

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

GOOGLE LLC,
Petitioner,

v.

DIALECT, LLC,
Patent Owner.

Case IPR2024-00753
Patent 7,640,160

PATENT OWNER'S RESPONSE

TABLE OF CONTENTS

I.	THE PETITION’S GROUND FAILS TO DISCLOSE EVERY CLAIMED FEATURE	1
II.	THE ’160 PATENT DISCLOSES AND CLAIMS WAYS TO USE A CONTEXT STACK THAT ARE NOT DISCLOSED OR SUGGESTED BY THE ASSERTED ART	4
A.	The ’160 Patent Discloses and Claims Features not Disclosed or Suggested by the Earlier Kennewick Reference	4
B.	The ’160 Patent Improves on the Kennewick Reference by Using Both Grammar Expression Entries and Expected Contexts in a Method for Interpreting Natural Language Utterances	5
1.	The ’160 Patent compares text combinations against “grammar expression entries”	6
2.	The ’160 Patent also compares text combinations against “expected contexts”	7
3.	Claim 12 of the ’160 Patent claims comparing text combinations against “grammar expression entries” and “expected contexts”	9
III.	PETITIONER’S INTERPRETATION OF “EXPECTED CONTEXTS” IMPROPERLY OMITTS “EXPECTED” FROM THE CLAIM	11
A.	The District Court has construed terms relevant to the ’160 patent, including “context entries”	11
B.	Petitioner Fails to Apply a Proper Interpretation of Claim 12’s “Expected Contexts”	12
C.	Petitioner Also Fails to Apply a Proper Interpretation of Claim 12’s Claimed Steps	17
IV.	PETITIONER’S CHALLENGE FAILS ON THE MERITS	21

A.	Kennewick Fails to Disclose Element 12[b]	22
1.	Kennewick fails to disclose “expected contexts”	23
2.	Petitioner’s First Theory of “expected contexts” in Kennewick Fails	25
3.	Petitioner’s Second Theory of “expected contexts” in Kennewick Also Fails	28
B.	Ross Also Lacks “Expected Contexts” and Fails to Remedy the Deficiencies of Kennewick	31
1.	Ross’s system uses grammar stored in a context list to determine which application can process a speech command	31
2.	Ross’s use of grammar in the context list fails to disclose “expected contexts”	35
V.	CONCLUSION	38

TABLE OF AUTHORITIES

Cases

<i>Akzo Nobel Coatings, Inc. v. Dow Chem. Co.</i> , 811 F.3d 1334 (Fed. Cir. 2016)	14
<i>Merck & Co. v. Teva Pharm. USA, Inc.</i> , 395 F.3d 1364 (Fed. Cir. 2005)	13
<i>Power Mosfet Techs., L.L.C. v. Siemens AG</i> , 378 F.3d 1396 (Fed. Cir. 2004)	13

Other Authorities

<i>Consolidated Trial Practice Guide</i> (Nov. 2019)	27
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Rules

37 C.F.R. § 42.120	1
37 C.F.R. § 42.65(a).....	27

PATENT OWNER’S EXHIBIT LIST

Exhibit No.	Description
2001	Patent Owner’s Power of Attorney
2002	U.S. Patent 7,693,720 (“the ’720 Patent”)
2003	U.S. Patent 8,015,006 (“the ’006 Patent”)
2004	U.S. Patent 8,195,468 (“the ’468 Patent”)
2005	U.S. Patent 9,263,039 (“the ’039 Patent”)
2006	U.S. Patent 9,495,957 (“the ’957 Patent”)
2007	Order (Construing Claim Terms), Dialect, LLC v. Amazon.com Inc., Civ. No. 1:23cv581, Dkt. 213 (E.D. Va. Apr. 29, 2024)
2008	Reserved
2009	Reserved
2010	Declaration of Benedict Occhiogrosso in Support of Patent Owner’s Response
2011	Deposition Transcript of Christopher Schmandt, taken January 29, 2025
2012	Reserved

Pursuant to 37 C.F.R. § 42.120, Patent Owner Dialect, LLC (“Dialect” or “Patent Owner”) files this Response to the Petition filed by Google LLC (“Petitioner”), setting forth reasons why the Petition for *inter partes* review (“IPR”) fails to establish the unpatentability of claim 12 of U.S. Patent No. 7,640,160 (the “’160 patent”). This Response is supported by the expert declaration of Benedict Occhiogrosso, submitted as Ex. 2010 (hereinafter, “Occhiogrosso”).

I. THE PETITION’S GROUND FAILS TO DISCLOSE EVERY CLAIMED FEATURE

The ’160 patent provides techniques that mitigate against the risk of false recognitions when processing natural language utterances. As part of the claimed method for interpreting natural language utterances, challenged claim 12 of the ’160 patent includes the step of “comparing” text combinations contained in a transcription “against the grammar expression entries in the context description grammar *and* against one or more expected contexts stored in a context stack.”

However, the references relied upon by Petitioner not only fail to disclose the required comparison against *both* “grammar expression entries” and “one or more expected contexts,” as claimed, but also fail to disclose the claimed “one or more expected contexts.” Petitioner’s lead asserted art—Kennewick—shares some but not all disclosures of the ’160 patent, and Kennewick fails to disclose the concept and use of “expected contexts,” which was first disclosed in the ’160

patent. Petitioner's own redline between the earlier work's publication and the '160 patent (Ex. 1007), confirms that requirements of challenged claim 12, including the claimed concept and use of "expected contexts," were not present in Kennewick.

The testimony of Petitioner's expert also reinforces the error of Petitioner's challenge. As noted, claim 12 of the '160 patent compares text combinations generated from a user's utterance "against one or more expected contexts stored in a context stack" as part of the process of identifying matching contexts. Those matching contexts are then scored, and a most likely context is determined. Distinct from that process using "expected contexts," the '160 patent and Kennewick disclose a different embodiment involving the use of "possible contexts." However, rather than first identifying matching contexts using "expected contexts" as recited in claim 12, this different embodiment scores every "possible context." As Petitioner's expert testified at deposition, he believes that every context in a context stack is a possible context. According to this interpretation, Kennewick scores every context in a context stack, and therefore fully omits the predicate step of identifying matching contexts, as fully recited in claim 12. Specifically, Kennewick fails to disclose or suggest the comparison of text combinations against "one or more expected contexts stored in a context stack" as part of the process of identifying matching contexts prior to scoring those

matching contexts.

