IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

AMAZON.COM SERVICES LLC,

Petitioner,

v.

VB ASSETS, LLC,

Patent Owner.

Case: IPR2025-01167

U.S. Patent No. 11,087,385

DECLARATION OF PADHRAIC SMYTH, PH.D.

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	[1.pre] "A method for providing voice commerce, the method being implemented on a computer system having one or more physical processors programmed with computer program instructions which, when executed, perform the method, the method comprising:"
	[1.a] "receiving, by the computer system, a single first user input comprising a natural language utterance;"
	[1.b] "providing, by the computer system, the natural language utterance as an input to a speech recognition engine;"
	[1.c] "obtaining, by the computer system, one or more words or phrases recognized from the natural language utterance as an output of the speech recognition engine;"
	[1.d] "searching, by the computer system, one or more databases of products or services based on the one or more words or phrases;"
	[1.e] "selecting, by the computer system, without further user input other than the single first user input, a product or service from the database to be purchased based on the search;"
	[1.f] "receiving, by the computer system, a second user input indicating confirmation by a user to complete a purchase transaction of the selected product or service; and"

	[1.g] "completing, by the computer system, without further user input after the receipt of the second user input, a purchase transaction of the selected product or service.	85
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	[5.b] "storing, by the computer system, the seller information in the one or more databases."	96

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	[11.b] "obtaining, by the computer system, shipping information with which to deliver the selected product or service, wherein the shipping information specifies a name or address of a recipient to which the selected product or service is to be delivered after the selected product or service is purchased, and wherein the purchase transaction is completed based on the payment information and the shipping information.".	103
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	 [15.a] "providing, by the computer system, without further user input after the receipt of other than the single first user input, a request for user confirmation to complete the purchase transaction for the selected product or service, wherein the second user input is received responsive to the request;"
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27.	Claim 31

[31.pre] "A method for providing voice commerce, the method being implemented on a computer system having one or more physical processors programmed with computer program instructions which, when executed, perform the method, the method comprising:"
[31.a] "receiving, by the computer system, a single first user input comprising a natural language utterance;"
[31.b] "recognizing, by the computer system, one or more words or phrases from the natural language utterance;"
[31.c] "searching, by the computer system, one or more databases of products or services based on the one or more recognized words or phrases from the single first user input, and without using further user input other than the single first user input;"
[31.d] "causing, by the computer system, a set of search results to be presented to a user based on the search, the search results indicating one or more products or services from the database available for purchase;"
[31.e] "receiving, by the computer system, a second user input comprising a selection from the set of search results, the selection identifying one or more products or services from the database to be purchased on behalf of the user based on the second user input;
[31.f] "obtaining, by the computer system, user profile information associated with the user;"
[31.g] "identifying, by the computer system, payment information and shipping information based on the user profile information; and"

	[31.h] "completing, by the computer system, without further user input after identifying the payment information and the shipping information, a purchase transaction of the identified one or more products or services."
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	[32.a] "providing, by the computer system, the natural language utterance as an input to a speech recognition engine; and"131
	[32.b] "obtaining, by the computer system, the one or more words or phrases recognized from the natural language utterance as an output of the speech recognition engine."
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	[33.b] "storing, by the computer system, the seller information in the one or more databases."132
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156	utterance;"	
159	[1.b] "providing, by the computer system, the natural language utterance as an input to a speech recognition engine;"	
161	[1.c] "obtaining, by the computer system, one or more words or phrases recognized from the natural language utterance as an output of the speech recognition engine;"	
162	[1.d] "searching, by the computer system, one or more databases of products or services based on the one or more words or phrases;"	

	[1.e] "selecting, by the computer system, without further user input other than the single first user input, a product or service from the database to be purchased based on the search;"
	[1.f] "receiving, by the computer system, a second user input indicating confirmation by a user to complete a purchase transaction of the selected product or service; and"
	[1.g] "completing, by the computer system, without further user input after the receipt of the second user input, a purchase transaction of the selected product or service
3.	Claim 3: "The method of claim 1, wherein completing the purchase transaction for the selected product or service comprises: obtaining, by the computer system, payment information with which to pay for the selected product or service, wherein the purchase transaction is completed based on the payment information without receiving confirmation of the payment information by the user."
4.	Claim 4: "The method of claim 1, wherein completing the purchase transaction for the selected product or service comprises: obtaining, by the computer system, shipping information with which to deliver the selected product or service, wherein the shipping information specifies a name or address of a recipient to which the selected product or service is to be delivered after the selected product or service is purchased, and wherein the purchase transaction is completed based on the shipping information without receiving confirmation of the shipping information by the user."
5.	Claim 5184
	[5.pre] "The method of claim 1, the method further comprising:"

	[5.a] "obtaining, by the computer system, seller information describing one or more products or services available from one or more sellers via one or more remote information sources; and"
	[5.b] "storing, by the computer system, the seller information in the one or more databases."
6.	Claim 6: "The method of claim 5, wherein the one or more remote information sources comprise at least a third party search engine, a third party retailer, and/or a third party service provider."
7.	Claim 7: "The method of claim 5, wherein the method further comprises: selecting, by the computer system, a seller from which to purchase the selected product or service."
8.	Claim 8: The method of claim 7, wherein the seller information comprises a price at which the one or more sellers will sell the one or more products or services, wherein selecting the seller comprises selecting the seller based on the price at which the seller will sell the selected product or service."
9.	Claim 9: "The method of claim 7, the method further comprising: obtaining, by the computer system, user profile information associated with the user, wherein the user profile information indicates a predetermined set of sellers associated with the user, wherein selecting the seller comprises selecting the seller from the predetermined set of sellers indicated by the user profile information."
10.	Claim 10: "The method of claim 7, the method further comprising: obtaining, by the computer system, a predetermined set of sellers specified by an administrator of the system that is different than the user, wherein selecting the seller comprises selecting the seller from the predetermined set of administrator- specified sellers."

11.	Claim 11201
	[11.pre] "The method of claim 1, wherein completing the purchase transaction of the selected product or service comprises:"
	[11.a] "obtaining, by the computer system, payment information with which to pay for the selected product or service; and"
	[11.b] "obtaining, by the computer system, shipping information with which to deliver the selected product or service, wherein the shipping information specifies a name or address of a recipient to which the selected product or service is to be delivered after the selected product or service is purchased, and wherein the purchase transaction is completed based on the payment information and the shipping information."
12.	Claim 14: "The method of claim 11, the method further comprising: completing, by the computer system, the purchase transaction without receiving confirmation of the payment information or the shipping information by the user."
13.	Claim 15204
	[15.pre] "The method of claim 1, the method further comprising:"
	[15.a] "providing, by the computer system, without further user input after the receipt of other than the single first user input, a request for user confirmation to complete the purchase transaction for the selected product or service, wherein the second user input is received responsive to the request;"

	[15.b] "determining, by the computer system, that the user has confirmed the purchase transaction based on the second user input, wherein the purchase transaction of the selected product or service is completed based on the
	determination."
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15.	Claim 18212
16.	Claim 19212
17.	Claim 20212
18.	Claim 21212
19.	Claim 22
20.	Claim 23
21.	Claim 24212
22.	Claim 25
23.	Claim 26213
24.	Claim 29213
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	[31.pre] "A method for providing voice commerce, the method being implemented on a computer system having one or more physical processors programmed with computer program instructions which, when executed, perform the method, the method comprising:"
	[31.a] "receiving, by the computer system, a single first user input comprising a natural language utterance;"

[31.b] "recognizing, by the computer syst	em, one or
more words or phrases from the nat	tural
language utterance;"	214
[31.c] "searching, by the computer system	n, one or
more databases of products or servi	ces based on
the one or more recognized words of	or phrases
from the single first user input, and	without
using further user input other than the	he single
first user input;"	214
[31.d] "causing, by the computer system,	a set of
search results to be presented to a u	ser based on
the search, the search results indica	ting one or
more products or services from the	database
available for purchase;"	217
[31.e] "receiving, by the computer system	a, a second
user input comprising a selection fr	from the set of
search results, the selection identify	ving one or
more products or services from the	database to
be purchased on behalf of the user is	based on the
second user input;"	
[31.f] "obtaining, by the computer system information associated with the use	, user profile r;"223
[31.g] "identifying, by the computer syste	m, payment
information and shipping informati	on based on
the user profile information; and"	224
[31.h] "completing, by the computer syste	em, without
further user input after identifying t	the payment
information and the shipping inforr	nation, a
purchase transaction of the identifie	ed one or
more products or services."	
27. Claim 32	
[32.pre] "The method of claim 31, whereir	n
recognizing the one or more words	or phrases
from the natural language utterance	e comprises:"229

		[32.a] "providing, by the computer system, the natural language utterance as an input to a speech recognition engine; and"
		[32.b] "obtaining, by the computer system, the one or more words or phrases recognized from the natural language utterance as an output of the speech recognition engine."
	28.	Claim 33230
		[33.pre] "The method of claim 31, the method further comprising:"
		[33.a] "obtaining, by the computer system, seller information describing one or more products or services available from one or more sellers via one or more remote information sources; and"230
		[33.b] "storing, by the computer system, the seller information in the one or more databases."230
	29.	Claim 34: "The method of claim 31, wherein completing the purchase transaction without further user input after identifying the payment information and the shipping information comprises: completing, by the computer system, the purchase transaction without receiving confirmation of the payment information or the shipping information by the user."
	30.	Claim 35231
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I, Padhraic Smyth, Ph.D., declare as follows:

I. INTRODUCTION

1. I have been asked by the party requesting this review, Amazon.com Services LLC ("Petitioner"), to provide my expert opinions in support of the petition for *inter partes* review of U.S. Patent No. 11,087,385 (the "385 patent" or "challenged patent") challenging the patentability of claims 1-40 (the "challenged claims").

2. In summary, it is my opinion that all challenged claims are unpatentable for the reasons I provide in this declaration.

3. I am being compensated for my time at my normal consulting rate of \$800 per hour. This compensation is not contingent upon my performance, the conclusions I reach in my analysis, the outcome of this matter, or any issues involved in or related to this matter.

II. BACKGROUND AND QUALIFICATIONS

4. The details of my education, work experience, research, patents, and publications are summarized in my CV (EX1019). I provide here a summary of some of the relevant information from my CV, as well as other relevant background information.

5. I earned a Ph.D. and Master's degree in Electrical Engineering from the California Institute of Technology. I earned a Bachelor of Engineering (Electronic)

from the National University of Ireland, University College Galway in 1984. My senior undergraduate thesis was on speech recognition.

6. At present, I am a Distinguished Professor and Endowed Chair in Artificial Intelligence in the Department of Computer Science at the University of California, Irvine. Prior to that, I was a Member of Technical Staff and Technical Group Leader at the Jet Propulsion Laboratory.

7. As a professor at UC Irvine since 1996, I conduct research in the areas of machine learning, artificial intelligence, signal processing, pattern recognition, and natural language processing, and I regularly teach courses related to these topics. I have published over 230 peer-reviewed papers and two books on these topics and my work has been cited over 70,000 times in the research literature. My research work is funded by federal agencies such as NSF, NIH, NIST, IARPA, DARPA, ONR, and NASA.

8. During my career I have worked extensively on research related to key aspects of automated speech recognition, natural language processing, user modeling, and human dialog. I have attached my CV (EX1019), which provides more details about the experience I summarize here. As an example, since 1992 I have conducted a significant body of research and published a series of papers on the topic of hidden Markov models (HMMs). HMMs are a general statistical framework for pattern recognition in sequential data (such as audio waveforms or

text) and were a key component in automated speech recognition systems and natural language understanding since the 1980's. My research on HMMs produced significant advances in the understanding of the statistical and algorithmic foundations of speech recognition and natural language understanding. These advances included development of new HMM methods for detecting anomalous patterns in time-series signals, new algorithms for automated clustering of waveforms using HMMs, new classes of HMMs with applications to speech modeling, and novel HMM methods for automated segmentation of waveforms. My papers have been collectively cited over 1,800 times in the literature.

9. I have also conducted extensive research in the field of natural language understanding since 1999. My work included co-authoring a textbook, *Modeling the Internet and the Web: Probabilistic Methods and Algorithms*, published in 2003 with chapters devoted to algorithms for natural language understanding. I've also written papers on topics like analysis of character sequences in non-English languages, automated algorithms for extracting human-interpretable summaries of content from large text corpora, methods for automated characterization of authors from the text they generate, automated techniques for creating network and graph models of relationships between documents and entities mentioned in the documents, algorithms for analyzing text with the assistance of human-generated semantic ontologies, and analysis of large language models. As with my work on HMMs, my

work in natural language understanding meant that I was, and am, broadly familiar with the research literature in this area.

10. I have also conducted research in user modeling, focusing on statistical and machine learning techniques for automated generation of user models from observational data. In addition, I have published papers on techniques for automated analysis of human dialog, such as automatically classifying utterances into specific topics. As I discuss below, user modeling is an important function of many interactive conversational systems, which enables such systems to manage a dialog with the user and infer information about the user's requests.

11. In addition to my research and publications I have taught and lectured extensively on these topics. Since my appointment as a professor at UC Irvine in 1996, I have taught both undergraduate and graduate courses there in machine learning, pattern recognition, natural language understanding, artificial intelligence, and user modeling. In addition, I have given keynote lectures and tutorials on these topics at a variety of international conferences since the late 1990s.

12. I have also served in editorial roles and conference chair positions for major journals and conferences in my research areas, including serving as a founding editorial board member for the Journal of Machine Learning Research, an associate editor for the Journal of the American Statistical Association, program chair for the Association for Computing Machinery's Special Interest Group on Knowledge

Discovery and Data Mining conference, co-program chair for the International Joint Conference on Artificial Intelligence, and serving as Senior Area Chair for the Neural Information Processing Systems conference and the International Machine Learning Conference on multiple occasions.

13. In addition to my duties at UC Irvine, I am also a technical consultant with private industry in areas including machine learning, user modeling, signal processing, pattern recognition, and natural language understanding. Over the past 25 years, I have consulted in these areas for companies including Toshiba, Microsoft, Google, SAP, Netflix, eBay, AT&T, Samsung, Nokia, as well as several startup companies.

III. MATERIALS CONSIDERED

14. I have reviewed and considered, in preparing this declaration, the '385 patent (EX1001), its prosecution history (EX1003), and the following prior art references:

- U.S. Publication No. 2012/0284105 to Li, filed on April 13, 2012, and titled "Apparatuses, Methods, and Computer Program Products Enabling Association of Related Product Data and Execution of Transaction" ("Li") (EX1004);
- U.S. Patent No. 9,922,364 to Chen et al., filed on November 18, 2013, and titled "Voice Initiated Purchase Request" ("Chen") (EX1005);

- U.S. Publication No. 2012/0096358 to Barnes, filed on December 20, 2011, and titled "Navigating Information Hierarchy Using a Mobile Communication Device" ("Barnes") (EX1006);
- U.S. Publication No. 2004/0193420 to Kennewick et al., filed July 15, 2003, and titled "Mobile Systems and Methods for Responding to Natural Language Speech Utterance" ("Kennewick") (EX1007); and
- U.S. Publication No. 2014/0344106 to Lee et al., filed February 27, 2014, and titled "One-Page Checkout" ("Lee") (EX1008).

15. I am also aware of and considered in forming my opinions presented in this declaration, other information available to a person of ordinary skill in the art at the time of the priority date of the challenged patent ("POSITA"), such as other patents, reference materials, articles, and standards, and knowledge of a POSITA.¹ These include:

- Prosecution History of U.S. Patent No. 11,087,385 (EX1003);
- U.S. Patent No. 7,376,586 to Partovi et al., filed December 17, 1999, and titled "Method and Apparatus for Electronic Commerce Using a Telephone Interface" ("Partovi") (EX1009);

¹ I understand that the challenged patent has a priority date of September 16, 2014, as I discuss in more detail below.

- Asthana, A. & Krzyzanowski, P., "A Small Domain Communications System for Personalized Shopping Assistance," Proceedings of 1994 International Conference on Personal Wireless Communications (pp. 199-203), IEEE Press (1994, August), ("Asthana") (EX1010);
- Lucente, M., "Conversational interfaces for e-commerce applications," Communications of the ACM (Sept. 2000), 43(9), 59-61, ("Lucente") (EX1011);
- Huang et al., "Spoken Language Processing: A Guide to Theory, Algorithm, and System Development," Prentice Hall (2001), ("Huang") (EX1012);
- Tobias Heinroth and Wolfgang Minker, "Introducing Spoken Dialogue Systems into Intelligent Environments," Springer (2013), (EX1013)
- U.S. Patent No. 6,859,776 ("Cohen") (EX1014);
- WO Pub. No. 02/073331 ("Aretoulaki") (EX1015); and
- U.S. Patent No. 7,818,176 ("Freeman") (EX1016).

16. Should new information be disclosed or discovered during this proceeding, I may supplement and further elaborate on the opinions I express in this declaration as necessary. Nothing in this declaration should be interpreted as an opinion that no grounds of invalidity exist other than the ones in the petition. I do not express such an opinion and have not reached such an opinion.

IV. BASIS OF OPINION

A. Legal Standard for Anticipation

17. I understand that a claimed invention is unpatentable as "anticipated" by a single prior art reference if it discloses each and every limitation of the claim. I also understand that, even if a claim is not explicitly disclosed in the prior art reference, the prior art reference may nevertheless anticipate the claim if the subject matter of the claim is inherently present from the perspective of a POSITA. Moreover, I understand that even if the prior art reference does not disclose the limitations of a claim in the same arrangement or combination of the limitations of the claim anticipate if a POSITA would envisage the claimed arrangement or combination.

B. Legal Standard for Obviousness

18. I understand that a claimed invention is unpatentable as "obvious" if the differences between the invention and the prior art are such that the subject matter of the claim as a whole would have been obvious to a POSITA.

19. It is my understanding that "obviousness" is a question of law based on underlying factual issues including (1) the scope and content of the prior art, (2) the differences between the prior art and the asserted claims, (3) the level of ordinary skill in the pertinent art, and (4) the existence of secondary considerations such as commercial success, long-felt but unresolved needs, and failure of others.

20. I understand that a single reference can render a patent claim obvious if any differences between that reference and the claims would have been obvious to a POSITA. Alternatively, the teachings of two or more references may be combined in the same way as disclosed in the claims, if such a combination would have been obvious to a POSITA. In determining whether a combination based on either a single reference or multiple references would have been obvious, I understand that it is appropriate to consider the following factors:

- Whether the teachings of the prior art references disclose known concepts combined in familiar ways, and when combined, would yield predictable results;
- Whether a POSITA could implement a predictable variation, and would see the benefit of doing so;
- Whether a POSITA would have recognized a reason to combine known elements in the manner described in the claim;
- Whether there is some teaching or suggestion in the prior art to make the modification or combination of elements claimed in the patent; and
- Whether the innovation applies a known technique that had been used to improve a similar device or method in a similar way.

21. In an obviousness evaluation based on a combination of multiple prior art references, I understand that the prior art references themselves may provide a

suggestion, motivation, or reason to combine, but other times the nexus linking two or more prior art references is simple common sense. I further understand that obviousness analysis recognizes that market demand, rather than scientific literature, often drives innovation, and that a motivation to combine references may be supplied by the direction of the marketplace.

C. Level of Ordinary Skill in the Art

22. I understand that the '385 patent should be interpreted from the perspective of a person having "ordinary skill in the art" as of the priority date of the patent application (i.e., a POSITA). For the purposes of this declaration, I assume that the priority date of the patent application leading to the '385 patent is no earlier than September 16, 2014, and I understand that Patent Owner has not claimed an earlier priority date in the parallel litigation. I am familiar with the technological field at issue and the state of the art as of that date.

23. I understand that the education level of those in the technological field, sophistication of the technology, types of problems encountered, prior art solutions to those problems, and the speed at which innovations are made in the field may factor into establishing what the appropriate level of ordinary skill should be.

24. The specification of the challenged patent states that it relates to "facilitating voice commerce," and more specifically, to determining "a product or service to be purchased" through processing a user utterance, and completing the

purchase "without further user input . . . other than [a] confirmation utterance." EX1001, Abstract, 5:15-26, 5:43-48. The claims of the challenged patent are directed to "[a] method for providing voice commerce" involving receiving "a single first user input comprising a natural language utterance," providing "the natural language utterance as an input to a speech recognition engine" to obtain "one or more words or phrases recognized from the natural language utterance as an output of the speech recognition engine," searching "one or more databases of products or services based on the one or more words or phrases" and selecting "without further user input other than the single first user input, a product or service from the database to be purchased based on the search," receiving "a second user input indicating confirmation by a user to complete a purchase transaction of the selected product or service," and completing, "without further user input after the receipt of the second user input, a purchase transaction of the selected product or service." Id., e.g., 21:60-22:18 (claim 1).

25. In my opinion, a POSITA at the priority date of the '385 patent would have had a Bachelor's degree in computer science, computer engineering, electrical engineering, or a related field in computing technology, and two years of experience with automatic speech recognition and natural language understanding, or equivalent education, research experience, or knowledge. Additional experience can substitute for the level of education, and vice-versa. 26. I had at least the requisite level of skill with respect to the subject matter of the challenged patent at the time of the priority date as demonstrated by my qualifications listed above and my CV (EX1019).

D. Claim Construction

27. I understand that in *inter partes* review ("IPR") proceedings, claims are construed using the same claim construction standard that district court use, which I understand is called the *Phillips* claim construction standard, including construing the claim in accordance with the plain and ordinary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.

28. I applied plain and ordinary meaning to all terms of the challenged claims for my analysis in this proceeding.

29. I understand that a district court in *VB Assets, LLC, v. Amazon.com, Inc., et al.*, C.A. No. 19-1410 (MN) (D. Del.) construed the term "speech recognition engine" as "software or hardware that recognizes the words or phrases in the natural language utterance" for U.S. Patent No. 9,626,703 ("703 patent"), a parent of the challenged patent that shares the same specification. EX1018, 2. My opinion is that this construction is consistent with the plain and ordinary meaning of this term. 30. I am not an attorney, and my opinions are limited to what I believe a POSITA would have understood the meaning of certain claim terms to be, based on the patent specification and prosecution history in light of the POSITA's knowledge.

V. OVERVIEW OF THE '385 PATENT

31. The '385 patent was filed on August 28, 2019 and claims earliest priority to September 16, 2014. I understand that Patent Owner has not claimed an earlier priority date in the district court proceeding. For the purposes of this proceeding, I treat September 16, 2014 as the '385 patent's priority date.

32. The '385 patent is directed to systems and methods for performing "voice commerce." EX1001, Abstract. Users can speak to a system to identify products or services they want to buy, and then the system purchases those items. EX1001, Abstract, 1:56-65, 2:54-58. The patent describes using well-known interactive speech technology to identify the product or service.² *Id.*, 2:4-7. A

² U.S. Patent No. 7,818,176 ("Freeman") is another patent assigned to VB Assets, LLC, filed over seven years before the priority date of the challenged patent, shares the same inventor Michael Kennewick, and recognizes that interactive speech technology was well-known. *See, e.g.*, EX1016, 3:16-18 (disclosing "a speech recognition engine (e.g., an Automatic Speech Recognizer 110) that may recognize words and phrases in an utterance"); 4:26-28 ("context determination module 130 to

"speech recognition engine . . . recognize[s] one or more words" by processing the audio stream of the user's utterance using one or more well-known speech models— "e.g. acoustic model, lexicon list, language model, etc." *Id.*, 10:60-11:2. The system then determines the product or service the user would like to purchase based on the recognized words. *Id.*, 4:17-20. The system may then present "a request for user confirmation (or user approval) of the product or service," whereupon "a purchase transaction for the product or service may be completed" upon "receipt of the requested confirmation." *Id.*, 5:15-29.

33. The '385 patent also discloses maintaining a "user profile" that is created "during registration of a user." *Id.*, 7:6-13. The user's profile information may include the user's "name, payment information, [and] shipping information" to facilitate purchase transactions. *Id.*, 5:49-53.

34. FIGs. 6A and 6B, below, show a "voice commerce application [that] may solicit user confirmation from a user with respect to a product purchase before completing checkout of the product purchase," where once the user confirms purchase "by saying 'Yes," the voice commerce application "may indicate that checkout . . . has been completed." *Id.*, FIGs. 6A-6B, 20:65-21:24.

establish a context for a current utterance"). The '385 patent does not claim priority to the '176 patent.



FIG. 6B

VI. RELATED LITIGATION AND RELATED PATENTS

35. I understand that the '385 patent is the subject of a pending litigation involving Petitioner and Patent Owner: *VB Assets, LLC v. Amazon.com Services, LLC*, No. 1:24-cv-00839 (District of Delaware, July 18, 2024) (the "parallel litigation"). I understand that Patent Owner sued Petitioner for alleged infringement of the '385 patent. *See* EX1017.

36. I understand that the '385 patent has been involved or is currently involved in other litigations, including: *VB Assets LLC v. SoundHound AI Inc.*, Case No. 1:24-cv-01279 (D. Del.).

37. I understand that the '703 patent, a parent of the challenged patent that shares the same specification has been involved in the following litigation: *VB Assets LLC v. Amazon.com Services LLC et al.*, Case No. 1:19-cv-01410 (D. Del.). It has also been involved in the following IPRs: IPR2020-01380 and IPR2020-01381.

VII. PRIOR ART TO THE CHALLENGED PATENT

A. Technical Background

38. In this section, I discuss the state of the art relevant to the subject matter of the '385 patent. The '385 patent describes ideas related to (i) a human user interacting with a system via speech recognition (or another mode of input), (ii) the system analyzing the recognized words of the user's speech to determine a product or service to be purchased, (iii) the system receiving a confirmation from the user, and (iv) the system obtaining the required payment and shipping information to complete the purchase transaction. These ideas were well-known in the prior art at the time of the '385 patent.

39. In interactive conversational systems involving a human user and a system, a dialog (or conversation) can be represented as a series of utterances, where each utterance is alternately generated by the human and by the system. A simple example of a dialog might be the following: "User: I would like to fly to New York.

System: When would you like to travel? User: This Friday please. System: What is your departure airport?" and so on. In this example there are two utterances by the user and two by the system. Technologies and systems to broadly support such interactive conversations had been under development and were well-known prior to 2014, both in academic research laboratories and in industry. See, e.g., EX1010; EX1011; EX1012, Chapters 17-18; EX1013, Chapters 2-3. These speech-based applications included voice-only interfaces, where the conversation is conducted entirely in the speech modality, as well as multi-modal interfaces, in which speech could be combined with other types of inputs such as typed text, mouse clicks, or touches. For example, interactive voice response (IVR) systems implemented over telephony interfaces were typically speech-only. See EX1012, Chapter 18. On the other hand, speech applications implemented on devices with display functionality could take advantage of the complementary strengths of different input modalities. See EX1011; EX1012, Chapter 18.

40. These types of interactive conversational systems, as developed and implemented by 2014, generally relied on a number of related technologies that I will briefly describe below. The primary technologies are automated speech recognition (ASR), natural language understanding (NLU), dialog management (DM), and user modeling (UM). Broadly speaking, ASR involves recognizing words from spoken audio for each user utterance, NLU is the process of determining the
meaning of the recognized words in the utterance, DM involves generation of appropriate response utterances by the system and the management of the conversation with the user across multiple utterances, and UM is the process by which the system keeps track of information about a user, e.g., what their typical goals and preferences are.

41. These components are described in several patents, papers, and textbooks published from the mid-1990s to the 2010s, including the well-known textbooks "Spoken Language Processing: A Guide to Theory, Algorithm, and System Development" by Xuedong Huang, et al. published in 2001 (EX1012) and "Introducing Spoken Dialogue Systems into Intelligent Environments," by Tobias Heinroth and Wolfgang Minker, published in 2013 (EX1013). For example, Heinroth provides a diagram of the architecture of a "standard spoken dialog system," containing ASR ("Speech recognition"), NLU ("Linguistic Analysis"), and DM. EX1013, 12, Figure 2.1. Heinroth further describes the use of user models/profiles to improve speech recognition and understanding. *Id.*, 20.



Fig. 2.1 Architectural overview on a standard spoken dialogue system

42. Note that these terms are not the only terms that are used to describe these technologies. Other terms were (and are still) used by researchers and practitioners in this general context. For example, one such term is "Spoken Language Understanding" (SLU) which typically encompasses aspects of ASR, NLU, and DM. Nonetheless, the terms ASR, NLU, DM, and UM were in broad use in 2014 and would have been well-known to a POSITA at that time.

43. As of 2014, ASR typically involved a sequence of steps consisting of (i) recording and digitization of speech waveforms spoken by a user, (ii) conversion of the digitized speech waveforms into numerical features that (typically) represent the frequency content of very short segments of the speech waveform, (iii) automated classification of these features into corresponding phonemes (basic units of sounds within words), and (iv) recognition of specific words based on sequences of phonemes. This process has been the subject of extensive research and

commercial activity since the 1960s. For example, the Huang textbook devotes Chapters 5 through 13 (approximately 470 pages) just to the topic of ASR. EX1012, Chapters 5–13.

The output of the ASR component of an interactive conversational 44. system consists of the ASR's best estimates of what words were spoken by a user in an utterance. The recognized words alone are typically not sufficient for an algorithm to understand the user's goals and intent so that the system can carry out appropriate actions. See EX1012, 7-8. This is because human language is very flexible and there are many ways to express the same meaning or intent. The technology of NLU (Natural Language Understanding, e.g., discussed in Chapter 17.3-5 in Huang) consists of a broad range of algorithms and methods that allow a computer system to interpret the meaning of the recognized words from the ASR. For example, consider the simple phrase "I would like to fly to New York" from the dialog example described earlier. And assume for example that the system is a travel reservation system that can find flights, make flight reservations, pay for the flights, suggest or advertise additional travel services, and so on. Such a system would have an internal representation (e.g., a database) of items such as names of airports, locations of airports, lists of flights, actions the system can take (e.g., book flights), and so on. Thus, it would need to interpret the user's words "like to fly" as an implicit request for the system to find a flight. It would also need to interpret the word "I" to

mean that the flight is for the individual who is speaking. And it would need to understand that "New York" is the name of a location, and that it is not the name of a specific airport but is a city with multiple airports associated with it. There are different approaches associated with developing NLU technologies that can robustly handle such situations, but by 2014 multiple such systems had been developed that demonstrated the necessary NLU capabilities for interpreting the meaning of spoken words in conversational dialog. *See, e.g.*, EX1012, Chapter 18; EX1011; EX1014, 18:39–19:37.

