

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

DIALECT, LLC,
Patent Owner.

IPR2024-00753
Patent 7,640,160 B2

Before NEIL T. POWELL, GEORGE R. HOSKINS, and
JON M. JURGOVAN, *Administrative Patent Judges*.

JURGOVAN, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Petitioner Google LLC filed a Petition (Paper 2, “Pet.”) pursuant to 35 U.S.C. §§ 311–319 to institute an *inter partes* review of claim 12 of U.S. Patent No. 7,640,160 B2 (Ex. 1001, “the ’160 patent”).

Patent Owner Dialect, LLC filed a Preliminary Response (Paper 9, “Prelim. Resp.”). Patent Owner argues the Petition fails to satisfy the requisite threshold for instituting review on the merits, and also urges us to exercise our discretion under 35 U.S.C. § 325(d) to deny institution.

For reasons provided below, we determine on behalf of the Director (*see* 37 C.F.R. § 42.4(a)) that the record demonstrates a reasonable likelihood that Petitioner would prevail with respect to the challenged claim, so we grant institution of the petitioned *inter partes* review on the merits. *See* 35 U.S.C. § 314(a). We further decline to exercise our discretion to deny institution under § 325(d) for reasons explained below.

II. BACKGROUND

A. *Real Parties-in-Interest and Related Proceedings*

Petitioner identifies itself (i.e., Google LLC) as the real party-in-interest. *See* Pet. 5 & n.1. Patent Owner identifies itself (i.e., Dialect, LLC) as the real party-in-interest. *See* Paper 5, 1.

Petitioner has filed several IPR proceedings to challenge patents owned by Patent Owner. *See* Pet. 5–6. They are: IPR2024-00746 (U.S. Patent No. 7,398,209 B2); IPR2024-00747 (U.S. Patent No. 7,502,738 B2); IPR2024-00748 (U.S. Patent No. 8,015,006 B2); IPR2024-00749 (U.S. Patent No. 7,693,720 B2); IPR2024-00750 (U.S. Patent No. 9,031,845 B2); IPR2024-00751 (U.S. Patent No. 8,447,607 B2); IPR2024-00752 (U.S.

Patent No. 8,849,652 B2); and IPR2024-00753 (U.S. Patent No. 7,640,160 B2).

The parties also identify two district court litigations as related to the '160 patent. *See* Pet. 5; Paper 5, 1.

B. The '160 Patent

The '160 patent is titled “Systems and Methods for Responding to Natural Language Speech Utterance.” Ex. 1001, code (54). The '160 patent's method allows “users to submit natural language questions or commands via a speech interface” and obtain “[i]nformation in a wide range of disciplines.” *Id.* at 1:12–15. The '160 patent seeks to properly respond to questions and/or commands based on “imperfect information” such as incomplete thoughts, sentences, or phrases, slang terminology, repeated words, word variations, synonyms, or others. *Id.* at 1:51–61.

Figure 1 of the '160 patent is reproduced below.

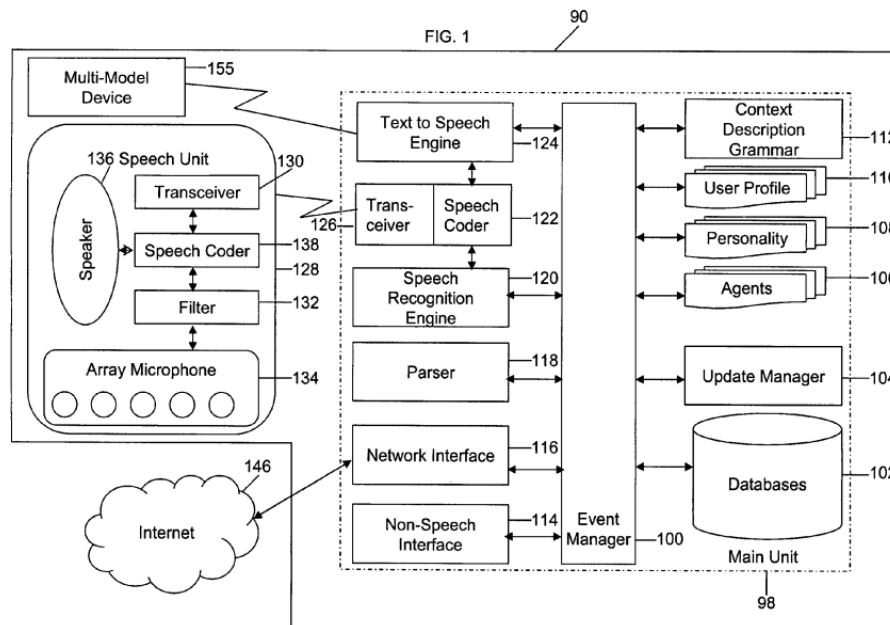


Figure 1 shows a system 90 that includes *inter alia* speech unit 128, speech recognition engine 120, context description grammar module 112, parser 118, and agents 106. Speech unit 128 includes a microphone to receive a spoken utterance from a user. *Id.* at 11:55–57. The speech unit 128 processes (i.e., encodes and compresses) the speech and transmits it to main unit 98 where it is further processed (i.e., decoded and decompressed). In main unit 98, speech recognition engine 120 processes the received speech using context description grammar module 112. *Id.* at 12:23–25. Speech recognition engine 120 passes recognized speech to parser 118 which transforms the information into complete algorithms or questions using data supplied by knowledge agents 106. *Id.* at 12:25–28. Knowledge agents 106 then process the commands or questions to carry out the intended actions or to provide responses to the requesting user by querying local databases 102 or external data sources over Internet 146. *Id.* at 12:32–36. Knowledge agents 106 may respond to the user’s request or command with speech using the speech unit 128. *Id.* at 12:41–47. Alternatively, knowledge agents 106 may present results to non-speech questions or commands using multi-modal devices 155. *Id.* at 12:47–55.

Speech may be compared against entries in a context description grammar associated with each agent 106. *Id.* at 13:47–49. Matches may be scored and the agents ranked based on the determined score. *Id.* at 13:51–56. If no match or only a partial match is found, “then a knowledge-enhanced speech recognition system may be used to semantically broaden the search.” *Id.* at 13:60–64. “The knowledge-enhanced speech recognition may access a set of expected contexts that are stored in a context stack to determine a most likely context.” *Id.* at 13:66–14:2. “The knowledge-

enhanced speech recognition may use context specific matchers that are able to identify context such as time, location, numbers, dates, categories (e.g., music, movies, television, addresses, etc.) and other context.” *Id.* at 14:2–6.

