. To succeed, Amazon must show by a preponderance of the evidence that "parser" connotes insufficient structure to one of ordinary skill in the art. In support of this conclusion, Amazon makes three different arguments. First, it contends that the "parser" referenced "is not a specific structure, but rather a black-box software 'module' defined by the functions it performs." (Defs.' Br. at 19.) In its view, because the specifications recite "a parser" as "one or more of [a set of] modules" "installed onto the computer," the term "parser" must be tantamount to the term "module," which past Federal Circuit decisions have found to be a nonce word that invokes Paragraph 6. (*Id.* at 19–20 (quoting '720 Pat. col. 3, ll. 20–28)); *see, e.g.*, *Williamson*, 792 F.3d at 1350 ("'Module' is a well-known nonce word"). Second, Amazon argues that the "parser" in question fails to disclose sufficient structure, because the specifications depict it using "an empty box," list the functions that the parser performs, and do not in themselves provide the structure of the parser. (Defs.' Br. at 20.) Third, Amazon relies on its expert, who, in Amazon's words, opines that "while a 'parser' would have been known to [a person of ordinary skill in the art], it would not have been known to connote a structure." (*Id.* at 21 (citing Johnson Decl. ¶¶ 3–5, 44–46, 126–27).)

All of Amazon's arguments fail to persuade. To begin with Amazon's first argument, the term "module" has been recognized in the case law as "a generic description for software . . . that performs a specified function." *Williamson*, 792 F.3d at 1350. Concededly, "module" lacks structure. But the fact that the specifications refer to the term "parser" as a module proves little. "Module" invokes Paragraph 6 because it lacks content entirely, just as the term "means" does.

But software with a definite structure that performs a function definitionally constitutes a *specific kind* of module for performing that function, just as, for instance, "a hammer" definitionally constitutes "a means for driving nails." The fact that the limitation provides a specific means ("a hammer" / "a parser") for performing the function in question allows the limitation to avoid Paragraph 6. Amazon's first argument begs the critical question: whether the term "parser" itself was known in the art as a term for structure.

Amazon's second argument proves equally circular. If a parser by its nature has a structure well known in the art, then it should come as no surprise that patent specifications depict it using a "black box." A patentee need not draw a picture of a hammer to provide sufficient structure for driving nails; the ordinary meaning of the term connotes structure. The Federal Circuit has criticized such "conclusory" reasoning for presuming without evidence that the terms at issue constitute "nonce words" rather than names for structure. *Zeroclick, LLC v. Apple Inc.*, 891 F.3d 1003, 1008 (Fed. Cir. 2018). Here, as before, Amazon provides no argument addressing whether "parser" would connote structure to a person of ordinary skill in the art.

Finally, Amazon's argument from authority misrepresents its expert's affidavit. Amazon claims that Dr. Johnson believes that "parser" "would not have been known to connote a structure." (Defs.' Br. at 21.) But Amazon's expert instead testified that "a parser would not on its own have been understood to connote *any specific structure*." (Johnson Decl. ¶ 126 (emphasis added).)[38] This distinction matters: "Claim terms 'need not connote a single, specific

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[38] In addition, Dr. Johnson's opinion relies on a treatise that defines a "parser" as "the process that maps a sentence to its syntactic structure and logical form." (Johnson Decl. ¶ 126 (quoting James Allen, *Natural Language Understanding* 15 (2d ed. 1995)).) But the section that Dr. Johnson quotes concerns "the organization of natural language understanding *systems*" — not

structure' . . . to not invoke [Paragraph] 6." *Dyfan*, 28 F.4th at 1366. A class of structures will do, and that class of structures can be recited by using "a claim term with a structural definition that is . . . generally known in the art." *Id.* (quoting *Apple v. Motorola*, 757 F.3d at 1299).

The fact that a particular mechanism is defined in functional terms does not convert a claim element containing that term into a means-plus-function term invoking Paragraph 6. *Zeroclick*, 891 F.3d at 1008 (citing *Greenberg v. Ethicon Endo-Surgery, Inc.*, 91 F.3d 1580, 1583 (Fed. Cir. 1996)). As the Federal Circuit explained in *Greenberg*, "innumerable" devices — for instance, filters, brakes, clamps, screwdrivers and locks — "take their names from the functions they perform." 91 F.3d at 1583. This principle has special significance as applied to software patents. Software itself is composed of "functions," and computer scientists commonly write "compilers," "operating systems" and "applications" — at first glance, all functional terms. The term "parser" appears to be no different.