45. As described above, the ASR and NLU components of an interactive conversational system focus on recognizing words and interpreting these words on a per-utterance basis. DM (Dialog Management) technology governs the overall behavior of the system and addresses the problem of tracking different aspects of a dialog across multiple utterances. *See* EX1012, Chapter 17.6. For example, for a travel reservation system interacting with a user via speech, the DM component of the system needs to gradually accumulate multiple pieces of relevant information from the user (dates, times, arrival/departure airports, seating preferences, confirmation of booking, purchase information) over the course of a dialog, i.e., over a sequence of utterances generated the user. Thus, DM technologies involve creating internal representations of concepts such as goals for a user and methods to satisfy those goals. One such method would include directly asking the user for specific

information, which in turn involves automatically generating the appropriate words for the system's response (utterance) to the user, given what the system knows already (e.g., "What time would you like to leave for your flight to New York?") and then converting that into a spoken response that the user can hear. Another type of DM method could involve inferring the relevant information from knowledge sources available to the system. For example, the DM might determine where the user lives from information in the user's profile, and based on that information, suggest one or more departure airports within the geographic area of the user's home location. *See* EX1009, 20:4-15. And the DM could infer the likely destination airport if non-stop flights from the user's home airport only go to a specific airport in the New York area.

46. DM technology involves various software components that can make decisions about what type of information to request from the user, how to present this information to the user, in what sequence to request this information, when this information might be inferred from other sources, when sufficient information has been collected and/or inferred for the system to take a subsequent action, and so on. For example, in the example dialog in a travel reservation system above, the user may provide the needed information to search for a flight (e.g., departure city, destination city, and time) over multiple utterances, where the DM tracks the information that has been provided and prompts the user for additional needed

information after each utterance. The DM may perform discourse analysis to interpret each user input in the context of what the user previously said and information in the knowledge database to update the state of the conversation, such as by determining that context of the user's utterance "This Friday please" relates to a travel date for booking a flight to New York. In other cases, the DM may detect that the user has provided multiple pieces of information in a single utterance, e.g., "I'd like to purchase a ticket to Cleveland this Friday at noon," which combined with inferred information from the user's file, e.g., the departure city being the user's home city, is sufficient for the DM to initiate a search for available flights and proceed to a next stage of the dialog, e.g., by presenting the user with available flight options and soliciting user confirmation to purchase. See EX1014, 18:49-60; EX1012, Chapter 17.6 (describing plan-based dialog management); EX1015, 10-11 (describing Dialogue Manager "employs a series of models that help it interpret the user input and decide on the next system action"). DM technology that exhibited these characteristics were well-known by 2014 had been developed in research laboratories and in commercial systems prior to that time. See, e.g., EX1012, Chapters 17.6-17.7, Chapter 18; EX1011; EX1007; EX1015.

47. It was also well-known by 2014 that there were significant benefits to be gained if a conversational system had access to specific knowledge about a user (such as their travel preferences). Such access can in general make the interaction

with the user both more efficient from the system's perspective and a more pleasant experience from the user's point of view, by reducing the amount of information that the system needs to request from the user during the dialog. The technology of user modeling (UM) consists of a number of different methods that can be used by a system to automatically build an internal representation of a user. These methods can include relatively simple (but useful) approaches such as recording information about a user's full name, age, home address, etc., that is explicitly provided by a user during (say) a registration process. See, e.g., EX1007, EX1009, EX1004, EX1005, EX1006; EX1015. More complex UM methods extract information that is implicitly provided by the user, for example, inferences about a user's travel preferences from words in past conversations that a user has had with the system, or inferences from words in earlier utterances in the current conversation. See, e.g., EX1007; EX1009; EX1005. As I discussed above, DM may make use of UM to infer information relating to a user's requests, without needing to request the information from the This may be used provide recommendations to the user and/or complete user. transactions on behalf of the user, e.g., using payment information previously provided to the user to complete a purchase transaction. See, e.g., EX1004; EX1005; EX1009; EX1014. By 2014 the benefits of UM in conversational modeling were widely acknowledged and had been developed in the context of both research and commercial systems. See, e.g., EX1007, EX1009, EX1004, EX1005, EX1006,

EX1013, Chapter 3.1 ("User-centred Adaptation" performed by OwlSpeak Adaptive Spoken Dialogue Manager).

48. In some speech systems, conversations between the user and the system take place within one or more domains or applications, such as stocks, news, music, travel planning, etc. See, e.g., EX1012, Chapter 17; EX1009; EX1007; EX1015. Some systems provided access to multiple domains or applications, which a user could reach by specifically requesting a particular domain or application, or by providing an utterance containing application- or domain-specific vocabulary that is mapped by the system to a particular application or domain, e.g., through keyword matching or other semantic analysis techniques. See, e.g., EX1009, EX1007, EX1015; EX1013, 81-83 (describing detecting "key utterances ... related to a specific dialogue model" to map user utterances to a particular domain). The different domains or applications may be associated with different types of tasks, objects, concepts, and behavior. For example, a travel reservation domain may require a more elaborate dialogue compared to, say, a domain for purchasing music CDs, as there is typically more information needed to be specified by the user before a search can be performed. See EX1009, 20:4-28. Thus, DM and UM may exhibit different behavior and perform different actions, depending on the domain or application of the conversation.

49. By 2014 it was also well-understood that the types of conversational systems that I described above, involving combinations of ASR, NLU, DM, and UM, could be directly applied to a variety of applications involving online commercial activities, such as advertising and purchasing of goods and services, in areas such as travel reservations, financial management, e-commerce purchases, and so on. *See, e.g.*, EX1012 at Chapter 17.8; EX1011; EX1004, EX1005, EX1006; EX1007; EX1009; EX1014; EX1015. For example, the Freeman patent, filed over seven years before the earliest priority date of the '385 patent, describes interpreting user utterances to present the user with an advertisement, and completing a purchase associated with the advertisement responsive to receiving a request from the user, e.g., the user saying "Yeah, I'll buy that." *See* EX1016, 10:60-11:4.

50. Thus by 2014, systems and methods for conversational voice user interfaces were well-known. Indeed, as Kennewick recognized in 2004, over a decade before the earliest priority date of the challenged patent, "[m]uch work covering multiple methods has been done in the fields of natural language processing and speech recognition. Speech recognition has steadily improved in accuracy and today is successfully used in a wide range of applications. Natural language processing has previously been applied to the parsing of speech queries." EX1007, [0006]. Speech recognition software was also commercially available. *See, e.g.*, EX1009, 9:55-59. Indeed, by 2001, over a decade before the earliest priority date

of the challenged patent, many different free voice portals were available that enabled users to access a variety of informational and e-commerce domains. *See, e.g.*, EX1012, Chapter 18, Table 18.1 (below). Thus, all the foundational technologies referenced in the claims were already known to the POSITA at the '385 patent's priority date.

Table 18.1 Some free voice portal features. These portals are being developed and will roll out more features.

Category	Audiopoint ⁵	Tell Me ⁶
Traffic	Yes	Yes
Weather	U.S. and world cities	U.S.
News	Yes	Yes
Financial	Yes	Yes
Sports	Yes	Yes
Airline info	No	Yes
Restaurants	No	U.S.
Entertainment	Yes	Yes
Personalization	Yes	Yes

51. In addition, by 2014, online and electronic commerce had become a large part of the global economy, and different methods for users to find and purchase goods and services had been developed. To facilitate repeat purchasing, many merchant websites enabled users to register an account, and/or allowed users to complete purchases through accounts registered with payment providers such as PayPal. *See* EX1008; EX1014, 19:2-7; EX1015, 15:4-8. Through these accounts, users could save their payment and/or shipping information, allowing for this information to be automatically populated when making purchases, reducing the need for the user to manually enter the information each time they wished to make

a purchase. *See id.* As conversational voice user interfaces were developed to enable e-commerce and online purchasing, this type of functionality was integrated into these interfaces as well. *See, e.g.*, EX1004, EX1005, EX1009, EX1014, EX1015.

B. Summary of the Prior Art

1. Li (EX1004)

52. Li, U.S. Publication No. 2012/0284105, is entitled "Apparatuses, Methods, and Computer Program Products Enabling Association of Related Product Data and Execution of Transaction." Li was filed on filed on April 13, 2012, was published on November 8, 2012, and claims priority to October 13, 2010. EX1004. I understand that Li is prior art because its filing and publication dates predate the September 16, 2014 priority date of the challenged patent.

53. Li discloses a "Data Processing System" that "enabl[es] the execution of any type of request to purchase an object." EX1004, [0009], [0089]. The request may be a "speech utterance" that the data processing system receives through a microphone and that "describ[es] the object of interest." *Id.*, [0006], [0188]. Based on the request, the data processing system identifies "a most likely object of interest" and "a Retailer offering [the] Object of Interest, in combination with one or more qualifying Offers, at a desired price level, e.g., the minimum price." *Id.*, [0006], [0092]-[0093], [0197]. The data processing system further presents the identified information to the user through a client device. *See id.*

54. For example, "a user of a wireless device can: (a) say or text 'Buy XYZ'; (b) view on the wireless device display a window displaying retailer XYZ offering the XYZ object for a low price, a qualifying coupon, cash back on the payment account held by the user, and an image whose selection can enable the purchase of the XYZ object; (c) say or text 'Buy'; [and] (d) buy the XYZ object without having to select at the retailer any object attributes, enter any offer and/or reward codes, and/or enter any payment account data." EX1004, [0005].

55. The user's speech input is received by a "Data Processing System," which as shown in FIG. 2B of Li, may be an "Inter Server."



EX1004, FIG. 2B. The Inter Server processes the speech input using "speech recognition" to "generate a set of candidate word strings" corresponding to the user's speech. EX1004, [0160], [0310]. The Inter Server includes an "Object ID Engine"

that analyzes these "candidate word strings," and selects a "highest ranking word or word string as the Object of Interest," corresponding to a product or service to purchased. *Id.*, [0160]-[0161], [0320], [0553]; *see also id.*, [0088] ("An Object can include any type of product," including a "good" or a "service").

56. The Inter Server further includes an "Offer ID Engine" that identifies one or more "qualifying offers related to [the] object of interest and/or a class of interest" determined by the Object ID Engine based on the selected "word or word string." EX1004, [0168], [0553], [0618], [0342]. For example, the Offer ID Engine queries a "Retailer Data structure 33500" associated with a Retailer Server, to retrieve stored data such as "(a) an object ID uniquely identifying each object offered [by the Retailer]; (b) an object description; (c) an object specification; (d) one or more object images; (e) object availability; and/or (f) object pricing." Id., [0477]-[0478], [0628]; see also FIG. 38A1 ("Query one or more data structures for Offers. . . associated with Object of Interest identifier"). The Inter Server uses the retrieved data to cause a client device to display information of a product or service corresponding to the "Object of Interest" that can be purchased by the user, including an identification of the product or service in conjunction with "a Retailer offering [the] Object of Interest, in combination with one or more qualifying Offers, at a desired price level, e.g., the minimum price." EX1004, [0160]-[0161], [0169], [0197]. The displayed information further includes a selectable interface element,

e.g., a "Buy" button, which when selected by the user via "a mouse click, a key press, a touch, [or] a speech input," transmits "a request to purchase the object of interest from the Retailer" associated with the presented offer. *Id.*, [0149]. The Inter Server retrieves the user's payment and shipping information from a maintained data structure, so that the purchase can be completed "without [the user] having to input any further data, including object attributes, offer and/or reward codes, and/or payment account data." *Id.*, [0004], [0138], [0292]. FIG. 3A, reproduced below, shows an example interface of information displayed responsive to a request to purchase a "Snow White DVD," that shows an image of the Object of Interest (i.e., a Snow White DVD), an identification of a retailer, information of qualifying offers, a price, and a "Buy" button that the user can select via "a mouse click, a key press, a touch, [or] a speech input" to buy the identified Object.



FIG. 3A

Id., FIG. 3A, [0146].

2. Chen (EX1005)

57. Chen, U.S. Patent No. 9,922,364, is entitled "Voice Initiated Purchase Request." Chen was filed on November 18, 2013, and issued March 20, 2018. EX1005. I understand that Chen is prior art because its filing date predates the September 16, 2014 priority date of the challenged patent.

58. Chen discloses a "hybrid response system ('HRS')" that enables "users to purchase a product or service by providing a voice request and/or an image." EX1005, Abstract. The HRS, responsive to receiving "a speech-segment message . . . associated with a user-account," determines whether "the speech segment indicates a purchase request," and if so, determines "a target product/service based on at least the purchase request." *Id.* The HRS may determine the target product/service by "an automated response system, by a human guide, or by a combination of the two." *Id.*, 4:35-41. For example, Chen discloses that the automated response system "may accurately determine the product or service the user would like to purchase," while a human guide may assist in cases where the automated response system is unable to determine a product or service with sufficient confidence. *Id.*, 3:60-4:6.

59. The user's "voice input 202" is received by a "transcription module 204" of the automated response system, which "generate[s] text corresponding to the voice input." EX1005, FIG. 2, 8:36-39. A "categorization module 206" receives the transcribed text and classifies the speech segment by "determin[ing] that [the] speech segment is of a particular type, [and/or] relates to a certain topic," such as if the speech segment relates to a "purchase request." *Id.*, 8:36-46, 9:42-47. The HRS determines "a target product/service based on at least the purchase request" to return a response 218. EX1005, Abstract.

60. Once the HRS identifies a target product or service, the HRS may prompt the user "to confirm the purchase before it is finalized." *Id.*, 4:38-46. If the user "is satisfied with the details of the purchase-approval request," the user "may then speak a command, such as 'buy,' that is sent to the hybrid response system," to complete the purchase. *Id.*, 20:15-24. The HRS completes the purchase using the

user's credit card information and address information stored in a "user-account." *Id.*, 4:35-43, 19:62-67.

61. FIG. 7 of Chen illustrates an example in which a user may "send[] a first speech segment or purchase request to [the] hybrid response system," e.g., "Buy the Brand X basketball shoes for me," which in response, "may display a screen [] with a response card . . . [that] indicates: 'Brand X model 1 basketball shoes are available for \$99.99 with free shipping from the Yangtze online store. Speak 'buy' to purchase." EX1005, 21:42-58, 22:16-24.



Id., FIG. 7. The user may then speak "buy" to send "a purchase approval request to the hybrid response system," as shown in the figure below. *Id.*

3. Barnes (EX1006)

62. Barnes, U.S. Publication No. 2012/0096358, is entitled "Navigating Information Hierarchy Using a Mobile Communication Device." Barnes was filed on December 20, 2011, and published on April 19, 2012. EX1006. I understand Barnes is prior art because its filing and publication dates predate the September 16, 2014 priority date of the challenged patent.

63. Barnes discloses systems and methods for processing "product identifying information" received through a user's voice input, to identify the product and perform a "Multi-Vender Search" to find "the available venders that can provide the product." EX1006, [0164], [0167]-[0169], [0172]-[0174]. The system processes the user's voice input using "voice recognition software" that outputs "a text version of the [user's] spoken words," and parses the generated text "for particular words," such as a "processing instruction such as 'find lowest price' followed by product identifying information such as manufacturer Calloway®, Big Bertha® driver." *Id.*, [0167], [0380]-[0381].

64. To identify the product and available vendors, Barnes's system "retrieve[s] data of venders from [a] local memory, a remote computer system, and/or transmit[ting] a request for such venders to a public, private, or local (e.g., shopping complex) service registry." EX1006, [0169]. The "local memory or [the] remote computer" stores data of "venders who offer, or who may offer the product" accessed by the system as part of a previous transaction, such as "the particular type of vender (e.g., a restaurant), the particular product (e.g., an airline ticket from a particular airline), the particular type of product (e.g., food), and/or the location of

the vender (e.g., the country)." *Id.*, [0121], [0171]. Upon identification of appropriate vendors, the system in Barnes generates a request to each vendor for the product's price and availability. *Id.*, [0169]-[0176]. The vendors then process "their respective requests" by "searching a database for the price of the identified product." *Id.* The system sorts the received responses, and displays one or more of the responses to the user, e.g., in order of ascending price. *See id.*, [0177]. Upon "viewing the presented data of [the] one or more responses," the user "supplies an input," e.g., a voice "command to transmit a request to purchase the product from a particular vender." *Id.*, Abstract, [0177]-[0178].

4. Kennewick (EX1007)

65. Kennewick, U.S. Publication No. 2004/0193420, is entitled "Mobile Systems and Methods for Responding to Natural Language Speech Utterance." Kennewick was filed on July 15, 2003, published on September 30, 2004, and claims earliest priority to July 15, 2002. EX1007. I understand Kennewick is prior art because its filing and publication dates predate the September 16, 2014 priority date of the challenged patent. I also understand that both Kennewick and the patent application that issued as the '385 patent were initially assigned to the VoiceBox Technologies Corp ("VoiceBox").

66. Kennewick discloses a "speech interface" that enables "mobile users to ask natural language speech questions or give natural language commands in a wide

range of domains." EX1007, [0002]. The speech interface makes "significant use of context . . . and user specific profile data" to interpret a user's request and provide responses. *Id.*, Abstract. As Figure 5 of Kennewick illustrates below, the user's natural language utterance is received at a "main unit 98" that processes the utterance by a speech recognition engine 120 that "recognize[s] words and phrases."



EX1007, FIG. 5, [0155].

67. The main unit further includes a parser 118 that determines a context for the user's utterance based on the recognized words and phrases of the utterance, by "applying prior probabilities or fuzzy possibilities to keyword matching." *Id.*, [0160]. The parser 118 may further "use a scoring system to determine the most[] likely context or domain [by] . . . weighting a number of factors including, the user profile 110, the domain agent's 156 knowledge[,] and previous context." *Id.*,

[0160]-[0161]. For example, in one dialog "the keyword[] 'temperature' implies a context value of weather for the question" but in "a different dialog, the keyword 'temperature' can imply a context for a measurement" such as body temperature. *Id.*, [0160]. "Once the context for the question or command has been determined, the parser 118 can invoke the correct agent 156, 150." *Id.*, [0162].

68. Additionally, Kennewick discloses that the speech interface may be used for various applications, including voice commerce applications. EX1007, [0060]-[0085]. For example, the speech interface may perform "[r]emote ordering and payment for goods and services," in which the system provides "interactive offers and promotions for goods and services" and/or "[a] product catalog," and facilitates "remote ordering by using location information, customer preferences, customer order history, etc." and "a secure payment wallet for the users." *Id.*, [0066]-[0067]. Kennewick further discloses different contexts or domains corresponding to different types of products, including "fast food ordering," "[t]ravel services" and reservations, etc. *Id.*, [0018], [0068].

5. Lee (EX1008)

69. Lee, U.S. Publication No. 2014/0344106, is entitled "One-Page Checkout." Lee was filed on February 27, 2014, published on November 20, 2014, and claims earliest priority to May 15, 2013. EX1008. I understand Lee is prior art

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because its filing date predates the September 16, 2014 priority date of the challenged patent.

70. Lee discloses a "payment service provider" that facilitates "faster checkout for a user" when conducting "[o]nline or electronic commerce." EX1008, Abstract, [0005], [0014]. When the user purchases a product or service from "a merchant website," the payment service provider "populate[s] a one-page checkout page" with the "details of the purchase," such as "item description, item prices, total price, shipping costs, tax, etc.," as well as "the stored name 504 and the email address 506 of the user 105, the shipping address 508, the last used payment method 510, the password field 512 and the pay button 514." *Id.*, [0014], [0038], [0044]. FIG. 5, reproduced below, shows an example of a "one-page checkout page" containing product, payment, and shipping information. If the user finds that the presented details "are acceptable and correct," the user may "select a 'Confirm,' 'Pay,' or other button or link to confirm the order."



Site Feedback [-] PayPal: The safer, easier way to pay. For more information, read our <u>User Agreement</u> and <u>Privacy Policy</u>

Id., FIG. 5, [0038].

VIII. SUMMARY OF INVALIDITY GROUNDS

71. In my opinion, the challenged claims are invalid based on the following

grounds:

- <u>Ground 1</u>: Li renders obvious claims 1, 3-8, 10-16, 18-23, 25-30, and 31-38;
- <u>Ground 2</u>: Li in combination with Kennewick renders obvious claims 2 and 17;
- <u>Ground 3</u>: Li in combination with Chen renders obvious claims 9 and 24;
- <u>Ground 4</u>: Li in combination with Lee renders obvious claims 39 and 40;

- <u>Ground 5</u>: Chen in combination with Barnes renders obvious claims 1, 3-11, 14-16, 18-26, and 29-30;
- <u>Ground 6</u>: Chen in combination with Barnes and Kennewick renders obvious claims 2 and 17;
- <u>Ground 7</u>: Chen in combination with Barnes and Li renders obvious claims 12-13 and 27-28; and
- <u>Ground 8</u>: Chen in combination with Barnes and Lee renders obvious claims 39-40.

IX. INVALIDITY GROUNDS

A. Ground 1: Li renders obvious claims 1, 3-8, 10-16, 18-23, 25-30, and 31-38

1. Claim 1

[1.pre] "A method for providing voice commerce, the method being implemented on a computer system having one or more physical processors programmed with computer program instructions which, when executed, perform the method, the method comprising:"

72. To the extent that the preamble is limiting, Li renders it obvious. Li

describes a "computer-implemented method" for providing voice commerce. *See* EX1004, [0006]. The '385 patent describes "*voice commerce*" as "prepar[ing] and/or complet[ing] checkout of product or service purchases related to one or more user inputs," including "auditory input[s]... received via a microphone." EX1001, 3:59-65. Li similarly discloses providing "voice commerce" by processing user requests "to purchase an object," where the request may be in the form of "a speech

utterance" received from a microphone. EX1004, [0009], [0188]. For example, the user can "say or text 'Buy XYZ," to view "a window displaying retailer XYZ offering the XYZ object." *Id.*, [0005]. The user may then "say or text 'Buy" to "buy the XYZ object." *Id.*, [0005]. This process is shown in the flowchart of FIGs. 2A1-2A2 of Li (combined and reproduced below, annotations added³), which include processing a user voice request to select and display information of an "Object of Interest" ("Object F") and completing the purchase responsive to a subsequent request "to purchase the Object of Interest."

³ All annotations and emphases are added unless otherwise noted.



FIG. 2A2

Id., FIGs. 2A1-2A2.

73. The method shown in FIGs. 2A1-2A2 show receiving a user request, determining that the request is for an "immediate single purchase"; identifying, retrieving, and displaying information relating to an "Object of Interest" ("Object F"); receiving a request from the user to purchase the identified Object of Interest; and completing the purchase by automatically selecting a set of values to send to an identified retailer to execute the purchase. EX1004, FIGs. 2A1-2A2, [0089]-[0109]. Li therefore discloses a "*method for providing voice commerce*."

74. Li further discloses that the method is "*implemented on a computer* system." Li discloses that "any or all of the steps of" the described method may be implemented on a "Data Processing System" corresponding to a computer, server, or other "type of device which can process data," or a distributed system including multiple devices. EX1004, [0076], [0081], [0087]; see also id. [0006] ("computerimplemented method is executed on a particular machine"). For example, the method may be implemented on a "client device" such as a personal computer or wireless device ("PC/WD"), a "remote computer" such as an "Inter Server," or some combination thereof. EX1004, [0087], [0119]; see also [0254] (described methods can be implemented by "enabling Inter Server 02300 to receive, store, process, and/or transmit the data used to execute a User Request received from PC/WD 02200," or "a client device, e.g., PC/WD 02200 . . . can execute a User Request locally"). FIG. 2B, reproduced below, shows an "Apparatus 02000," shows an "Inter Server 02300" that communicates with a client device ("PC/WD 02200") to perform the method.



75. In addition, Li discloses that the computer system on which the method is implemented has "one or more physical processors programmed with computer program instructions which, when executed, perform the method." For example, Li discloses that the Data Processing System that implements the method, e.g., the Inter Server, includes "a general- or special-purpose Processor 01040 or any other means of processing instructions and/or data," and "a read-only memory (ROM) device 01080" or "a Mass Storage Device 01100 . . . capable of storing data and/or instructions executed by Processor 01040" to perform "the steps in any of the methods described herein, equivalent or related steps, other or additional steps, or any subset thereof." EX1004, [0075]-[0078], [0083] ("utilizing one or more general-

or special-purpose Processors 01040 programmed with the instructions to execute the steps in any of the methods described herein ... "). The instructions "can include code from any computer-programming language and/or scripts, including, but not limited to: C, C++, Basic, Java, JavaScript, Pascal, Perl, Smalltalk, Structured Query Language (SQL), VBScript, and/or Visual Basic." *Id.*, [0082]. The disclosed "one or more general- or special-purpose Processors 01040" thus correspond to the claimed "one or more physical processors programmed with computer program instructions which, when executed, perform the method." *See id.*, [0083]. Li therefore renders limitation [1.pre] obvious.

[1.a] "receiving, by the computer system, a single first user input comprising a natural language utterance;"

76. Li renders this limitation obvious. First, Li discloses "*receiving, by the computer system, a single first user input.*" As explained for limitation [1.pre] above, Li's "Inter Server 02300" meets the claimed "*computer system.*" The Inter Server 02300 "receiv[es] from a client device a request related to an object of interest." EX1004, [0006]. This "request" meets the claimed "*first user input*" and is received by the Inter Server 02300 in Li's "*computer system.*" Second, Li discloses the "*single first user input comprising a natural language utterance.*" The "request" (i.e., "*single first user input*") in Li may be "in any form, including" "speech." EX1004, [0006]; *see also id.*, [0254] (explaining that the "Inter Server 02300" receives the "request" (i.e., "*single first user input*")). This "speech" is "*a*

natural language utterance" because Li explains that it is a "speech utterance" corresponding to "any word string spoken by the user of a device," e.g., "a word string related to an Object of Interest." *Id.*, [0160], [0264]. Li then provides examples of the speech utterances, including "Buy XYZ," "Buy and send flowers to Mary this Valentine's Day," "Buy Starbucks® coffee beans," and "Buy Disney® Snow White DVD," each of which is a natural language utterance. *Id.*, [0005], [0160], [0213], [0264], [0413], [0475]. Li therefore renders limitation [1.a] obvious.

[1.b] "providing, by the computer system, the natural language utterance as an input to a speech recognition engine;"

77. Li renders this limitation obvious. As explained for limitation [1.pre] above, Li's "Inter Server 02300" meets the claimed "*computer system*." The Inter Server 02300 includes a "Speech Recognition Module 17200" corresponding to "any CPP [Computer Program Product] capable of processing a speech input and generating an output of a Hypothesized Word String." *Id.*, [0317], [0320] (describing the Speech Recognition Module 17200 as part of an Apparatus 17000 "located in . . . Inter Server 02300"). A POSITA would have recognized that the "Speech Recognition Module" meets the claimed "speech recognition engine" because it is software or hardware that recognizes the words or phrases in the natural language utterance. *Id.*, [0310], [0317]. The Speech Recognition Module receives the user's request (i.e., the "*first user input*" as described for limitation [1.a] above) and uses "an acoustic model and a language model" to recognize the speech

utterance and "generate a set of candidate word strings." EX1004, [0090]-[0091], [0160], [0310], [0382], [0527].

78. For example, FIG. 17 illustrates an "Apparatus 17000" (which is part of the Inter Server 02300) providing, to the "Speech Recognition Module 17200," "an acoustic waveform representing an Object of Interest in a User Request" (i.e., "*the natural language utterance*"), which generates "an output of a Hypothesized Word String 17300." *Id.*, [0315], [0317], [0380], FIG. 17 (reproduced below).



79. A POSITA would have understood that the Inter Server (i.e., the "computer system"), which receives the single user input from the client device

comprising "the natural language utterance," provides the natural language utterance to the speech recognition engine ("Speech Recognition Module") for processing to generate a word string corresponding to the recognized words of the utterance. *See id.*, [0156], [0380], FIG. 17. Li therefore renders limitation [1.b] obvious.

[1.c] "obtaining, by the computer system, one or more words or phrases recognized from the natural language utterance as an output of the speech recognition engine;"

80. Li renders this limitation obvious. As explained for limitations [1.pre] and [1.b] above, Li's Inter Server 02300, corresponding to the claimed "computer, includes a Speech Recognition Module corresponding to the claimed "speech *recognition engine*." Li further discloses that that the speech "recognition engine" (included as part of the Inter Server's Speech Recognition Module) is configured to "recognize any word in a set of predefined words," e.g., by utilizing "an acoustic model and a language model to generate a set of candidate word strings" or a "Hypothesized Word String." EX1004, [0091], [0310], [0317]. The generated set of "candidate word strings" or "Hypothesized Word String" corresponds to "one or *more words or phrases recognized from the natural language utterance*" output by the speech recognition engine. See also id., [0317] ("Speech Recognition Module. . . process[es] a speech input and generat[es] an output of a Hypothesized Word String"); [0531] (describing recognizing "a word string spoken by the user of [the] Client Device [] related to the Object of Interest"). FIG. 17 illustrates the "Apparatus

17000" (which is part of the Inter Server 02300) obtaining, from the "Speech Recognition Module 17200," a generated "output of a Hypothesized Word String 17300."



Id., FIG. 17, [0317].

81. The Inter Server thus obtains the one or more words or phrases recognized from the natural language utterance (e.g., the candidate or hypothesized word string) as an output of the speech recognition engine, to be passed to subsequent components for further processing, e.g., to an "Object ID Engine" to infer an "Associated Product ID and/or Merchant ID 17400" from the word string. *See* EX1004, [0318], [0527]. Li therefore renders limitation [1.c] obvious.

[1.d] "searching, by the computer system, one or more databases of products or services based on the one or more words or phrases;"

82. Li renders this limitation obvious. First, Li discloses "*searching, by the computer system, one or more databases of products or services*." As explained for limitation [1.pre] above, Li's "Inter Server 02300" meets the claimed "*computer system*." The Inter Server queries "one or more data structures to identify data associated with a given word string, e.g., an object name" of an "Object of Interest." EX1004, [0160], [0240]. For example, the Inter Server includes an "Object ID Engine" that receives the "candidate word strings" output by the speech recognition engine ("Speech Recognition Module"), and "select[s] the highest ranking word or word string as the Object of Interest." *Id.*, [0161], [0329]-[0337], [0553]. Li further discloses providing the selected "word or word string" corresponding to the Object of Interest to an "Offer ID Engine" that identifies one or more "qualifying offers related to [the] object of interest." EX1004, [0161], [0618].

83. To identify offers related to the object of interest, the Offer ID Engine "quer[ies] one or more data structures for any data and/or instructions related to the Object of Interest." EX1004, [0206], [0240]. For example, the Offer ID Engine of the Inter Server determines, from the "Hypothesized Word String 17300" generated by the Speech Recognition Module 17200, "an identifier associated with the Object of Interest" (shown in FIG. 17 as "Associated Product ID and/or Merchant ID 17400").



Id., FIG. 17, [0318], [0624]-[0627].