C. *Claim 12*

Claim 12 is the only claim challenged in this proceeding. Pet. 7–8. Claim 12 is set forth below, with bracket identifiers to indicate particular limitations, and our emphasis showing the limitation that is in dispute.

12. [preamble] A method for interpreting natural language utterances using knowledge-enhanced speech recognition engine, wherein the knowledge-enhanced speech recognition engine is configured to determine an intent and correct false recognitions of the natural language utterances, comprising:
 - [a] receiving a transcription of a natural language utterance at a computer comprising the knowledge-enhanced speech recognition engine;
 - [b] identifying one or more contexts that completely or partially match one or more text combinations contained in the transcription, *wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack*;
 - [c] scoring each of the identified matching contexts;
 - [d] selecting the matching context having a highest score to determine a most likely context for the utterance; and
 - [e] communicating a request to a domain agent configured to process requests in the most likely context for the utterance, the request formulated using at least one grammar expression entry in the context description grammar.

Ex. 1001, 30:60–31:14 (emphases added).

D. Asserted Prior Art

Petitioner relies on the following two references as prior art against claim 12 of the '160 patent. *See* Pet. 7–8.

Name	Reference	Exhibit No.
Kennewick	US 2004/0044516 A1	1004
Ross	US 2002/0133354 A1	1005

Patent Owner does not dispute that these references are prior art against claim 12 of the '160 patent. *See* Prelim. Resp. *generally*.

E. Asserted Ground

Petitioner asserts the following ground of unpatentability.
See Pet. 7–8.

35 U.S.C. § ¹	References	Claim Challenged
103(a)	Kennewick, Ross	12

F. Testimonial Evidence

Petitioner relies on the proffered expert witness testimony of Mr. Christopher Schmandt (Exhibit 1002). Patent Owner does not rely on opposing expert witness testimony. *See* Prelim. Resp. *generally*.

¹ Amendments to 35 U.S.C. § 103 enacted by the Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”) took effect in March 2013. The '160 patent issued from an application filed in August 2005. *See* Ex. 1001, code (22). Therefore, we apply the pre-AIA version of § 103.

III. PRELIMINARY MATTER

Petitioner and Patent Owner present arguments concerning our discretion to deny institution under § 325(d). Pet. 8–9; Prelim. Resp. 25–29. After evaluating the parties’ arguments, we are not persuaded to exercise our discretion to deny institution under § 325(d) for the following reasons.

In evaluating discretionary denial under § 325(d), the Board follows a two-part framework: (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of the first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims. *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential) (“*Advanced Bionics*”). The *Advanced Bionics* framework is further informed by the factors set forth in *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (Dec. 15, 2017) (precedential as to § III.C.5, first paragraph) (“*Becton, Dickinson*”).²

² *Becton, Dickinson* identifies the following non-exclusive factors: (a) the similarities and material differences between the asserted art and the prior art involved during examination; (b) the cumulative nature of the asserted art and the prior art evaluated during examination; (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection; (d) the extent of the overlap between the arguments made during examination and the manner in which petitioner relies on the prior art; (e) whether petitioner has pointed out sufficiently how the examiner erred in its evaluation of the asserted prior art; and (f) the extent to which additional evidence and facts presented in the petition warrant reconsideration of the prior art or arguments. *Becton, Dickinson*,

Addressing *Advanced Bionics* part (1), Petitioner and Patent Owner agree that Kennewick was considered during examination of the '160 patent. Pet. 8–9 (citing Ex. 1012, 196–210, 220–227, 305, 369–370, 382); Prelim. Resp. 27. Specifically, the Examiner considered Kennewick in combination with another reference, Coffman³, which is not asserted in this proceeding. See, e.g., Ex. 1012, 208, 216.

Petitioner argues that Ross was not before the Examiner during examination (Pet. 9), a contention which Patent Owner does not dispute. After reviewing the prosecution history (Ex. 1012), we agree with Petitioner that Ross was not considered during examination.

Nonetheless, Patent Owner asserts that Ross is cumulative to Kennewick. We do not agree. Although Ross relates to similar speech-enabled systems for responding to users' utterances, there are several material differences between Kennewick and Ross.

For example, Ross discloses a context manager that maintains a priority-ordered list of contexts for the most-recently-accessed speech-enabled applications, and checks the list in priority when interpreting the user's next utterance. Ex. 1005 ¶¶ 10, 12, 33, 35, Fig. 4. This Ross disclosure is not present in Kennewick, and no arguments related to it could have been considered in examination.

Patent Owner argues that Petitioner's "vague suggestion" that Ross "somehow provides 'further context and detail for understanding

Paper 8 at 17–18 (§ III.C.5, first paragraph). Factors (a), (b) and (d) relate to *Advanced Bionics* part (1), and factors (c), (e) and (f) relate to *Advanced Bionics* part (2). *Advanced Bionics*, Paper 6 at 10.

³ U.S. Patent No. 7,137,126 B1 published as WO00/20962 on April 13, 2000.

Kennewick” amounts to an admission that Ross’s teachings would be cumulative to Kennewick. Prelim. Resp. 27–28. We do not agree that Petitioner made such an admission because Petitioner relied on Ross disclosures that are not present in Kennewick in its challenge against claim 12. *See, e.g.*, Pet. 31–33 (citing Ex. 1005 ¶¶ 10, 12, 33, 35, Fig. 4).

Patent Owner further argues that Ross does not address the deficiency that the Examiner found in the prior art that claim 12 requires “comparing text combinations against **both** grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack.” Prelim. Resp. 28 (citing Ex. 1012, 305). For reasons discussed in § IV.E.4.iii, we do not agree with Patent Owner’s argument because Petitioner’s contentions on the current record demonstrate sufficiently that Ross does disclose these features.

Accordingly, under *Advanced Bionics* part (1), we find that the record does not support that the same prior art or arguments were considered by the Examiner during prosecution of the ’160 patent. Specifically, the combination of Kennewick and Ross was not considered during examination, nor any arguments directed to the features Ross adds to the combination. Therefore, we decline to exercise our discretion to deny institution of *inter partes* review under § 325(d) and do not reach the parties’ remaining arguments concerning *Advanced Bionics* part (2).