Petitioner and its expert also failed to appreciate the differences between claim 12's use of "expected contexts" and Kennewick's embodiment of scoring all "possible contexts." Petitioner's expert confirmed at deposition that he views possible contexts and expected contexts as both including every context in a context stack. This is wrong. Kennewick's "possible contexts" and the '160 patent's novel use of "expected contexts" are different, used differently, and implemented in different embodiments for attempting to determine a meaning of a user's utterance.

While Petitioner proposes to combine its secondary reference—Ross—with Kennewick, Ross fails to remedy Kennewick's shortcoming because Ross also fails to disclose the concept or use of "expected contexts." Ross discloses contexts that include only grammar for applications that may process a recognized speech input, and Ross searches the context list for the application grammar that can process a speech command. Ross selects the first found application that can process a speech command, and does not look beyond that first application even if there are other applications that could process the speech command. Ross's context list contains only application grammar, and therefore Ross, like Kennewick, also fails to disclose any "expected contexts." Also like Kennewick, Ross fails to disclose the claimed requirement to compare text combinations of a

transcribed user utterance “against one or more expected contexts stored in a context stack” in addition to grammar expression entries in the context description grammar, as required by claim 12.

For these reasons, which are explained in more detail below, the sole Ground in the Petition fails to establish unpatentability of claim 12.

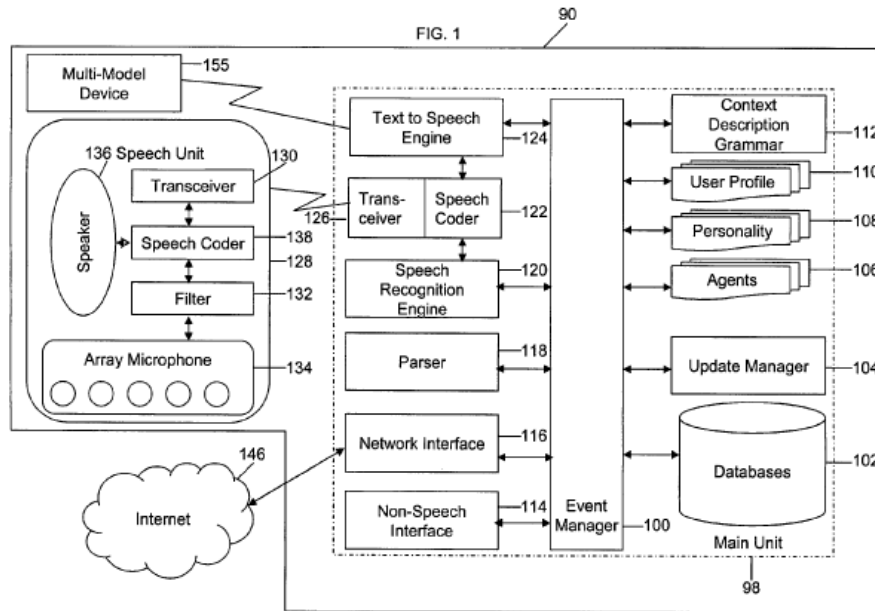
II. THE ’160 PATENT DISCLOSES AND CLAIMS WAYS TO USE A CONTEXT STACK THAT ARE NOT DISCLOSED OR SUGGESTED BY THE ASSERTED ART

A. The ’160 Patent Discloses and Claims Features not Disclosed or Suggested by the Earlier Kennewick Reference

The ’160 patent is titled, “Systems and Methods for Responding to Natural Language Speech Utterance,” and is related to processing that determines an intent and corrects false recognitions of natural language utterances. Contrary to Petitioner’s theories, the ’160 patent discloses an efficient and reliable way to identify a context for the natural language utterances that is not disclosed in any of the asserted art relied upon by Petitioner. And as introduced above, Petitioner’s lead asserted art—Kennewick—corresponds to work by common inventors to the ’160 patent. As clearly indicated in Petitioner’s own redline between the earlier work and the ’160 patent (Ex. 1007), the ’160 patent adds to and improves upon Kennewick by introducing the concept of “expected contexts” and disclosing the use of these “expected contexts” in a novel method for interpreting natural language utterances.

B. The '160 Patent Improves on the Kennewick Reference by Using Both Grammar Expression Entries and Expected Contexts in a Method for Interpreting Natural Language Utterances

As a brief introduction, FIG. 1 of the '160 patent represents an “overall diagrammatic view according to one embodiment of the invention”:



'160 Pat., Fig. 1, 9:63-64. As shown in FIG. 1, the system includes speech unit 128, speech recognition engine 120, context description grammar module 112, parser 118, and agents 106. Speech unit 128 includes a microphone 134 to receive a spoken utterance from a user. '160 Pat., 11:55-57. After initial processing, the speech is passed to speech recognition engine 120 for processing using the context description grammar module 112. '160 Pat., 12:23-25.

Then, “[a]ny recognized information may be processed by the parser 118, which transforms information into complete algorithms and questions using data

supplied by knowledge agents.” ’160 Pat., 12:25-28. “The knowledge agents may then process the commands or questions.” ’160 Pat., 12:32-36. The agents may update a context stack, which includes an ordered list of command contexts, to enable follow-up requests. ’160 Pat., 13:57-59.

1. The ’160 Patent compares text combinations against “grammar expression entries”

To select the correct agent to process the command or question, “[t]he parser 118 uses a scoring system to determine the most likely context or domain for a user’s question and/or command.” ’160 Pat., 21:10-12. To begin, a user’s command or request may be presented or converted into a text message, which may be searched for text combinations. ’160 patent, 13:29-35, 13:44-47. As part of the process of determining the most likely context or domain for a user’s question and/or command, the text combinations may be compared against entries in a context description grammar associated with each domain agent 106. ’160 patent, 13:47-49.

As reflected in the addition of new disclosure in the ’160 patent relative to Kennewick, the requirement of comparing text combinations against entries in a context description grammar associated with each domain agent 106 is ***not*** found in Kennewick and was added in the ’160 patent (*see* Ex. 1007, 21; *id.*, 1 (“blue [and double underlined] indicating material added by the ’160 patent”)):

According to one embodiment of the invention, the text message may be searched for a particular character, group of characters, word, group of words, and other text combinations. The text combination may be compared against entries in a context description grammar that is associated with each agent 106. If a match is identified between an active grammar in the context description grammar and the command and/or request, then the match may be scored. The agents 106 may be ranked based

Thus, Petitioner's own redline admits that these features, first disclosed and claimed in the '160 patent, were not present in the Kennewick reference, in contrast to Petitioner's challenges.