84. The Offer ID Engine determines the "identifier associated with the Object of Interest" by searching "a data structure storing objects and their attributes," and "comparing the value of one or more attributes of the identified Object of Interest" against values of the same attributes in the data structure, to "determine if there is a match of the value of each attribute." EX1004, [0318], [0624]-[0627]. A POSITA would have understood the searched "data structure storing objects and their attributes" is a "*database[] of products or services*." *See also* EX1004, [0088] ("An Object can include any type of product, including . . . (a) a good . . . and/or (b) a service"), [0157]-[0158] (describing that a "Database" can "be a data structure").
85. The Offer ID Engine further "quer[ies] one or more data structures . . . to identify one or more Offers ... associated with each Object of Interest identifier." EX1004, [0628]. For example, the Inter Server queries a "Retailer Data structure 33500" associated with a Retailer Server, to retrieve stored data such as "(a) an object ID uniquely identifying each object offered [by the Retailer]; (b) an object description; (c) an object specification; (d) one or more object images; (e) object availability; and/or (f) object pricing." Id., [0477]-[0488], [0628]; see also FIG. 38A1 ("Query one or more data structures for Offers . . . associated with Object of Interest identifier"). The Inter Server uses the retrieved data from the Retailer Data structures to present information "associated with one or more retailers offering [a] Product A" corresponding to the Object of Interest to the user. Id., [0127]. A POSITA would have understood a searched Retailer Data structure containing data of objects (e.g., products) offered by a particular retailer to be a "database[] of products or services." See also id., [0088] ("An Object can include any type of product, including . . . (a) a good . . . and/or (b) a service").

86. In addition, the Inter Server may "copy one or more pages" of data from the Retailer Data Structure, and "index the data to enable retrieval of" the data. EX1004, [0478]. For example, the Inter Server maintains an Object or Product database 02320 storing "data related to objects and/or object categories, including, but not limited to: (a) the name of objects and/or object categories; (b) the set of data, e.g., phonemes in the case of speech, associated with the name; (c) any standard codes uniquely identifying each object and/or object category; (d) one or more retailers offering for sale the object and/or object category; and/or (e) one or more objects related to and/or complementing each object." *Id.*, [0158]. A POSITA would have understood that the data of the Object/Product database includes data collected from the Retailer Data Structures of different retailers to identify the retailers that offer a particular object for sale. *See also id.*, [0160] (Inter Server receives data "from one or more sources of data," including the Product Database 02320). A POSITA would have understood the searched Object or Product Database containing "data related to objects" is a "*database[] of products or services*." *See also id.*, [0088] ("An Object can include any type of product, including . . . (a) a good . . . and/or (b) a service").

87. A POSITA would have understood that any of the above-discussed databases and data structures, e.g., the "data structure storing objects and their attributes" queried to determine an identifier for the Object of Interest, the Inter Server's Object or Product database, and/or the Retailer Data Structures, correspond to the claimed "*one or more databases of products or services*." *See, e.g.*, EX1004, [0157], [0158] (describing that "User Database," "Object Database" may each be "a data structure capable of enabling at least the writing, storage, and/or reading of data"). Li discloses that the Inter Server searches these databases to collect

information of potential offers for purchasing the Object of Interest (sets "of Retailer A, Offer B, Payment Account C, and value(attribute_N)") to present to the user. *See id.*, [0101]. For example, Li discloses that where the user's request specifies an "object category of interest," the Inter Server "identif[ies] one or more Retailers offering one or more objects associated with the identified Object Category," and "crawl[s] any data structure storing data related to the objects offered by each Retailer" to obtain data for potential offers which it then presents to the user. *Id.*, [0223]-[0226]. A POSITA would have found it obvious that where the user request specifies a specific "object of interest," a similar process of identifying retailers that offer the requested object (e.g., by searching the Object/Product database) and crawling Retailer Data Structures of the identified retailers may be used.

88. In addition, Li discloses that the Inter Server searches the one or more databases "*based on the one or more words or phrases*." For example, as discussed above, Li discloses selecting a word string from the "candidate word strings" ("*one or more words or phrases*") "as the Object of Interest," searching "a data structure storing objects and their attributes" to obtain an Object ID, and searching an Object/Product database and/or a Retailer database based on the Object ID to identify offers related to the object of interest. *See, e.g.*, EX1004, [0158], [0331], [0553], [0477]-[0488], [0624]-[0627]. Thus, Li discloses searching the databases "*based on the one or more words or phrases*," by searching using the words or

phrases themselves, or based on an Object ID derived from the words or phrases. Li therefore renders limitation [1.d] obvious.

[1.e] "selecting, by the computer system, without further user input other than the single first user input, a product or service from the database to be purchased based on the search;"

Li renders this limitation obvious. First, Li discloses "selecting, by the 89. computer system, ... a product or service from the database to be purchased based on the search." The claimed term "the database" lacks antecedent basis. For my analysis, I assume "the database" in this limitation refers to the "one or more databases" of limitation [1.d]. As discussed above, Li discloses that the Inter Server (the claimed "*computer system*") identifies a "word or word string as the Object of Interest," and "quer[ies] one or more data structures for any data and/or instructions related to the Object of Interest," including "a Retailer offering [the] Object of Interest, in combination with one or more qualifying Offers, at a desired price level, e.g., the minimum price." EX1004, [0160]-[0161], [0197], [0206], [0240], [0553]. This data corresponds to the "a product or service from the database to be purchased," as it indicates the product (i.e., the "Object of Interest") to be purchased from "the Retailer offering the Object of Interest," based on "an Offer related to the Object of Interest." Id., [0167], [0169], [0197]. For example, FIG. 3A (reproduced below) illustrates an example interface presenting information about a selected "product or service from the database to be purchased" that includes information

about the product (e.g., an identification of the product and an image of the product), as well as an associated retailer ("Retailer XYZ") and available discounts (e.g., "a qualifying coupon," affinity group discount, and/or payment account discount) for purchasing the product.



FIG. 3A

Id., FIG. 3A.

90. As discussed above, the product to be purchased is selected "*based on the search*" of the one or more databases, e.g., an Object Database maintained by the Inter Server storing "data related to objects and/or object categories, including . . . one or more retailers offering for sale the object and/or object category," and/or a "Retailer Data structure 33500" associated with a Retailer Server storing information including "(a) an object ID uniquely identifying each object offered; . . . (e) object

availability; and/or (f) object pricing." EX1004, [0158], [0477]-[0488], [0628]; *see also* FIG. 38A1 ("Query one or more data structures for Offers . . . associated with Object of Interest identifier"). For example, a POSITA would have understood that the Inter Server may search the Object/Product Database to "identify one or more Retailers offering one or more objects associated with" the identified Object and/or an associated Object category, and then query the appropriate Retailer Data Structures for offers related to the object of interest. *Id.*, [0158], [0223]-[0226], [0628] (querying "one or more data structures, e.g., Retailer Data Structure(s) 33500 . . . to identify one or more Offers ... associated with each Object of Interest identifier").

91. Second, Li further discloses selecting the product or service "*without further user input other than the single first user input*." As discussed above, Li discloses that the Inter Server determines product purchase information (e.g., "Retailer, Payment Account, one or more Offers," etc.) from the user's request to purchase a specified "Object of Interest." EX1004, [0114]. For example, the user of a wireless device can "(a) say or text 'Buy XYZ'; [and] (b) view on the wireless device display a window displaying retailer XYZ offering the XYZ object for a low price, a qualifying coupon, cash back on the payment account held by the user, and an image whose selection can enable the purchase of the XYZ object," where the Inter Server selects the XYZ object "*without further user input other than the*

single first user input" of "Buy XYZ." *Id.*, [0005]. FIGs. 2A1-2A2 of Li also show identifying and retrieving (02000C1), and then displaying (02000D1) elements of "Object F" corresponding to information about a selected product and retailer, etc., without any further user input other than the single first user input received at 02000A.





Id., FIGs. 2A1-2A2.

92. Li further renders this limitation obvious because it discloses that even in cases where the user "may not know the name of a specific Object of Interest," they may provide "one or more attributes of an Object of Interest." *Id.*, [0214]. The

user may communicate these attributes "all at once in one User Request or serially in a plurality of User Requests." *Id.*, [0214]. In the former case, no "*further user input other than the single first user input*" is needed for the Inter Server to identify the Object of Interest based on the specified attributes, and to select an appropriate retailer and offer for purchasing the object of interest. Li therefore renders limitation [1.e] obvious.

[1.f] "receiving, by the computer system, a second user input indicating confirmation by a user to complete a purchase transaction of the selected product or service; and"

93. Li renders this limitation obvious. First, Li discloses "*receiving, by the computer system, a second user input*." Li discloses that the Inter Server causes the client device to display an object that can be selected by a user, e.g., "BUY/CALL 02270," that, when selected by the user, "enable[s] the transmission of voice and/or data to one or more Data Processing Systems for executing the purchase of the Object of Interest." EX1004, [0145]. For example, FIG. 3A (reproduced below) illustrates a "Buy" button displayed in conjunction with information indicating the product to be purchased, which is "an object whose selection can enable the user to buy the Object of Interest."



FIG. 3A

Id., FIG. 3A, [0168].

94. The user's selection of the BUY/CALL object corresponds to a "*second user input*," where the user may make the selection using "a mouse click, a key press, a touch, a speech input," etc. EX1004, [0146]; *see also id.*, [0005] ("say or text 'Buy"). The Inter Server (the claimed "*computer system*") receives this "second user input," because the selection of the "BUY/CALL object" causes an "event handler associated with" the object to "transmit to . . . Inter Server 02300, a request to purchase the object of interest." *Id.*, [0149].

95. In addition, Li discloses that the second user input provides "confirmation by a user to complete a purchase transaction of the selected product or service." For example, Li discloses that when the user selects the "BUY/CALL

object," an "event handler associated with" the object executes a function to "transmit to . . . Inter Server 02300, a request to purchase the [selected] object of interest from the [selected] Retailer." EX1004, [0149]. The "request to purchase the object" indicates "confirmation by [the] user to complete a purchase transaction of the selected product or service."

96. Li provides an example where after "a user of a wireless device" provides a first input by saying the phrase "Buy XYZ" and is presented information showing a "retailer XYZ offering the XYZ object for a low price, a qualifying coupon, cash back on the payment account held by the user, and[/or] an image whose selection can enable the purchase of the XYZ object," the user provides a second user input by "say[ing] or text[ing] 'Buy.'" EX1004, [0005]. This second user input is confirmation by the user to complete a purchase transaction of the selected product or service, as it requests the system to complete the purchase. For example, FIGs. 2A1-2A2 illustrate, at 02000E1, "receiv[ing] from Client Device 14200 a request to purchase the Object of Interest specified in the User Request," which confirms the user's intent to complete a purchase transaction of the selected product or service associated with the displayed "Object F." *Id.*, [0094].



FIG. 2A2

Id., FIGs. 2A1-2A2. Li therefore renders limitation [1.f] obvious.

[1.g] "completing, by the computer system, without further user input after the receipt of the second user input, a purchase transaction of the selected product or service.

97. Li renders this limitation obvious. First, Li discloses "completing, by the computer system, ... a purchase transaction of the selected product or service." Li discloses that when the Inter Server (the "computer system") receives the second user input, e.g., the user's selection of the "BUY/CALL" object through a text or speech input, the Inter Server receives "a request to purchase the object of interest from the Retailer" associated with the presented offer. EX1004, [0149]. In response, the Inter Server transmits a "selected set of attributes and values" associated with the selected offer to the selected retailer, and "populate[s] one or more fields at the selected [] Retailer with the values necessary to execute a purchase of the Object of Interest." *Id.*, [0108]-[0109]. Thus, the Inter Server completes "a purchase transaction of the selected product or service."

98. In addition, Li discloses that the purchase is completed "*without further user input after the receipt of the second user input*." For example, Li discloses that the Inter Server, after receiving the "second user input," completes the purchase "without [the user] having to select at the retailer any object attributes, enter any offer and/or reward codes, and/or enter any payment account data." EX1004, [0005]. For example, FIGs. 2A1-2A2 show, at 02000F-02000I1, completion of purchase in which the system selects "the set of Retailer A, Offer B,

Payment Account C, and value(attribute_N))" and "transmit[s] the selected set of attributes and values to the IP Retailer selected" to complete the purchase, without further input after the second user input at 02000E1.





Id., FIGs. 2A1-2A2, [0101]-[0109].

99. Thus, the Inter Server completes the purchase without further input after the receipt of the second user input (corresponding to the user saying or texting "Buy"), because, as shown in FIGs. 2A1-2A2, the Inter Server completes the purchase after receiving the user's "request to purchase Object of Interest," without any further user inputs. Li therefore renders limitation [1.g] obvious.

2. Claim 3: "The method of claim 1, wherein completing the purchase transaction for the selected product or service comprises: obtaining, by the computer system, payment information with which to pay for the selected product or service, wherein the purchase transaction is completed based on the payment information without receiving confirmation of the payment information by the user."

100. Li renders claim 3 obvious. First, Li discloses that the Inter Server (the "computer system") "obtain[s] ... payment information with which to pay for the selected product or service," by identifying the user's "registered payment account" when determining a potential purchase opportunity to present to the user (e.g., a "Retailer offering the Object of Interest, in combination with one or more qualifying Offers and payment utilizing a Payment Account"). EX1004, [0005]-[0006], [0101], [0114], [0189]; see also claim 1 ("identifying at least one payment account to associate with the object of interest"). For example, FIG. 12 illustrates that the Inters Server obtains the user's "Payment Account Data" stored in Inter Server's "Data Structure 02302."



FIG. 12

Id., FIG. 12.

101. The Inter Server then completes the purchase based on the obtained payment information. For example, as discussed for limitations [1.f] and [1.g], when the user provides the claimed "second user input indicating confirmation by [the] user to complete a purchase transaction of the selected product or service," e.g., by texting or saying "Buy," the Inter Server completes the purchase by "populat[ing] one or more fields at the selected IP Retailer with the values necessary to execute a purchase of the Object of Interest." EX1004, [0005], [0109]. These values may include a "set of Retailer A, Offer B, Payment Account C, and value(attribute_N))," which "in combination can generate a desired output, e.g., the lowest price." *Id.*,

[0101], [0114]. The obtained "Payment Account" associated with the offer (e.g., "Payment Account C") corresponds to the claimed "*payment information with which to pay for the selected product or service*" when "execut[ing] the purchase." *Id.*, [0149]. To complete the purchase, the Inter Server obtains and "transmit[s] the selected set of attributes and values" to the Retailer associated with the offer, including the obtained payment account information. *Id.*, [0108]-[0109], [0149].

102. In addition, Li discloses that the "purchase transaction is completed based on the payment information without receiving confirmation of the payment information by the user." For example, Li discloses that the Inter Server completes the purchase transaction responsive to the user saying "Buy," without "having to input any further data, including object attributes, offer and/or reward codes, and/or payment account data." EX1004, [0004]-[0005]. A POSITA would thus have understood that the Inter Server completes the purchase transaction based on the payment information (e.g., "Payment Account C") without receiving confirmation of the payment information by the user. This is consistent with the disclosure of the challenged patent, which illustrates in FIGs. 6A and 6B "screenshots . . . of [a] user interface which facilitates voice commerce," where the application determines payment information (see EX1001, FIG. 6A, showing Payment Information as "Credit Card Ending 1234"), and completes the purchase after the user says "Yes" (see id., FIG. 6B). EX1001, 20:65-21:24.

103. While Li notes that the information presented to the user may include specific elements such as an "image of the Object of Interest," a selected "Retailer," "any qualifying Reward(s) associated with a Payment Account," etc., Li also discloses that any "combination of elements, fewer elements, [or] more elements" may be presented. EX1004, [0168]. A POSITA would thus have understood that presenting payment account information is optional. For example, FIGs. 3E (reproduced below), 3F, and 3G of Li also illustrate exemplary interfaces in which the information to pay for the Object of Interest is not displayed.

Object Image 02232A	Net Price	\$ 21.99	\$ 27.07
Taxes: 03000E8		\$ 0.00	\$ 2.10
Transportation Costs: 03000E7		\$ 0.00	\$ 3.48
Payment Method Discount: 03000E6		\$ 2.00	\$ 3.50
Affinity Group Discount: 03000E5		\$ 1.00	N/A
Qualifying Coupon: 03000E4		\$ 10.00	\$ 10.00
Retailer Price: 03000E3		\$ 34.99	\$ 34.99
		IP Retailer 03000E1	PHY Retailer 03000E2

EX1004, FIG. 3E; see also id., FIGs. 3F-3G. Li therefore renders claim 3 obvious.

3. Claim 4: "The method of claim 1, wherein completing the purchase transaction for the selected product or service comprises: obtaining, by the computer system, shipping information with which to deliver the selected product or service, wherein the shipping information specifies a name or address of a recipient to which the selected product or service is to be delivered after the selected product or service is purchased, and wherein the purchase transaction is completed based on the shipping information without receiving confirmation of the shipping information by the user."

104. Li renders claim 4 obvious. First, Li discloses that completing the purchase transaction comprises "*obtaining, by the computer system, shipping information with which to deliver the selected product or service*." For example, Li discloses that the Inter Server identifies and obtains attribute values of an offer including "shipping expense specific to the purchase of Product A and delivered to the address of the user," based on "a shipping address provided by the user" "stored in a data structure" maintained by the Inter Server. EX1004, [0138], [0292]. Thus, Li discloses obtaining the claimed "*shipping information*," e.g., "a shipping address provided by the user," to determine the shipping expense for delivering the selected product or service ("Product A") "to the address of the user." *Id.* For example, FIG. 12 (reproduced below) illustrates that the Inter Server may obtain user shipping information (e.g., name, street, city, state) from the data structure 02302.



Id., FIG. 12.

105. Li further discloses that "the shipping information specifies a name or address of a recipient to which the selected product or service is to be delivered after the selected product or service is purchased." For example, Li discloses that the "shipping address provided by the user . . . stored in [the] data structure [] 02302" may include "name, street address, city, state, zip code," etc. EX1004, [0138], [0292]. FIG. 12 (above) illustrates that the data structure 02302 stores shipping information associated with a user that includes name and address (street, city, and state). See also id., [0293] (describing that the data structure may include the user's "Social Network data" enabling identification of "the name and shipping address of the recipient"). Thus, Li discloses that the shipping information specifies "a name

or address of [the] recipient to which the selected product or service is to be delivered" upon purchase.

106. In addition, Li discloses that "completing the purchase transaction for the selected product or service comprises: obtaining . . . [the] shipping information," where the "purchase transaction is completed based on the shipping information without receiving confirmation of the shipping information by the user." For example, as discussed above, Li discloses obtaining the "shipping information" to generate an offer for a product or service to be presented to the user. When the user provides the second user input as a confirmation to complete a purchase transaction of the selected product or service, e.g., by texting or saying "Buy," the Inter Server completes the purchase by "populat[ing] one or more fields at the selected IP Retailer with the values necessary to execute a purchase of the Object of Interest." EX1004, [0005], [0109]. A POSITA would have understood the "necessary" values include the shipping information associated with the "shipping expense specific to the purchase of Product A and delivered to the address of the user," so that the product can be delivered to the user. Id., [0138]. Thus, Li discloses that the Inter Server "completing the purchase transaction for the selected product or service" includes obtaining the shipping information, e.g., so that it can provide the shipping information to "the selected IP Retailer . . . to execute [the] purchase," and that the "purchase transaction is completed based on the shipping

information." In addition, Li discloses that the purchase transaction is completed "*without receiving confirmation of the shipping information by the user*" because the Inter Server completes the purchase transaction responsive to the user saying "Buy," without "having to input any further data." EX1004, [0004]-[0005]; *see also id.*, [0168] (describing the data presented to the user relating to the purchase offer, which need not include the obtained shipping information). Li therefore renders claim 4 obvious.

4. Claim 5

[5.pre] "The method of claim 1, the method further comprising:"

107. As discussed above, Li renders the method of claim 1 obvious.

[5.a] "obtaining, by the computer system, seller information describing one or more products or services available from one or more sellers via one or more remote information sources; and"

108. Li renders this limitation obvious. First, Li discloses "*obtaining, by the computer system, seller information describing one or more products or services available from one or more sellers*." For example, Li discloses that the Inter Server (the "*computer system*"), to select and present an offer to the user, can "receive, process, store, display, and/or transmit any Content in any form describing any data associated with one or more retailers offering Product A." EX1004, [0127]. This data includes but is not "limited to: (a) the name and/or logo of the retailer; (b) the price at which it offers Product A; (c) the price at which it offers Product A to any set of customers, e.g., members of a Loyalty Program (defined herein); (d) the price

at which it offers Product A bundled with one or more other objects; (e) the availability of Product A at a given physical store; and/or (f) the directions for traveling from the location of PC/WD 02200 to one or more physical stores." *Id.*, [0127]. The Inter Server obtains (e.g., receives) this data associated with "one or more retailers," which is "*seller information describing one or more products or services available from one or more sellers*."

109. Li further discloses that the seller information is obtained "via one or more remote information sources." The Inter Server obtains the seller information through a "Retailer Server" having an associated "Retailer Data Structure," which meets the claimed "one or more remote information sources" because it is remote to the Inter Server. EX1004, [0110], [0477], FIG. 12 (illustrating the Retailer Data Structure 33500 as being remote from the Inter Server 02300). The Inter Server uses an associated API to access the data "describing one or more products or services available" from the Retailer stored in the Retailer Data Structure, including data of "(a) an object ID uniquely identifying each object offered [by the Retailer]; (b) an object description; (c) an object specification; (d) one or more object images; (e) object availability; and/or (f) object pricing," which meets the claimed "seller information." Id., [0478]. Li therefore renders limitation [5.a] obvious.

[5.b] "storing, by the computer system, the seller information in the one or more databases."

110. Li renders this limitation obvious. Li discloses that the Inter Server (the "computer system") stores "the seller information in the one or more databases." Li's Inter Server stores data received from the Retailer Server by "copy[ing] one or more pages" of data from the Retailer Data Structure "and/or index[ing] the data to enable retrieval of' the data. Id., [0157], [0478]. A POSITA would have found it obvious to store this data in the Inter Server's Object or Product database 02320, which maintains "data related to objects and/or object categories, including, ... one or more retailers offering for sale the object and/or object category." EX1004, [0158]. A POSITA would have recognized that the Inter Server's Object or Product Database is one of the "one or more databases" that the Inter Server searches based on the one or more words or phrases recited in limitation [1.d] discussed above. For example, as discussed above, the Inter Server "quer[ies] one or more data structures for any data and/or instructions related to the Object of Interest," including the Object Database to identify retailers offering the identified object. Id., [0158], [0206], [0223]-[0226], [0240]. Li therefore renders limitation [5.b] obvious.

5. Claim 6: The method of claim 5, wherein the one or more remote information sources comprise at least a third party search engine, a third party retailer, and/or a third party service provider."

111. Li renders claim 6 obvious. Li discloses that the "one or more remote information sources comprise at least a third party search engine, a third party

retailer, and/or a third party service provider." For example, as discussed above, Li discloses that the one or more remote information sources may include Retailer Data Structures associated with respective Retailer Servers. EX1004, [0110], [0477]. The Retailer Servers correspond to "*third party retailer[s]*" such as Starbucks®, and may include different types of retailers (e.g., online retailers, physical retailers) offering for sale different classes of products or services, such as movie theaters, clothing retailers, fast food restaurants, etc. *See, e.g., id.*, [0009], [0220], [0354]. Li therefore renders claim 6 obvious.

6. Claim 7: "The method of claim 5, wherein the method further comprises: selecting, by the computer system, a seller from which to purchase the selected product or service."

112. Li renders claim 7 obvious. Li discloses that the Inter Server (the "*computer system*") selects "*a seller from which to purchase the selected product or service*," by identifying "a Retailer offering the Object of Interest, in combination with one or more qualifying Offers and payment utilizing a Payment Account, at a desired price level, e.g., the minimum price." EX1004, [0163], [0189]; *see also, e.g.*, [0127], [0169], [0189], [0619]. From the identified combinations, the Inter Server selects a seller (Retailer) associated with "the set of values which generates a desirable output, e.g., a minimum price of the Object of Interest," e.g., "the set of Retailer A, Offer B, Payment Account C, and value(attribute_N)) [that] can generate a price representing the minimum of any combination of values," where the selected

Retailer A corresponds to the "selected seller from which to purchase the selected

product or service." Id., [0101], [0114]. Li therefore renders claim 7 obvious.

7. Claim 8: The method of claim 7, wherein the seller information comprises a price at which the one or more sellers will sell the one or more products or services, wherein selecting the seller comprises selecting the seller based on the price at which the seller will sell the selected product or service."

113. Li renders claim 8 obvious. First, Li discloses that "the seller information comprises a price at which the one or more sellers will sell the one or more products or services." For example, Li discloses that the Inter Server accesses seller information corresponding to "data associated with one or more retailers offering Product A," which includes "the price at which [each retailer] offers Product A." EX1004, [0127]; see also id., claim 1 ("identifying at least one base price at which at least one retailer offers the object of interest . . . computing a net cost of the object of interest for each of the purchase solutions"). Thus, Li discloses that "the seller information comprises a price at which the one or more sellers will sell the one or more products or services."

114. Li further discloses that the Inter Server performs "*selecting the seller comprises selecting the seller based on the price at which the seller will sell the selected product or service*." Li discloses the Inter Server selects a retailer / seller offering the product or service, by selecting a "set of values," e.g., "set of Retailer A, Offer B, Payment Account C, and value(attribute_N))," where "Retailer A" is the

selected seller. EX1004, [0101]-[0106]. To perform this selection, the Inter Server calculates, for each potential set of values, a respective price corresponding to "the sum of: (i) *the price of the Object of Interest offered by a Retailer*_i; (ii) the value of one or more qualifying Offers associated with the Object of Interest; and/or (iii) the value of the Reward associated with utilizing a Payment Account_i." *Id.*, [0189] (emphasis added). The Inter Server then ranks the sums and selects the set of values associated with the minimum sum. *Id.* Thus, Li discloses selecting the seller "*based on the price at which the seller will sell the selected product or service*" because the Inter Server selects a set associated with a particular seller (e.g., "Retailer A") corresponding to a lowest overall price determined based on "the price of the Object of Interest offered by [the] Retailer." *Id.* Li therefore renders claim 8 obvious.

8. Claim 10: "The method of claim 7, the method further comprising: obtaining, by the computer system, a predetermined set of sellers specified by an administrator of the system that is different than the user, wherein selecting the seller comprises selecting the seller from the predetermined set of administrator-specified sellers."

115. Li renders claim 10 obvious. First, Li discloses "*obtaining, by the computer system, a predetermined set of sellers specified by an administrator of the system that is different than the user*." Li discloses that the Retailers that may be selected include one or more retailers "with which an entity negotiated in advance a price and through which a[] user of Client Device 14200 can purchase an Object of Interest ('Advance Negotiated Retailer')." EX1004, [0174]. A POSITA would

have found it obvious that the entity negotiating the advance price with the Advance Negotiated Retailer may be "an administrator of the system," or that the administrator of the system may maintain a list of which Retailers are Advance Negotiated Retailers, e.g., as part of the Object Database or another data structure. See also id., [0158] (Object Database contains data of "one or more retailers offering for sale the object and/or object category"). For example, a POSITA would have found it obvious for an administrator of the system, and not end users, to be authorized to enter into such negotiations, or for the system to be able to designate certain retailers as Advance Negotiated Retailers only after if approved by an administrator of the system. Thus, Li discloses obtaining "a predetermined set of sellers specified by an administrator of the system that is different than the user," because a POSITA would have found it obvious that the retailers/sellers having information maintained in the Object Database 02320 and/or the retailers/sellers designated as "Advance Negotiated Retailer[s]" form a predetermined set of sellers specified by an administrator of the system that is different than the user. This is consistent with the disclosure of the challenged patent, which describes that "an administrator of the system . . . may manage a set of predetermined sellers from whose inventories are searched for available products or services in response to a user input indicative of a user's intent to purchase," which may include "a set of

sellers that have priority over other sellers in having their products or services offered to users." EX1001, 14:5-17.

116. Li further discloses "*selecting the seller from the predetermined set of administrator-specified sellers*." For example, Li discloses selecting a seller from the list of Advance Negotiated Retailers to provide a requested product, if one is available. *See* EX1004, [0174]. For example, FIG. 3F (reproduced below) illustrates the system having selected and presented to the user two options for purchasing a product, one from an Advance Negotiated Retailer, and another from a Retailer that is not an Advance Negotiated Retailer, enabling the user to choose between purchasing the Object of Interest from the Advance Negotiated Retailer, or from "another Retailer" that "offers the Object of Interest at a lower total cost."



Id., FIG. 3F. Li therefore renders claim 10 obvious.

9. Claim 11

[11.pre] "The method of claim 1, wherein completing the purchase transaction of the selected product or service comprises:"

117. As discussed above, Li renders the method of claim 1 obvious.

[11.a] "obtaining, by the computer system, payment information with which to pay for the selected product or service; and"

118. Li renders this limitation obvious. As discussed above for claim 3, Li discloses that completing the purchase includes "*obtaining*, by the computer system, payment information with which to pay for the selected product or service." For example, Li discloses that to complete a purchase, the Inter Server (the "computer system") obtains information concerning a "registered payment account" associated with the user to select a "Retailer offering the Object of Interest, in combination with one or more qualifying Offers and payment utilizing a Payment Account." EX1004, [0006], [0101], [0114], [0189]; see also claim 1 ("identifying at least one payment account to associate with the object of interest"). The identified payment account is the obtained "payment information with which to pay for the selected product or service." Id., [0101]; see also id., [0134] (payment account information may include data "related to or more payment methods . . . for paying for the purchase of an Object of Interest"). For example, FIG. 12 illustrates that the Data Structure 02302 maintained by the Inter Server includes stored "Payment Account Data." See also *id.*, [0297]. Li therefore renders limitation [11.a] obvious.



FIG. 12	
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[11.b] "obtaining, by the computer system, shipping information with which to deliver the selected product or service, wherein the shipping information specifies a name or address of a recipient to which the selected product or service is to be delivered after the selected product or service is purchased, and wherein the purchase transaction is completed based on the payment information and the shipping information."

119. Li renders this limitation obvious. As discussed above for claim 4, Li

discloses that completing the purchase includes "obtaining, by the computer system,

shipping information with which to deliver the selected product or service, wherein

the shipping information specifies a name or address of a recipient to which the

selected product or service is to be delivered after the selected product or service is

purchased." For example, Li discloses that the Inter Server (the "computer system")

obtains "a shipping address provided by the user" stored "in a data structure, e.g.,

02302" of the Inter Server, to determine a "shipping expense specific to the purchase of Product A and delivered to the address of the user." EX1004, [0138]; *see also* [0293] (describing that the data structure may include the user's "Social Network data" enabling identification of "the name and shipping address of the recipient"). The shipping address includes a name or address of a recipient for delivery of the selected product or service after purchase. *See id.* For example, FIG. 12 (reproduced below) illustrates that the data structure 02302 stores shipping information associated with a user including name and address (street, city, and state).