IV. PETITIONER’S GROUND OF UNPATENTABILITY

A. Legal Standards — Petitioner’s Burden

“In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is

unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden of persuasion never shifts to the patent owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015).

B. Legal Standards — Obviousness

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art (“POSITA”) to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) objective evidence of nonobviousness, if made available in the record, which has not happened here. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

C. Level of Ordinary Skill in the Art

Petitioner contends a POSITA pertaining to the ’160 patent “would have possessed a bachelor’s degree in electrical engineering or computer science, and two years of work experience in the field of speech- and natural language-interfaces for interacting with and directing computer systems and software, including speech recognition and processing (and more experience

could substitute for less formal education, and vice versa).” Pet. 10; Ex. 1002 ¶¶ 11–15.

Patent Owner does not oppose Petitioner’s formulation of the level of ordinary skill in the art. *See* Prelim. Resp. *generally*.

For purposes of this Decision, we are satisfied that Petitioner’s formulation of the level of ordinary skill in the art generally comports with the level of skill necessary to understand and implement the teachings of the ’160 patent and the asserted prior art, so we apply that formulation here.

D. Claim Construction

We interpret the ’160 patent claims “using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b). This “includ[es] construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” *Id.*

Petitioner argues: “Express claim construction is unnecessary because the prior art renders the challenged claims obvious under any reasonable construction.” Pet. 12.

Patent Owner argues “the Board need not engage in any pre-institution claim construction” because “Petitioner’s grounds include fundamental flaws” regardless of any claim construction issues. Prelim. Resp. 10–11. Patent Owner further notifies the Board that the United States District Court for the Eastern District of Virginia has construed various terms found in the claims of the ’160 patent, albeit in the context of other patents owned by Patent Owner. *See id.* at 9–10 (citing Exs. 2002–2007).

Based on the arguments and evidence presented, we determine no explicit construction is needed to resolve the parties' controversy. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) ("The Board is required to construe 'only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.'") (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

E. Obviousness over Kennewick and Ross

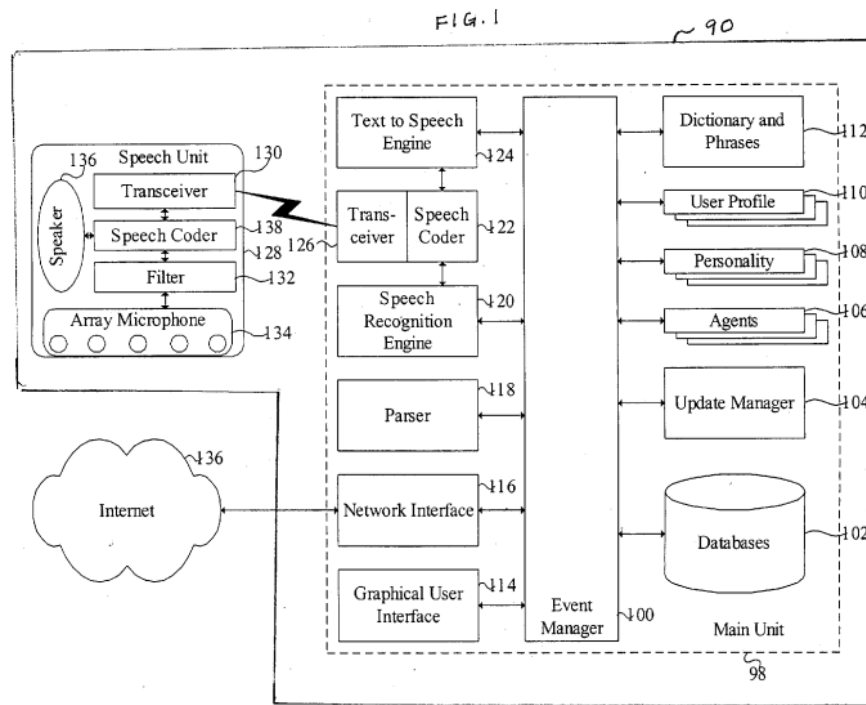
In the sole ground at issue in this proceeding, Petitioner asserts that claim 12 of the '160 patent would have been obvious over Kennewick and Ross. *See* Pet. 7–8, 13–74. Patent Owner disagrees. *See* Prelim. Resp. 4–46.

We conclude that the record demonstrates a reasonable likelihood that Petitioner would prevail with respect to the challenged claim for the following reasons.

1. Kennewick (Ex. 1004)

Like the '160 patent, Kennewick is titled "Systems and Methods for Responding to Natural Language Speech Utterance." Ex. 1004, code (54). Although Kennewick and the '160 patent are not related by priority, the two have similar disclosures, as shown in a comparison that Petitioner has provided in the record. *See* Ex. 1007. The inventor, Robert A. Kennewick, is named in both the Kennewick reference and the '160 patent. Ex. 1001, code (76); Ex. 1004, code (76).

Kennewick's Figure 1 is shown below.