Turning back to the '160 patent's disclosure of the scoring system, "[i]f a match is identified between an active grammar in the context description grammar and the command and/or request, then the match may be scored." '160 Pat., 13:49-51. "The score is determined from weighing a number of factors, including the user profile 110, the domain agent's data content and previous context. Based on this scoring, the system 90 invokes the correct agent." '160 Pat., 21:10-15.

2. The '160 Patent also compares text combinations against "expected contexts"

In addition to using "grammar expression entries" in a context description grammar to accomplish the scoring, the '160 patent also uses "expected contexts" stored in a context stack. If the process of comparing the text combinations against active grammars in the context description grammar yields no match or only a partial match, the system can "semantically broaden the search." '160 Pat., 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.” ’160 Pat., 13:66-14:2. As also reflected in an addition to the ’160 patent relative to Kennewick, the requirement of using expected contexts to identify a most likely context is **not** found in Kennewick and was added in the ’160 patent (Ex. 1007, 21; *id.*, 1 (“blue [and double underlined] indicating material added by the ’160 patent”)):

According to another embodiment of the invention, if a match is not found, or only a partial match is found, between the text message and active grammars, then a knowledge-enhanced speech recognition system may be used to semantically broaden the search. The knowledge-enhanced speech recognition system may be used to determine the intent of the request and/or to correct false recognitions. 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. The knowledge-

Thus, Petitioner’s redline also admits that the expected context features disclosed and claimed in the ’160 patent were not present in the Kennewick reference, in contrast to Petitioner’s challenges. 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.). ’160 Pat., 14:2-6.

As explained by Mr. Occhiogrosso, a POSITA reading the ’160 patent would understand that the “expected contexts” could use these context specific matchers, while other (i.e., non-expected) context stack entries may not use these context specific matchers. Occhiogrosso, ¶41. For example, a request or

command might be expected to refer to a television program, and the system could access the context stack to compare the text combinations contained in a transcription of a command or request against the expected “television” contexts, so as to identify which of the expected “television” contexts fully or partially match the text combinations. *Id.*

Thus, the '160 patent discloses comparing text combinations contained in a transcription of a natural language utterance against *both* the grammar expression entries *and* one or more expected contexts to identify matching contexts. Once identified, the '160 patent discloses scoring each identified matching context.

3. Claim 12 of the '160 Patent claims comparing text combinations against “grammar expression entries” and “expected contexts”

Claim 12 of the '160 patent includes each of these requirements, reciting:

12. 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:

receiving a transcription of a natural language utterance at a computer comprising the knowledge-enhanced speech recognition engine;

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*;

scoring each of the identified matching contexts;
selecting the matching context having a highest score to
determine a most likely context for the utterance; and
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.

As acknowledged in the Petition, the Examiner viewed claim 12 as requiring “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” and found that the claims were allowable on this basis. Pet., 8-9; *see also* Ex. 1012, 305 (emphasis added). The Examiner came to this conclusion after becoming aware of the Kennewick reference and applying it to reject certain claims earlier in the prosecution. Ex. 1012, 196-210.

III. PETITIONER'S INTERPRETATION OF "EXPECTED CONTEXTS" IMPROPERLY OMITTS "EXPECTED" FROM THE CLAIM

A. The District Court has construed terms relevant to the '160 patent, including "context entries"

The United States District Court for the Eastern District of Virginia has issued constructions for the following terms in other patents assigned to Patent Owner (Ex. 2007):¹

Term	Patent(s)	Claim(s)	Construction
context	'720 Patent	1, 31	"the subject matter area to which a particular user input is directed and which is used to determine the meaning of the user input"
	'006 Patent	1, 2, 4, 5, 10	
	'468 Patent	19, 28	
	'039 Patent	17, 18	
context stack	'006 Patent	2	"a data structure that stores or references contexts in a manner that can be ordered"
	'468 Patent	19, 28	
	'039 Patent	17	
	'957 Patent	1, 3, 4, 7	
entries in a context stack	'468 Patent	19	"elements of a context stack that store or reference contexts"

¹ U.S. Patent 9,263,039 ("the '039 Patent") (Ex. 2005), identified in this table as '039 Patent, is related to the '160 patent through other continuation applications. Ex. 2005 at 1-2. U.S. Patent 7,693,720 ("the '720 Patent") (Ex. 2002), U.S. Patent 8,015,006 ("the '006 Patent") (Ex. 2003), U.S. Patent 8,195,468 ("the '468 Patent") (Ex. 2004), and U.S. Patent 9,495,957 ("the '957 Patent") (Ex. 2006) are each assigned to Patent Owner and share at least one inventor in common with the '160 patent.

context entries	'957 Patent	1, 3, 4, 5, 7	"elements of a context stack that store or reference contexts"
grammar	'720 Patent	1, 31	"a set of rules governing how inputs and requests to a domain agent should be structured"
	'006 Patent	1, 5, 10	
context description grammar	'039 Patent	13	"a data structure containing entries constituting or referencing sets of rules, wherein each of those sets describes the structure of natural language in a particular context"
domain agent	'720 Patent	1, 31	"executables associated with a specific domain that receive, process and respond to user questions, queries and commands"
	'006 Patent	1, 2, 5, 10	
	'468 Patent	19, 30, 32	"software with domain-specific behavior and information"
	'039 Patent	13, 14	
procedures sensitive to the determined context	'006 Patent	5	"procedures that differ based on which context has been determined"
parser	'720 Patent	1, 35	"software that analyzes a string of words"
	'006 Patent	1, 5, 10	

B. Petitioner Fails to Apply a Proper Interpretation of Claim 12's "Expected Contexts"

The Petitioner identifies no terms as requiring construction. *See* Pet., 12.

However, Petitioner improperly treats the claimed "expected contexts" as identical

to a separately described concept of “possible contexts,” and therefore fails to apply a proper interpretation of “expected contexts” as recited in claim 12. Indeed, Petitioner’s interpretation of “expected contexts” effectively omits “expected” from this claim term, in violation of the principles of claim construction.

Element 12[b] recites, in full, “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.”

(emphasis added). Critical to Petitioner’s challenge is that Kennewick’s “possible contexts” discloses the “expected contexts” recited in challenged claim 12.