Id., FIG. 12.

120. Li further discloses "*wherein the purchase transaction is completed based on the payment information and the shipping information*." For example, responsive to receipt of the second user input, e.g., the user saying "Buy," the Inter

Server completes the purchase by "populat[ing] one or more fields at the selected IP Retailer with the values necessary to execute a purchase of the Object of Interest." EX1004, [0005], [0109]. A POSITA would have understood that these "values necessary to execute a purchase" include the payment information (e.g., payment account information) and shipping information associated with the determined "shipping expense specific to the purchase of Product A and delivered to the address of the user," to purchase and deliver the product to the user. See also id., [0004]-[0005] (Inter Server completes purchase without the user "having to input any further data, including object attributes, offer and/or reward codes, and/or payment account data"); [0138] (purchase is associated with "a shipping expense when purchasing Product A" to transport the product "from a Retailer to an address of the user"), claim 5 ("executing of the purchase transaction includes: executing a payment to the retailer from a payment account when the lowest net price purchase solution specifies the payment account"). Li therefore renders limitation [11.b] obvious.

10. Claim 12: "The method of claim 11, the method further comprising: identifying, by the computer system, an intended recipient of the identified product or service based on the single first user input and/or the second user input, and wherein obtaining the shipping information comprises: obtaining, by the computer system, an address of the intended recipient"

121. Li renders claim 12 obvious. First, Li discloses "*identifying, by the* computer system, an intended recipient of the identified product or service based

on the single first user input and/or the second user input." Li discloses that when processing a user request of the "single first user input and/or the second user input," the Inter Server may determine an intended recipient of the requested product or service by analyzing the word strings recognized from the user request. EX1004, [0213]. The word strings may "include any data representing the user's intent relating to an Object of Interest, Equivalent Objects of Interest, and/or Class of Interest," including "a word string specifying an intended recipient of the Command and/or object, e.g., 'Bill' or 'Mary.'" *Id*. For example, where the "*single first user input*" is a natural language utterance such as "Buy and send flowers to Mary this Valentine's Day," the Inter Server identifies the words "buy and send" as the Command, the word "flowers" as an Object, and the word "Mary" as "an intended recipient" based on "*single first user input*." *Id*.

122. Li further discloses "*obtaining, by the computer system, an address of the intended recipient*." For example, the Inter Server (the "*computer system*") may store, in a data structure, "Social Network data" associated with the user, and access the data to "execut[e] a Transaction related to a member of [the] Social Network, e.g., if the user . . . wants to buy and send an object to a member of his/her Social Network." EX1004, [0293]. When the user's request specifies an intended recipient, e.g., "Buy and send flowers to Mary this Valentine's Day," the Inter Server

accesses the Social Network to "identify the name and shipping address of the recipient," e.g., "Mary." *Id.* Li therefore renders claim 12 obvious.

11. Claim 13: "The method of claim 12, wherein obtaining the address of the intended recipient comprises: accessing, by the computer system, an address book of the user, wherein the address book comprises an identification of the intended recipient and the address of the intended recipient."

123. Li renders claim 13 obvious. As discussed above for claim 12, Li discloses that the Inter Server (the "*computer system*") may obtain the address of the intended recipient by accessing "Social Network data" of the user to "identify the name and shipping address" of a recipient that is a member of the user's social network. EX1004, [0293]. For example, if the user's request is "Buy and send flowers to Mary this Valentine's Day," the Inter Server identifies "Mary" as the intended recipient, and accesses the user's social network data to look up "Mary" and obtain a name and address, corresponding to the claimed "*identification of the intended recipient and the address of the intended recipient*." *Id.*, [0213], [0293].

124. A POSITA would have understood that a user's social network data may be "*an address book of the user*." For example, a POSITA would have understood an "address book" corresponds to a collection of names and contact information (e.g., physical addresses, email addresses, phone numbers, etc.), and that a user's social network data, to the extent that it includes names and contact information of the user's social network members, serves as an "address book." Li

thus discloses "obtaining the address of the intended recipient" by accessing "an address book of the user," e.g., as reflected in the user's social network data, that "comprises an identification of the intended recipient and the address of the intended recipient." Li therefore renders claim 13 obvious.

12. Claim 14: "The method of claim 11, the method further comprising: completing, by the computer system, the purchase transaction without receiving confirmation of the payment information or the shipping information by the user."

125. Li renders claim 14 obvious. Li discloses "completing, by the computer system, the purchase transaction without receiving confirmation of the *payment information or the shipping information by the user.*" For example, as discussed above for claims 3, 4, and 11, Li discloses that, when the user says "Buy," the Inter Server (the "computer system") completes the purchase of "the XYZ object" using the user's payment and shipping information, without the user "having to input any further data, including object attributes, offer and/or reward codes, and/or payment account data." EX1004, [0004]-[0005]. In addition, Li discloses interfaces that prompt the user to confirm the purchase of an identified product or service that do not display the payment or the shipping information. See EX1004, FIGs. 3E-3G. Thus, a POSITA would have understood that the Inter Server completes the purchase transaction "without receiving confirmation of the payment information or the shipping information by the user." See also EX1001, 20:65-21:24 (the '385 patent illustrating in FIGs. 6A and 6B "screenshots . . . of [a] user
interface which facilitates voice commerce," where the application determines payment and shipping information, and completes the purchase after the user says "Yes"). Li therefore renders claim 14 obvious.

13. Claim 15

[15.pre] "The method of claim 1, the method further comprising:"

126. As discussed above, Li renders the method of claim 1 obvious.

[15.a] "providing, by the computer system, without further user input after the receipt of other than the single first user input, a request for user confirmation to complete the purchase transaction for the selected product or service, wherein the second user input is received responsive to the request;"

127. Li renders this limitation obvious. First, Li discloses that the Inter Server (the "computer system"), provides "a request for user confirmation to complete the purchase transaction for the selected product or service." For example, as discussed above for claim 1, the Inter Server, responsive to the single user input (e.g., "Buy XYZ"), determines an "Object of Interest" specified by the request, and, based on the identified Object, determines a set of information related to a potential purchase transaction for the selected Object (e.g., "Retailer, Payment Account, one or more Offers," etc.). See EX1004, [0005], [0113]-[0114]. The Inter Server transmits the information to the user's client device to present a "userselectable prompt" corresponding to "a window displaying retailer XYZ offering the XYZ object for a low price, a qualifying coupon, cash back on the payment account held by the user," etc., as well as an interface element, e.g., a "Buy/Call" object such as a "Buy" button, "whose selection can enable the purchase of the XYZ object." *Id.*, [0005], [0145] (selection of "Buy/Call" "enable[s] the transmission of voice and/or data . . . for executing the purchase of the Object of Interest"), [0156], claim 1 ("cause the client device to display . . . [a] user-selectable prompt"). FIG. 3A shows an example of the "user-selectable prompt" associated with a selected product (e.g., a "Snow White DVD"), including a "Buy" button that the user can select to purchase the product.



Id., FIG. 3A; see also id., [0169].

128. The Inter Server provides the presented information including the "Buy/Call" object as "*a request for user confirmation to complete the purchase transaction for the selected product or service*," because the presented information prompts or requests the user to confirm completion of the purchase for the indicated product or service (e.g., "XYZ object") from the indicated retailer by selecting the "Buy/Call" object through mouse click, key press, touch, or voice. *See id.*, [0145]-

[0146], claim 1. This is consistent with the disclosure of the challenged patent, which describes that the information presented to user relating to the product or service to be purchased, such as the product to be purchased, seller information, and associated costs, are "part of the user confirmation request." EX1001, 5:30-48.

129. In addition, Li discloses providing the request for user confirmation "*without further user input after the receipt of other than the single first user input*." For example, Li discloses that after the user says "Buy XYZ," the Inter Server transmits the information to the user's client device to present "a window displaying retailer XYZ offering the XYZ object for a low price, a qualifying coupon, cash back on the payment account held by the user, etc." without any further user input. *See* EX1004, [0005]; *see also* FIG. 3A.

130. Li further discloses that "*the second user input is received responsive to the request*." For example, Li discloses that the user selects the "Buy/Call" object (e.g., "Buy button") to confirm the purchase by providing "a mouse click, a key press, a touch, [or] a speech input," in response to the Inter Server's prompt. EX1004, [0005] ("say or text 'Buy""), [0146]. As discussed above for limitation [1.f], the user selecting the displayed "Buy/Call" object corresponds to the claimed "*second user input*," which is received by the Inter Server responsive to the request being provided to the user via the client device, as the user only provides the "second

user input" upon being presented with the prompt that includes the "Buy/Call" button. Li therefore renders limitation [15.a] obvious.

[15.b] "determining, by the computer system, that the user has confirmed the purchase transaction based on the second user input, wherein the purchase transaction of the selected product or service is completed based on the determination."

131. Li renders this limitation obvious. Li discloses "*determining, by the* computer system, that the user has confirmed the purchase transaction based on the second user input, wherein the purchase transaction of the selected product or service is completed based on the determination." For example, Li discloses that the client device, upon detecting the user's selection of the "Buy/Call" object (the claimed "second user input"), triggers an "event handler" associated with the object. EX1004, [0146]; see also id., [0004] (client device "receive[s] an event selecting the function of executing the purchase of the object of interest"). The event handler transmits to the Inter Server (the "computer system") "a request to purchase the object of interest from the [specified] Retailer" associated with the displayed offer. *Id.*, [149]. The Inter Server thus determines that the user has confirmed the purchase transaction based on the second user input, by receiving a request to purchase the Object of Interest from the event handler based on the second user input. Based on this determination, the Inter Server completes the purchase transaction of the selected product or service, e.g., by transmitting a "selected set of attributes and values" associated with the selected offer to the selected retailer, and "populat[ing]

one or more fields at the selected [] Retailer with the values necessary to execute a purchase of the Object of Interest." *Id.*, [0108]-[0109]; *see also* FIGs. 2A2 (02000E1-0200I1). Li therefore renders limitation [15.b] obvious.

14. Claim 16

132. Li renders claim 16 obvious for similar reasons as claim 1. The preamble of claim 16 recites "*[a] system for providing voice commerce, the system comprising: one or more physical processors programmed with computer program instructions which, when executed, cause the one or more physical processors to:*

..." The claimed system is met by Li's Inter Server, which, as discussed above for limitation [1.pre], is a "Data Processing System" that implements a method for providing voice commerce and includes "a general- or special-purpose Processor . . . or any other means of processing instructions and/or data." *See* EX1004, [0076], [0078], [0081], [0087]. Li's Inter Server thus corresponds to the claimed "system for providing voice commerce" comprising "one or more physical processors." Li further discloses that the one or more physical processors of the Inter Server are "programmed with computer program instructions which, when executed, cause the one or more physical processors to" perform various steps, because the "one or more general- or special-purpose Processors 01040" are "programmed with the instructions to execute the steps in any of the methods described" in Li. EX1004,

[0082]-[0083]. The remaining limitations of claim 16 are substantively identical to those of claim 1. Li therefore renders claim 16 obvious.

15. Claim 18

133. Claim 18 is substantively identical to claim 3 and is rendered obvious for the same reasons.

16. Claim 19

134. Claim 19 is substantively identical to claim 4 and is rendered obvious for the same reasons.

17. Claim 20

135. Claim 20 is substantively identical to claim 5 and is rendered obvious for the same reasons.

18. Claim 21

136. Claim 21 is substantively identical to claim 6 and is rendered obvious for the same reasons.

19. Claim **22**

137. Claim 22 is substantively identical to claim 7 and is rendered obvious for the same reasons.

20. Claim 23

138. Claim 23 is substantively identical to claim 8 and is rendered obvious for the same reasons.

21. Claim 25

139. Claim 25 is substantively identical to claim 10 and is rendered obvious for the same reasons.

22. Claim 26

140. Claim 26 is substantively identical to claim 11 and is rendered obvious for the same reasons.

23. Claim 27

141. Claim 27 is substantively identical to claim 12 and is rendered obvious for the same reasons.

24. Claim 28

142. Claim 28 is substantively identical to claim 13 and is rendered obvious for the same reasons.

25. Claim 29

143. Claim 29 is substantively identical to claim 14 and is rendered obvious for the same reasons.

26. Claim 30

144. Claim 30 is substantively identical to claim 15 and is rendered obvious for the same reasons.

27. Claim 31

[31.pre] "A method for providing voice commerce, the method being implemented on a computer system having one or more physical processors programmed with computer program instructions which, when executed, perform the method, the method comprising:"

145. This limitation is identical to limitation [1.pre] and is rendered obvious

for the same reasons.

[31.a] "receiving, by the computer system, a single first user input comprising a natural language utterance;"

146. This limitation is identical to limitation [1.a] and is rendered obvious for the same reasons.

[31.b] "recognizing, by the computer system, one or more words or phrases from the natural language utterance;"

147. Li renders this limitation obvious. As discussed for limitation [1.c], Li renders obvious "obtaining, by the computer system, one or more words or phrases recognized from the natural language utterance as an output of the speech recognition engine." In addition, Li discloses "recognizing, by the computer system, one or more words or phrases from the natural language utterance" because it discloses that the Inter Server (the "computer system") includes a speech recognition engine (e.g., "Speech Recognition Module") that performs recognition of one or more words or phrases from the natural language utterance by utilizing "an acoustic model and a language model to generate a set of candidate word strings"

from the natural language utterance. EX1004, [0091], [0160], [0310], [0317], [0320]. Li therefore renders limitation [31.b] obvious.

[31.c] "searching, by the computer system, one or more databases of products or services based on the one or more recognized words or phrases from the single first user input, and without using further user input other than the single first user input;"

148. Li renders this limitation obvious. As discussed for limitation [1.d], Li renders obvious "searching, by the computer system, one or more databases of products or services based on the one or more words or phrases" recognized from the single first user input. In addition, Li discloses searching "without using further user input other than the single first user input." For example, Li discloses that the Inter Server analyzes the single first user input to recognize "a word string representing . . . an object of the [user's] Command, e.g., an Object of Interest," and "quer[ies] one or more data structures to identify data associated with [the] given word string, e.g., an object name." EX1004, [0160], [0213], [0264]; see also id., [0179] (Inter Server "can identify a set of attributes associated with the specified Object of Interest" to allow for selection of a "desired number of Equivalent Objects of Interest"). The queried data structures include an Object database storing data of "one or more retailers offering for sale the object and/or object category," and/or a "Retailer Data Structure" storing information about "each object offered" by the Retailer, e.g., "object availability," "object pricing," etc. Id., [0158], [0478], [0622]. Thus, Li discloses searching one or more databases of products or services (e.g.,

"Objects") "*without using further user input other than the single first user input*," because the Inter Server performs the claimed searching based on "given word string" from the single first user input, without data from other user inputs.

149. For example, Li describes a use case where "a user of a wireless device" provides a first input by saying the phrase "Buy XYZ" and is presented information showing a "retailer XYZ offering the XYZ object." EX1004, [0005]. A POSITA would have understood that the Inter Server obtains the information showing "retailer XYZ offering the XYZ object" through searching one or more databases of products or services based on the recognized words or phrases from the single first user input "Buy XYZ," e.g., for the reasons provided above for limitation [1.d], without using further user input other than the single first user input. Li therefore renders limitation [31.c] obvious.

[31.d] "causing, by the computer system, a set of search results to be presented to a user based on the search, the search results indicating one or more products or services from the database available for purchase;"

150. Li renders this limitation obvious. First, Li discloses that the Inter Server (the "*computer system*") causes "*a set of search results to be presented to the user based on the search*," e.g., by transmitting to a client device data associated with an Object of Interest ("Object F") based on the search. *See, e.g.*, EX1004, [0006], [0093], [0156], [0160], [0165], [0242]. The claimed term "*the database*" lacks antecedent basis. For my analysis, I assume "*the database*" in this limitation

refers to the "one or more databases" of limitation [31.c]. As discussed above for limitations [1.e] and [31.c], Li discloses that the Inter Server searches one or more databases of products or services, e.g., by "querying one or more data structures to identify data associated with [the] given word string," such as data of "a Retailer offering [the] Object of Interest, in combination with one or more qualifying Offers, at a desired price level, e.g., the minimum price." EX1004, [0160]-[0161], [0197], [0206], [0240], [0553]. Based on the search, the Inter Server transmits data and instructions to the client device to cause display information such as "(a) the image of the Object of Interest . . .; (b) text and/or an image . . . of the Retailer offering the Object of Interest at a desired price level, e.g., the minimum price, and the price offered . . .; (c) text and/or an image . . . of one or more entities making an Offer, Reward, and/or Non-Price Feature associated with the Object of Interest, and the value of the Offer . . .; (d) the net price reflecting one or more Offers . . .; and/or (e) an object whose selection can enable the user to buy the Object of Interest." Id., [0169]. The information the Inter Server transmits to the client device for display is "a set of search results to be presented to [the] user based on the search." In addition, the search results "indicat[e] one or more products or services from the database available for purchase," e.g., an "Object XYZ" available from a specific retailer that is available for purchase. For example, FIG. 3A (reproduced below) shows an example of a presented set of search results containing information about

one or more products (e.g., a "Snow White DVD") available for purchase from Retailer XYZ.



Id., FIG. 3A; see also id., [0169].

151. In addition, Li discloses that the Inter Server may cause the client device to display data relating to multiple search results of a set of search results, identifying "an Object of Interest offered by a plurality of Retailers," "Equivalent Objects of Interest," and/or "a plurality of Objects of Interests." EX1004, [0173], [0175], [0185]. For example, FIG. 3E illustrates an example of a client device presenting a set of search results to the user containing multiple search results corresponding to the "Object of Interest offered by a plurality of Retailers."

Object 02232A2	BUY From Online Retailer	BUY From Physical Retailer
Object Image 02232A Net Price	\$ 21.99	\$ 27.07
Taxes: 03000E8	\$ 0.00	\$ 2.10
Transportation Costs: 03000E7	\$ 0.00	\$ 3.48
Payment Method Discount: 03000E6	\$ 2.00	\$ 3.50
Affinity Group Discount: 03000E5	\$ 1.00	N/A
Qualifying Coupon: 03000E4	\$ 10.00	\$ 10.00
Retailer Price: 03000E3	\$ 34.99	\$ 34.99
	IP Retailer 03000E1	PHY Retailer 03000E2

Id., FIG. 3E, [0173]; *see also id.*, FIGs. 3F-3H. Li therefore renders limitation [31.d] obvious.

[31.e] "receiving, by the computer system, a second user input comprising a selection from the set of search results, the selection identifying one or more products or services from the database to be purchased on behalf of the user based on the second user input;

152. Li renders this limitation obvious. As discussed for limitation [1.f], Li renders obvious "*receiving, by the computer system, a second user input*." For example, the Inter Server (the "*computer system*") receives the "*second user input*" when the user selects a displayed "Buy/Call" object via "a mouse click, a key press, a touch, [and/or] a speech input." *See* EX1004, [0145]-[0149].

153. In addition, Li discloses that the "second user input" comprises "a selection from the set of search results . . . identifying one or more products or services from the database to be purchased on behalf of the user based on the second user input." Li provides an example where after the user says "Buy XYZ"

and is presented with "a window displaying retailer XYZ offering the XYZ object for a low price . . . and an image whose selection can enable the purchase of the XYZ object," the user may say "Buy" to "buy the XYZ object without having to select at the retailer any object attributes, enter any offer and/or reward codes, and/or enter any payment account data." *Id.*, [0004]-[0005]. The second user input, e.g., the user saying "Buy," comprises "*a selection from the set of search results*," as it is the user's selection of the presented offer to buy "the XYZ object" from "retailer XYZ," and identifies the one or more products or services (the displayed "XYZ object" from "retailer XYZ") from the database to be purchased on behalf of the user.

154. In addition, Li discloses that the second user input may correspond to a "*selection from the set of search results*" comprising multiple different search results. For example, Li describes the Inter Server causing the client device to display a set of multiple search results corresponding to "an Object of Interest offered by a plurality of Retailers," "Equivalent Objects of Interest," and/or "a plurality of Objects of Interests." EX1004, [0173], [0175], [0185], FIGs. 3E-3H. The user may provide the second user input to select from the set of displayed results, e.g., by selecting a "Buy/Call" object corresponding to a specific presented offer. *See id.*, [0173], FIGs. 3E-3H. For example, the Inter Server may analyze a user request ("*second user input*") received as an utterance by identifying a "word string representing a Command," e.g., "buy," and "an object of the Command," which a

POSITA would have found obvious may be the "BUY/CALL" object associated with one of the presented results, for executing the purchase of a specific object (e.g., product or service) of the presented objects. *See id.*, [0213]; *see also id.*, [0146] (selection "of Object S: BUY/CALL" may be in any form, including "a mouse click, a key press, a touch, a speech input," etc.). For example, FIG. 3E (reproduced below) shows "a row displaying in a field associated with each Retailer" a respective "BUY/CALL [Object] 02270" corresponding to a respective "Buy" button, where the user can select a specific "Buy" button to identify a specific product or service of the presented search results to purchase.

\$ 0.00 \$ 0.00 \$ 21.99	\$ 3.48 \$ 2.10 \$ 27.07
\$ 0.00	\$ 3.48
\$ 0.00	\$ 3.40
0.00	¢ 240
\$ 2.00	\$ 3.50
\$ 1.00	N/A
\$ 10.00	\$ 10.00
\$ 34.99	\$ 34.99
IP Retailer 03000E1	PHY Retailer 03000E2
	3000E IP Retailer 03000E1 \$ 34.99 \$ 10.00 \$ 1.00 \$ 2.00

Id., FIG. 3E, [0173]. Li therefore renders limitation [31.e] obvious.

[31.f] "obtaining, by the computer system, user profile information associated with the user;"

155. Li renders this limitation obvious. Li discloses that the Inter Server (the

"computer system") obtains "user profile information associated with the user."

For example, the Inter Server maintains a "Data Structure 02302" storing a plurality of records containing user data for respective users such as "data enabling the communication with a user of a Data Processing System," "data related to one or more Payment Accounts associated with a user of a Data Processing System," "data related to one or more social networks of which a user of a Data Processing System is a member," "a shipping address provided by the user," etc. EX1004, [0138], [0292]; see also id., [0695] ("Data Structure 02302" includes "Personal Data"). FIG. 12 (reproduced below) illustrates an example of the Data Structure 02302. The Inter Server can "utilize any of the data in Data Structure 02302 and/or any other data structure described [in Li] to execute any methods described" in Li. Id., [0295]. A POSITA thus would have recognized that the record information stored in the maintained data structure is "user profile information associated with the user" that the Inter Server "*obtain[s]*" for executing various method steps.





Id., FIG. 12. Li therefore renders limitation [31.f] obvious.

[31.g] "identifying, by the computer system, payment information and shipping information based on the user profile information; and"

156. Li renders this limitation obvious. As discussed above for claims 3 and 4, Li renders obvious "obtaining, by the computer system, payment information with which to pay for the selected product or service" and "shipping information with which to deliver the selected product or service." In addition, Li discloses that the Inter Server (the "*computer system*") identifies the "*payment information and shipping information*," e.g., to identify "any qualifying reward[s] associated with [a] registered payment account" of the user, and/or to determine "shipping expense specific to the purchase of Product A and delivered to the address of the user" by

using the "shipping address provided by the user . . . stored in [the] data structure [] 02302." EX1004, [0006], [0138]. The payment and shipping information is identified "*based on the user profile information*" stored in the data structure 02302 maintained by the Inter Server. *Id.*, [0292] ("Data Structure 02302 can store name, street address, city, state, zip code, phone number, and/or email address [of a user]," and "data related to one or more Payment Accounts associated with [the] user"). FIG. 12 (reproduced below) illustrates an example of the data structure 02302 that includes user profile information such as the user's "Payment Account Data" and shipping information (e.g., name, street address, city, and state).



Id., FIG. 12. Li therefore renders limitation [31.g] obvious.

[31.h] "completing, by the computer system, without further user input after identifying the payment information and the shipping information, a purchase transaction of the identified one or more products or services."

157. Li renders this limitation obvious. As discussed for limitation [1.g], Li renders obvious "completing, by the computer system, ... a purchase transaction" of the selected product or service. In addition, Li discloses that the purchase transaction is of "the identified one or more products or services." For example, Li discloses that after the user selects the "BUY/CALL" object for a particular object (e.g., corresponding to the "one or more products or services") through "the second user input" (e.g., as discussed for limitation [31.e]), the Inter Server completes the purchase of the "one or more products or services" identified by the "second user input," by transmitting the "set of attributes and values" associated with the selected offer and "populat[ing] one or more fields at the selected [] Retailer with the values necessary to execute a purchase of the Object of Interest." EX1004, [0108]-[0109], [0149].

158. In addition, Li renders obvious that the purchase is completed "*without further user input after identifying the payment information and the shipping information*." For example, as discussed above for claims 3 and 4, the set of attributes and values "necessary to execute [the] purchase" include the identified payment information and shipping information. See also id., [0109]. Because the Inter Server completes the purchase "without [the user] having to select at the retailer

any object attributes, enter any offer and/or reward codes, and/or enter any payment account data," a POSITA would have found it obvious that the purchase is completed *"without further user input after identifying the payment information and the shipping information*." *See also* EX1004, [0005] ("user of a wireless device can: (c) say or text "Buy"; [and] (d) buy the XYZ object without having to select at the retailer any object attributes, enter any offer and/or reward codes, and/or enter any payment account data").

159. Furthermore, to the extent not explicitly disclosed by Li, a POSITA would have found it obvious that Li's Inter Server may identify the payment and/or shipping information after receiving the second user input selecting the product or service to be purchased. For example, Li discloses that the Inter Server may cause the client device to present a set of multiple search results to the user, corresponding to "an Object of Interest offered by a plurality of Retailers," "Equivalent Objects of Interest," and/or "a plurality of Objects of Interests." EX1004, [0173], [0175], [0185], FIGs. 3E-3H. Each presented offer may correspond to a different set of "Retailer A, Offer B, Payment Account C, and value(attribute_N)." Id., [0101], [0669]-[0670], see also FIGs. 3E, 3F (illustrating different available offers for products or services from the database to be purchased on behalf of the user, where each offer is associated with different payment and shipping information). A POSITA would have understood that when the user provides the "second user input"

to select a specific offer to be purchased, the Inter Server, to transmit the "set of attributes and values" associated with the offer to the selected retailer, identifies and selects the payment and shipping information associated with the specific selected offer. *Id.*, [0108]-[0109]. For example, as shown in FIGs. 2A1-2A2 (reproduced below), the Inter Server at 02000F "Select[s] set {Retailer(s), Offer(s), Payment Account, attribute_N}," which includes identifying payment information, after receiving the user's "request to purchase Object of Interest."





Id., FIGs. 2A1-2A2.

160. As the user does not need to make any further inputs following the second user input for the purchase to be completed, Li discloses that the purchase is completed without further user input after identifying and selecting the payment

information and the shipping information to be transmitted to the selected retailer.

Li therefore renders limitation [31.h] obvious.

28. Claim 32

[32.pre] "The method of claim 31, wherein recognizing the one or more words or phrases from the natural language utterance comprises:"

161. As discussed above, Li renders the method of claim 31 obvious.

[32.a] "providing, by the computer system, the natural language utterance as an input to a speech recognition engine; and"

162. This limitation is identical to limitation [1.b] and is rendered obvious

for the same reasons.

[32.b] "obtaining, by the computer system, the one or more words or phrases recognized from the natural language utterance as an output of the speech recognition engine."

163. This limitation is identical to limitation [1.c] and is rendered obvious

for the same reasons.

29. Claim 33

[33.pre] "The method of claim 31, the method further comprising:"

164. As discussed above, Li renders the method of claim 31 obvious.

[33.a] "obtaining, by the computer system, seller information describing one or more products or services available from one or more sellers via one or more remote information sources; and"

165. This limitation is identical to limitation [5.a] and is rendered obvious

for the same reasons.

[33.b] "storing, by the computer system, the seller information in the one or more databases."

166. This limitation is identical to limitation [5.b] and is rendered obvious for the same reasons.

30. Claim 34: "The method of claim 31, wherein completing the purchase transaction without further user input after identifying the payment information and the shipping information comprises: completing, by the computer system, the purchase transaction without receiving confirmation of the payment information or the shipping information by the user."

167. Li renders claim 34 obvious. As discussed above for claim 14, Li renders obvious "completing, by the computer system, the purchase transaction without receiving confirmation of the payment information or the shipping information by the user." Li renders claim 34 obvious for at least the same reasons.

31. Claim 35

168. Li renders claim 35 obvious for similar reasons as claim 31. The preamble of claim 35 recites "[a] system for providing voice commerce, the system comprising: one or more physical processors programmed with computer program instructions which, when executed, cause the one or more physical processors to: . .

." Similar to as discussed for claim 16, the claimed system is met by Li's Inter Server, which is a "Data Processing System" comprising "a general- or specialpurpose Processor . . . or any other means of processing instructions and/or data" ("one or more physical processors"), which are "programmed with the instructions" to execute various functions. *See* EX1004, [0078], [0081]-[0083], [0110]. The remaining limitations of claim 35 are substantively identical to those of claim 31. Therefore, Li renders claim 35 obvious.

32. Claim 36

169. Claim 36 is substantively identical to claim 32 and is rendered obvious for the same reasons.

33. Claim **37**

170. Claim 37 is substantively identical to claim 33 and is rendered obvious for the same reasons.

34. Claim 38

171. Claim 38 is substantively identical to claim 34 and is rendered obvious for the same reasons.

A. Ground 2: Li in combination with Kennewick render obvious claims 2 and 17

1. Claim 2: "The method of claim 1, wherein selecting the product or service further comprises: determining, by the computer system, a context based at least on the one or more words or phrases, wherein the product or service is selected based at least on the determined context."

172. Li in combination with Kennewick renders claim 2 obvious. First, Li

renders obvious "*determining, by the computer system, a context based at least on the one or more words or phrases*." Li discloses that the Inter Server (the "*computer system*") analyzes the words or phrases recognized from a user request to classify the type of the user request. For example, the Inter Server may "classify the User Request as a request for an Immediate Single Purchase, a Contingent Single

Purchase, or a Contingent Group Purchase" based on the one or more words or phrases, "by utilizing a recognition engine to recognize any word in a set of predefined words and applying predefined rules to classify the User Request." EX1004, [0091]. By analyzing a recognized "word string representing a Command . . . or other action related to the Object of Interest," such as "get', 'find', 'download', 'save', 'purchase', 'buy', 'send', 'sign up', 'register', 'print', and/or 'enter," a POSITA would have understood that the Inter Server determines "a *context*" of the user request corresponding to the type of command of the user's request. Id., [0213]. This is consistent with the disclosure of the challenged patent, which explains that context may comprise an indication of a command or action that the user would like to perform. See EX1001, 12:50-57 ("a user input related to 'lawnmower'" may have a context "indicating that the user intends to buy a lawnmower," emphasis added).