That "parser" has a functional name does not turn it into a substitute for the word "means" that invokes Paragraph 6, especially not in the context of software patents. Because of "the inherently functional and mathematical nature of software technology," Note, *Everlasting Software*, 125 Harv. L. Rev. 1454, 1456 (2012), "the specific structure of software code and applications is partly defined by its function." *Dyfan*, 28 F.4th 1360 at 1368. Software patentees, in other words, claim functionally out of necessity. "The programmer doesn't direct the flow of the electrons through the silicon; she doesn't manipulate transistors, gates, circuits[] or registers; by and large, she doesn't know anything about the machine on which her code will

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computers. (ECF No. 158-7 at 5.) A "system" appears to be vague term entirely divorced from the relevant context of computer engineering. Dr. Johnson's source says nothing about how one might go about designing a parser, so it says nothing about whether the term "parser" connotes structure.

run." Athul K. Acharya, *Abstraction in Software Patents (and How to Fix It)*, 18 J. Marshall Rev. Intell. Prop. L. 364, 373 (2019). No matter how she writes her claims, "the referents of her claim language will still be functional, not physical." *Id.* at 374. In a trivial sense, then, "[t]he hardware 'structure' of a computer software invention is . . . a computer." Mark A. Lemley, *Software Patents and the Return of Functional Claiming*, 2013 Wisc. L. Rev. 906, 919 (ellipsis in original). The term "parser" does not become a nonce word like "means" merely because parsers, like all software components, are functionally named and defined.

Federal Circuit precedent acknowledges that the inherent functionality of software components requires a nuanced approach to means-plus-function claiming in that context. Accordingly, the Federal Circuit has repeatedly refused to apply Paragraph 6 to even very vague software terms, so long as those terms refer to "conventional," "off-the-shelf" code that provides a framework through which the stated function could be achieved. *Zeroclick*, 891 F.3d at 1008 ("program" and "user interface code"); *see also, e.g.*, *Dyfan*, 28 F.4th at 1368 ("code" and "application"); *Samsung Elecs. Am., Inc. v. Prisua Eng'g Corp.*, 948 F.3d 1342, 1354 (Fed. Cir. 2020) ("digital processing unit"); *Apple v. Motorola*, 757 F.3d at 1300–01 ("heuristic" connotes "a class of structures, such as 'connector,' 'circuit,' and 'detector'"); *WSOU Invs. LLC v. Google LLC*, Nos. 2022-1063, 2022-1065, 2023 WL 6889033, at *3 (Fed. Cir. Oct. 19, 2023) (some uses of the term "'processor' connote[] sufficient structure while others do not"); *id.* at *4 ("computer program code" and "memory" provide sufficient structure). The word "parser" appears to be no different. Indeed, the word appears to be more structural and less vague than terms like "program," "code" and "processor" — each of which has been approved as potentially structural by Federal Circuit case law. "Parser" stands more analogous to a term like "compiler" — a particular type of software structure that, although able to be implemented in multiple ways,

nevertheless provides *something* other than a bare command to perform the specified functions. Federal Circuit precedent thus weighs against deeming "parser" a nonce word that invokes 35 U.S.C. § 112, ¶ 6.

To sum up, Amazon's Paragraph 6 argument fails at the first step. Amazon does not demonstrate that "parser," as used in the claim limitations at issue and considered in light of the limitations' functional language, would not have connoted sufficiently definite structure for performing those functions. The presumption against the application of Paragraph 6 has not been rebutted, and thus the Court need not consider whether the specifications disclose sufficient structure to perform the tasks the claims ask a parser to perform.

That Amazon failed to make the necessary showing in this posture does not mean that it cannot rebut the Paragraph 6 presumption on summary judgment or at trial. However, it must marshal more than the vague aspersions that it has cast at the limitations at issue. For the time being, the Court will construe "parser" to mean "software that analyzes a string of words," as Dialect suggests. The parties may propose or advocate for a different construction, and Amazon remains free to demonstrate that Paragraph 6 applies if it can muster the evidence to do so.

VI. CONCLUSION

With all disputed terms now construed, this case's path has been cleared for summary judgment and, eventually, trial. At this juncture, the Court finds that Amazon fails to carry its burden to demonstrate the invalidity of the claims that it challenges as indefinite. However, Amazon may renew its invalidity contentions at a later stage if it can marshal evidence to overcome its burden of proof.

An appropriate Order shall issue.

Let the Clerk file a copy of this Memorandum Opinion and notify all counsel of record.

/s/
David J. Novak
United States District Judge

Alexandria, Virginia
Date: April 29, 2024