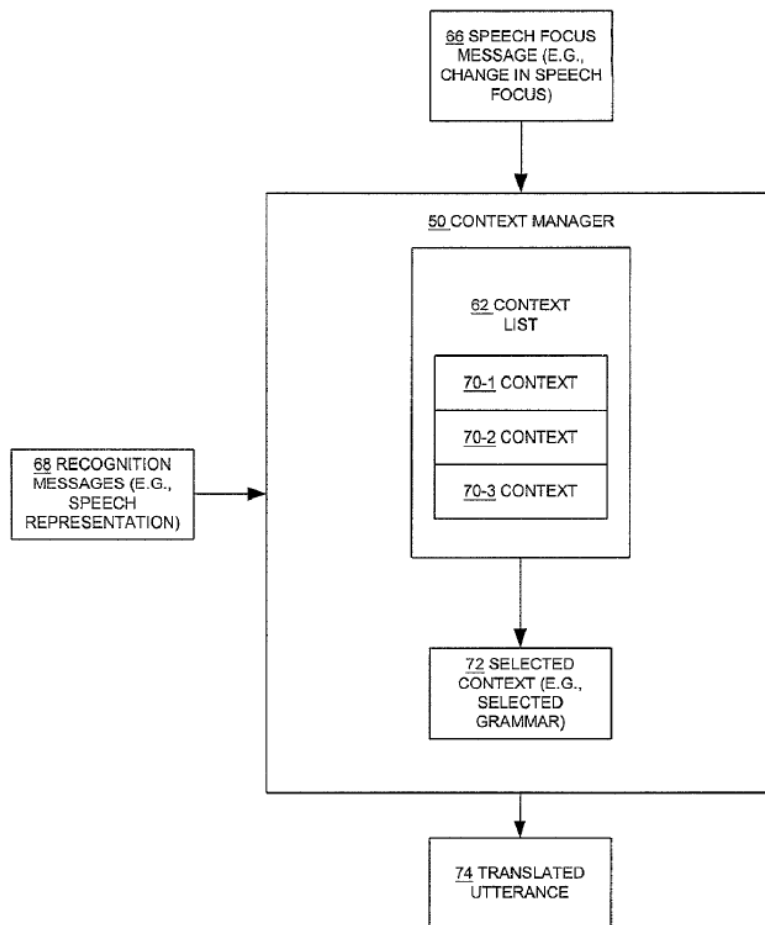
Kennewick discloses system 90 with speech unit 128 and main unit 98 similar to what has already been described for the '160 patent. *See* § II.B. Among the notable differences are that the main unit 98 has dictionary and phrase tables 112 instead of the context description grammar module 112 of the '160 patent. Ex. 1004 ¶ 149. Dictionary and phrase tables 112 are used by the speech recognition engine 120 to recognize spoken words and phrases. *Id.* ¶ 88. Also, Kennewick lacks disclosure that the '160 patent has concerning multi-modal interactions, non-speech-based queries, and a context manager. *See, e.g.*, Ex. 1007, 1–4.

2. Ross (Ex. 1005)

Ross is titled “System and Method for Determining Utterance Context in a Multi-Context Speech Application.” Ex. 1005, code (54). Ross discloses “a method and apparatus [] for determining a speech-enabled application to receive a spoken utterance in a multi-context speech enabled

environment.” *Id.* ¶ 10. Specifically, Ross’s apparatus has a message handler that receives and provides a representation of a spoken utterance to a context manager. *Id.* The context manager uses the utterance representation to evaluate contexts of speech-enabled applications to determine one to which to direct the utterance representation. *Id.* The context manager evaluates contexts for speech-enabled applications based on an access characteristic. *Id.* “The context manager may prioritize the contexts based on the access characteristic,” which “may be based on the recency of relevant access to the context.” *Id.* ¶ 12.

Ross’s Figure 4 is shown below.



Ross's Figure 4 shows components of context manager 50. *Id.* ¶ 33.

Context manager 50 includes context list 62 with “contexts 70 (e.g., 70-1, 70-2, 70-3, etc.) for speech enabled applications 26, which represent the grammars for the applications 26.” *Id.*

In implementing a speech center for language translation, Ross discloses that

when an utterance is recognized, it will be tested against each application's grammar to see if the grammar will accept it. The order of testing is based on a dynamic speech focus priority. The first application's grammar which will accept the utterance is then used for translation, and the command dispatched to the corresponding application 26. The speech focus priority is established by maintaining an ordered list of applications (e.g., context list 62). Whenever an application 26 gains window focus, it will move to the head of the list 62. Likewise, whenever an application 26 which is not the top priority application 26 is chosen as the target for a speech command, the application 26 indicated by the selected context 72 will move to the head of the list 62. In this way, the last application 26 that the user touched or talked to will get the first opportunity at interpreting the next user utterance, and the other applications 26 will be ordered in a most-recently-accessed way.

Id. ¶ 35.

3. *Motivation to Combine with Reasonable Expectation of Success*

We now address Petitioner's motivation to combine and Patent Owner's arguments against the combination. Pet. 36–37, 40–41; Prelim. Resp. 22–25. We determine on this record that Petitioner has provided sufficient motivations to combine Kennewick and Ross for the reasons that follow.

(i) *Petitioner's Contentions*

Petitioner presents two sets of motivations to combine Kennewick and Ross. Pet. 36–42. The first set of Petitioner's proffered motivations to combine relates to the “comparing the text combinations against the grammar expression entries in the context description grammar” of claim limitation 12b. Pet. 36–37. The second set of Petitioner's proffered motivations relates to the “one or more expected contexts stored in a context stack” of limitation 12b. *Id.* at 40–41.

For the first set of Petitioner's proffered motivations, Petitioner contends that a POSITA would have combined “Kennewick with Ross's teachings regarding comparing transcribed user utterances to grammar expressions in a grammar to identify a context.” Pet. 36 (citing Ex. 1002 ¶ 74). Petitioner contends that the “combination would have predictably resulted in Kennewick's parser identifying context(s) matching text combination(s) contained in a transcribed user utterance by ‘**comparing the text combinations against the [sic] grammar expression entries in the [sic; a] context description grammar**’ as claimed.” *Id.* Petitioner contends the references are analogous art because they are in the same field as the '160 patent, and because they pertain to the problems identified in the '160 patent. *Id.* (citing Ex. 1001, 1:8–14; Ex. 1004 ¶ 3; Ex. 1005 ¶¶ 10, 13; Ex. 1002 ¶ 75).

Petitioner contends that a POSITA would have understood that Kennewick's use of grammars would involve comparing text combinations against grammar expression entries in a context description grammar as claimed, and asserts that Ross “detail[s] a remarkably similar technique” that

“picks up where Kennewick leaves off” with Ross’s “more detailed teachings.” *Id.* at 37 (citing Ex. 1002 ¶ 76).

Petitioner further asserts that a POSITA would have had a reasonable expectation of success in combining Ross and Kennewick as “involv[ing] the straightforward application of conventional techniques and technologies without undue experimentation.” *Id.* at 37. Specifically, Petitioner asserts that Ross discloses that each speech-enabled application 26 may have a well-known Backus Naur Form (BNF) grammar, and examples of that grammar are shown in Ross. *Id.* (citing Ex. 1002 ¶ 77; Ex. 1005 ¶ 60; Ex. 1009, 8).

For the second set of motivations, Petitioner contends that “it would have been obvious to combine Kennewick with Ross’s disclosures regarding storing contexts associated with accessed applications on a context stack.” *Id.* at 40–41 (citing Ex. 1002 ¶ 81). Particularly, Petitioner alleges that “[t]he combination would have predictably resulted in ‘**one or more expected contexts**’—such as the contexts associated with applications that had already been invoked—‘**stored in a context stack.**’” *Id.* at 41 (citing Ex. 1002 ¶ 81).