However, Petitioner’s expert’s opinion is that every context entry in Kennewick’s context stack is a “possible context” and also an “expected context.” *See* Ex. 2011, 70:14-15. A proper interpretation of the ’160 patent’s “expected contexts” does not include every entry in a context stack, as this would improperly omit

“expected” from this claim term. *See Power Mosfet Techs., L.L.C. v. Siemens AG*, 378 F.3d 1396, 1410 (Fed. Cir. 2004) (“[I]nterpretations that render some portion of the claim language superfluous are disfavored.”); *Merck & Co. v. Teva Pharm. USA, Inc.*, 395 F.3d 1364, 1372 (Fed. Cir. 2005) (“A claim construction that gives meaning to all the terms of the claim is preferred over one that does not do so.”).

A POSITA would read the different embodiments of the '160 patent and understand that “expected contexts” and “possible contexts” are different concepts that are implemented differently in the different embodiments, and these disclosures are plainly distinct. *Occhiogrosso*, ¶¶52-57.

Initially, as already introduced above, the '160 patent's embodiment directed to accessing a set of “expected contexts” is new relative to the Kennewick disclosures. As disclosed in this “another” embodiment of the '160 patent, a comparison of a text combination “against entries in a context description grammar that is associated with each agent” is performed first, and “if a match is not found, or only a partial match is found, between the text message and active grammars, then a knowledge-enhanced speech recognition system may be used to semantically broaden the search.” '160 Pat., 13:44-64. “The knowledge-enhanced speech recognition [system] may access a set of expected contexts that are stored in a context stack to determine a most likely context” using “text based matching” or “phonetic matching.” *Id.*, 13:66-14:2, 14:6-10.

Nothing in the '160 patent indicates that the “set of expected contexts” includes every entry in the context stack, as Patent Owner's expert confirms. *Occhiogrosso*, ¶¶52-54. That result would also improperly omit “expected” from the claim term, contrary to Federal Circuit precedent. *Akzo Nobel Coatings, Inc. v. Dow Chem. Co.*, 811 F.3d 1334, 1340 (Fed. Cir. 2016) (“But allowing ‘collection’

to mean 'receive' would render 'collection' entirely superfluous and allow any pressurized vessel to constitute a 'pressurized collection vessel'; such a result is disfavored."). Moreover, as disclosed in the '160 patent, accessing a "set of expected contexts" occurs if a comparison of a text combination "against entries in a context description grammar that is associated with each agent" yields no match or a partial match against an active grammar in the context description grammar. In other words, per the '160 patent, a comparison of text combinations against grammar for each agent has already yielded no matches or only partial matches, the '160 patent semantically broadens the search. Rather than casting a net out against every possible context entry in a context stack to check compatibility with every agent, the '160 patent instead modifies its search and performs the comparison against a "set of expected contexts."

Thus, a POSITA would understand the "expected contexts" are a subset of the contexts in a context stack. Occhiogrosso, ¶56. For example, a particular set of contexts in the context stack could be "expected contexts" based on their use of the disclosed "context specific matchers." As provided in the '160 patent, "[t]he 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." '160 patent, 14:2-6. As noted for example, if the system expects the text combinations to refer to a

“television,” the “expected contexts” in the context stack could be those entries containing the “television” context specific matcher. Occhiogrosso, ¶56.

Indeed, the '160 patent expressly refers to this use of a “set of expected contexts” as “another embodiment of the invention.” '160 Pat., 13:60. This is in contrast to the '160 patent's separate embodiment and disclosure related to “possible contexts,” which was disclosure shared by Kennewick. There, just as in Kennewick, the '160 describes a different embodiment where “the possible contexts are scored and the top one or few are used for further processing.” '160 Pat., 21:7-9.

Notably, in the “possible context” embodiment, the “possible contexts” are scored, which stands in contrast to the “expected contexts” embodiment where the “expected contexts” are used to identify matching contexts by comparing text combinations against the expected contexts. More specifically, “[t]he parser dynamically receives keyword and associated prior probability or fuzzy possibility updates from the system agent 150 or an already active domain agent 156. Based on these probabilities or possibilities the possible contexts are scored and the top one or few are used for further processing.” '160 patent, 21;4:9.

As introduced above, the Petitioner identifies no terms as requiring construction but then treats separate concepts and embodiments in the '160 patent as directed to the same concept. Specifically, Petitioner treats “expected contexts”

as the same as “possible contexts” even though the ’160 patent describes the different uses of these different concepts in different embodiments. And even Petitioner’s expert, Mr. Schmandt, views every entry in a context stack as a possible context *and* an expected context, and thus fails to apply differing meanings to these two terms. *See* Ex. 2011, 70:14-15 (Mr. Schmandt testifying that “[t]he entire context stack is possible contexts or expected contexts.”). Given the way the ’160 patent uses and accesses a “set of expected contexts,” a proper interpretation of “expected contexts” is *not* identical to “possible contexts,” contrary to the assertions of Petitioner and its expert. Occhiogrosso, ¶¶49-60.

C. Petitioner Also Fails to Apply a Proper Interpretation of Claim 12’s Claimed Steps

In addition to applying an improper interpretation of “expected contexts” in its challenge, Petitioner also fails to recognize the claimed order of steps imposed by the plain language of claim 12.

The recited steps of claim 12 are reproduced and annotated below, and identified using Petitioner’s designations from page 5 of the Petition along with an additional subdivision of element 12[b]:

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][1] *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 [b][2] *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.

Looking primarily to elements 12[b], [c], and [d], the claimed process involves a step of “*identifying one or more contexts* that completely or partially match one or more text combinations contained in the transcription,” where that step of “identifying the matching contexts” includes “comparing the text combinations ... against one or more expected contexts stored in a context stack.” That process of step 12[b] yields “identified matching contexts,” and in step 12[c], the following step of “scoring each of the identified matching contexts” is

performed. Then, in step 12[d], the performed step is “selecting the matching context having a highest score to determine a most likely context for the utterance.”

From these express claim elements, “expected contexts” are “stored in a context stack,” and by comparing the text combinations contained in a transcription of a natural language utterance against one or more “expected contexts,” the claimed step of “*identifying one or more contexts* that completely or partially match one or more text combinations” is performed as element 12[b]. Through this claimed step, “matching contexts” are identified.