173. In addition, Li discloses that the "*product or service is selected based at least on the determined context*," because the Inter Server performs different operations based on the classification of the User Request. *See* EX1004, FIGs. 2A1-2A2. For example, if the determined context indicates that the user wishes to make an "immediate single purchase," the Inter Server "identif[ies] and retrieve[s] [a] set of elements" corresponding to attributes of an offer to purchase an identified Object of Interest, e.g., "the set of Retailer A, Offer B, Payment Account C, and value(attribute_N))." *Id.*, [0091]-[0092], [0101], FIGs. 2A1-2A2. On the other hand, if the Inter Server classifies the request as a different context such as "contingent single purchase," it "post[s] . . . a request for proposal (RFP) for any retailer offering the Object of Interest meeting the set of attributes specified in the RFP," and waits for a "Qualifying Offer" from a retailer to be received. *Id.*, [0091], [0095]-[0096]. Thus, Li discloses selecting the product or service, e.g., a "set of Retailer A, Offer B, . . . ," etc. for an Object of Interest, based on the classification of the user request corresponding to the "determined context."

174. In addition, to the extent that Li does not explicitly disclose "determining, by the computer system, a context based at least on the one or more words or phrases," the combination with Kennewick renders it obvious. Kennewick discloses a "speech processing unit" that receives and processes a natural language utterance, by determining "the most[] likely context or domain" for each received utterance based on the recognized words or phrases of the utterance. EX1007, [0032]. For example, after recognizing "the words and phrases" of the utterance using a "speech recognition engine," the speech processing unit passes "the tokens" corresponding to the recognized words and phrases to a parser, which "examines the tokens" and determines a context for the utterance by "applying prior probabilities or fuzzy possibilities to keyword matching, user profile 110, dialog history, and context stack contents." *Id.*, [0160]. The determined context "may determine the

domain and thereby, the domain agent 156, if any, to be invoked," and may correspond to the type of command or action to be performed. *Id.*; *see also id.*, [0018] (describing different types of domains such as "query and response domains," "[c]ontrol domains," etc.). Thus, Kennewick discloses "*determining*... *a context based at least on the one or more words or phrases*" by examining the tokens of the recognized words and phrases for context and "applying prior probabilities or fuzzy possibilities to keyword matching, user profile 110, dialog history, and context stack contents." *Id.*, [0160].

175. In the combined system, it would have been obvious to apply Kennewick's teaching of determining a context by examining the recognized words or phrases ("tokens") of the user's input and "applying prior probabilities or fuzzy possibilities to keyword matching, user profile 110, dialog history, and context stack contents" to improve and enhance Li's teaching of classifying requests based on predefined words and rules. *Id.*; EX1004, [0091]. This would allow for the system to more accurately determine the context of the user's request, by accounting for additional factors such as "previous questions, knowledge of the domain, or the user's history of interests and preferences," and using "probabilistic and fuzzy reasoning" to make the context determination process more "robust[] to partial failure." EX1007, [0007], [0011]. Once the system determines the appropriate context of the user's request, e.g., based on any of the techniques taught by

Kennewick, it can then select the product or service based at least on the determined context or classification of the request as taught by Li. *See* EX1004, FIGs. 2A1-2A2 (illustrating different operations performed to select the product or service to be purchased based on the categorization of the User Request).

176. In addition, given Kennewick's disclosure of different domains corresponding to different types of products and services (e.g., fast food, travel, etc.), a POSITA would have found it obvious to incorporate Kennewick's teachings of determining context to determine an object classification of an Object of Interest as taught by Li. *See, e.g.*, EX1007, [0018], [0066]-[0068]. Doing so would improve Li's ability to "reduce the search space of potential solutions" when selecting a "set of Retailer A, Offer B, ...," etc., for purchasing a product or service to present to the user. EX1004, [0101], [0224]; *see also id.*, [0354]-[0355] (describing classifying vendors by product category, to "reduce the search space of factors and/or data, which can increase the accuracy and/or reduce the time to identify an objective").

177. In my opinion, a POSITA would have been motivated to combine Li and Kennewick. The references are analogous, both relating to speech-based interfaces through which a user can use natural language utterances to search for and purchase products. For example, Li describes receiving speech-based requests related to an object of interest, performing speech recognition to recognize a word string from the received request, and determining a type of command based on the word string. *See, e.g., id.*, [0005]-[0006], [0160], [0213]. If the type of command is a "request to purchase," Li further discloses selecting and presenting an object of interest based on the word string, and enabling the user to complete the purchase. *See, e.g., id.*, [0091]-[0109]. Similarly, Kennewick describes receiving a user's natural language input, performing speech recognition on the input, and determining a context based on the input. *See, e.g.*, EX1007, [0013], [0041], [0160]. For certain contexts, e.g., if the user is "query[ing] the system for offers and promotions for goods and services," the system may "provide interactive offers and promotions" and/or enable "remote ordering" of goods and services. *See, e.g., id.*, [0018], [0066]-[0068].

178. Furthermore, Li explains that received user utterances may be associated with different categories of requests and disclose techniques for classifying received requests as a particular type of command by analyzing word strings of the utterance and applying "predefined rules." *See, e.g.*, EX1004, [0091], [0213]. Depending on the classification of the request, the system may behave in different ways to respond to the request. *See id.*, [0091]-[0114]. Kennewick also recognizes the benefits of analyzing user requests to categorize them under different contexts and domains corresponding to different types of commands and/or subject areas, to be able to take advantage of domain-specific vocabularies and resources. *See, e.g.*, EX1007, [0017]-[0018], [0160] ("The context of a question or command

may determine the domain and thereby, the domain agent 156, if any, to be invoked."). Kennewick further discloses additional techniques for categorizing received user requests, by "applying prior probabilities or fuzzy possibilities to keyword matching, user profile 110, dialog history, and context stack contents," to enable context determination that is more "robust[] to partial failure" and "promotes the feeling of a natural response to questions and commands." *Id.*, [0011], [0160]. A POSITA in possession of Li and Kennewick would therefore have been motivated to combine them, e.g., by modifying Li's classification of user requests into different command types to make use of "prior probabilities or fuzzy possibilities [applied] to keyword matching" and/or other information such as user profiles, dialog history, etc. as taught by Kennewick, to create a more robust speech system that is able to provide a more natural environment for users making different types of requests.

179. A POSITA would have been motivated to combine Kennewick and Li to implement a "speech-based interface[] . . . for one or more users making queries or commands" in different contexts or domains. *Id.*, Abstract; *see also* EX1004, [0212]-[0213] (describing processing a variety of different types of queries and commands "related to [an] Object of Interest"). Kennewick discloses implementing a variety of different domains or applications through which a user can purchase different categories of products or services, such as "fast food ordering," "[t]ravel services" and "reservations," "remote ordering and payment for goods and services,"

etc. EX1007, [0018], [0066]-[0085]. Similarly, Li discloses categorizing received user requests based on the type of request, e.g., "Immediate Single Purchase," "Contingent Single Purchase," or "Contingent Group Purchase," and/or based on a class of Object requested, e.g., based on an "Object Classification System" such as NAICS codes. EX104, [0091], [0176].

180. This modification is a combination of prior art elements disclosed in Li and Kennewick according to known methods to yield predictable results. Li teaches use of keyword matching, e.g., recognizing words "in a set of predefined words and applying predefined rules," to recognize and classify different types of user commands. Id., [0091]. Kennewick further discloses performing keyword matching using "prior probabilities or fuzzy possibilities," as well as other factors such as "user profile 110, dialog history, and context stack contents" to create a more robust interface when classifying user requests as pertaining to a particular context or domain. EX1007, [0011], [0160]. A POSITA would have been motivated to make this combination because it provides a straightforward way to enhance how user requests are processed and categorized in Li, by incorporating Kennewick's use of "applying prior probabilities or fuzzy possibilities to keyword matching, user profile 110, dialog history, and context stack contents" to determine the context for user requests to perform different domain-specific behaviors based on the determined context. A POSITA would have had a reasonable expectation of success because

the combination is a simple substitution of one known technique ("predefined rules") for another ("prior probabilities or fuzzy possibilities") to achieve predictable results, e.g., a speech system that classifies user request in a manner that is more "robust[] to partial failure." *See id.* A POSITA would have found this modification obvious as a combination of prior art elements according to known methods, and would have found the modification obvious to try as a way to create a more robust and natural interface. Li in combination with Kennewick therefore renders claim 2 obvious.

2. Claim 17

181. Claim 17 is substantively identical to claim 2 and is rendered obvious for the same reasons.

B. Ground 3: Li in combination with Chen renders obvious claims 9 and 24

1. Claim 9: "The method of claim 7, the method further comprising: obtaining, by the computer system, user profile information associated with the user, wherein the user profile information indicates a predetermined set of sellers associated with the user, wherein selecting the seller comprises selecting the seller from the predetermined set of sellers indicated by the user profile information."

182. Li in combination with Chen renders claim 9 obvious. As discussed above for limitation [31.f], Li discloses "*obtaining, by the computer system, user profile information associated with the user*," because the Inter Server obtains data from a maintained "Data Structure 02302" storing records containing user-specific information. EX1004, [0138], [0292].

183. In addition, to the extent that Li does not explicitly disclose that the user profile information indicates "*a predetermined set of sellers associated with the user*," the combination with Chen renders this obvious. The references are analogous, both relating to speech-based interfaces through which a user can use natural language utterances to search for and purchase products. For example, similar to Li, Chen discloses a system through which the user can request a product or service through voice. EX1005, Abstract. Like Li, Chen's system performs speech recognition on the received utterance and identifies a product to present to the user. *Id.*, Abstract, 1:52-60, 8:36-41, 18:36-43. Upon receiving user confirmation, the system may complete the purchase on behalf of the user. *See id.*, 19:55-20:18, 22:16-24.

184. Like Li, Chen also discloses accessing user profile information when interacting with the user. *See, e.g., id.*, 4:35-46, 19:24-47. The user profile information includes "predetermined user preferences" such as the user's "preferred retailers," and "specified stores or service providers," which meet the claimed "*predetermined set of sellers associated with the user*." *Id.*, 4:10-13, 19:24-32. For example, Chen discloses selecting the "target product or service" for the user's request, which includes selecting a seller from which to purchase the target product or service, based on the user's "specified stores or service providers ... among other possibilities." *Id.*, 19:24-32; *see also id.*, FIG. 7 (illustrating responding to a user

request for "Brand X basketball shoes" that includes selecting the seller "Yangtze online store" from which the requested shoes can be purchased).

185. A POSITA would have found it obvious for, in the combined system, for Li's Inter Server to account for the user's seller preferences as taught by Chen when selecting a "set of Retailer A, Offer B, Payment Account C, and value(attribute_N)" to present to the user. For example, Li discloses determining a plurality of potential retailers, offers, and payment accounts associated with the Object of Interest, ranking the different combinations based on criteria such as "minimum price," and selecting a highest-ranking option. EX1004, [0189], [0191]. A POSITA would have found it obvious, based on the teaching of Chen, that the ranking and selection process may also account for "other possibilities," such as a user's preferred sellers, to select products or services that meet the user's preferences.

186. A POSITA would have been motivated to make this modification to improve the ability of Li's system to provide the user with offers that are more likely to be of interest to the user. For example, Li recognizes that a user may prefer certain characteristics when purchasing a product or service, such as a "retailer offering the [product or service] for the lowest price." *Id.*, [0003]. To satisfy this preference, Li teaches selecting a retailer from which to purchase the product based on the desired characteristic, e.g., minimum price. *See id.*, [0189]. Chen further recognizes that in

addition to selecting a seller based on price, a user may, "among other possibilities," prefer a specific seller "even if [its] price is not the lowest," and teaches taking these preferences into account when selecting a seller. See EX1005, 19:24-42. A POSITA would have been motivated, based on the teaching of Chen, to modify Li's seller selection process to account for "other possibilities" such as "*a predetermined set*" of "specified stores or service providers" preferred by the user, to enable Li's system to provide the user with options more likely to be of interest and which align with the user's preferences. See id., 19:24-32. This modification is a combination of prior art elements disclosed in Li and Chen according to known methods to yield predictable results. A POSITA would have had a reasonable expectation of success because the combination is a simple substitution of one known technique (selection by lowest price) for another (selection by other criteria such as preferred seller). Furthermore, a POSITA would have found the modification obvious to try to improve the ability of the system to provide a user with more relevant search results based on the user's individual preferences. Li in combination with Chen therefore renders claim 9 obvious.

2. Claim 24

187. Claim 24 is substantively identical to claim 9 and is rendered obvious for the same reasons.
C. Ground 4: Li in combination with Lee renders obvious claims 39 and 40

1. Claim 39

[39.pre] "The method of claim 1, the method further comprising:"

188. As discussed above, Li renders the method of claim 1 obvious.

[39.a] "presenting a prompt that identifies the selected product or service, the cost associated with the purchase of the selected product or service, payment information to pay the associated cost, and shipping information specifying where the selected product or service is to be delivered; and"

189. Li in combination with Lee renders this limitation obvious. First, Li discloses "presenting a prompt that identifies the selected product or service, the cost associated with the purchase of the selected product or service, payment information to pay the associated cost, and shipping information." Li discloses that the Inter Server enables a client device to "receive data and/or instructions" enabling the display of" information relating to an opportunity to purchase the Object of Interest. EX1004, [0004]. The displayed information corresponds to the claimed "prompt" that is presented to the user, as it includes "an object whose selection can enable the user to buy the Object of Interest," e.g., a "Buy/Call" object, that solicits a confirmation from the user to buy the presented Object ("product or service"), and identifies the selected product or service, the associated cost, payment information, and shipping information. Id., [0168], claim 1 ("user-selectable prompt"). The displayed information may include information about the "Object of Interest" that "identifies the selected product or service," such as an "image of the

Object of Interest," "net price" information identifying "the cost associated with the purchase of the selected product or service," "Payment Account" information corresponding to "payment information to pay the associated cost," and a "shipping expense specific to the purchase of Product A and delivered to the address of the user" corresponding to "*shipping information*." *Id.*, [0004], [0138], [0168], [0173]. Because users "can find it useful to see" information such as "Payment Account data and/or any data relating the Payment Account to the Object of Interest," the Inter Server causing the client device to present this information to the user "can make it easier for the user to decide whether to purchase the Object of Interest or which Payment Account to use for the purchase." Id., [0133]. For example, FIGs. 3A, 3E illustrate examples of the displayed information associated with a selected product, showing display of the selected product or service (Object), the associated cost (Net information XYZ Price), payment (Payment Account, "Bank e.g., Visa®/MasterCard® card"), and shipping information (Transportation Costs).



FIG. 3A

Object 02232A2	BUY From Online Retailer	BUY From Physical Retailer
Object Image 02232A Net Image of	\$ 21.99	\$ 27.07
Taxes: 03000E8	\$ 0.00	\$ 2.10
Transportation Costs: 03000F.7	\$ 0.00	\$ 3.48
Payment Method Discount: 03000E6	\$ 2.00	\$ 3.50
Affinity Group Discount: 03000E5	\$ 1.00	N/A
Qualifying Coupon: 03000E4	\$ 10.00	\$ 10.00
Retailer Price: 03000E3	\$ 34.99	\$ 34.99
	IP Retailer 03000E1	PHY Retailer 03000E2

Id., FIGs. 3A, 3E.

190. To the extent that Li does not explicitly disclose the shipping information of the presented prompt "specifying where the selected product or service is to be delivered," the combination with Lee renders this obvious. Lee is analogous art to Li, also relating to e-commerce systems that facilitate online purchasing of goods and services. EX1008, [0014], [0024]. Like Li, Lee also discloses storing information about the user, such as a user's payment and shipping information, to "facilitate[] faster checkout for [the] user." Id., [0014], [0024], [0029] (maintained "account information 185 associated with individual users"). Also like Li, Lee discloses presenting the user with a "prompt" containing the "details of [a] purchase," in the form of a "one-page checkout page," so that the user can "confirm the order" and verify that the details "are acceptable." Id., Abstract, [0038]. Lee's system populates the "one-page checkout page" with "centrally stored information" including information about the product or service to be purchased, a

cost of the product or service, payment information corresponding to a "last used payment method," and shipping information including a "shipping address" which meets the claimed "shipping information specifying where the selected product or service is to be delivered." Id., Abstract, [0044]. For example, FIG. 5 of Lee (reproduced below) illustrates an example of a "one-page checkout page" containing payment and shipping information.



PayPal: The safer, easier way to pay. For more information, read our User Agreement and Privacy Policy

FIG. 5

Id., FIG. 5.

191. A POSITA would have been motivated to modify Li based on the teachings of Lee to, to the extent not explicitly disclosed by Li, include shipping information "specifying where the selected product or service is to be delivered" as

part of the prompt presented to the user. For example, Li recognizes that beyond the specific examples of displayed information included in a prompt to the user, "more elements, and/or different elements" may be displayed. EX1004, [0168]. In addition, Li notes that the user "can find it useful" to see certain information such as "Payment Account data and/or any data relating the Payment Account to the Object of Interest," to "make it easier for the user to decide whether to purchase the Object of Interest." Id., [0133]; see also EX1008, [0038] (details shown on "one-page checkout page" prompting user to confirm purchase aid user in verifying that "the details are acceptable" to the user). A POSITA would have found it obvious that a user, for similar reasons, may also find it useful to see shipping information "specifying where the selected product or service is to be delivered" as part of the presented prompt. Indeed, Li already discloses presenting "shipping expense" information indicating a cost to deliver the purchased Object of Interest "to the address of the user," and a POSITA would have found it obvious to include shipping information corresponding to a recipient address as part of this information, to allow the user to verify that the purchased good or service will be delivered to the correct location. EX1004, [0138].

192. A POSITA would have found it obvious to modify Li to include shipping information as part of the presented prompt to the user as taught by Lee, because it is a combination of prior art elements (e.g., Lee's displaying shipping information on a "checkout page," with Li's displaying of product, retailer, offer, and payment account information on a page) according to known methods (e.g., displaying different types of information on a page) to yield predictable results (e.g., displaying of product, cost, payment, and shipping information on a page). A POSITA would have found this modification obvious as the user of a known technique to improve similar systems in the same way, e.g., by allowing users to review their payment and shipping information before requesting a purchase. Furthermore, a POSITA would have found the modification obvious to try because Li specifically notes that "more elements, and/or different elements" may be displayed to the user before completing a purchase. *Id.*, [0168]. Li in combination with Lee therefore renders limitation [39.a] obvious.

[39.b] "soliciting approval of the identified information as the second user input."

193. Li in combination with Lee renders obvious this limitation. As discussed above for limitation [15.a], Li discloses that the presented prompt includes an interface element such as "an image whose selection can enable the purchase of the XYZ object," e.g., a "Buy/Call" button that when selected, "enable[s] the transmission of voice and/or data . . . for executing the purchase of the Object of Interest." EX1004, [0005], [0145]; *see also id.*, FIGs. 3A, 3E. The "Buy/Call" button serves as a "user-selectable prompt" that solicits approval of the presented information, which, in the combination with Lee, includes all of the information

recited in limitation [39.a]. Id., [0145]-[0146], claim 1. When the user confirms their intention to purchase by selecting the Buy/Call button through a "second user input" (e.g., a mouse click, key press, touch, or voice input), the Inter Server receives "a request to purchase the object of interest from the Retailer" associated with the approved offer. Id., [0149]. Thus, Li discloses "soliciting approval of the identified information as the second user input" by soliciting the user to select the "Buy/Call" object as the "second user input." This is consistent with the disclosure of the challenged patent, which describes that a voice commerce application may "solicit a user confirmation from a user with respect to a product purchase" by presenting to the user information relating to the product or service to be purchased, such as the product to be purchased, seller information, and associated costs, as "part of the user confirmation request." EX1001, 5:30-48, 21:2-20, FIG. 6A. Li in combination with Lee therefore renders limitation [39.b] obvious.

2. Claim 40

194. Claim 40 is substantively identical to claim 39 and is rendered obvious for the same reasons.

D. Ground 5: Chen in combination with Barnes renders obvious claims 1, 3-11, 14-16, 18-26 and 29-30

1. General Motivations to Combine Chen and Barnes

195. In my opinion, a POSITA would have been motivated to combine Chen and Barnes. The two references are in the same field of interactive speech technology, and both relate to systems and methods for enabling users to conduct ecommerce by purchasing products or services through voice. For example, Chen discloses a "hybrid response system" that implements methods "enabling users to purchase a product or service by providing a voice request," where the system "may provide an automated identification of a target product or service in response to the voice request." EX1005, Abstract, 1:38-40, FIG. 7. The user "may be prompted to confirm the purchase before it is finalized," by "speak[ing] a command, such as 'buy''' if they are satisfied with the details of the purchase, or "may be given the option to automate the entire process." *Id.*, 4:43-46, 20:12-18.

196. Barnes similarly discloses a "device" configured to receive "user input ... through a voice command" to execute a variety of applications. EX1006, [0032], [0164]. These applications include being able to "retrieve[] and process[] data from a plurality of service providers (e.g., venders)," the results of which are "used as a basis for taking additional action such as purchasing the product from the vender with the lowest price." *Id.*, [0164]; *see also id.*, [0167]-[0179]. For example, Barnes discloses identifying "product identifying information" received through a user's voice input, to identify the product and perform a "Multi-Vender Search" to find "the available venders that can provide the product." EX1006, [0163]-[0164], [0167]-[0169], [0172]-[0174].

197. Additionally, both Chen and Barnes share the same architecture of an interactive speech system. Both disclose an input device that captures a user's voice input. EX1005, 14:55-57 ("one or more microphones via which a wearer's speech may be captured"); EX1006, [0032] ("One means of supplying user input is through a voice command received by a microphone"). Both disclose a "voice recognition" or "transcription" module that performs speech recognition to recognize the words and phrases of the user's voice input. EX1005, 5:36-41, 8:36-46; EX1006, [0035], [0379]. Both disclose selecting and presenting a product or service to the user's device based on recognized words of the voice input. EX1005, Abstract ("determining a target product/service based on at least the purchase request"), 18:32-51, 20:9-18, 22:1-24; EX1006, [0167]-[0178]. Both disclose enabling the user to purchase presented goods or services through the interactive speech system. EX1005, 4:62-5:4, 20:9-18, 22:1-24; EX1006, [0177]-[0178].

198. Furthermore, Chen teaches identifying a "target product or service" based on a user voice request "through a series of queries." EX1005, 4:66-67. Barnes, in turn, recognizes that a requested product or service may be available "from a plurality of service providers (e.g., venders)," and discloses specific techniques for searching databases associated with different vendor computer systems (VCSs) to determine information related to a requested product or service, e.g., "whether a product is available" from a given vendor, and enables "comparing the price of the product offered by the plurality of venders." EX1006, [0164], [0174].

199. A POSITA in possession of Chen and Barnes would have been motivated to incorporate Barnes's techniques of identifying different vendors and searching databases associated with different vendors to enhance and improve Chen's ability to automatically identify a target product or service available for purchase responsive to a user request. For example, a POSITA would have found it obvious to modify how Chen "[1]ook[s] for places to buy" a requested product or service by making use Barnes's teaching of searching a database to identify available vendors and requesting information from each vendor's database, to create a system that is able to receive and process data from multiple vendors/retailers to present results that are most likely to be of interest to the user. This modification is a combination of prior art elements disclosed in Chen and Barnes according to known methods to yield predictable results. I provide additional motivations to combine the references below.

2. Claim 1

[1.pre] "A method for providing voice commerce, the method being implemented on a computer system having one or more physical processors programmed with computer program instructions which, when executed, perform the method, the method comprising:"

200. To the extent that the preamble is limiting, Chen in combination with Barnes renders it obvious. Chen describes a method implemented by a "hybrid

response system" for providing voice commerce. See EX1005, Abstract. As I discussed above, the '385 patent describes "voice commerce" as relating to "prepar[ing] and/or complet[ing] checkout of product or service purchases" via user "auditory input[s]." EX1001, 43:59-65. Chen similarly discloses providing voice commerce by "enabling users to purchase a product or service by providing a voice request." EX1005, Abstract. For example, a user may "send[] a first speech segment or purchase request to [the] hybrid response system," e.g., "Buy the Brand X basketball shoes for me," which in response, "display[s] a screen [] with a response card . . . [that] indicates: 'Brand X model 1 basketball shoes are available for \$99.99 with free shipping from the Yangtze online store. Speak 'buy' to purchase." Id., 21:42-58, 22:16-24; see also id., 19:2-4 ("the target product or service may include consumer goods, gift certificates, plane tickets, hotel reservations, car rentals, among other possibilities"). The user may then speak "buy" to send "a purchase approval response to the hybrid response system." Id. Chen therefore discloses a "method for providing voice commerce."

201. Chen further discloses that the method is "*implemented on a computer system*." For example, Chen discloses that methods that is performed by a "hybrid response system ('HRS')" that includes an "automated response system." EX1005, Abstract, 3:62-65, 6:1-11. The "hybrid response system" (including the "automated response system") includes "one or more computing systems." *Id.*, 6:1-11; *see also*

id., 1:52-2:3, 2:24-65, 23:43-24:12. A POSITA would have understood that Chen's "hybrid response system" is a "*computer system*," as it includes "one or more computing systems."

202. In addition, Chen discloses that the computer system on which the method is implemented has "one or more physical processors programmed with computer program instructions which, when executed, perform the method." For example, Chen discloses that the hybrid response system may be implemented on a "computing device" that includes "a processor" and "memory." *Id.*, 17:34-57, 20:28-39, FIG. 4. The processor is programmed with "program instructions" stored on a "non-transitory computer-readable medium," and executes the instructions to perform the various functions of the disclosed method. *Id.* The "processor" corresponds to the claimed "one or more physical processors programmed with computer program instructions which, when executed, perform the method." Chen in combination with Barnes therefore renders limitation [1.pre] obvious.

[1.a] "receiving, by the computer system, a single first user input comprising a natural language utterance;"

203. Chen in combination with Barnes renders this limitation obvious. First, Chen discloses "*receiving, by the computer system, a single first user input.*" As explained for limitation [1.pre] above, the "*computer system*" in Chen includes the "hybrid response system." The "hybrid response system" receives "a first speechsegment message." EX1005, Abstract, 1:52-56, 18:32-36. The received "first speech-segment message" meets the claimed "*first user input*." Second, Chen discloses the "*single first user input comprising a natural language utterance*." The hybrid response system receives the "first speech-segment message" (i.e., "*single first user input*"), which is "an audio segment that includes speech by a user," as a "voice input" from "a client device," such as an HMD ("head mounted device"), via a network. *Id.*, 5:26-41, 17:44. For example, FIG. 7 (reproduced below), illustrates an example of the user completing a purchase through the hybrid response system, with the single first user input comprising the spoken utterance "Buy Brand X basketball shoes for me."



Id., FIG. 7.

204. The "speech-segment message" "Buy Brand X basketball shoes for me" is "*a natural language utterance*" spoken by the user that indicates a "command or request" such as a "purchase request." *Id.*, 3:58-62, 18:25-38. Chen

provides additional examples of speech-segment messages, such as "Buy product X for me," "Buy service Y for me," or "Reserve Hotel X in Hawaii arriving December 1st and departing December 8th for me," each of which is a natural language utterance. *Id.*, 4:47-49, 18:52-19:4. Chen in combination with Barnes therefore renders limitation [1.a] obvious.

[1.b] "providing, by the computer system, the natural language utterance as an input to a speech recognition engine;"

205. Chen in combination with Barnes renders this limitation obvious. As explained for limitation [1.pre] above, Chen's "hybrid response system" meets the claimed "*computer system*." The hybrid response system includes a "transcription module" that receives the "voice input" containing the speech-segment message (corresponding to the claimed "*natural language utterance*") and applies a "speech-to-text process to generate text corresponding to the voice input." EX1005, 8:30-39. For example, FIG. 2 (reproduced below) illustrates the "automated response system 106" of a hybrid response system that receives "voice input 202" and provides it to the "transcription module 204."



Id., FIG. 2; *see also id.*, 6:1-3 ("the components of hybrid response system 101 include an automated response system 106").

206. A POSITA would have understood that the transcription module is a "*speech recognition engine*," as it is software or hardware that recognizes and transcribes the words or phrases in the natural language utterance corresponding to the speech-segment message contained in the voice input. The hybrid response system, which may receive the natural language utterance (e.g., the "voice input") from a client device such as an HMD, e.g., via a receiver, provides the voice input

to the transcription module ("speech recognition engine"). *See id.*, 17:36-18:18 (describing that devices "may contain hardware to enable [a] communication link," such as "transmitters, receivers, antennas, etc."). Chen in combination with Barnes therefore renders limitation [1.b] obvious.

[1.c] "obtaining, by the computer system, one or more words or phrases recognized from the natural language utterance as an output of the speech recognition engine;"

207. Chen in combination with Barnes renders this limitation obvious. As explained for limitations [1.pre] and [1.b] above, Chen's "hybrid response system" meets the claimed "computer system," and includes a "transcription module" corresponding to the claimed "speech recognition engine." The "transcription module" receives the voice input that includes the speech-segment message and performs a "speech-to-text process to generate text corresponding to the voice input." EX1005, 8:36-39. A POSITA would have understood that the generated text corresponds to "one or more words or phrases recognized from" the speechsegment message of the voice input (corresponding to the claimed "natural *language utterance*"), being a "transcription" of the "text corresponding to the voice input" or a "translation" of the received speech into text. See also id., 5:36-41 ("speech-to-text transcription"), 8:36-44 (transcription module may also "determine a translation confidence measure that indicates how likely it is that the corresponding text is an accurate transcription"). The transcription module outputs the generated

"text (and possibly an audio version of the text as well)" as a "potentially-actionablespeech message" to other components of the hybrid response system, such as a categorization module, for further evaluation. *Id.*, 8:44-46, 9:5-18. For example, FIG. 2 (reproduced above), illustrates that the output of the transcription module 204 is obtained by the categorization module 206 of the hybrid response system. Chen thus discloses that the hybrid response system "*obtain[s]*" the generated text (corresponding to "*one or more words or phrases recognized from the natural language utterance*") as an "*output*" of the transcription module (corresponding to the "*speech recognition engine*"), to be passed to subsequent components for further processing and evaluation. Chen in combination with Barnes therefore renders limitation [1.c] obvious.