Petitioner contends that “[t]he combination would have involved the application of known techniques to improve a similar system in the same way.” *Id.* (citing Ex. 1002 ¶ 82). Particularly, Petitioner states that “Kennewick already describes using a context stack storing context keywords in connection with determining a context for a user’s question” and “further suggests that the context keywords in the context stack correspond to previously identified contexts, by describing how ‘key words and criteria can be inherited from the stack’ when evaluating ‘a following-on question.’” *Id.* (citing Ex. 1004 ¶¶ 144–145; Ex. 1002 ¶ 82). Petitioner

contends that “Ross’s . . . similar system confirms storage of ‘**expected contexts**’ in a ‘**context stack**,’ and that doing so enables comparing text against the expected contexts to efficiently identify a matching context.” *Id.* at 41–42 (citing Ex. 1005 ¶ 35; Ex. 1002 ¶ 82).

(ii) *Patent Owner’s Contentions*

Patent Owner argues that a POSITA would not have been motivated to combine Ross’s first-to-match teachings with Kennewick’s scoring system. Prelim. Resp. 22–25. Specifically, Patent Owner contends that “the claim should be viewed as a whole, and not a collection of elements” and that “[w]hen that is done in this case, Petitioner’s stated motivations fail to support obviousness.” *Id.* at 23. Patent Owner asserts that “only the product of impermissible hindsight would cause a POSITA to pick and choose features from Kennewick and Ross to attempt to reconstruct the invention of claim 12 of the ’160 [p]atent.” *Id.* at 22–23. Patent Owner argues that Kennewick and Ross lack “expected contexts” and asserts that “there certainly would not be any justifiable motivation to include that feature in the combination.” *Id.* at 23.

Patent Owner asserts that Petitioner’s motivation theories do not view the claim as a whole but instead “assert[] distinct motivations for the elements in isolation.” *Id.* (citing Pet. 36–37 (Petitioner’s first set of proffered motivations), 40–41 (Petitioner’s second set of proffered motivations)).

For Petitioner’s first set of proffered motivations, Patent Owner asserts that “Petitioner’s theories do not offer any advantage in use of any technique of Ross with Kennewick” and “fails to acknowledge that Ross implements a completely different context selection scheme than Kennewick

and does not support a combination of Ross’s scheme with Kennewick’s.” *Id.* at 37. Specifically, Patent Owner asserts that “Ross uses a different, first-to-match system for selecting a context instead of a scoring system like that found in Kennewick.” *Id.* Patent Owner argues that “[c]ombining Ross’s different techniques into Kennewick would not ‘pick up’ where Kennewick ‘left off’ but instead would change the fundamental operation of both Kennewick and Ross as they relate to the selection of contexts.” *Id.* at 23–24 (citing *In re Ratti*, 270 F.2d 810, 813 (CCPA 1959); *In re Gordon*, 733 F.2d 900, 902 (Fed. Cir. 1984); *ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d 1312, 1327–28 (Fed. Cir. 2012)).

Patent Owner further contends that Petitioner’s second set of motivations “highlight the incompatibility with a combination of Ross’s first-to-match system in a scoring system.” Prelim. Resp. 24. Patent Owner argues that “Petitioner contends it is making the combination to ‘efficiently identify a matching context’ and seeks to implement the highest priority context method in Ross.” *Id.* at 24–25 (citing Pet. 41–42). Patent Owner asserts that Petitioner’s “motivation to be vaguely ‘more efficient’ is conclusory and fails to establish obviousness.” *Id.* at 25 (citing *ActiveVideo*, 694 F.3d at 1328). In any case, Patent Owner argues that Petitioner’s second proffered motivation to combine would remove from Kennewick the scoring features that Petitioner relies on to disclose limitations of claim 12. *Id.* at 25.

(iii) *Analysis*

We do not agree with Patent Owner’s arguments, which lack support in the record. *See Icon Health & Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1034, 1043 (Fed. Cir. 2017) (“attorney argument is not evidence”).

Specifically, we do not agree with Patent Owner's argument that Petitioner failed to consider the claimed invention as a whole but instead as a collection of elements picked from the prior art references using impermissible hindsight. Prelim. Resp. 23. Petitioner provided motivations to combine Kennewick and Ross which are supported by record evidence. Pet. 36–37, 40–41.

For example, Petitioner stated that Kennewick, Ross, and the '160 patent are directed to similar systems and methods for responding to natural language using speech contexts to identify agents and applications to generate a response to a question and/or command. *Id.* at 36–37 (citing Ex. 1001, 1:8–14; Ex. 1004 ¶ 3; Ex. 1005 ¶¶ 10, 13; Ex. 1002 ¶¶ 74–77). Petitioner further stated that Ross's technique of storing contexts associated with accessed applications in a context stack would make the system resulting from the combination more efficient in identifying contexts for spoken questions and/or commands. *Id.* (citing Ex. 1002 ¶¶ 81–82).

On this record, we agree with Petitioner that the similarities of Kennewick and Ross to the '160 patent and the efficiency that would be obtained by using Ross's technique of storing contexts of most-recently-accessed applications would have led a POSITA to combine the references. Ross expressly states that “[t]he goal is to provide multiple-application support relatively quickly,” meaning Ross's technique seeks to be more efficient. Ex. 1005 ¶ 35.

Although Patent Owner argues that Kennewick's context scoring system is different from what Patent Owner characterizes as Ross's “first-to-match” system, on this record, we agree with Petitioner that Ross fits well

with Kennewick’s teachings, or, as Petitioner puts it, “picks up where Kennewick leaves off.” Pet. 37 (citing Ex. 1002 ¶ 76).

Specifically, Kennewick describes matching text in a transcription, such as keywords and criteria, to grammar expressions, to identify contexts for scoring. Ex. 1002 ¶ 68 (citing Ex. 1004 ¶ 144). Kennewick discloses that possible contexts are scored and the top one or few are used for further processing. Ex. 1002 ¶ 78; Ex. 1004 ¶ 152. Kennewick further teaches that a follow-on question of a dialog may inherit key words and criteria from a stack. Ex. 1002 ¶ 78; Ex. 1004 ¶¶ 144–145, 166. Ross discloses that the most-recently-accessed context in a list will be the first context evaluated when processing the next utterance. Ex. 1002 ¶ 80; Ex. 1005 ¶ 35.