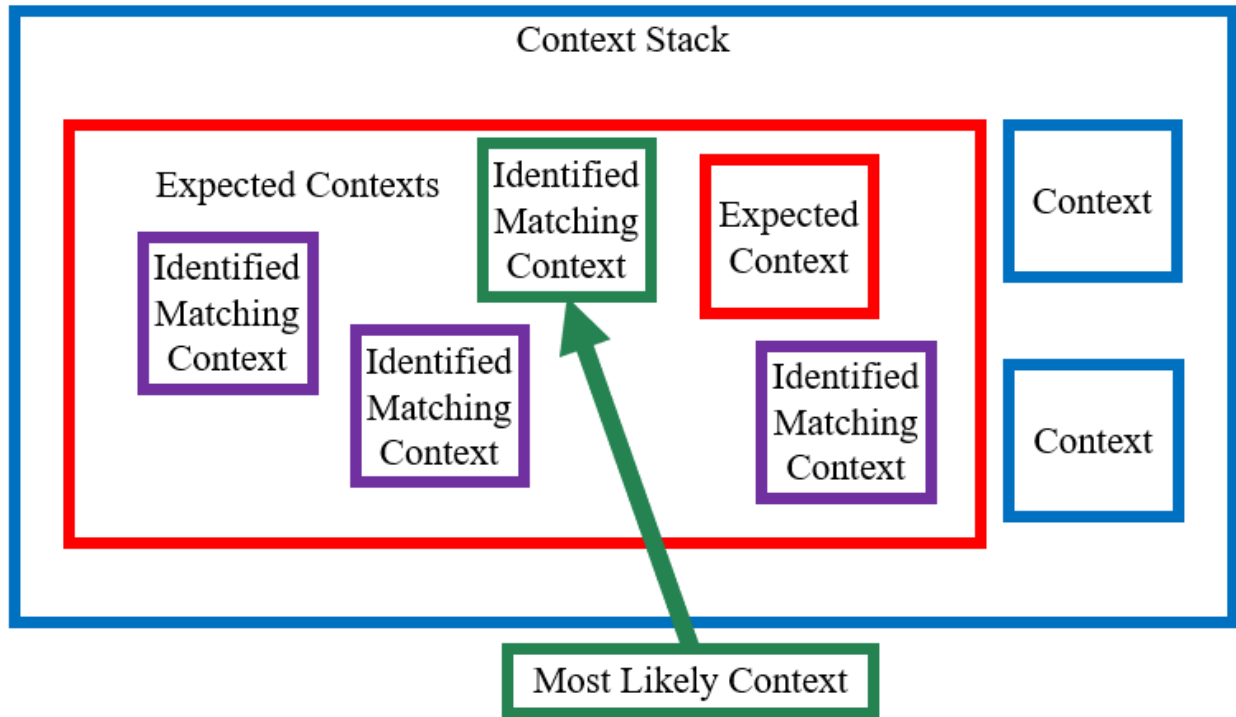
Element 12[c] then provides a subsequent step. In element 12[c], the process of “scoring each of the identified matching contexts” is performed on the contexts identified by the previous step in element 12[b] of comparing the text combinations contained in a transcription of a natural language utterance against one or more “expected contexts.” At minimum, through this claimed process, the “identified matching contexts” represent a subset of “expected contexts.” Additionally, by this claim language, the step of “scoring” is performed on each “identified matching context[]” rather than on an entire context stack, or even on each “expected context[].”

Then, per element 12[d], “the matching context having a highest score” is selected “to determine a most likely context for the utterance.” As Mr.

Occhiogrosso explains, this process is broken down as follows:

Element	Step	Operates on:	Yields:
12[b][1], [2]	comparing [as part of identifying]	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	Identification of “one or more contexts that completely or partially match one or more text combinations contained in the transcription”, i.e., “identified matching contexts” used in element 12[c]
12[c]	scoring	each of the identified matching contexts	“matching context” scores used in element 12[d]
12[d]	selecting	the matching context having a highest score	Determination of a “most likely context for the utterance”

Occhiogrosso, ¶67. Accordingly, the claim requires a context stack with contexts, with some of those contexts being expected contexts, and with some of those expected contexts being identified as matching contexts, which are scored to select one of those identified matching contexts as a most likely context, as reflected in the hierarchy below:



Applying the proper interpretation of claim 12, Petitioner's ground 1 includes fundamental flaws and fails to establish the disclosure of every claimed element in each independent claim.

IV. PETITIONER'S CHALLENGE FAILS ON THE MERITS

Petitioner asserts that claim 12 is obvious in view of Kennewick² and Ross³. However, when looking at the subject matter added to Kennewick and claimed by the common inventors in the '160 patent, it is clear that the '160 patent claims subject matter not disclosed by Kennewick. The Examiner's conclusion set out in the '160 patent's reasons for allowance, including the absence of any comparison

² Ex. 1004, U.S. Patent App. Pub. No. 2004/0044516 ("Kennewick").

³ Ex. 1005, U.S. Patent App. Pub. No. 2002/0133354 ("Ross").

of text combinations against “expected contexts” in Kennewick and other features, was correct. Occhiogrosso, ¶71.

Petitioner's secondary reference to Ross also does not disclose “expected contexts” and instead uses a first-to-match system that involves searching only grammar in a context list. Accordingly, Ross searches only grammar, and selects the first application with grammar that can process a speech command. Ross neither discloses nor suggests “one or more expected contexts,” as recited in element 12[b]. Thus, Ross fails to remedy the deficiencies of Kennewick in also failing to disclose at least “one or more expected contexts.”

Thus, the Petition is facially deficient in establishing the unpatentability of the sole challenged claim.

A. Kennewick Fails to Disclose Element 12[b]

In Ground 1, Petitioner asserts that Kennewick discloses claim 12's recitation of “identifying one or more contexts that completely or partially match one or more text combinations contained in a transcription of a natural language utterance, 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.” Pet., 23-31, 38-39. These features were added to the '160 patent disclosures and

claims relative to Kennewick. *See, e.g.*, Ex. 1007, 21. As the Examiner recognized during prosecution, Kennewick fails to disclose these features. *See* Ex. 1012, 305.

1. Kennewick fails to disclose “expected contexts”

Kennewick does not disclose “expected contexts” or comparing text combinations against expected contexts to identify matching contexts, as required in element 12[b]: “wherein *identifying the matching contexts* includes comparing the text combinations ... against one or more *expected contexts* stored in a context stack.” (emphasis added).