[1.d] "searching, by the computer system, one or more databases of products or services based on the one or more words or phrases;"

208. Chen in combination with Barnes renders this limitation obvious. Chen discloses that the "automated response system" of the hybrid response system (the claimed "*computer system*") provides "an automated identification of a target product or service in response to the [user's] voice request." EX1005, 1:38-39, 18:40-43. The hybrid response system identifies the "target product or service" by "[f]inding a target product or service . . . through a series of queries," or in other words, a search, "based on at least the purchase request" indicated in the received "speech segment." *Id.*, Abstract, 4:66-67, 1:58-60, 18:37-40. A POSITA thus would

have understood that the target product or service is searched for "*based on the one or more words or phrases*," because it is based on processing the "speech-to-text transcription" generated by the transcription module of the user's purchase request. *See id.*, 9:5-22 (describing that the "Categorization module 206" analyzes "the received text"). For example, FIG. 7 of Chen illustrates that the hybrid response system performs a search "[1]ooking for places to buy brand X basketball shoes in men's size 11," based on the user's request for "Brand X basketball shoes," to find "Brand X model 1 basketball shoes . . . available for \$99.99 with free shipping from the Yangtze online store."



Id., FIG. 7, 21:53-58, 22:16-24.

209. A POSITA would have found it obvious that the hybrid response system identifies the "target product or service" through "a series of queries" by

searching one or more databases of products and services based on the recognized words or phrases of the utterance, because "queries" were a well-known way to search for and extract data from a database. For example, a POSITA would have found it obvious that the hybrid response system executes queries to perform the search shown in FIG. 7 based on the words recognized from "Buy the Brand X basketball shoes for me," and that the search may be performed on a database such as a database associated with "Yangtze online store," to determine that "Yangtze online store" has the requested shoes available for "\$99.99 with free shipping." Chen therefore renders limitation [1.d] obvious.

210. To the extent that Chen does not explicitly disclose searching "one or more databases of products or services based on the one or more words or phrases," the combination of Chen with Barnes renders it obvious. Barnes discloses systems and methods for processing "product identifying information" received through a user's voice input, to identify the product and the available "vendors that can provide the product." EX1006, [0167]-[0169], [0172]-[0174]. The system processes the user's voice input using "voice recognition software" that outputs "a text version of the [user's] spoken words," and parses "the text for particular words" representing the user's command and any relevant "product identifying information." *Id.*, [0167], [0380]-[0381]. For example, the system analyzes the user's voice input to identify a "processing instruction such as 'find lowest price'

followed by product identifying information such as manufacturer Calloway®, Big Bertha® driver." *Id.*, [0167], [0380]-[0381]. In other words, Barnes discloses determining "product identifying information" based on the recognized words or phrases of the user's voice input. *See id.*, [0167], [0172].

211. To identify the product and available vendors, Barnes's system "retrieve[s] data of venders from [a] local memory, a remote computer system, and/or transmit[s] a request for venders" that can provide the requested product to a vendor "service registry." Id., [0169]. For example, the "local memory or [the] remote computer" stores data of "venders who offer, or who may offer the product" accessed as part of previous transactions. Id., [0171]; see also id., [0121] (vendor data may include "formats for the particular vender, the particular type of vender (e.g., a restaurant), the particular product (e.g., an airline ticket from a particular airline), the particular type of product (e.g., food), and/or the location of the vender (e.g., the country)"). Barnes further discloses that upon identification of appropriate vendors, generating, for each vendor, "a vender request for the desired action that is based on the product identifying information," e.g., "a request for a price" based on "manufacturer and product model information" provided in the user's request, to "search[] a [respective] database for the price of the identified product." Id., [0172]-[0174]. Barnes thus discloses "searching one or more databases of products or services based on the one or more words or phrases," e.g., by searching the databases of respective vendors for a product identified based on the words or phrases recognized from the received utterance.

212. In addition, Barnes also discloses searching one or more databases of products or services based on the one or more words or phrases by searching for vendor information stored in the local memory or remote computer system for "available venders that can provide the product." EX1006, [0169]-[0171]. For example, Barnes discloses storing and retrieving data of "available points of interest," such as vendors, "from a database" maintained in the local memory or remote computer system. *Id.*, [0149] ("database may be stored locally (in the device) or remotely (e.g., in an automobile, a web server, at the user's home, etc.)"). Barnes discloses searching this database on the local memory or remote computer system using the "product identifying information" derived from the "one or more words or phrases," to identify specific vendors "who offer, or who may offer the product" from which to request additional information relating to the product, e.g., price and availability. Id., [0171]-[0172].

213. A POSITA would have found it obvious to modify Chen with Barnes, such that Chen's hybrid response system identifies a requested product or service based on Barnes's teachings of searching one or more databases of products or services based on the one or more words or phrases of the user's voice input, to find a product or service, and available vendors from which to purchase the product or

service. See EX1005, 22:1-8; EX1006, [0167]-[0174]. A POSITA would have found this to be an obvious way for Chen's hybrid response system to perform a "series of queries" when "[1]ooking for places to buy" a requested product or service. See EX1005, 4:66-67, 22:1-8. To the extent that Chen does not explicitly disclose the "series of queries" is used to search "one or more databases of products or services based on the one or more words or phrases," Barnes teaches searching one or more databases containing data of products or services offered by different vendors, to find "available venders that can provide the product" or service, and sending requests to determined vendors to search respective databases for additional information about the requested product or service. EX1006, [0121], [0169], [0172]. This would allow for a user interested in particular products or services to perform a "Multi-Vender Search" and receive data "from [a] plurality of venders," for use in "determining whether a product is available, comparing the price of the product offered by the plurality of venders, and other processing of data." EX1006, [0164]. A POSITA would have found this to be an obvious way to identify a "target product/service" that can be purchased from "an appropriate vendor," e.g., "Brand X basketball shoes in men's size 11" from "Yangtze online store," as taught by Chen. See EX1005, 4:55-59, 18:38-43, 22:1-24.

214. In my opinion, a POSITA would have been motivated to combine Chen and Barnes. As I discussed above, the references are analogous, both relating to

speech-based interfaces through which a user can use natural language utterances to search for and purchase products. See, e.g., EX1005, Abstract, 8:36-46, 18:25-51, 21:42-22:43; EX1006, [0164], [0167], [0169]-[0179]. Furthermore, Chen explains that a requested product or service may be available from different retailers, and the hybrid response system may use different criteria to select which product or service to present to the user. See, e.g., EX1005, 4:10-13 (user may have "preferred retailers"), 19:29-32 ("user preferences may include selecting the target product or service based on the lowest price available, specified stores or service providers or preferred brands"), 22:1-8 ("Looking for places to buy" requested product). Barnes also recognizes that a given product may be available from more than one vendor, and discloses "Multi-Vender Search" techniques discussed above for searching for requested products or services offered by different vendors, so that different purchase options can be compared and evaluated, e.g., to determine one offering the product at a lowest price. See EX1006, [0164]-[0179].

215. A POSITA in possession of Chen and Barnes would therefore have been motivated to combine them, e.g., by modifying how Chen "[1]ook[s] for places to buy" a requested product or service by searching databases as taught by Barnes, to identify available vendors and retrieve information from a database of each vender, to create a system that is able to receive and process data from multiple vendors/retailers in order to present results that are most likely to be of interest to

the user. This modification is a combination of prior art elements disclosed in Chen and Barnes according to known methods to yield predictable results. A POSITA would further have found the modification obvious that it simply involves the use of a known technique practiced by Barnes's speech interface (e.g., identifying multiple vendors and searching a database associated with each vendor to obtain up-to-date information for each of multiple vendors) to improve similar systems (e.g., Chen's speech interface provided by the hybrid response system that can "[1]ook[] for places to buy" a requested product) in the same way (e.g., to enable the hybrid response system to perform a "multi-vender search" to look for places to buy a requested product). A POSITA would have found the modification obvious to try as a way to search multiple vendors for a requested product and would have had a reasonable expectation of success. The combination of Chen and Barnes therefore renders limitation [1.d] obvious.

[1.e] "selecting, by the computer system, without further user input other than the single first user input, a product or service from the database to be purchased based on the search;"

216. Chen in combination with Barnes renders this limitation obvious. First, Chen discloses that the hybrid response system (the claimed "*computer system*") "*select[s]*... *a product or service*... *to be purchased based on the search*." For example, Chen discloses that the hybrid response system provides "an automated identification of a target product or service in response to the voice request" selected through "a series of queries." EX1005, 1:38-39, 4:66-67, 18:40-43. The identified "target product or service" corresponds to "*a product or service* . . . *to be purchased*," because the hybrid response system, after identifying the target product or service, may "send[] a purchase order . . . for the target product or service," or prompt the user with "a purchase-approval request" to approve purchasing of the product or service. *Id.*, 18:40-43, 20:9-18. A POSITA also would have understood that the hybrid response system selects "target product or service" "*based on the search*," e.g., a search performed using the "series of queries," which, in the combination with Barnes discussed above, is performed on "one or more databases." *Id.*, 4:66-5:1, 18:37-43.

217. In addition, Chen discloses that the hybrid response system selects of the product or service "*without further user input other than the single first user input*." For example, in response to receiving a voice request for "Brand X basketball shoes," the hybrid response system performs a search "[1]ooking for places to buy brand X basketball shoes in men's size 11," finds "Brand X model 1 basketball shoes ... available for \$99.99 with free shipping from the Yangtze online store" as a result of the search, and presents the result to the user via a client device, e.g., an HMD, as a response card. *Id.*, 21:53-22:24; *see also id.* 19:24-54 (describing that the "hybrid response system" may determine "the target product or service further based on one or more predetermined user preferences" and/or "discounts

associated with the purchase request," without any further user input). As shown in FIG. 7 below, the hybrid response system searches for and selects the "Brand X model 1 basketball shoes . . . available for \$99.99 with free shipping from the Yangtze online store" without further user input other than the single first user input of "Buy Brand X basketball shoes for me."





218. In addition, to the extent that Chen does not explicitly disclose selecting the product or service to be purchased "*from the database to be purchased based*

on the search," the combination with Barnes renders it obvious. The claimed term "the database" lacks antecedent basis. For my analysis, I assume "the database" in this limitation refers to the "one or more databases" of limitation [1.d]. As discussed for limitation [1.d], in the combination with Barnes, Chen's hybrid response system is modified to select the product or service based on a search of one or more databases, e.g., by searching a database of vendor information (from "local memory, a remote computer system, and/or . . . [a] service registry") for "available venders that can provide the product," and/or databases of the identified vendors for further information "of the identified product." EX1006, [0169]-[0174]. By "determin[ing] the venders offering the product," the system selects the product by selecting a vendor that "has the product available" from which to purchase the product, e.g., the vendor "with the lowest price" for the product. Id., [0166]. Thus, the combination renders obvious "selecting, by the computer system, without further user input other than the single first user input, a product or service from the database to be purchased based on the search," as Barnes teaches that the product or service is selected from the searched "one or more databases," e.g., the database of vendor information indicating "available venders that can provide the product," and/or a database of an identified vendor. For example, in the combination, a POSITA would have found it obvious for the hybrid response system to select "Brand X model 1 basketball shoes" from one of the one or more searched databases, such as a vendor database associated with "Yangtze online store" containing information of products or services offered by the vendor Yangtze online store. The combination of Chen and Barnes therefore renders limitation [1.e] obvious.

[1.f] "receiving, by the computer system, a second user input indicating confirmation by a user to complete a purchase transaction of the selected product or service; and"

219. Chen in combination with Barnes renders this limitation obvious. First, Chen discloses "*receiving, by the computer system, a second user input.*" For example, Chen discloses that after the hybrid response system (the claimed "*computer system*") determines "an appropriate product," it may prompt the user "to confirm the purchase before it is finalized," by "sending a purchase-approval request" to the user. EX1005, 4:38-46, 20:9-18. If the user "is satisfied with the details of the purchase-approval request," they "may then speak a command, such as 'buy,' that is sent to," and received by, "the hybrid response system," which corresponds to the claimed "*second user input.*" *See also id.*, 9:31-35 ("An actionable speech segment could also be a command or an instructions, such as 'buy those shoes for me."")

220. Chen further discloses the second user input "*indicating confirmation by a user to complete a purchase transaction of the selected product or service.*" Chen discloses that, for each received voice input, the hybrid response system analyzes "the received text" of the user's speech to determine whether it is "actionable" and constitutes a "command" "to which a response can be provided." EX1005, 9:19-35. When the user provides the "second user input," e.g., by "speak[ing] a command, such as 'buy," the client device sends the user's spoken command as "a purchase approval response to the hybrid response system," which processes the command and sends a "confirmation-of-purchase message . . . indicating the purchase is complete" when the purchase is completed. Id., 20:15-24, 22:19-24 (emphasis added). A POSITA thus would have understood that the user's spoken command "buy" corresponding to the claimed "second user input" indicates "confirmation by [the] user to complete a purchase transaction of the selected product or service," because it corresponds to a "purchase-approval response" indicating the user's approval to proceed with the purchase, where the hybrid response system completes the purchase following receipt of the command. See id., 20:9-26, 22:19-24.

221. Thus, Chen discloses that the hybrid response system ("*computer system*") receives a second user input, e.g., a spoken command such as "buy," indicating confirmation by the user to complete a purchase transaction of the selected product or service. For example, in the example illustrated in FIG. 7 of Chen, the hybrid response system causes the user's client device ("HMD") to display a "response card" indicating "Brand X model 1 basketball shoes are available for \$99.99 with free shipping from the Yangtze online store. Speak 'buy' to purchase."



Id., 22:16-24, FIG. 7.

222. Subsequently, when the user speaks "buy," the hybrid response system receives the user's input, which is "a second user input," as a "purchase approval

response" confirming the user's intent to purchase the offered product. *Id.* Chen in combination with Barnes therefore renders limitation [1.f] obvious.

[1.g] "completing, by the computer system, without further user input after the receipt of the second user input, a purchase transaction of the selected product or service.

223. Chen in combination with Barnes renders this limitation obvious. First, Chen discloses "completing, by the computer system, ... a purchase transaction of the selected product or service." Chen discloses that after the user provides the "second user input" (a "purchase approval response"), e.g., by speaking "buy," the hybrid response system (the claimed "computer system") completes the purchase by "send[ing] a purchase order, via the associated user-account, for the target product or service." EX1005, 18:43-46, 19:55-67, 20:9-18 (describing that the hybrid response system can, in some embodiments, automatically send a purchase order if "the confidence level is greater than or equal to a threshold level," or may send the "purchase-approval request" for user confirmation). Upon completing the purchase, the hybrid response system may send "a confirmation of purchase message" to be presented to the user via the client device, containing information about the completed purchase such as "a tracking number, a confirmation number, and/or a message indicating that the purchase is complete." Id., 20:19-24. For example, in the example illustrated in FIG. 7 of Chen, the hybrid response system causes the client device to "receive a confirmation message," and display a screen with a

"confirmation card" indicating "Purchase confirmed. Shipping via FedEx to arrive by February 2nd. Tracking No. XYZ123."



FIG.7

Id., 22:38-44, FIG. 7. Chen thus discloses the hybrid response system "*completing* . . . *a purchase transaction of the selected product or service*," by sending and completing a purchase order for the target product or service.

224. In addition, Chen discloses that the hybrid response system may complete the purchase transaction "*without further user input after the receipt of the second user input*." For example, in the example illustrated in FIG. 7 of Chen, the hybrid response system completes and confirms the purchase transaction after receiving the "second user input" corresponding to the user's spoken command "Buy," without any further user input after the receipt of the second user input. EX1005, 22:16-24, 38-44, FIG. 7; *see also id.*, 22:25-27 (noting that "[i]n some embodiments, it is also possible that one or more additional inputs . . . may be required to confirm a purchase," which a POSITA would have understood indicates that in other embodiments, such as that shown in FIG. 7, no further user input is necessary). Chen in combination with Barnes therefore renders limitation [1.g] obvious.

3. Claim 3: "The method of claim 1, wherein completing the purchase transaction for the selected product or service comprises: obtaining, by the computer system, payment information with which to pay for the selected product or service, wherein the purchase transaction is completed based on the payment information without receiving confirmation of the payment information by the user."

225. Chen in combination with Barnes renders claim 3 obvious. First, Chen discloses that the hybrid response system (the "*computer system*") completing the
purchase transaction for the selected product or service includes "obtaining . . . payment information with which to pay for the selected product or service." For example, as discussed for limitations [1.f] and [1.g], when the user provides the claimed "second user input indicating confirmation by [the] user to complete a purchase transaction of the selected product or service," e.g., by speaking the command "buy," the hybrid response system completes the purchase by "send[ing] a purchase order, via the associated user-account, for the target product or service." EX1005, 18:43-46, 19:55-67, 20:9-18 (the hybrid response system can automatically send a purchase order if "the confidence level is greater than or equal to a threshold level," or may send the "purchase-approval request" for user confirmation). To "facilitate[] the sending of orders," the hybrid response system obtains "user information" stored in "a user-account associated with voice requests," or "derived from a linked user-account that is a separate purchasing account, such as Google EX1005, 4:35-43; see also id., 19:62-67 ("user data" may include Wallet." "information stored specifically for purchases (e.g., credit card information, purchase history, purchasing preferences, among other possibilities)"). The user information includes information such as the user's "credit card information," which corresponds to "payment information with which to pay for selected products and services." Id., 4:35-43, 4:49-52 (user information may include "information for several of the user's credit cards and an order of preference for using the cards").

226. In addition, Chen discloses that "*purchase transaction is completed* based on the payment information without receiving confirmation of the payment *information by the user.*" For example, after determining the appropriate product (by "an automated response system, by a human guide, or by a combination of the two"), the hybrid response system sends the payment information from the "associated user-account" "with the order" to complete the purchase, so that the purchase is "conducted with the user's provided credit card information and shipped to the user's default shipping address." EX1005, 4:35-41, 4:59-61, 19:55-62. The hybrid response system may send purchase order without receiving confirmation of the payment information by the user. For example, in the example shown in FIG. 7 of Chen, the hybrid response system completes the purchase transaction for "Brand X model 1 basketball shoes" without receiving confirmation of the payment information from the user. EX1005, FIG. 7. Therefore, Chen in combination with Barnes renders claim 3 obvious.

4. Claim 4: "The method of claim 1, wherein completing the purchase transaction for the selected product or service comprises: obtaining, by the computer system, shipping information with which to deliver the selected product or service, wherein the shipping information specifies a name or address of a recipient to which the selected product or service is to be delivered after the selected product or service is purchased, and wherein the purchase transaction is completed based on the shipping information without receiving confirmation of the shipping information by the user."

227. Chen in combination with Barnes renders claim 4 obvious. First, Chen discloses that the hybrid response system (the "*computer system*") completing the

purchase transaction includes "*obtaining* . . . *shipping information with which to deliver the selected product or service*." The hybrid response system obtains "user information" stored in "a user-account associated with voice requests," or "derived from a linked user-account that is a separate purchasing account, such as Google Wallet," to "facilitate[] the sending of orders." EX1005, 4:35-43; *see also id.*, 19:62-67 ("user data" may include "information stored specifically for purchases (e.g., credit card information, purchase history, purchasing preferences, among other possibilities)"). The user information includes "*shipping information*" such as "a default shipping address, a preferred shipping carrier," etc., for which to deliver selected products or services. *Id.*, 4:35-43, 4:49-52.

228. Chen further discloses that "the shipping information specifies a name or address of a recipient to which the selected product or service is to be delivered after the selected product or service is purchased." For example, the shipping information specifies an address of a recipient, e.g. "a default shipping address," to which the selected product or service is to be delivered after it is purchased. EX1005, 4:49-52; see also id., 4:59-61 ("The purchase may be . . . shipped to the user's default shipping address").

229. In addition, Chen discloses that "completing the purchase transaction for the selected product or service comprises: obtaining . . . [the] shipping information," where the "purchase transaction is completed based on the shipping information without receiving confirmation of the shipping information by the user." For example, as discussed above, Chen discloses obtaining the "shipping information" from "user information" stored in "a user-account associated with voice requests" or "derived from a linked user-account." EX1005, 4:35-43. The hybrid response system sends the shipping information "with the order" to complete the purchase, so that the purchased product or service is "shipped to the user's default shipping address." EX1005, 4:35-41, 4:59-61. The hybrid response system thus sends the purchase order, and completes the purchase, without receiving confirmation of the payment information by the user. For example, in the example shown in FIG. 7 of Chen, the hybrid response system completes the purchase transaction for "Brand X model 1 basketball shoes" which includes "Shipping via FedEx," without receiving confirmation of the shipping information from the user. EX1005, FIG. 7. Therefore, Chen in combination with Barnes renders claim 4 obvious.

5. Claim 5

[5.pre] "The method of claim 1, the method further comprising:"

230. As discussed above, Chen in combination with Barnes renders the method of claim 1 obvious.

[5.a] "obtaining, by the computer system, seller information describing one or more products or services available from one or more sellers via one or more remote information sources; and"

231. Chen in combination with Barnes renders this limitation obvious. First, Chen renders obvious "obtaining, by the computer system, seller information describing one or more products or services available from one or more sellers." As discussed for limitation [1.d], Chen discloses that the "automated response system" of the hybrid response system ("computer system") identifies "a target product or service in response to the [user's] voice request," and searches "for places to buy" to buy the target product or service. The hybrid response system then causes a client device to present purchase information to the user that includes "an identification of the target product or service, the price of the product or service, [and] the vendor" from which the product or service is to be purchased, etc. EX1005, 1:38-39, 20:9-15, 21:53-22:24. For example, FIG. 7 of Chen illustrates that the hybrid response system presents information to the user identifying "Yangtze online store" as a seller of "Brand X model 1 basketball shoes." A POSITA would have found it obvious that to obtain information about a vendor (e.g., a "seller") from which the target product or service can be purchased, Chen's hybrid response system obtains seller information describing one or more products or services available from one or more sellers, e.g., information that "Yangtze online store" sells "Brand X model 1 basketball shoes" for \$99.99. In addition, a POSITA would have found it

obvious that the hybrid response system obtains the seller information from one or more remote information sources, such as a search engine or an information source maintained by the seller (e.g., database or website of "Yangtze online store").

To the extent that Chen does not explicitly disclose obtaining "seller 232. information describing one or more products or services available from one or more sellers via one or more remote information sources," the combination with Barnes renders it obvious. Barnes's system identifies a product and "the available venders that can provide the product" by "retriev[ing] data of venders from [a] local memory, a remote computer system, and/or" a "service registry." EX1006, [0167]-[0169], [0172]-[0174]. After identifying appropriate vendors, the system obtains, from each vendor, information about the products or services available from the vendor, e.g., price, "availability, location data for the vender, taxes on purchase of the product, delivery charges for the product, available times for delivery or receipt (e.g., pick up) of the product, etc.," generated by "vender computer systems (VCSs)" processing received requests by "searching a [respective] database for the" requested information. *Id.*, [0172]-[0174]. Thus, Barnes discloses obtaining "seller information describing one or more products or services available from one or more sellers," e.g., information on price and product availability from one or more vendors, via "one or more remote information sources," e.g., one or more databases accessed by the VCSs of identified vendors. Id.

233. As discussed above for limitation [1.d], a POSITA would have found it obvious to modify Chen's hybrid response system to identify a requested product or service based on Barnes's teachings of searching one or more databases of products or services based on the recognized words or phrases of the user's voice input, to find a product and available vendors offering the product. See EX1005, 22:1-8; EX1006, [0167]-[0174]. In the combination, the hybrid response system obtains seller information from one or more remote information sources as taught by Barnes, e.g., by sending requests to the VCSs of identified vendors for information about products or services offered by the vendors. See EX1006, [0167]-[0174]. A POSITA would have found it obvious to modify Chen's hybrid response system to obtain seller information from remote information sources such as VCSs. For example, a POSITA would have understood that availability and price of products or services offered by a given vendor may change over time, and that by receiving seller information from the VCSs of identified vendors, the hybrid response system would be able to present information to the user concerning the availability and pricing of requested products at particular vendors that is accurate and up to date. For example, in the example shown in FIG. 7 of Chen, a POSITA would have found it obvious for, the hybrid response system in the combination to, when "[1]ooking for places to buy" the requested shoes, send a request to a computer system associated with Yangtze online store, to obtain up-to-date "seller information"

indicating the price and availability of "Brand X basketball shoes" as taught by Barnes.

234. A POSITA in possession of Chen and Barnes would therefore have been motivated to combine them, e.g., by modifying how Chen "[1]ook[s] for places to buy" a requested product or service, to the extent not explicitly disclosed, to search for a product or service by identifying available vendors and requesting information from each identified vendor as taught by Barnes. A POSITA would have recognized that this combination would improve Chen's hybrid response system, so that it is able to receive and process data from different vendors to provide accurate information on available products and services requested by the user that can be purchased through the vendor. This modification is a combination of prior art elements disclosed in Chen and Barnes according to known methods to yield For example, a POSITA would have understood the predictable results. modification to be the application of a known technique used by Barnes's speech interface (e.g., identifying candidate vendors and obtaining current information from each vendor) to improve Chen's hybrid response system in the same way, to allow the system to obtain information from multiple vendors / sellers. A POSITA would have found the modification obvious to try as a way to search multiple vendors for a requested product and would have had a reasonable expectation of success. Therefore, the combination of Chen and Barnes renders limitation [5.a] obvious.

[5.b] "storing, by the computer system, the seller information in the one or more databases."

235. Chen in combination with Barnes renders this limitation obvious. First, the combination discloses "storing . . . the seller information in the one or more databases." As discussed for limitation [5.a], Barnes discloses identifying "the available vendors that can provide the product" by searching a "local memory, a remote computer system, and/or" a vendor "service registry," and obtaining seller information about the identified vendors from remote information sources, e.g., one or more databases accessed by the VCSs of identified vendors. EX1006, [0167]-[0169], [0172]-[0174]. In addition, Barnes discloses storing obtained seller information in the database maintained as part of the local memory or remote computer system "for repeat use." Id., [0088], [0121], [0149], [0171]. By storing seller information obtained "during a previous transaction," the system can more easily retrieve the information "as needed by the device" during a later transaction. *Id.*, [0088], [0121], [0171].

236. A POSITA would have recognized that the database of the local memory or the remote computer system in which the obtained seller information is stored are of the "*one or more databases*" searched in limitation [1.d] discussed above. For example, Barnes discloses searching the local memory and/or remote computer system databases containing the stored seller information to identify

"venders offering the product" matching the "product identifying information" provided by the user, to select a product as discussed above. *Id.*, [0166]-[0169].

237. A POSITA would have found it obvious to modify Chen's hybrid response system (the "computer system") to store received seller information in one or more databases based on Barnes's teachings of maintaining databases of vendor information on a local memory and/or a remote computer system accessed. See EX1005, 22:1-8; EX1006, [0167]-[0174]. For example, Chen discloses that the hybrid response system may determine "the target product or service" based on "previous purchases made via the associated user-account." EX1005, 19:33-47. A POSITA thus would have found it obvious for the hybrid response system to store vendor information associated with previous purchases ("a previous transaction") in a database maintained in local memory or a remote computer system as taught in Barnes, to allow for more efficient retrieval when processing later transactions. EX1006, [0149], [0171]. This would allow for the system to update maintained database, which functions as a "service registry" or "business listing" usable by the hybrid response system to find available vendors to provide a target product or service, as the user conducts transactions and makes purchases. See EX1006, [0149], [0171]. A POSITA in possession of Chen and Barnes would therefore have been motivated to combine them, e.g., by modifying how Chen stores information in a database for potential use in identifying target products or services for later

transactions, based on the teaching of Barnes, to include storing and maintaining seller information. This modification is a combination of prior art elements relating to storing information associated with previous transactions disclosed in Chen and Barnes according to known methods to yield predictable results. A POSITA would have been motivated to make the modification, as it uses a known technique (e.g., storing vendor information from past transactions to be used to identify possible vendors for future transactions) to improve a similar device in the same way, e.g., to enable Chen's hybrid response system to store seller information that would facilitate identifying a seller for a future transaction. The combination would involve these prior art elements combined according to known methods to yield a predictable result, and a POSITA would have had a reasonable expectation of success. Therefore, the combination of Chen and Barnes renders limitation [5.b] obvious.

6. Claim 6: "The method of claim 5, wherein the one or more remote information sources comprise at least a third party search engine, a third party retailer, and/or a third party service provider."

238. Chen in combination with Barnes renders claim 6 obvious. The combination of Chen and Barnes discloses that "one or more remote information sources comprise at least a third party search engine, a third party retailer, and/or a third party service provider." As discussed for claim 5, Barnes discloses obtaining seller information from one or more remote information sources that include the

"vender computer systems (VCSs)" of identified vendors, which respond by "searching a database" for information describing one or more products or services available from the vendor / seller, such as price, "availability, location data for the vender, taxes on purchase of the product, delivery charges for the product, available times for delivery or receipt (e.g., pick up) of the product, etc." EX1006, [0172]-[0174]. A POSITA would have found it obvious that the various vendors include third-party retailers or third-party service providers, being third parties that offer products or services for sale. *See also id.*, [0357] (referring to "a vender or other third party"). The VCSs of the various vendors, which correspond to the claimed "*remote information sources*," thus comprise at least "*a third party retailer, and/or a third party service provider*." Therefore, the combination of Chen and Barnes renders claim 6 obvious.

7. Claim 7: "The method of claim 5, wherein the method further comprises: selecting, by the computer system, a seller from which to purchase the selected product or service."

239. Chen in combination with Barnes renders claim 7 obvious. For example, Chen discloses that the hybrid response system (the "*computer system*") selects "*a seller from which to purchase the selected product or service*," by, in response to the user's voice request, searching "for places to buy" the target product or service, e.g., "based on the lowest price available." EX1005, 1:38-39, 19:24-32, 22:1-8; *see also id.*, 20:9-15 (describing presenting the user with a "purchase-

approval request" that includes "an identification of the target product or service" and "the vendor" from which to purchase the target product or service). For example, in response to the user request to "Buy the Brand X basketball shoes for me," the hybrid response system selects "Yangtze online store" as a seller from which the purchase the selected product or service. *Id.*, 21:53-22:24, FIG. 7; *see also id.*, 19:24-32 (describing "selecting the target product or service based on ... specified stores or service providers" preferred by the user). Therefore, Chen renders claim 7 obvious.

240. Similarly, Barnes also teaches this limitation. For example, Barnes discloses the device responding to a user's request "to purchase a product for the lowest price," by determining "the venders offering the product (or who might offer the product)," and "obtain[ing] price information" from each vendor to "determine[] the vender with the lowest price." EX1006, [0166]. Barnes thus discloses the device "*selecting a seller from which to purchase the selected product or service*," e.g., by "determin[ing] the vender with the lowest price (and has the product available)" for which to transmit a purchase request to. *Id.* A POSITA would have understood that in the combined system, Chen's hybrid response system (the "*computer system*") may be modified to select the seller in the same way as taught by Barnes. A POSITA would have been motivated to make the modification for the same reasons I

discussed above for claims 1 and 5. Therefore the combination of Chen and Barnes renders claim 7 obvious.