On this record, we do not see these teachings as conflicting or incompatible, but instead complimentary and advantageous to pursue in combination. Furthermore, the complimentary nature of the Kennewick and Ross teachings indicates that Petitioner is not considering the limitations of the claim in isolation as Patent Owner asserts, but as a whole, considering how the reference teachings logically fit together.

Although Patent Owner characterizes Ross as a “first-to-match” system, Ross states that the most-recently-accessed context “will get the *first opportunity* at interpreting the next user utterance.” Ex. 1005 ¶ 35. This means the most-recently-accessed context is not necessarily the one Ross’s system will ultimately select for use, nor could the system function properly in a multi-threaded environment if Patent Owner’s characterization was correct.

Patent Owner does not dispute Petitioner’s contentions concerning the reasonable expectation of success in combining Kennewick and Ross. In

any case, Petitioner has demonstrated sufficiently that the teachings of Kennewick and Ross and general knowledge of a POSITA, such as the well-known Backus Naur Form (BNF) grammar to define contexts, would have been adequate for a POSITA to implement the combination. Pet. 37 (citing Ex. 1005 ¶ 60; Ex. 1009, 8; Ex. 1002 ¶ 77).

We determine that Petitioner has shown sufficiently that a POSITA would have had reasons to combine Kennewick and Ross with a reasonable expectation of success in making the combination.

4. *Comparison of Claim 12's Limitations with Combination Disclosures*

We now consider Petitioner's and Patent Owner's contentions with regard to each limitation of claim 12. Pet. 13–46; Prelim. Resp. 11–22. We determine that Petitioner has demonstrated sufficiently that each limitation of claim 12 is disclosed by the combination of Kennewick and Ross for the reasons that follow.

(i) *Preamble*

The preamble of claim 12 recites “A method for interpreting natural language utterances using knowledge-enhanced speech recognition engine, wherein the knowledge-enhanced speech recognition engine is configured to determine an intent and correct false recognitions of the natural language utterances, comprising:” Ex. 1001, 30:60–64.

Petitioner contends that Kennewick discloses the preamble of claim 12. Pet. 13. Specifically, Petitioner asserts that “Kennewick discloses a ‘**knowledge-enhanced speech recognition engine**’ in the form of a parser that interprets a transcribed natural language utterance by (1) determining the intent of a request in a transcribed natural language utterance to select an application to invoke to process a command or question in the utterance, and

(2) identifying potentially false recognitions and prompting the user to correct them.” Pet. 13 (citing Ex. 1004 ¶¶ 31, 92, 152–153; Ex. 1002 ¶ 51).

Patent Owner does not dispute Petitioner’s contentions for the preamble of claim 12.

On the current record, after reviewing the evidence, we find that Petitioner has shown sufficiently that Kennewick discloses the preamble of claim 12. Therefore, we need not and do not consider whether the preamble is limiting.

(ii) *Limitation 12a: Receiving a Transcription at a Computer*

Limitation 12a recites “receiving a transcription of a natural language utterance at a computer comprising the knowledge-enhanced speech recognition engine.” Ex. 1001, 30:65–67.

Petitioner contends that Kennewick discloses limitation 12a. Pet. 14–22. Specifically, Petitioner contends that Kennewick discloses receiving “a natural language utterance” from a user. *Id.* at 14 (citing Ex. 1004 ¶ 10). Petitioner further asserts that “Kennewick discloses the natural language utterance input from the user is passed to a speech recognition engine that generates a ‘**transcription**’ of the utterance by recognizing words and phrases.” *Id.* (citing Ex. 1004 ¶¶ 142, 147, 186–187; Ex. 1002 ¶ 52). Petitioner contends that Kennewick discloses that this transcription is passed to a parser (i.e., the claimed “**knowledge-enhanced speech recognition engine**”) for interpretation. *Id.* (citing Ex. 1004 ¶ 152). Because the parser runs on a computer, Petitioner contends, the receiving of the transcription is “**at a computer comprising the knowledge-enhanced speech recognition engine.**” *Id.* (citing Ex. 1004 ¶ 52).

Patent Owner does not dispute Petitioner’s contentions for limitation 12a.

On this record, after reviewing the evidence, we find that Petitioner has shown sufficiently that Kennewick discloses limitation 12a.

(iii) *Limitation 12b: Identifying One or More Contexts*

Limitation 12b recites “identifying one or more contexts that completely or partially match one or more text combinations contained in the transcription, *wherein identifying the matching contexts includes comparing the text combinations against the grammar expression entries in the context description grammar and against one or more expected contexts stored in a context stack.*” Ex. 1001, 31:1–7 (emphasis added). As earlier noted, Petitioner and Patent Owner dispute whether the combination of Kennewick and Ross discloses the claim language shown in italics. Pet. 23–42 (citing Ex. 1002 ¶¶ 60–82); Prelim. Resp. 12–22. We address the parties’ contentions below.

Petitioner contends that Kennewick discloses “**identifying one or more contexts that...match...text. . .in the transcription,**” describing matching tokens (e.g., words) in a recognized utterance to contexts—such as the text “temperature” to the context “weather.” Pet. 23–24 (citing Ex. 1004 ¶ 152; Ex. 1002 ¶ 61). Petitioner further asserts that Kennewick discloses “**text combinations**” because some of the examples it provides are multi-word keywords in utterances like “get the value” and “my stock portfolio” in the phrase “please get the value of my stock portfolio.” *Id.* at 25–26 (citing Ex. 1004 ¶¶ 98, 186–187; Ex. 1002 ¶ 62). Petitioner contends that Kennewick discloses “**text combinations**” because “Kennewick makes clear

that the evaluation of a context can involve matching not only keyword(s) in the transcription, but criteria or parameters in the transcription as well.” *Id.* at 26 (citing Ex. 1004 ¶¶ 31, 93; Ex. 1002 ¶ 63).