Kennewick clearly explains its process, which does not involve the use or concept of “expected contexts.” First, Kennewick’s system uses a speech recognition engine 120 for word recognition of the user’s utterance. Kennewick, ¶¶0149-0151. “The speech recognition engine 120 recognizes words and phrases, using information in the dictionary and phrase tables 112, and passes these to the parser for interpretation.” Kennewick, ¶¶0147, ¶0152. “The parser 118 determines a context for an utterance by applying prior probabilities or fuzzy possibilities to keyword matching, user profile 110, and dialog history.” Kennewick, ¶0152. “Based on these probabilities or possibilities the possible contexts are scored and the top one or few are used for further processing.” *Id.* Kennewick also discloses that the “parser 118 uses a scoring system to determine the most[] likely context or domain for a user’s question and/or command.” Kennewick, ¶0153. “The score is

determined from weighting a number of factors including, the user profile 110, the domain agent's data content and previous context.” *Id.*

Kennewick never describes, however, what constitutes a “possible context” in this process or how a “possible context” is determined. Occhiogrosso, ¶¶77-78. According to Petitioner’s expert, Mr. Schmandt, his opinion is that a POSITA would understand that *every* context entry in Kennewick’s context stack is a *possible context*. Ex. 2011, 70:14-15. But a POSITA would understand that Kennewick’s “possible contexts” are the input to a scoring process, in contrast to the input to the claimed matching process. Occhiogrosso, ¶78. According to these common expert opinions, nothing in Kennewick discloses to a POSITA that Kennewick conducts matching against a subset of contexts, and then scores matching contexts from that subset. Kennewick, ¶0152, Occhiogrosso, ¶¶79-80. Kennewick fails to disclose “expected contexts,” and fails to disclose comparing expected contexts against an utterance transcript to identify matching contexts, followed by scoring those matching contexts to determine a most likely context.

As explained below, the Petition attempts in vain to establish the presence of something plainly absent from Kennewick and something that was added to the ’160 patent relative to Kennewick’s disclosure—expected contexts—by pointing to Kennewick’s “possible contexts” or to Kennewick’s storage of dialog history.

Pet., 19-20, 38-39. Neither of these features of Kennewick can satisfy the requirements of element 12[b]. Occhiogrosso, ¶80.

The Petition presents two theories of how Kennewick allegedly discloses “expected contexts,” but neither theory is correct or even logical.

2. Petitioner’s First Theory of “expected contexts” in Kennewick Fails

First, Petitioner points to “possible contexts” in Kennewick, and contends that “because these ‘possible contexts’ are recognized as possibly matching the user’s intent, the ‘possible contexts’ are a first way that Kennewick discloses the ‘one or more expected contexts.’” Pet., 38 (citing Schmandt, ¶78).

Kennewick uses keyword matching on its context stack. *See, e.g.*, Kennewick, ¶152 (“a question with the keywords ‘temperature’ implies a context value of weather for the question”). But importantly, Petitioner has not shown that any entries subject to keyword matching are “expected contexts.”

Moreover, the processing in the ’160 patent does not look at all entries in the context stack and, instead, filters the contexts to focus on a set of “expected contexts” *before* identifying matching contexts. ’160 Pat., 13:64-14:2. The ’160 Patent adds this new embodiment to Kennewick and new content directed to “expected contexts.” *See* Ex. 1007, 21. Thus, while both Kennewick and the ’160 patent have embodiments with “possible contexts,” only the ’160 patent discloses

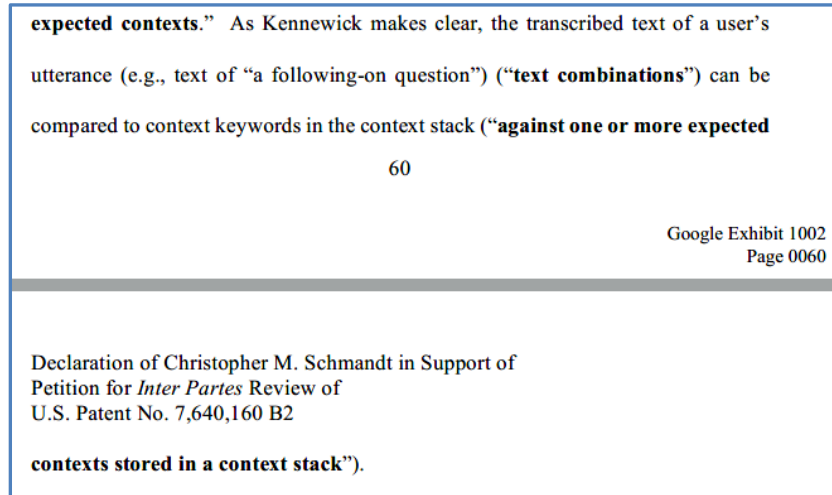
an embodiment that accesses a set of “expected contexts” for text-matching.

Kennewick does not. Occhiogrosso, ¶83.

Additionally, Petitioner ignores the claimed order in claim 12 when looking at Kennewick’s “possible contexts” because Petitioner points to Kennewick’s ¶0152 to note that “possible contexts are scored and the top one or few are used for further processing.” As Petitioner’s argument goes, the very process of scoring “possible contexts” means those contexts must have been expected contexts. But this is backwards in light of claim 12. In claim 12, the process of “comparing the text combinations ... against one or more *expected contexts* stored in a context stack” is performed to identify matching contexts, which are then scored. But per Mr. Schmandt, Kennewick is scoring all context entries (since he opines that every context entry is “possible”) from the start. Occhiogrosso, ¶84.

While addressing the comparison portion of element 12[b], Petitioner does not even refer to “possible contexts” and instead unreasonably insinuates that any context in a context stack is “expected” by conflating the entire context stack with “one or more expected contexts.” Pet., 39 (arguing that “the transcribed text of a user’s utterance ... can be compared to context keywords in the context stack (**‘against one or more expected contexts stored in a context stack’**).”) (emphasis in original). Moreover, Petitioner’s only citation for this unfounded assertion is “Schmandt, ¶78,” which also lacks any technical explanation or

support. As can be seen below, Petitioner's declarant simply repeats the same bare assertion from the Petition without supporting evidence or reasoning (Ex. 1002, ¶78):



The Board should disregard such conclusory assertions by a declarant. *Consolidated Trial Practice Guide* at 36 (Nov. 2019) (“expert testimony cannot take the place of disclosure from patents or printed publications”); 37 C.F.R. § 42.65(a).

Further, at deposition, Petitioner's expert Mr. Schmandt made his opinion clear. As he explained, every context entry in a context stack is a possible context (and an expected context), in which case Kennewick is simply scoring every entry in a context stack to find a highest score. Ex. 2011, 70:14-15. As such, Kennewick fails to disclose comparing expected contexts against an utterance transcript to identify matching contexts, and then scoring those matching contexts to determine a most likely context. Occhiogrosso, ¶86.

For these reasons, Petitioner's first theory based on "possible contexts" in Kennewick fails to disclose or suggest "one or more expected contexts" as recited in 12[b].