8. Claim 8: The method of claim 7, wherein the seller information comprises a price at which the one or more sellers will sell the one or more products or services, wherein selecting the seller comprises selecting the seller based on the price at which the seller will sell the selected product or service."

241. Chen in combination with Barnes renders claim 8 obvious. First, Chen renders obvious that "the seller information comprises a price at which the one or *more sellers will sell the one or more products or services.*" For example, Chen discloses that the hybrid response system determines "the target product or service. . . based on one or more predetermined user preferences," which may include "selecting the target product or service based on the lowest price available." EX1005, 19:29-32. A POSITA would have found it obvious that for the hybrid response system to identify and select "an appropriate vendor" from which to purchase the target product or service, e.g., a vendor offering the product or service at the lowest price, the hybrid response system would obtain seller information that includes a price at which each seller/vendor sells the product or service so that the appropriate seller can be selected. See id., 4:55-61; see also id., 19:48-54 (determining "target product or service" "based on one or more discounts associated with the purchase request"). Furthermore, the hybrid response system, upon identifying the target product or service, presents the user with a "purchase-approval request" that includes information such as "the price of the product or service." *Id.*, 20:9-15. For example, FIG. 7 of Chen illustrates that the hybrid response system selects "Yangtze online store" as a seller from which the requested shoes are available for "\$99.99 with free shipping." *Id.*, 21:53-22:24, FIG. 7. A POSITA would have found it obvious that for the hybrid response system to display information of the price at which the selected seller will sell the product or service for to the user, the seller information obtained by the hybrid response system would include price information. A POSITA would further have found it obvious that Chen's hybrid response system selects the seller based on the price at which the seller based on the price at which the seller will sell the selecting the target product or service based on the lowest price available." *See id.*, 19:29-32.

242. To the extent that Chen does not explicitly disclose that "the seller information comprises a price at which the one or more sellers will sell the one or more products or services, and selecting the seller based on the price at which the seller will sell the selected product or service," the combination with Barnes renders it obvious. For example, Barnes discloses responding to a user request "to purchase a product for the lowest price" by "determin[ing] venders offering the product (or who might offer the product)," obtain[ing] seller information including "price information, determin[ing] the vender with the lowest price (and has the product available)." EX1006, [0166]; see also id., [0177] (describing displaying data for

purchasing a product that includes "price, vender identifying information and location information," where the data is sorted and displayed "in order of ascending price"). Barnes thus discloses that "the seller information comprises a price at which the one or more sellers will sell the one or more products or services" and "selecting the seller based on the price at which the seller will sell the selected product or service." A POSITA would have understood that in the combined system, Chen's hybrid response system (the "computer system") may be modified to obtain the same type of seller information and select the seller in the same way as A POSITA would have found it obvious to make this taught by Barnes. modification, as it only involves combining prior art elements (e.g., obtaining price information from identified vendors and selecting a vendor based on price as taught by Barnes) according to known methods to yield predictable results, e.g., the hybrid response system being able to compare information from multiple vendors to select "the vender with the lowest price." EX1006, [0166]. A POSITA would have been motivated to make this combination to enable Chen's hybrid response system to be able to automatically select the target product or service to be presented to the user "based on the lowest price available." EX1005, 19:29-32. Therefore, the combination of Chen and Barnes renders claim 8 obvious.

9. Claim 9: "The method of claim 7, the method further comprising: obtaining, by the computer system, user profile information associated with the user, wherein the user profile information indicates a predetermined set of sellers associated with the user, wherein selecting the seller comprises selecting the seller from the predetermined set of sellers indicated by the user profile information."

243. Chen in combination with Barnes renders claim 9 obvious. First, Chen discloses "obtaining, by the computer system, user profile information associated with the user." Chen discloses that the hybrid response system (the "computer" system") may determine "the target product or service . . . based on one or more predetermined user preferences." EX1005, 19:24-32. The predetermined user preferences are user profile information associated with the user, because they are "set by the user-account associated with the purchase request or speech segment." Id., 19:24-29; see also id., 4:35-37 ("user-account associated with voice requests"), 22:11-15 ("automated process" of hybrid response system may determine information about the user from "account information (e.g., past purchases and/or stored purchasing preferences)"). Chen thus discloses that the hybrid response system obtains "user profile information associated with the user," e.g., user preference information from a user account associated with the user making the purchase request.

244. Chen further discloses that "*the user profile information indicates a predetermined set of sellers associated with the user*." As I discussed above, Chen discloses obtain user profile information including the user's preferences. The

preferences may include the user's "preferred retailers," "specified stores or service providers or preferred brands." *Id.*, 4:10-13, 19:24-32; *see also id.*, 4:38-41 (appropriate product may be determined "by an automated response system, by a human guide, or by a combination of the two"); 22:8-15 ("an automated process" may determine a product based "user-account information that the user opted to make available to the hybrid response system"). Thus, a POSITA would have understood that Chen's "predetermined user preferences" indicating the user's preferred retailers and/or specified stores corresponds to "*user profile information indicat[ing] a predetermined set of sellers associated with the user*," because it is a "predetermined" set of retailers/stores/sellers that the particular user has indicated a preference for.

245. Chen further discloses that "selecting the seller comprises selecting the seller from the predetermined set of sellers indicated by the user profile information." For example, Chen discloses "selecting the target product or service based on" user preferences, such as "specified stores or service providers or preferred brands, among other possibilities." EX1005, 19:24-32; see also id., 4:10-13 (user preferences may include "preferred retailers"). Because the hybrid response system selecting the target product or service includes selecting an appropriate vendor from which the product or service can be purchased, a POSITA thus would have understood that the hybrid response system, when selecting the target product

or service based on the user's preferences, selects the seller from the predetermined set of sellers indicated by the user's preferred retailers / specified stores, if one is available. Therefore the combination of Chen and Barnes renders claim 9 obvious.

10. Claim 10: "The method of claim 7, the method further comprising: obtaining, by the computer system, a predetermined set of sellers specified by an administrator of the system that is different than the user, wherein selecting the seller comprises selecting the seller from the predetermined set of administrator-specified sellers."

246. Chen in combination with Barnes renders claim 10 obvious. First, the combination of Chen and Barnes discloses "*obtaining*, by the computer system, a predetermined set of sellers specified by an administrator of the system that is different than the user." For example, Barnes discloses retrieving vendor information "from a database (which may or may not be in the device) such as a service registry or directory that includes formats for the particular vender, the particular type of vender (e.g., a restaurant), the particular product (e.g., an airline ticket from a particular airline), the particular type of product (e.g., food), and/or the location of the vender (e.g., the country)." EX1006, [0121]. A POSITA would have found it obvious for a "service registry or directory" to be a "*a predetermined set of* sellers specified by an administrator of the system" who is different from the enduser of the system, because a typical responsibility for network administrators is to maintain network hardware and software, including registries and directories. See also id., [0351] (device "may use a predetermined service registry"), [0364] (device

communicates with a "service gateway computer system (SGCS)" that stores "the entire service registry for a given area").

247. Barnes further discloses "selecting the seller from the predetermined set of administrator-specified sellers." For example, as I discussed above for limitation [1.d], Barnes discloses searching the "local memory, a remote computer system, and/or" a "service registry" (containing "predetermined set of sellers" discussed above) to identify vendors that offer the requested product or service, in order to select a vendor based the results of respective vendor requests sent to each identified vendor. EX1005, [0121], [0169]-[0174]. Barnes thus discloses selecting the seller from the predetermined set of administrator-specified sellers stored in the "service registry," because the seller is selected from the identified vendors/sellers obtained by searching the service registry. In the combined system I discussed above for limitation [1.d], in which Chen's hybrid response system is modified to identify available vendors when selecting a product as taught by Barnes, a POSITA would have understood that the hybrid response system may select the seller from the predetermined set of sellers specified by an administrator in the same way as taught by Barnes. Therefore, the combination of Chen and Barnes renders claim 10 obvious.

[11.pre] "The method of claim 1, wherein completing the purchase transaction of the selected product or service comprises:"

248. As discussed above, Chen in combination with Barnes renders the method of claim 1 obvious.

[11.a] "obtaining, by the computer system, payment information with which to pay for the selected product or service; and"

249. Chen in combination with Barnes renders this limitation obvious. As discussed for claim 3, Chen discloses that completing the purchase includes *"obtaining, by the computer system, payment information with which to pay for* the selected product or service." For example, the hybrid response system (the "computer system") obtains and makes use of "user information" stored in "a useraccount associated with voice requests," or "derived from a linked user-account that is a separate purchasing account, such as Google Wallet," to "facilitate[] the sending of orders." EX1005, 4:35-43, 19:62-67 ("user data" may include "information stored specifically for purchases (e.g., credit card information, purchase history, purchasing preferences, among other possibilities)"). The user information includes payment information with which to pay for selected products and services such as "credit card information." Id., 4:35-43, 4:49-52 (user information may include "information for several of the user's credit cards and an order of preference for using the cards"). Chen in combination with Barnes therefore renders limitation [11.a] obvious.

[11.b] "obtaining, by the computer system, shipping information with which to deliver the selected product or service, wherein the shipping information specifies a name or address of a recipient to which the selected product or service is to be delivered after the selected product or service is purchased, and wherein the purchase transaction is completed based on the payment information and the shipping information."

250. Chen in combination with Barnes renders this limitation obvious. As discussed for claim 4, Chen discloses that completing the purchase includes *"obtaining, by the computer system, shipping information with which to deliver* the selected product or service, wherein the shipping information specifies a name or address of a recipient to which the selected product or service is to be delivered after the selected product or service is purchased." For example, Chen discloses that the hybrid response system (the "computer system") obtains "user information" stored in "a user-account associated with voice requests," or "derived from a linked user-account that is a separate purchasing account, such as Google Wallet," to "facilitate[] the sending of orders." EX1005, 4:35-43, 19:62-67. The user information includes "shipping information" such as "a default shipping address, a preferred shipping carrier," etc., for which to deliver selected products or services. Id., 4:35-43, 4:49-52. The shipping information, e.g., "default shipping address," specifies an address of a recipient to which the selected product or service is to be delivered after it is purchased. See id., 4:59-61.

251. As discussed for claims 3 and 4, Chen further discloses "wherein the purchase transaction is completed based on the payment information and the

shipping information." For example, after the hybrid response system determines the appropriate product (by "an automated response system, by a human guide, or by a combination of the two") and receives a "purchase approval response" from the user (e.g., the user speaking "buy"), the hybrid response system sends the payment information and shipping information "with the order" to complete the purchase, which is "conducted with the user's provided credit card information and shipped to the user's default shipping address." EX1005, 4:35-41, 4:59-61, 22:22-24; *see also id.*, 19:55-62 ("the purchase order comprises user data from the associated user-account," including "credit card information"), FIG. 7 (illustrating the hybrid response system providing a purchase confirmation: "Purchase confirmed. Shipping via FedEx to arrive by February 2nd. Tracking No. XYZ123"). Chen in combination with Barnes therefore renders limitation [11.b] obvious.

12. Claim 14: "The method of claim 11, the method further comprising: completing, by the computer system, the purchase transaction without receiving confirmation of the payment information or the shipping information by the user."

252. Chen in combination with Barnes renders claim 14 obvious. Chen discloses "completing, by the computer system, the purchase transaction without receiving confirmation of the payment information or the shipping information by the user." As discussed for claims 3 and 4, Chen discloses that after the hybrid response system determines the appropriate product, and responsive to receiving a "purchase approval response" from the user (e.g., the user speaking "buy"), the

hybrid response system sends the payment and shipping information "with the order" to complete the purchase. EX1005, 4:35-41, 4:59-61, 22:22-24; see also id., 19:55-62 ("the purchase order comprises user data from the associated useraccount," including "credit card information" and "shipping preferences"), 18:38-46 ("the hybrid response system sends a purchase order, via the associated-user account"). The hybrid response system may send the purchase order without receiving confirmation of the payment or shipping information by the user. For example, in the example shown in FIG. 7 of Chen, the hybrid response system completes the purchase transaction for "Brand X model 1 basketball shoes" responsive to receiving the user's spoken utterance "Buy," without receiving confirmation of the payment information or the shipping information from the user. EX1005, FIG. 7. Chen in combination with Barnes therefore renders claim 14 obvious.

13. Claim 15

[15.pre] "The method of claim 1, the method further comprising:"

253. As discussed above, Chen in combination with Barnes renders the method of claim 1 obvious.

[15.a] "providing, by the computer system, without further user input after the receipt of other than the single first user input, a request for user confirmation to complete the purchase transaction for the selected product or service, wherein the second user input is received responsive to the request;"

254. Chen in combination with Barnes renders this limitation obvious. First, Chen discloses that the hybrid response system (the "computer system") provides "a request for user confirmation to complete the purchase transaction for the selected product or service." For example, the hybrid response system, after determining the target product or service, may prompt the user "to confirm the purchase before it is finalized" by presenting the user with a "purchase-approval request" that includes information identifying "the target product or service, the price of the product or service, the vendor," etc. EX1005, 4:38-46, 20:9-15. The purchase-approval request may further include instructions for the user confirm the purchase, such as a prompt for the user to "Speak 'buy' to purchase." Id., 22:16-24. FIG. 7 of Chen shows an example in which the hybrid response system provides the purchase-approval request ("Brand X model 1 basketball shoes are \$99.99 with free shipping at the Yangtze online store. Speak 'buy' to purchase") that requests the user to provide "confirmation to complete the purchase transaction for the selected product or service" by speaking "Buy."



See id., 22:16-24, FIG. 7.

255. In addition, Chen discloses providing the request for user confirmation *"without further user input after the receipt of other than the single first user*

input." For example, in the example shown in FIG. 7, the hybrid response system provides the purchase-approval request ("Brand X model 1 basketball shoes are \$99.99 with free shipping at the Yangtze online store. Speak 'buy' to purchase") without further user input other than the single first user input "Buy Brand X basketball shoes for me." EX1005, 21:53-22:24, FIG. 7. In addition, Chen further describes "personaliz[ing]" the user's voice request (corresponding to the "single first user input") "based on user-account information," e.g., by determining "that the particular user wears size 11 shoes." *Id.*, 22:8-15. This enables the hybrid response system to determine the target product and provide the request for confirmation without needing to receive any "further user input" other than "the single first user input," even if the single first user input is missing information such as the user's shoe size. *Id.*

256. Chen further discloses that "the second user input is received responsive to the request." After the hybrid response system presents the purchase-approval request (the claimed "request"), if the user is "satisfied with the details of the purchase-approval request, [they] may then speak a command, such as 'buy,' that is sent to the hybrid response system" to complete the purchase. *Id.*, 20:9-18. As discussed for limitations [1.f] and [1.g], the user speaking the command "Buy" is the claimed "second user input." Because the hybrid response system receives the second user input when the user reviews and is "satisfied with the details of the

purchase-approval request," a POSITA would have understood that the "second user input" is received "responsive to the" provided purchase-approval request. *See id.* Chen in combination with Barnes therefore renders limitation [15.a] obvious.

[15.b] "determining, by the computer system, that the user has confirmed the purchase transaction based on the second user input, wherein the purchase transaction of the selected product or service is completed based on the determination."

257. Chen in combination with Barnes renders this limitation obvious. Chen discloses "determining, by the computer system, that the user has confirmed the purchase transaction based on the second user input, wherein the purchase transaction of the selected product or service is completed based on the determination." For example, Chen's hybrid response system (the "computer system") determines that the user has confirmed the purchase based on the second user input when the user "speak[s] a command, such as 'buy," which sends "a purchase approval response to the hybrid response system." EX1005, 20:15-18, 22:22-24. Responsive to receiving the second user input, the hybrid response system completes the purchase by "send[ing] a purchase order, via the associated useraccount, for the target product or service" based on the determination that second user input was a "purchase approval response." EX1005, 18:43-46, 19:55-67, 20:9-18, 20:46-54 (describing that in some embodiments, hybrid response system can automatically send a purchase order if "the confidence level is greater than or equal to a threshold level," or may "involve the hybrid response system sending [the]

purchase-approval request"), 22:22-24; *see also id.*, 9:19-26 (describing that the hybrid response system analyzes each received segment to determine whether it "constitutes . . . a command . . . that is actionable"). Chen further discloses that the hybrid response system, upon completing the purchase, may send "a confirmation-of-purchase message" to be presented to the user via the client device, containing information about the completed purchase such as "a tracking number, a confirmation number, and/or a message indicating the purchase is complete." *Id.*, 20:19-24. For example, in the example illustrated in FIG. 7 of Chen, the client device "receive[s] a confirmation message" from the hybrid response system and displays a screen with a "confirmation card" indicating that the purchase transaction has been completed ("Purchase confirmed. Shipping via FedEx to arrive by February 2nd. Tracking No. XYZ123") based on the user's confirmation.



Id., 22:38-44, FIG. 7. Chen in combination with Barnes therefore renders limitation [15.b] obvious.

258. The combination of Chen and Barnes renders claim 16 obvious for similar reasons as claim 1. The preamble of claim 16 recites "[a] system for providing voice commerce, the system comprising: one or more physical processors programmed with computer program instructions which, when executed, cause the one or more physical processors to: . . ." The claimed system is met by Chen's "hybrid response system," which, as discussed above for limitation [1.pre], is a "system" that implements a method "for providing voice commerce," and includes "a processor" this is programmed to execute "program code" to perform specific methods or functions. See EX1005, Abstract, 20:32-39, 23:9-21. Chen's hybrid response system thus corresponds to the claimed "system for providing voice commerce" comprising "one or more physical processors." Chen further discloses that the one or more physical processors of the hybrid response system are "programmed with computer program instructions which, when executed, cause the one or more physical processors to" perform various steps, because the processor is programmed with "program instructions" stored on a "non-transitory computer readable medium," and executes the instructions to perform "the functionality described" in Chen. Id., 12:46-52, 17:34-57. The remaining limitations of claim 16 are substantively identical to those of claim 1. Therefore, the combination of Chen and Barnes renders claim 16 obvious.

259. Claim 18 is substantively identical to claim 3 and is rendered obvious for the same reasons.

16. Claim 19

260. Claim 19 is substantively identical to claim 4 and is rendered obvious for the same reasons.

17. Claim 20

261. Claim 20 is substantively identical to claim 5 and is rendered obvious for the same reasons.

18. Claim 21

262. Claim 21 is substantively identical to claim 6 and is rendered obvious for the same reasons.

19. Claim **22**

263. Claim 22 is substantively identical to claim 7 and is rendered obvious for the same reasons.

20. Claim 23

264. Claim 23 is substantively identical to claim 8 and is rendered obvious for the same reasons.

21. Claim 24

265. Claim 24 is substantively identical to claim 9 and is rendered obvious for the same reasons.

266. Claim 25 is substantively identical to claim 10 and is rendered obvious for the same reasons.

23. Claim 26

267. Claim 26 is substantively identical to claim 11 and is rendered obvious for the same reasons.

24. Claim 29

268. Claim 29 is substantively identical to claim 14 and is rendered obvious for the same reasons.

25. Claim 30

269. Claim 30 is substantively identical to claim 15 and is rendered obvious

for the same reasons.

26. Claim 31

[31.pre] "A method for providing voice commerce, the method being implemented on a computer system having one or more physical processors programmed with computer program instructions which, when executed, perform the method, the method comprising:"

270. This limitation is identical to limitation [1.pre] and is rendered obvious

for the same reasons.

[31.a] "receiving, by the computer system, a single first user input comprising a natural language utterance;"

271. This limitation is identical to limitation [1.a] and is rendered obvious

for the same reasons.

[31.b] "recognizing, by the computer system, one or more words or phrases from the natural language utterance;"

272. Chen in combination with Barnes renders this limitation obvious. As discussed for limitation [1.c], Chen discloses "obtaining, by the computer system, one or more words or phrases recognized from the natural language utterance as an output of the speech recognition engine." In addition, Chen discloses "*recognizing, by the computer system, one or more words or phrases from the natural language utterance*" because it discloses that the hybrid response system (the "*computer system*") includes a "transcription module" that applies a "speech-to-text process to generate text corresponding to the voice input" that includes the natural language utterance. EX1005, 8:36-39. The transcription module recognizes the "*one or more words or phrases*" from "*the natural language utterance*" received as a speech-segment message of the voice input, to generate the text. Chen in combination with Barnes therefore renders limitation [31.b] obvious.

[31.c] "searching, by the computer system, one or more databases of products or services based on the one or more recognized words or phrases from the single first user input, and without using further user input other than the single first user input;"

273. Chen in combination with Barnes renders this limitation obvious. As discussed for limitation [1.d] above, Chen in combination with Barnes discloses "searching, by the computer system, one or more databases of products or services based on the one or more words or phrases." For example, Chen discloses that the hybrid response system (the "computer system") may provide "an automated

identification of a target product or service in response to the [user's] voice request," by "[f]inding a target product or service . . . through a series of queries." EX1005, 1:38-39, 4:66-67, 18:40-43. A POSITA would have found it obvious for the hybrid response system to use the series of queries to search one or more databases. In addition, as discussed above, to the extent Chen does not explicitly disclose searching one or more databases, a POSITA would have been motivated to modify Chen's hybrid response system to identify a requested product or service based on the teaching of Barnes, by searching one or more databases of products or services based on the one or more words or phrases of the user's voice input to find a product and available vendors offering the product. *See* EX1005, 22:1-8; EX1006, [0167]-[0174].

274. In addition, Chen in combination with Barnes discloses that the hybrid response system performs the searching "*without using further user input other than the single first user input*." For example, Chen illustrates that the hybrid response system, in response to a voice request for "Brand X basketball shoes," performs a search "[l]ooking for places to buy brand X basketball shoes in men's size 11." EX1005, 21:53-22:24; FIG. 7 (reproduced below).



275. As discussed for limitation [1.d] and above, in the combined system, the hybrid response system performs the search by searching "one or more databases of products or services based on the one or more recognized words or phrases from the single first user input." As illustrated in FIG. 7 of Chen, the hybrid response
system conducts the search without using further user input other than the single first user input, as there are no further user inputs that occur prior to completion of the search. *See id.*, FIG. 7. The combination of Chen and Barnes therefore renders limitation [31.c] obvious.

[31.d] "causing, by the computer system, a set of search results to be presented to a user based on the search, the search results indicating one or more products or services from the database available for purchase;"

276. Chen in combination with Barnes renders this limitation obvious. First, Chen discloses that the hybrid response system (the "*computer system*") causes "*a* set of search results to be presented to the user based on the search," e.g., by providing "an automated identification of a target product or service in response to the [user's] voice request" that is presented to the user via a client device. EX1005, 20:9-18. For example, the hybrid response system causes the client device to present a "purchase-approval request" to the user that includes "an identification of the target product or service." Id.; see also id., 22:16-24, FIG. 7 (illustrating receiving a response to the user's voice request presenting a target product available for purchase: "Brand X model 1 basketball shoes are available for \$99.99 with free shipping from the Yangtze online store. Speak 'buy' to purchase"). The presented target product or service corresponds to "a set of search results to be presented to a *user based on the search*" conducted by the hybrid response system.

277. In addition, Chen in combination with Barnes renders obvious that the search results are "indicating one or more products or services from the database available for purchase." The claimed term "the database" lacks antecedent basis. For my analysis, I assume "the database" in this limitation refers to the "one or more databases" of limitation [31.c]. As discussed for limitation [1.e], Chen discloses identifying the target product or service via "a series of queries," which a POSITA would have found obvious are used to search one or more databases of products or services. EX1005, 4:66-5:1; see also id., 22:6-8 (Hybrid response system is "Looking for places to buy" requested product). Furthermore, in the combined system with Barnes, the hybrid response system selects the target product or service from the one or more searched databases, e.g., databases of vendor information and/or databases of one or more "vender computers systems (VCSs)," by selecting the target product or service available from a particular vendor. EX1006, [0166]-[0174]. The target product or service is also "available for purchase," as the user can purchase the product or service by sending a purchase approval response, e.g., by speaking "buy." See EX1005, 22:16-24. Thus, the presented target product or service corresponds to a set of search results "indicating one or more products or services from the database available for purchase."

278. In addition, if the Patent Owner argues that "*causing*... *a set of search results to be presented*" requires the presentation of multiple search results (e.g.,

multiple products or services), the combination with Barnes renders this obvious. For example, Barnes discloses identifying a set of "venders offering the product (or who might offer the product)," and receiving search results generated from searching the VCS databases of the identified vendors. EX1006, [0166], [0174]. Once received, Barnes discloses "sort[ing] the responses from the venders according to price and display[ing] the data in order of ascending price," where the user can select a presented result "to purchase the product from a particular vender." *Id.*, [0177]-[0178]. Thus, Barnes discloses causing a set of search results to be presented to a user based on the search that includes multiple search results.

279. A POSITA would have found it obvious to modify the hybrid response system, in the combination, to be able to display multiple search results as taught by Barnes, to give the user additional flexibility by being able to choose between multiple purchase opportunities that may satisfy their request. For example, in the example dialogue shown in FIG. 7 of Chen, a POSITA would have found it obvious for the hybrid response system in the combined system to, if it finds the requested "Brand X model 1 basketball shoes" available from multiple different vendors, to present multiple results to the user, e.g., "in order of ascending price." A POSITA would have been motivated to make this modification to provide the user of the hybrid response system with additional flexibility when making purchasing decisions, e.g., by allowing them to purchase the lowest priced option, or choose another option if the user "prefers certain brands or prefers to purchase via a certain account associated with the user even if the price is not the lowest for a given product or service." EX1005, 19:36-42. A POSITA would have had a reasonable expectation of success because the combination is a simple substitution of one known technique (presenting multiple selectable search results) for another (presenting a selectable search result) to obtain predictable results (e.g., providing the user with the ability to select between multiple search results). The combination of Chen and Barnes therefore renders limitation [31.d] obvious.

[31.e] "receiving, by the computer system, a second user input comprising a selection from the set of search results, the selection identifying one or more products or services from the database to be purchased on behalf of the user based on the second user input;"

280. Chen in combination with Barnes renders this limitation obvious. As discussed for limitation [1.f], Chen renders obvious "*receiving, by the computer system, a second user input*." For example, the hybrid response system (the "*computer system*") receives the "*second user input*" when the user confirms a purchase by speaking a command, "such as 'buy,' that is sent to the hybrid response system." EX1005, 4:38-46, 20:15-24.

281. In addition, Chen in combination with Barnes renders obvious that the "second user input" comprises "a selection from the set of search results . . . identifying one or more products or services from the database to be purchased on behalf of the user based on the second user input." For example, a POSITA would

have understood that by providing the second user input, e.g., a spoken command such as "buy," the user selects the currently presented target product or service to be purchased. See also id., 20:15-18 (the user speaks "buy" if "the user is satisfied with the details of the purchase-approval request"). This corresponds to the claimed "selection from the set of search results" because it identifies "one or more products or services from the database to be purchased on behalf of the user based on the received second user input." For example, as illustrated in FIG. 7 of Chen, the hybrid response system causes the user's client device ("HMD") to display a set of search results "indicating one or more products or services from the database available for purchase," e.g., "Brand X model 1 basketball shoes . . . from the Yangtze online store." EX1005, 22:16-24, FIG. 7. The hybrid response system receives the second user input (the user speaking "buy"), which comprises a selection that identifies one or more products, i.e., the presented Brand X model 1 basketball shoes from the Yangtze online store, to be purchased on behalf of the user. Id.

282. If the Patent Owner argues that the "second user input comprising a selection from the set of search results, the selection identifying one or more products or services from the database to be purchased on behalf of the user based on the second user input" requires the second user input to comprise a selection from multiple presented search results, the combination with Barnes renders this

obvious. For example, as discussed above, Barnes discloses presenting a plurality of vendor "responses" to the user, corresponding to products offered by different vendors. EX1006, [0177]. Upon "viewing the presented data of [the] one or more responses," the user "supplies an input . . . that . . . is a command to transmit a request to purchase the product from a particular vender." *Id.*, [0178]. Thus, Barnes discloses a second user input (e.g., a user-supplied command) that comprises a selection from the set of search results ("responses"), the selection identifying one or more products or services from the database to be purchased on behalf of the user based on the second user input, e.g., "the product from a particular vender." *Id.*

283. A POSITA would have found it obvious to modify Chen's hybrid response system to, in the combined system, receive a user input that selects from a set of multiple search results as taught by Barnes, to allow the user the ability to choose between multiple presented purchase opportunities that may satisfy their request. For example, in the example dialogue shown in FIG. 7 of Chen, a POSITA would have found it obvious for the hybrid response system in the combined system to, if it finds the requested product or service, e.g., "Brand X model 1 basketball shoes," available from multiple different vendors, present multiple results to the user and to prompt the user for a second input to select one of the presented results to "purchase the product from a particular vender" as taught in Barnes. A POSITA would have been motivated to make this modification to provide the user of the hybrid response system with additional flexibility when making purchasing decisions, e.g., by allowing them to select a specific option out of multiple presented options. A POSITA would have had a reasonable expectation of success because the combination is a simple substitution of one known technique (selecting between multiple presented options) for another (selecting a presented option) to yield predictable results. The combination of Chen and Barnes therefore renders limitation [31.e] obvious.

[31.f] "obtaining, by the computer system, user profile information associated with the user;"

284. Chen in combination with Barnes renders this limitation obvious. Chen discloses that the hybrid response system (the "*computer system*") obtains "user information" stored in "a user-account associated with voice requests," or "derived from a linked user-account that is a separate purchasing account, such as Google Wallet," to "facilitate[] the sending of orders." EX1005, 4:35-43; *see also id.*, 19:62-67 ("user data" may include "information stored specifically for purchases (e.g., credit card information, purchase history, purchasing preferences, among other possibilities)"). The "user information" corresponds to obtained "*user profile information associated with the user*." Chen in combination with Barnes therefore renders limitation [31.f] obvious.