Petitioner contends that Kennewick discloses “**comparing the text combinations against grammar expression entries in a context description grammar.**” Pet. 27. Petitioner asserts that “Kennewick discloses that an agent ‘passes a regular grammar expression to the parser 118 for evaluation of a context or question.’” *Id.* (citing Ex. 1004 ¶ 108; Ex. 1002 ¶ 66). Petitioner states that “Kennewick further describes how, in one example, a grammar is used ‘to clearly specify the keyword used to determine the context and a set of one or [sic] criteria or parameters.’” *Id.* (citing Ex. 1004 ¶ 144). According to Petitioner, “Kennewick also discloses that the grammar would include multiple grammar expressions.” *Id.* at 28 (citing Ex. 1002 ¶ 67). Petitioner further asserts that “Kennewick explains how a ‘content package’ for an agent ‘include[s] questions or commands’ and that each question or command has an associated regular grammar expression.” *Id.* (citing Ex. 1004 ¶ 108).

Therefore, Petitioner contends, “a collection of grammar expressions used to identify a context in Kennewick discloses ‘**grammar expression entries in a context description grammar**’ as claimed.” *Id.* (citing Ex. 1002 ¶ 68). Petitioner alleges that “[t]he collection discloses ‘**a context description grammar**’ because it comprises a grammar that describes context(s)” consistent with how the ’160 patent uses the term. *Id.* at 28–30 (citing Ex. 1001, 13:47–50, 16:46–54; Ex. 1004 ¶¶ 108, 144, 152; Ex. 1002 ¶ 68).

Petitioner also relies on Ross’s “context manager 50 that includes a context list 62” with “contexts 70 (e.g., 70-1, 70-2, 70-3, etc.) for speech enabled applications 26, which represent grammars for the applications 26.” *Id.* at 32 (citing Ex. 1005 ¶ 33, Fig. 4). Petitioner states that a “user’s transcribed utterance (a ‘recognition message’) is tested against the grammars in the context list in order to determine an application to invoke.” *Id.* at 32–33 (citing Ex. 1005 ¶ 34). Petitioner asserts that “Ross further makes clear that ‘test[ing]...against the active grammars’ and finding a successful ‘match’ involves matching text combinations in a user’s transcribed utterance to grammar expressions in a grammar.” Pet. 33 (citing Ex. 1002 ¶ 72). Petitioner asserts that Ross provides two example grammars, one for an email application, and the other for a calendar application. *Id.* at 33–35 (citing Ex. 1005 ¶¶ 35, 40–53; Ex. 1002 ¶¶ 72–73).

Patent Owner argues that Kennewick fails to disclose “grammar expression entries.” Prelim. Resp. 13–14 (citing Pet. 27–28; Ex. 1002 ¶ 68). However, as explained, Petitioner also relied on Ross to disclose this feature, and Patent Owner does not dispute Petitioner’s contention.

For the part of limitation 12b which recites that identifying the one or more matching contexts also “**includes comparing the text combinations...against one or more expected contexts stored in a context stack,**” Petitioner argues that a POSITA would have “found it obvious that Kennewick’s parser would access one or more expected contexts that are stored in a context stack to determine a most likely context.” Pet. 38. Petitioner asserts that “Kennewick discloses the ‘**one or more expected contexts**’ in a few different ways.” *Id.* First, Petitioner contends that Kennewick discloses that, “as part of determining the most

likely context, multiple ‘possible contexts are scored and the top one or few are used for further processing.’” *Id.* (citing Ex. 1004 ¶ 152). Second, Petitioner contends that “Kennewick further discloses that possible contexts matching a transcription are stored in a context stack, describing an example of how ‘the contents of the context stack,’ such as keywords and criteria corresponding to past contexts, may be used in determining the context of a user’s next request (e.g., ‘a following-on question’).” *Id.* at 38–39 (citing Ex. 1004 ¶¶ 144–145, 166). Specifically, Petitioner asserts that “the context keyword(s) stored in the context stack and associated with an earlier question is an example of an ‘expected context.’” *Id.* at 39 (citing Ex. 1002 ¶ 78).

Petitioner also relies on Ross as disclosing “**comparing the text combinations...against one or more expected contexts stored in a context stack.**” Pet. 39–40. Petitioner contends that “Ross describes a context manager 50 that includes a context list 62” with contexts 70 that “are sorted in priority order, such that the most-recently-accessed context will be the first context evaluated when processing the next user utterance.” *Id.* at 39–40 (citing Ex. 1005 ¶¶ 33, 35, 37; Ex. 1009, 17, 22; Ex. 1002 ¶ 80).

Patent Owner argues that Kennewick fails to disclose “**expected contexts.**” Prelim. Resp. 14–19. Particularly, Patent Owner asserts that Kennewick’s “possible contexts” or storage of dialog history are not “expected contexts” as claimed. *Id.* at 14–15. Patent Owner contends that Kennewick’s scoring of possible contexts and using the top one or few for further processing does not satisfy limitation 12b because it “requires a comparison of ‘expected contexts’ against text combinations, and this

requirement is not disclosed by Kennewick.” *Id.* at 15 (citing Pet. 38; Ex. 1004 ¶ 152); *see also* 16–17 (citing Pet. 39; Ex. 1002 ¶ 78).

Concerning Kennewick’s dialog history, Patent Owner asserts that “Petitioner provides no reasoning to support the asserted linkage of ‘context keyword(s) ... associated with an earlier question,’ or dialog history, to expected contexts, nor does Petitioner explain how ‘context keyword(s)’ can be an ‘example’ of expected contexts.” Prelim. Resp. 17–18 (citing Pet. 38–39; Ex. 1004 ¶¶ 144–145, 166). Patent Owner asserts that “even if context entries with dialog history were incorrectly considered a set of ‘expected’ contexts, [limitation 12b] still requires that set of contexts to be compared against text combinations to identify matching contexts.” *Id.* at 18–19 (citing Pet. 39; Ex. 1002 ¶ 78).

Patent Owner further argues that Ross also fails to disclose “**expected contexts**” as claimed. Prelim. Resp. 19–22. Specifically, Patent Owner argues that Ross’s first-to-match system processes an ordered list of applications sequentially so that the highest context with grammar that matches the grammar in a recognition message becomes the selected context. *Id.* at 19–20 (citing Ex. 1005 ¶¶ 33, 35, 53, Fig. 5, step 106). Patent Owner argues that “Ross never encounters any possibility that the grammar in the recognition message would match multiple contexts.” *Id.* at 20–21 (citing Ex. 1005 ¶¶ 53–55).