3. Petitioner's Second Theory of "expected contexts" in Kennewick Also Fails

Second, Petitioner contends that Kennewick's "one or more contexts associated with earlier question(s) is another way that Kennewick discloses and renders obvious the 'one or more expected contexts.'" Pet., 39 (citing Schmandt, ¶78). But Kennewick expressly discloses the use of "previous context" in the scoring process of Kennewick's embodiment, rather than in a pre-scoring step of identifying matching contexts using expected contexts, as recited in element 12[b]. Occhiogrosso, ¶88.

Kennewick teaches using "previous context" to score possible contexts. As Kennewick explains, a most likely context or domain "is determined from weighting a number of factors including, the user profile 110, the domain agent's data content and *previous context*." Kennewick, ¶0153 (emphasis added). Element 12[c] is claim 12's "scoring" step, but Petitioner is attempting to apply Kennewick's "previous context" and teaching regarding scoring possible contexts to claim 12's element 12[b], which occurs before claim 12's "scoring" step. Kennewick's previous context, which is used as part of the scoring step, does not fit the concept or use of "expected contexts" recited in element 12[b], where

expected contexts are used to identify matching contexts rather than being scored. Occhiogrosso, ¶¶89-90.

Further, as Petitioner explains this second theory further, this second theory reveals itself to be meaningless. Occhiogrosso, ¶¶91. Petitioner states that “the transcribed text of a user’s utterance (e.g., text of ‘a following-on question’) ... can be compared to context keywords in the context stack” But that process is nothing more than searching a context stack for a match with the text of a user’s utterance, and does not identify which entries in a context stack are considered “expected contexts,” or how a search of a following-on question utterance is directed to any “expected contexts.” Indeed, Petitioner points to no instance in Kennewick where a search of a following-on question against context stack entries is somehow constrained to expected contexts, for example. And a search of an entire context stack when considering a following-on question has the effect of rendering the word “expected” in 12[b] completely meaningless. Occhiogrosso, ¶¶92-93.

This is improper, and highlights Kennewick’s failure to disclose or suggest any such “one or more expected contexts” as recited in 12[b].

As an additional failure of this alternate theory, 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. That a context stack has content that can be updated with dialog history and used in a context search says nothing about whether any particular contexts in the context stack are “expected.” Occhiogrosso, ¶¶93-95. Moreover, Kennewick does not differentiate between context entries *with* dialog history and context entries *without* dialog history. Petitioner improperly leaves the Board to speculate as to why it follows that context entries with dialog history would constitute a set of “expected contexts” while context entries without dialog history are not. Occhiogrosso, ¶¶93-95. And in any event, as noted above, Mr. Schmandt’s opinion is that every context entry is both possible and expected. Thus, his opinion also undercuts Petitioner’s second theory.

Additionally, even if context entries with dialog history were incorrectly considered a set of “expected” contexts, element 12[b] still requires the set of contexts to be compared against text combinations to identify matching contexts. Petitioner broadly posits that text combinations are compared against “context keywords in the context stack” (Pet., 39), but this ignores that Petitioner’s theory would require a narrower comparison to only those entries “associated with an earlier question,” and Petitioner fails to show such a narrower comparison. Occhiogrosso, ¶94. Instead, Petitioner proffers the same reasoning and absence of evidentiary support concerning “context keywords in the context stack” as it

presented for its “possible contexts” alternative, which should also be disregarded for the same reasons explained above. *See* Pet., 39 (also relying only on Ex. 1002, ¶78); Ex. 1002, ¶78 (presenting unsupported conclusions).

As a result, neither Petitioner nor its declarant explains any viable theory of how Kennewick allegedly discloses “expected contexts.” For the foregoing reasons, Kennewick also does not disclose or render obvious element 12[b] of claim 12 of the ’160 patent.

B. Ross Also Lacks “Expected Contexts” and Fails to Remedy the Deficiencies of Kennewick

In its Institution Decision, the Board relied on a combination of Kennewick and Ross to satisfy the “expected context” aspects of claim 12. *See* Pet., 31-37, 39-42; D.I., 28-29. But Ross does not have “expected contexts” and its grammar-based process for selecting a context does not remedy Kennewick’s failure to disclose “one or more expected contexts.” Occhiogrosso, ¶¶96-110.

1. Ross’s system uses grammar stored in a context list to determine which application can process a speech command

In Ross, recognized speech is sequentially evaluated against the grammar found in contexts in a context list 62. But notably, Ross’s context list 62 represents the grammar applied by available applications such as an e-mail application or calendar application. As Ross discloses, Ross’s “speech focus priority is established by maintaining an ordered list of applications (e.g., context list 62).”

Ross, ¶0035. As Ross's ¶0033 explains, the "context list includes contexts 70 (e.g., 70-1, 70-[2], 70-3, etc.) for speech-enabled applications 26, which present the grammars for the applications 26." Ross, ¶0033.

Further, Ross's context list is used to test applications that "accept the utterance," which is a recognized utterance. Ross, ¶0035. As Ross explains, "*when an utterance is recognized*, it will be tested against each application's grammar to see if the grammar will accept it." *Id.* (emphasis added). "The first application's grammar which will accept the utterance is then used for translation, and the command [is] dispatched to the corresponding application 26." *Id.*

Ross then discloses that the "context manager 50 receives the recognition message 68 and selects a context 70 for a speech enabled application 26 by checking the speech representation against contexts 70, starting at top of context list 62 to determine the highest priority context 70 that can process the speech representation." Ross, ¶0037. This is not a comparison of text combinations from an utterance against one or more expected contexts (i.e., prior utterances) stored in a context stack, but rather a check of which application can process a transcribed utterance. Occhiogrosso, ¶99.