[31.g] "identifying, by the computer system, payment information and shipping information based on the user profile information; and"

285. Chen in combination with Barnes renders this limitation obvious. As discussed for claims 3, 4, and limitations [11.a], and [11.b], Chen renders obvious "obtaining, by the computer system, payment information with which to pay for the selected product or service" and "shipping information with which to deliver the selected product or service." In addition, Chen discloses that the hybrid response system (the "*computer system*") identifies the "*payment information and shipping*" *information*," based on the "user information" stored in "a user-account associated with voice requests," or "derived from a linked user-account that is a separate purchasing account, such as Google Wallet," to "facilitate[] the sending of orders." EX1005, 4:35-43; see also id., 19:62-67 ("user data" may include "information stored specifically for purchases (e.g., credit card information, purchase history, purchasing preferences, among other possibilities)"). The user information corresponds to the claimed "user profile information," and includes payment information with which to pay for selected products and services such as the user's "credit card information," as well as "shipping information," e.g., "a default shipping address, a preferred shipping carrier," etc., for which to deliver selected products or services. Id., 4:35-43, 4:49-52 (user information may include "information for several of the user's credit cards and an order of preference for using the cards"). The hybrid response system identifies the payment and shipping

information "*based on the user profile information*," e.g., stored "user information," to be "sent with the order after an appropriate product is determined," so that the purchase can be completed using "the user's provided credit card information and shipped to the user's default shipping address." *Id.*, 4:38-41, 4:59-61. Chen in combination with Barnes therefore renders limitation [31.g] obvious.

[31.h] "completing, by the computer system, without further user input after identifying the payment information and the shipping information, a purchase transaction of the identified one or more products or services."

286. Chen in combination with Barnes renders this limitation obvious. First, as discussed above for limitation [1.g], Chen renders obvious "*completing, by the* computer system, ... a purchase transaction" of the selected product or service. In addition, Chen, alone or in combination with Barnes, discloses that the purchase transaction is of "the identified one or more products or services." For example, after the user inputs a "purchase approval response" (corresponding to the "second user input"), e.g., by speaking "buy," to select a presented target product or service, the hybrid response system of Chen (or of the combined system of Chen and Barnes) completes the purchase by "send[ing] a purchase order, via the associated useraccount, for the target product or service." EX1005, 18:43-46, 19:55-67, 20:9-18, 20:46-54 (describing that in some embodiments, hybrid response system can automatically send a purchase order if "the confidence level is greater than or equal to a threshold level," or may "involve the hybrid response system sending [the]

purchase-approval request" for user confirmation). The hybrid response system completes the purchase of the selected product or service and may send "a confirmation of purchase message" to be presented to the user via the client device, containing information about the completed purchase such as "a tracking number, a confirmation number, and/or a message indicating that the purchase is complete." *Id.*, 20:19-24. For example, in the example illustrated in FIG. 7 of Chen, the hybrid response system causes the client device to "receive a confirmation message," and display a screen with a "confirmation card" indicating "Purchase confirmed. Shipping via FedEx to arrive by February 2nd. Tracking No. XYZ123." *Id.*, 22:38-44, FIG. 7.

287. A POSITA would further have found it obvious that the hybrid response system completes the purchase "*without further user input after identifying the payment information and the shipping information*." For example, Chen discloses that the hybrid response system identifies the payment and shipping information to be "sent with the order" so that the purchase is completed using "the user's provided credit card information and shipped to the user's default shipping address." *Id.*, 4:38-41, 4:59-61; *see also id.*, 19:55-56 ("In some embodiments, . . . the purchase order comprises user data from the associated user-account" such as "credit card information," "shipping preferences," etc.). A POSITA would have understood that the purchase is completed "*without further user input after identifying the payment*

information and the shipping information," because the hybrid response system completes the purchase using information from the associated user account and does not require the user to input any payment or shipping information.

288. In addition, a POSITA would have found it obvious for the hybrid response system to identify and send the payment and shipping information "with the [purchase] order" after the user has provided the "purchase approval response" corresponding to the "second user input," so that the hybrid response system completes the purchase "without further user input after identifying the payment information and the shipping information." To the extent that Chen-Barnes does not explicitly disclose the timing at which the payment and shipping information is identified, a POSITA would have found it obvious to identify it after receipt of the second user input, because the HRS may generate the purchase-approval request without the payment and shipping information. For example, as shown in Chen's FIG. 7, the hybrid response system generates a purchase-approval request indicating the price at which Yangtze online store offers the requested shoes and that Yangtze online store offers free shipping, without needing to have identified the user's payment and shipping information. Once the user approves of the presented product (via the "second user input"), the hybrid response system may identify the relevant payment and shipping information to send with the order. See also EX1005, 4:3941 (payment and shipping information "sent with the order after an appropriate product is determined").

289. In addition, in the combined system discussed above, the client device (e.g., an HMD) may present multiple products available at different vendors to the user, e.g., as taught by Barnes. See EX1006, [0177] (describing displaying multiple offers "in order of ascending price"). A POSITA would have found it obvious that when the user provides the second user input to select a specific offer "to purchase the product from a particular vender," the hybrid response system, to "send[] a purchase order, via the associated user-account, for the [selected] target product or service," identifies the purchase and shipping information to be sent as part of the purchase order to the particular vendor. EX1005, 18:43-46, 19:55-67; EX1006, [0177]-[0178]. As the user does not need to make any further inputs following the second user input for the purchase to be completed, Chen and Barnes render obvious that the hybrid response system completes the purchase without further user input after identifying the payment information and the shipping information to be transmitted to the specific selected retailer/vendor. Indeed, a POSITA would have recognized two possibilities: that the payment and shipping information is identified before receipt of the second user input, or that the payment and shipping information is identified after. A POSITA thus would have found it obvious to try, to the extent not explicitly disclosed by Chen and Barnes, to identify the payment and shipping information after the receipt of the second user input. For example, by identifying the payment and shipping information after the user has confirmed the purchase, the frequency at which the user's account containing the payment and shipping information is accessed may be reduced, potentially increasing security of the user's personal information. Chen in combination with Barnes therefore renders limitation [31.h] obvious.

27. Claim 32

[32.pre] "The method of claim 31, wherein recognizing the one or more words or phrases from the natural language utterance comprises:"

290. As discussed above, Chen in combination with Barnes renders the method of claim 31 obvious.

[32.a] "providing, by the computer system, the natural language utterance as an input to a speech recognition engine; and"

291. This limitation is identical to limitation [1.b] and is rendered obvious

for the same reasons.

[32.b] "obtaining, by the computer system, the one or more words or phrases recognized from the natural language utterance as an output of the speech recognition engine."

292. This limitation is identical to limitation [1.c] and is rendered obvious

for the same reasons.

28. Claim 33

[33.pre] "The method of claim 31, the method further comprising:"

293. As discussed above, Chen in combination with Barnes renders the method of claim 31 obvious.

[33.a] "obtaining, by the computer system, seller information describing one or more products or services available from one or more sellers via one or more remote information sources; and"

294. This limitation is identical to limitation [5.a] and is rendered obvious

for the same reasons.

[33.b] "storing, by the computer system, the seller information in the one or more databases."

295. This limitation is identical to limitation [5.b] and is rendered obvious

for the same reasons.

29. Claim 34: "The method of claim 31, wherein completing the purchase transaction without further user input after identifying the payment information and the shipping information comprises: completing, by the computer system, the purchase transaction without receiving confirmation of the payment information or the shipping information by the user."

296. As discussed above for claim 14, Chen in combination with Barnes renders obvious "completing, by the computer system, the purchase transaction without receiving confirmation of the payment information or the shipping information by the user." Chen in combination with Barnes renders claim 34

obvious for at least the same reasons.

30. Claim **35**

297. The combination of Chen and Barnes renders claim 35 obvious for similar reasons as claim 31. The preamble of claim 35 recites "[a] system for providing voice commerce, the system comprising: one or more physical processors programmed with computer program instructions which, when executed, cause the one or more physical processors to:...." As discussed for claim 16, the claimed system is met by Chen's "hybrid response system," which includes "a processor" programmed to execute "program code" to perform specific methods or functions. See EX1005, 20:32-39, 23:9-21. The remaining limitations of claim 35 are substantively identical to those of claim 31. Therefore, the combination of Chen and Barnes renders claim 35 obvious.

31. Claim 36

298. Claim 36 is substantively identical to claim 32 and is rendered obvious for the same reasons.

32. Claim 37

299. Claim 37 is substantively identical to claim 33 and is rendered obvious for the same reasons.

33. Claim **38**

300. Claim 38 is substantively identical to claim 34 and is rendered obvious for the same reasons.

E. Ground 6: Chen in combination with Barnes and Kennewick renders obvious claims 2 and 17

1. Claim 2: "The method of claim 1, wherein selecting the product or service further comprises: determining, by the computer system, a context based at least on the one or more words or phrases, wherein the product or service is selected based at least on the determined context."

301. Chen in combination with Barnes and Kennewick renders claim 2 obvious. First, Chen renders obvious "determining, by the computer system, a context based at least on the one or more words or phrases." As discussed above for limitation [1.c], Chen discloses the hybrid response system (the "computer system") obtains "one or more words or phrases recognized from the natural language utterance as an output of the speech recognition engine," i.e., the transcription module. For example, the transcription module sends the generated "text corresponding to the voice input" to a "categorization module" of the hybrid response system for further processing. EX1005, 8:36-46. The categorization module analyzes the received text to "classify" the speech segment, by "determin[ing] that [the] speech segment is of a particular type, [or] relates to a certain topic, . . . among other possibilities." Id., 9:42-47. The categorization module determines whether the text of the speech segment indicates that the speech segment is of a type that is "actionable," and classifies it as "a question, a command, a request, or another type of message that is actionable." Id., 9:19-26. For example, the categorization module can determine if the speech segment corresponds to a question seeking information (e.g., "where can I get lunch right now?") or a purchase

request (e.g., "buy those shoes for me."). *Id.*, 9:31-36. A POSITA would have understood that the categorization module's determining a "type of message" of the user's speech input, based on the generated text, corresponds to determining "*a context*" based on the words and phrases of the speech input. This is consistent with the disclosure of the challenged patent, which explains that context may comprise an indication of what the user intends to do. *See* EX1001, 12:50-57 ("a user input related to 'lawnmower" may have a context "indicating that the user intends to *buy* a lawnmower," emphasis added).

302. In addition, Chen discloses that "*the product or service is selected based at least on the determined context*." For example, if the categorization module determines that the text of the speech segment indicates a particular type of request, e.g., indicates a "purchase request," then the hybrid response system "determines a target product or service based on at least the purchase request." EX1005, 18:36-40. Thus, Chen's hybrid response system selects the target product or service based on the determined context, e.g., the context indicating that the user request is a purchase request.

303. In addition, Chen renders obvious selecting the product or service based on the determined context of the user request relating to certain types of products. *See* EX1005, 9:42-47 (classifying a speech segment as relating "to certain topic"). For example, Chen discloses an example in which the hybrid response system, in response to the user request "Buy the Brand X basketball shoes for me," determines from user account information "that the particular user wears size 11 shoes," and uses the information to select "brand X basketball shoes in men's size 11." EX1005, 21:64-22:15. A POSITA would have understood that the hybrid response system's selection of the product or service "brand X basketball shoes in men's size 11" is based on the determined context that the user's request relates to shoes, because it accesses the appropriate user account information relating to shoes to select the target product. *Id.* This is consistent with the disclosure of the challenged patent, which explains that a user input "related to 'lawnmower" may have a context "indicating that the user intends to buy a lawnmower." EX1001, 12:50-57.

304. In addition, to the extent that Chen and Barnes do not explicitly disclose "*determining, by the computer system, a context based at least on the one or more words or phrases*," the combination with Kennewick renders it obvious. As I discussed above, Kennewick discloses a "speech processing unit" that receives and processes a natural language utterance, by determining "the most[] likely context or domain" for each received utterance based on the recognized words or phrases of the utterance. EX1007, [0032]. For example, the speech processing unit includes a parser that "examines the tokens" corresponding to the recognized words and phrases and determines a context by "applying prior probabilities or fuzzy possibilities to keyword matching, user profile 110, dialog history, and context stack

contents." *Id.*, [0160]. The determined context "may determine the domain and thereby, the domain agent 156, if any, to be invoked," and may correspond to the type of command or action to be performed. *Id.*; *see also id.*, [0018] (describing different types of domains such as "query and response domains," "[c]ontrol domains," etc.). Thus, Kennewick discloses "*determining* . . . *a context based at least on the one or more words or phrases*" by examining the tokens of the recognized words and phrases for context and "applying prior probabilities or fuzzy possibilities to keyword matching, user profile 110, dialog history, and context stack contents." *Id.*, [0160].

305. A POSITA would have found it obvious to, in the combined system, apply Kennewick's teaching of determining a context by examining the recognized words or phrases ("tokens") of the user's input and "applying prior probabilities or fuzzy possibilities to keyword matching, user profile 110, dialog history, and context stack contents" to improve and enhance the ability of Chen's "categorization module" to analyze and categorize the text corresponding to the user's speech as relating to "a particular type" or to a "certain topic." *Id.*; EX1005, 9:19-50. This would allow for the hybrid response system to more accurately determine the context of the user's request, by accounting for additional factors such as "previous questions, knowledge of the domain, or the user's history of interests and preferences," and using "probabilistic and fuzzy reasoning" to make the context

determination process more "robust[] to partial failure." EX1007, [0007], [0011]. In the combination, the hybrid response system would be modified to determine the appropriate context of the user's request using any of the techniques taught by Kennewick, and select the product or service based at least on the determined context (e.g., type of request or topic of request) as taught by Chen and Barnes. *See, e.g.*, EX1005, 1:38-39, 18:40-43, 21:53-58, 22:16-24, FIG. 7; EX1006, [0167]-[0177].

306. In addition, given Kennewick's disclosure of different domains correspond to different types of products and services (e.g., fast food, travel, etc.), a POSITA would have found it obvious to incorporate Kennewick's teachings of determining context to determine a "certain type of good" relating to the user's request to Chen's hybrid response system, allowing for the relevant user-account information to be accessed. *See* EX1005, 19:33-42, 22:8-15; EX1007, [0018]. Doing so would improve the ability of Chen's hybrid response system to more accurately access information about the user that pertains to specific types of goods or services.

307. In my opinion, a POSITA would have been motivated to combine Chen and Barnes with Kennewick. The references are analogous, all relating to speechbased interfaces through which a user can use natural language utterances to search for and purchase products. *See, e.g.*, EX1005, Abstract, 1:38-40, FIG. 7; EX1006, [0032], [0164], [0167]-[0179]; EX1007, Abstract, [0018], [0066]-[0068].

Furthermore, Chen discloses categorizing received user requests to determine whether the user request is "actionable," and if so, whether it "is of a particular type [or] relates to [a] certain topic." EX1005, 9:19-50. Chen's hybrid response system may take different actions based on the categorization, e.g., if the user's request is "a question, such as 'where can I get lunch right now?" or "a command or an instructions, such as 'buy those shoes for me."" Id.; see also id., 18:54-19:4 (describing processing a variety of different types of queries and commands, include commands to buy "product X," "Reserve Hotel X," "Book a flight," "Rent a fourdoor sedan," etc.). Kennewick, in turn, recognizes the benefits of analyzing user requests to categorize them under different contexts and domains, to be able to take advantage of domain-specific vocabularies and resources to respond to the different types of requests. See, e.g., EX1007, [0017]-[0018], [0160] ("The context of a question or command may determine the domain and thereby, the domain agent 156, if any, to be invoked."). For example, Kennewick discloses that questions may be directed to "query and response" domain agents, while command may be directed to other "Command oriented domain agents," and discloses implementing a variety of different domains or applications through which a user can purchase different categories of products or services, such as "fast food ordering," "[t]ravel services" and "reservations," "remote ordering and payment for goods and services," etc. EX1007, [0018], [0066]-[0085], [0167], [0177]. Kennewick further discloses

specific techniques for categorizing received user requests, by "applying prior probabilities or fuzzy possibilities to keyword matching, user profile 110, dialog history, and context stack contents," to enable context determination that is more "robust[] to partial failure" and "promote[] the feeling of a natural response to questions and commands." *Id.*, [0011], [0160]. A POSITA in possession of Chen, Barnes, and Kennewick would therefore have been motivated to combine them, e.g., by modifying Chen's categorization of user requests into different actionable types and topics to make use of "prior probabilities or fuzzy possibilities [applied] to keyword matching" and other information such as user profiles, dialog history, etc. as taught by Kennewick, to create a more robust speech system that is able to provide a more natural environment for users making different types of requests.

308. A POSITA would have been motivated to make this modification, as it is a combination of prior art elements disclosed in Chen, Barnes and Kennewick according to known methods to yield predictable results. Chen teaches categorizing user requests by analyzing the text of the user's speech, e.g., "analyz[ing] whether the received text includes speech to which a response can be provided," to recognize and categorize different types of user requests. EX1005, 9:19-50. Kennewick further discloses that this analysis may make use of "prior probabilities or fuzzy possibilities," as well as other factors such as "user profile 110, dialog history, and context stack contents," to create a more robust interface when classifying user

requests as pertaining to a particular context or domain. EX1007, [0011], [0160]. A POSITA would have been motivated to make this combination because it provides a straightforward way to enhance how user requests are processed and categorized in Chen, by incorporating Kennewick's use of "applying prior probabilities or fuzzy possibilities to keyword matching, user profile 110, dialog history, and context stack contents" to determine the context of user requests and to invoke specific resources for performing different types of actions. A POSITA would have had a reasonable expectation of success because the combination is a simple substitution of one known technique (application of "prior probabilities or fuzzy possibilities" to determine context and classify requests) for another (analyzing speech text to classify requests) to obtain predictable results, and it improves Chen's response system by enabling more robust request classification so that users can interact with the system in a more natural way. A POSITA would have found this modification obvious as a combination of prior art elements according to known methods. Therefore, the combination of Chen, Barnes, and Kennewick renders claim 2 obvious.

2. Claim 17

309. Claim 17 is substantively identical to claim 2 and is rendered obvious for the same reasons.

F. Ground 7: Chen in combination with Barnes and Li renders obvious claims 12-13 and 27-28

1. Claim 12: "The method of claim 11, the method further comprising: "identifying, by the computer system, an intended recipient of the identified product or service based on the single first user input and/or the second user input, and wherein obtaining the shipping information comprises: obtaining, by the computer system, an address of the intended recipient."

310. Chen in combination with Barnes and Li renders claim 12 obvious. Chen discloses that the single user input may identify a recipient of the identified product or service, e.g., "buy those shoes for me," "Buy a cooler for me," and obtaining shipping information for the recipient, e.g., "a default shipping address." EX1005, 4:47-52, 9:31-34, 21:56-67.

311. To the extent that Chen and Barnes do not explicitly disclose "*identifying... an intended recipient of the identified product or service based on the single first user input and/or the second user input*" and "*obtaining... an address of the intended recipient*," the combination with Li renders it obvious. As I discussed above, Li discloses a system (e.g., "Inter Server") that, as part of processing a user request of the "single first user input and/or the second user input," determines an intended recipient by analyzing the words or phrases recognized from the input. For example, Li discloses that the user request may "include any data representing the user's intent relating to" a requested product or service, such as "a word string specifying an intended recipient of the Command and/or object, e.g., "Bill' or 'Mary'." EX1004, [0213]. For example, when processing a user request

that includes the word string "Buy and send flowers to Mary this Valentine's Day," Li discloses identifying the word "Mary" as "*an intended recipient*" of the request. *Id.* In addition, Li discloses obtaining a shipping address of the intended recipient, e.g., by obtaining "Social Network data" associated with the user, and "accessing the Social Network" to "identify the name and shipping address of the recipient," e.g., "Mary" for the user's request "Buy and send flowers to Mary this Valentine's Day." EX1004, [0293].

312. In the combined system, it would have been obvious to apply Li's teaching of identifying "an intended recipient of the identified product or service based on the single first user input and/or the second user input" associated with the user request to Chen's hybrid response system, to improve and enhance the types of requests that the hybrid response system is able to process. For example, Chen discloses that the hybrid response system analyzes the text of a user request to process and respond to a variety of different types of requests, such as questions where the user is seeking information (e.g., "where can I get lunch right now?") as well as commands to perform specific actions such as purchasing a product ("buy those shoes for me"), book a flight, reserve a hotel room, or rent a car. EX1005, 9:31-36, 18:52-19:4. A POSITA would have been motivated to modify Chen's hybrid response system based on the teachings of Li of analyzing the text of a request to identify an "intended recipient" pertaining to the request, to enhance the hybrid

response system's ability to respond to additional types of requests, e.g., requests to purchase products or services to be sent to others. For example, as discussed above, Chen discloses that the "*single first user input*" may be an utterance such as "Buy Brand X basketball shoes for me," and a POSITA would have found it obvious that in the combined system, Chen's hybrid response system would be able identify the "intended recipient" as "me," using the techniques taught by Kennewick. A POSITA would further have found it obvious that combined system would also be able to identify an intended recipient other than the user if one was included in the first user input, e.g., if the user said "Buy Brand X basket shoes *for Mary*," using the same teachings of Li.

313. In addition, a POSITA would have found it obvious to incorporate Li's teaching of obtaining shipping information (e.g., an address) for the intended recipient so that the purchased product or service is delivered to the correct recipient. Indeed, Chen discloses that the hybrid response system may have access to various web services, such as social networking services and address books. EX1005., 18:18-21. A POSITA would have found it obvious in the combination where Chen's hybrid response system is modified to identify an intended recipient based on the teaching of Li, to further obtain an address of the intended recipient based on social network data or an address book.

314. In my opinion, a POSITA would have been motivated to combine Chen and Barnes with Li. The references are analogous, all relating to speech-based interfaces through which a user can use natural language utterances to search for and purchase products. See, e.g., EX1005, Abstract, 1:38-40, FIG. 7; EX1006, [0032], [0164], [0167]-[0179]; EX1004, [0002], [0009], [0188]. This modification is a combination of prior art elements disclosed in Chen, Barnes and Li according to known methods to yield predictable results. For example, Chen teaches analyzing the text of the user's speech to categorize the user's request and determine what topic the request relates to. EX1005, 9:19-50. Li further discloses that this analysis may be used to identify specific data such as an "intended recipient." EX1004, [0213]. A POSITA would have motivated to make this combination and incorporate this functionality into Chen's hybrid response system, to increase the capabilities of the system to allow users to not only purchase products or services for themselves ("for me") but also for others. A POSITA would have had a reasonable expectation of success because the combination is a combination of known techniques for extracting information from text recognized from speech (analyzing recognized text to determine a type of question or command associated with the text and analyzing recognized text to determine an intended recipient of a command) according to known methods to yield predictable results. A POSITA would have found this modification obvious as the use of known techniques to improve a similar system in

a similar way. Therefore, the combination of Chen, Barnes, and Kennewick renders claim 12 obvious.

2. Claim 13: "The method of claim 12, wherein obtaining the address of the intended recipient comprises: accessing, by the computer system, an address book of the user, wherein the address book comprises an identification of the intended recipient and the address of the intended recipient."

315. Chen in combination with Barnes and Li renders claim 13 obvious. As discussed above, the combination of Chen, Barnes, and Li, renders obvious "obtaining the address of the intended recipient." In addition, as discussed above, Li renders obvious obtaining the address by "accessing . . . an address book of the user, wherein the address book comprises an identification of the intended *recipient and the address of the intended recipient*," e.g., by accessing the user's "Social Network data" to "identify the name and shipping address of the recipient." EX1004, [0293]. As explained above, a POSITA would have understood that a user's social network data may function as "an address book of the user." For example, a POSITA would have understood an address book may correspond to a collection of names and contact information (e.g., physical addresses, email addresses, phone numbers, etc.), and that a user's social network, to the extent that it includes names and contact information of the user's social network members, serves as an "address book."

316. In addition, Chen discloses that the hybrid response system (the "computer system") may have access to various web services, such as social networking services and address books. EX1005, 18:18-21. In the combined system, it would have been obvious to apply Li's teaching of accessing an address book of a user (e.g., Chen's "address book," or an address book as part of the user's social network data as taught by Li) to obtain an address for the intended recipient, to enhance the ability of Chen's hybrid response system to process requests pertaining to recipients other than the requesting user. Chen already discloses processing requests based on different types of user information that "a user has elected to make available via a user-account with the hybrid response system," including the user's payment information, location and/or shipping information, preferences, "calendar information, contact information, information related to past interactions with contacts," etc. EX1005, 7:11-35. Chen further discloses that a user may "link other user-accounts to the user's account with the hybrid response system," such as the user's "social-network accounts," and that the hybrid response system may access other web services such as address books. Id., 7:11-35, 18:18-21. A POSITA would have found it obvious for the user's linked social network account and/or address book to serve as an address book through which the name and address of the user's contacts can be obtained, e.g., as taught by Li. A POSITA would have been motivated to modify Chen's hybrid response system to be able to

make use of this information as taught by Li, to enhance the functionality of the hybrid response system to allow users to purchase goods or services for themselves (e.g., "buy for me") or on behalf of others, e.g., individuals in their social network or address book. Therefore, the combination of Chen, Barnes, and Li renders claim 13 obvious.

3. Claims 27

317. Claim 27 is substantively identical to claim 12 and is rendered obvious for the same reasons.

4. **Claims 28**

318. Claim 28 is substantively identical to claim 13 and is rendered obvious for the same reasons.

G. Ground 8: Chen in combination with Barnes and Lee renders obvious claims 39 and 40

1. Claim 39

[39.pre] "The method of claim 1, the method further comprising:"

319. As discussed above, Chen in combination with Barnes renders the

method of claim 1 obvious.

[39.a] "presenting a prompt that identifies the selected product or service, the cost associated with the purchase of the selected product or service, payment information to pay the associated cost, and shipping information specifying where the selected product or service is to be delivered; and"

320. Chen in combination with Barnes and Lee renders this limitation obvious. First, Chen discloses "*presenting a prompt that identifies the selected*

product or service, [and] the cost associated with the purchase of the selected *product or service.*" For example, Chen discloses that the hybrid response system, after identifying a target product or service, may prompt the user "to confirm the purchase" by presenting the user with a "purchase-approval request" that "include[s] an identification of the target product or service, the price of the product or service, the vendor, the price of shipping, the shipping carrier, and/or the estimated arrival date, among other possibilities." EX1005, 4:44-46, 20:9-15; see also FIG. 7 (illustrating a purchase-approval request "Brand X model 1 basketball shoes are available for \$99.99 with free shipping from the Yangtze online store. Speak 'buy' to purchase" that identifies the selected product or service and the associated cost). Thus, Chen discloses "presenting a prompt that identifies the selected product or service" (the target product or service), and "the cost associated with the purchase of the selected product or service" ("the price of the product or service" and "the price of shipping"). A POSITA also would have found it obvious for the purchaseapproval request to include additional information such as payment information to pay the associated cost, and shipping information specifying where the selected product or service is to be delivered, because Chen recognizes that "other possibilities" may be included in the presented prompted. Id., 20:9-18.

321. To the extent that Chen and Barnes do not explicitly disclose the prompt (e.g., "purchase-approval request") identifying "*payment information to pay the*

associated cost, and shipping information specifying where the selected product or service is to be delivered," the combination with Lee renders this obvious. Lee is analogous art to Chen and Barnes, relating to e-commerce systems that facilitate online purchasing of goods and services, and includes storing information about the user, such as a user's payment and shipping information, to "facilitate[] faster checkout for [the] user." EX1008, [0003], [0014], [0024], [0029] (maintained "account information 185 associated with individual users"). As discussed above, Lee describes presenting to the user a "one-page checkout page" containing the "details of [a] purchase," which serves as a "prompt" for the user to "confirm the order." Id., Abstract, [0038]. Lee's system populates the "one-page checkout page" with information about the product or service to be purchased, a cost of the product or service, a "payment method" which meets the claimed "payment information to pay the associated cost," and shipping information including a "shipping address" which meets the claimed "specifying where the selected product or service is to be delivered." Id., Abstract, [0044]. For example, FIG. 5, reproduced below, shows an example of a "one-page checkout page" containing product, payment, and shipping information.



PayPal: The safer, easier way to pay. For more information, read our User Agreement and Privacy Policy

Id., FIG. 5.

322. A POSITA would have been motivated to modify Chen's hybrid response system based on the teachings of Lee, to include "*payment information to pay the associated cost, and shipping information specifying where the selected product or service is to be delivered*" as part of the "purchase-approval request" presented to the user. For example, while Chen discloses that a purchase-approval request "may include" certain types of information, a POSITA would have recognized other types of information relevant to the purchase may also be included. *See* EX1005, 20:9-15. Lee's "one-page checkout page" performs a similar function as Chen's "purchase-approval request," allowing the user to confirm whether the

"details of the purchase" are acceptable before giving their approval to make the purchase. EX1008, [0038]; EX1005, 4:44-46, 20:9-15. A POSITA thus would have been motivated to modify Chen's purchase-approval request to include additional relevant information associated with the purchase, such as payment information and shipping information as taught by Lee, to ensure that the user "is satisfied with the details of" the purchase before they "confirm the purchase." EX1005, 4:43-46, 20:9-18. Indeed, Chen already discloses presenting information such as "the price of the product or service, the price of shipping, the shipping carrier, and/or the estimated arrival date," and recognizes that "other possibilities" may be included. *Id.*, 20:9-18. A POSITA would thus have found it obvious to include payment information to pay the associated cost and shipping information corresponding to the address of the user as part of this information.

323. Therefore, a POSITA would have found it obvious to modify Chen to include shipping information as part of the presented prompt to the user as taught by Lee, because it is a combination of prior art elements (e.g., displaying payment and shipping information on a "checkout page," with displaying product, vendor, shipping price, etc. information to the user as part of a "response card") to yield predictable results (e.g., displaying product, cost, payment, and shipping information on a page). A POSITA would have found this modification obvious as displaying different types of information to a user was well known and would have had a reasonable expectation for its success. Furthermore, a POSITA would have found the modification obvious to try because Chen specifically notes that "other possibilities" may be displayed to the user before completing a purchase. EX1005, 20:9-18. Therefore, the combination of Chen, Barnes, and Lee renders limitation [39.a] obvious.

[39.b] "soliciting approval of the identified information as the second user input."

324. Chen in combination with Barnes and Lee renders this limitation obvious. For example, Chen discloses that the hybrid response system "*solicit*[s] approval of the identified information" (e.g., the information identified in the "purchase-approval request") "as the second user input," by prompting the user to make the second user input if they approve of the identified information (which, in the combined system discussed above, includes payment and shipping information). EX1005, 4:44-46, 20:9-18, 22:19-24. For example, the "purchase-approval request" may include a request for the user to "speak a command, such as 'buy," which solicits the user to provide the "second user input" if they approve of the identified information. Id., 20:9-18, 22:19-24 ("Brand X model 1 basketball shoes are available for \$99.99 with free shipping from the Yangtze online store. Speak 'buy' to purchase"). Therefore, the combination of Chen, Barnes, and Lee renders limitation [39.b] obvious.

Claim 40 2.

325. Claim 40 is substantively identical to claim 39 and is rendered obvious for the same reasons.

X. **CONCLUSION**

326. For the reasons I have presented above, it is my opinion that the references serving as the bases for the grounds of rejection in the Petition render claims 1-40 of the challenged patent unpatentable.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code.

Dated: 6/16/2025

Padraic Smyth Padhraic Smyth