On this record, we do not agree with Patent Owner’s argument that Ross does not disclose matching multiple contexts. Specifically, Ross discloses that

[o]ne grammar from each application 26 is active simultaneously, *but since there will always be overlap between what the different application grammars will accept*, the speech

center 20 does not necessarily dispatch a command back to the application 26 whose grammar recognized it. Instead, when an utterance is recognized, *it will be tested against each application's grammar to see if the grammar will accept it.*

Ex. 1005 ¶ 35. Thus, Ross discloses matching multiple contexts. *See* Pet. 39–40.

Accordingly, we do not reach the dispute of whether Kennewick also discloses “expected contexts.”

On this record, we find that Petitioner shows sufficiently that the combination of Kennewick and Ross discloses limitation 12b notwithstanding Patent Owner’s arguments to the contrary.

(iv) Limitation 12c: Scoring Identified Matching Contexts

Limitation 12c recites “scoring each of the identified matching contexts.” Ex. 1001, 31:8.

Petitioner contends that Kennewick discloses limitation 12c. Pet. 42–43. Petitioner contends that Kennewick discloses “identifying possible contexts that match a user’s utterance ‘by applying prior probabilities or fuzzy possibilities to keyword matching, user profile 110, and dialog history.’” *Id.* at 42 (citing Ex. 1004 ¶ 152). Petitioner further notes that Kennewick states “[b]ased on these probabilities or possibilities the possible contexts are scored and the top one or few are used for further processing.” *Id.* (citing Ex. 1004 ¶¶ 30, 152, 153).

Patent Owner does not dispute Petitioner’s contentions for limitation 12c.

We find that Petitioner shows sufficiently that Kennewick discloses limitation 12c.

(v) *Limitation 12d: Selecting Matching Context*

Limitation 12d recites “selecting the matching context having a highest score to determine a most likely context for the utterance.”

Ex. 1001, 31:9–10.

Petitioner contends that Kennewick discloses limitation 12d. Pet. 43–44. Specifically, Petitioner asserts that “Kennewick discloses that ‘the possible contexts are scored and the top one or few are used for further processing.’” *Id.* at 43 (citing Ex. 1004 ¶ 152). Petitioner further states that Kennewick “describes how ‘[t]he parser 118 uses a scoring system to determine the most[] likely context or domain for a user’s question and/or command’ and that ‘[b]ased on this scoring, the system 90 invokes the correct agent.’” *Id.* at 43–44 (citing Ex. 1004 ¶ 153). Petitioner contends that a POSITA “would have understood and found it obvious that the matching context ‘**having a highest score**’ would determine the ‘**most likely context**.’” *Id.* at 44. Petitioner asserts this is so, “first, because Kennewick discloses selecting only the context with the ‘top’ score, and second, because it would be quite sensible to select the context having a highest score as a mostly likely context even where ‘the top...few are used for further processing.’” *Id.* (citing Ex. 1002 ¶ 85).

Patent Owner does not dispute Petitioner’s contention that Kennewick discloses limitation 12d.

On the current record, Petitioner demonstrates sufficiently that Kennewick discloses limitation 12d.

(vi) *Limitation 12e: Communication Request to Domain Agent*

Limitation 12e recites “communicating a request to a domain agent configured to process requests in the most likely context for the utterance, the request formulated using at least one grammar expression entry in the context description grammar.” Ex. 1001, 31:11–14.

Petitioner contends that Kennewick discloses limitation 12e. Pet. 45–46. Specifically, Petitioner contends that Kennewick discloses **“communicating a request to a domain agent configured to process requests in the most likely context for the utterance.”** Pet. 45. Petitioner asserts that “Kennewick explains, for example, that ‘[b]oth system agents 150 and domain agents 156 receive questions and commands from the parser 118’ and that ‘[a]fter selecting the agents 106, a properly formatted query and/or command that will be submitted to the agents 106 may be determined at 608.’” *Id.* (citing Ex. 1004 ¶¶ 91, 92, 185, 189; Ex. 1002 ¶ 87).

Petitioner further contends that Kennewick “discloses and renders obvious that the request communicated to a domain agent would be **‘formulated using at least one grammar expression entry in the context description grammar.’”** Pet. 45. Petitioner asserts that “Kennewick discloses and renders obvious a context description grammar that includes one or more grammar expression entries.” *Id.* at 46. Petitioner argues that “Kennewick refers to a ‘regular grammar’ that serves the same purpose of the ‘context description grammar’ in the ’160 patent.” *Id.* (citing Ex. 1004 ¶ 108; Ex. 1001, 16:46–54). Petitioner alleges that “Kennewick refers back to the “regular grammar,” similarly disclosing “formulat[ing] a question or command in the regular grammar used by agents.” *Id.* (citing Ex. 1004 ¶¶ 154, 189). Petitioner argues that “Kennewick, alone or in view of Ross,

therefore discloses formulating a request to a domain agent ‘**using at least one grammar expression entry in the context description grammar.**’”

Id. (citing Ex. 1002 ¶ 88). Petitioner contends that “because grammar expression entries are used when matching a transcription to determine a context and application to invoke, as taught by both Kennewick and Ross, a person of ordinary skill in the art would have understood that the resulting request communicated to the domain agent would have been formulated ‘using at least one grammar expression entry in the context description grammar.’” *Id.* (citing Ex. 1002 ¶ 88).

Patent Owner does not dispute Petitioner’s contentions concerning limitation 12e.

On the current record, we find that Petitioner demonstrates sufficiently that Kennewick and Ross disclose limitation 12e.

(vii) Conclusion for Claim 12

Petitioner has shown sufficiently that a POSITA would have had reason to combine Kennewick and Ross with a reasonable expectation of success, and that each limitation of claim 12 is disclosed by the combination.

Accordingly, we determine that Petitioner has demonstrated a reasonable likelihood to prevail in demonstrating unpatentability of claim 12 of the ’160 patent as obvious over the combination of Kennewick and Ross.

V. CONCLUSION

For the above reasons, we conclude the record demonstrates a reasonable likelihood that Petitioner would prevail with respect to the challenged claim, so we grant institution of the petitioned *inter partes*

review per 35 U.S.C. § 314(a). We decline to exercise discretion to deny institution under 35 U.S.C. § 325(d).

VI. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that, pursuant to 35 U.S.C. § 314(a), the petitioned institution of *inter partes* review of claim 12 of the '160 patent is *granted*; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial and that the trial will commence on the entry date of this decision.

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