Ross further explains this process using the example provided in Ross's ¶¶0040-0059. As Ross discloses, there are "two grammars that serve as the contexts 70 for two applications." Ross, ¶0040. Ross discloses a sample grammar

for an e-mail application (Ross, ¶0040) and a sample grammar for a calendar application (Ross, ¶0046). The “speech center system 20 is listening for any of the phrases accepted by either grammar.” Ross, ¶0052. In the instance where a phrase is received that can only be processed by one of these two applications, Ross explains that “the context manager 50 can readily figure out the intended target application for the uttered sentence.” *Id.*

But to also account for the possibility that more than one application could accept the utterance, Ross discloses a technique that works for cases where only one grammar would match and for cases where more than one grammar would match. Occhiogrosso, ¶101. Ross does this by iterating through a prioritized list of grammars, such as most recently accessed, and selecting the first-to-match grammar to choose the application to invoke. Ross, ¶0053 (if “both grammars are capable of accepting the utterance,” the context manager “has to make a choice by referring to the context list 62 of applications in order of recency of access”). “The context manager 50 tests the utterance against these grammars (indicated by the contexts 70 in the context list 62) in priority order, and passes the commands on to the first application 26 that has a grammar that will accept the phrase.” *Id.*⁴

⁴ In the Institution Decision, the Board concludes based on Ross ¶0035 that “Ross discloses matching multiple contexts.” D.I., 29 (citing Pet., 39-40). Respectfully, Patent Owner disagrees. Ross does not match multiple contexts but instead selects one grammar among a context list that can process an uttered speech command,

Additionally, Ross reorders the “context list 62 of applications” such that “*the system 20 is biased to send the commands to the most recently accessed application 26.*” Ross, ¶0054 (emphasis added). This is made explicit by Ross, ¶0059:

Thus, the context manager 50 resolves the ambiguous phrase (e.g., “print this” or “print it”) by looking in the context list 62 to determine the top priority context 70. Then, assuming that the grammar for the top priority context 70 can process (i.e., recognize) the phrase, the context manager 50 directs a translation of the phrase to the application 26 indicated by the top priority context 70.

Ross, ¶0059. Ross is clear that when an ambiguous phrase is received, Ross selects the “top priority context 70 [that] can process (i.e., recognize) the phrase” and “directs translation of the phrase to the [corresponding] application 26.” *Id.*

Notably, relevant to this proceeding, Ross does nothing more than match speech inputs to grammar stored in a context list, and there is no disclosure of “one or more expected contexts” in Ross, nor even a reason for Ross to recognize such a concept. Occhiogrosso, ¶¶102-03. Again, Ross selects the “top priority context 70 [that] can process (i.e., recognize) the phrase” and “directs translation of the phrase

and sends the command to the grammar's corresponding application to process the command. The Board's D.I. overlooked the statement in Ross, ¶0035 that states, “The first application's grammar which will accept the utterance is then used for translation, and the command dispatched to the corresponding application 26.”

to the [corresponding] application 26.” *Id.* Ross ***does not*** disclose how to proceed if Ross’s search of the context list 62 yields no grammar and no priority context 70 that can process (i.e., recognize) the phrase.

Indeed, Ross’s FIG. 5 and corresponding disclosures only address the use of grammar to process a speech recognition message. As already noted above, Ross processes the ordered list of applications sequentially so that the highest context with grammar that matches the grammar in the recognition message becomes the selected context. *See* Ross, Step 106 of FIG. 5, ¶0053 (“The context manager 50 tests the utterance against these grammars (indicated by the contexts 70 in the context list 62) in priority order, and passes the commands on to the first application 26 that has a grammar that will accept the phrase.”). Ross’s Steps 106, 108, and 110 and corresponding disclosures do not even recognize a scenario where Ross’s search of the context list 62 yields no grammar and no priority context 70 that can process (i.e., recognize) the speech command, and Petitioner also identifies no such disclosure in Ross. Occhiogrosso, ¶103.

2. Ross’s use of grammar in the context list fails to disclose “expected contexts”

Ross’s first-to-match system fails to disclose the features of claim 12, including the “expected contexts” in element 12[b] and other requirements.

Ross does not compare text combinations against ***one or more expected contexts stored in a context stack***. Ross does not include the concept of “expected

contexts” because the context list maintained in Ross is just an ordered list of grammars for speech-enabled applications. Ross, [0053]. Petitioner's justification for contending that Ross discloses “expected contexts” focuses on the word “stack” rather than requirement of “expected.” Pet., 40 (“Ross's priority ordering description of a context list is consistent with the well-known concept of a ‘stack,’ ‘last in, first out’ (‘LIFO’) behavior of a stack contrasts with, for example, the ‘first in, first out’ (‘FIFO’) behavior of a queue.”). But regardless of whether the context list in Ross is accessed in a LIFO or FIFO manner, and regardless of whether Ross's context list is properly considered a “context stack” as claimed, accessing Ross's context list involves determining the first application's grammar that can process a speech command. There is no concept of “expected contexts” in Ross. Occhiogrosso, ¶¶105-06.

Despite this clear shortcoming, Petitioner alleges that its combination of Kennewick and Ross discloses “one or more expected contexts.” Petitioner's theory 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.” Pet., 39-40 (citing Schmandt, ¶81). Petitioner follows this statement by asserting that the “one or more expected contexts” in the combination are “the contexts associated with applications that had already been invoked.” Pet., 40. But again, Ross searches only grammars in the context list. The claimed step

of 12[b] requires “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” as a precursor to the scoring step of element 12[c].

As noted above, Petitioner’s theory became clearer at deposition when its expert contended that all entries in a context stack were “expected.” Ex. 2011, 70:14-15. To Petitioner, any search of a context stack would be a search of “expected contexts.” But as noted above in Section III.B, a construction that would treat all “contexts” in a context stack as “expected” is incorrect.

Occhiogrosso, ¶109. To satisfy claim 12, Petitioner would have to show that some contexts in Ross’s context list were “expected.” As Ross would search all of its context list entries (absent an earlier occurring match), Ross does not perform its search based on “expected contexts” and does not comparing any text combinations against any “one or more expected contexts” as claimed in 12[b]. Ross fails to remedy this shortcoming of Kennewick.

Further, because Ross only selects a single grammar among the context list based on a first match, the claimed concepts of “scoring each of the identified matching contexts” in element 12[c] and “selecting the matching context having a highest score to determine a most likely context for the utterance” in element 12[d] are antithetical and unknown to Ross. Occhiogrosso, ¶110. Ross does not move

beyond the first match and would not even envision a scoring and selecting process as claimed in elements 12[c] and 12[d].

Given these differences, Petitioner has not shown how a combination of Kennewick and Ross would include each feature of the claimed invention. Any hypothetical combination of Kennewick and Ross would still lack what the Examiner found missing from the prior art when examining the '160 Patent – “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*.” See Ex. 1012, 305 (emphasis added); Occhiogrosso, ¶110.

V. CONCLUSION

For the reasons presented above, Patent Owner asks that the Board issue a final written decision confirming the patentability of claim 12 over Petitioner's challenge.

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CERTIFICATE OF WORD COUNT

The undersigned certifies that the foregoing PATENT OWNER'S RESPONSE complies with the type-volume limitation in 37 C.F.R. § 42.24(b)(2). According to the word-processing system's word count, the brief contains 7,962 words, excluding the parts of the brief exempted by 37 C.F.R. § 42.24(a).

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