

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

**SAMSUNG ELECTRONICS CO. LTD. and SAMSUNG ELECTRONICS
AMERICA, INC.**
Petitioners

v.

VB ASSETS, LLC,
Patent Owner

**IPR2025-00869
U.S. Patent No. 8,886,536**

**DECLARATION OF DR. ANATOLE GERSHMAN IN SUPPORT OF
PATENT OWNER'S PRELIMINARY RESPONSE**

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I, Anatole Gershman, do hereby declare and say as follows:

I. INTRODUCTION AND ENGAGEMENT

1. I have personal knowledge of the facts contained in this Declaration, am of legal age, and am otherwise competent to testify.

2. I have been retained by counsel for VB Assets LLC (“Patent Owner”), as an independent technical expert in the above-captioned proceeding. I have been asked to provide my opinion about the state of the art of the technology described in U.S. Patent No. 8,886,536 (“the ’536 patent”) and on the patentability of the claims of this patent.

3. The following is my written testimony on these topics. The opinions contained in this Declaration are based on the documents I reviewed, as well as my education, years of professional experience, and knowledge. The materials I have considered in reaching these opinions include the ’536 patent, the petition (Paper No. 3, hereinafter the “Petition”) and the exhibits or other material cited therein (*i.e.*, Exhibits 1001-1033), as well as Patent Owner’s Discretionary Denial Brief (Paper No. 8), the exhibits or other material cited therein, and any additional exhibits or other material cited in this Declaration.

4. This Declaration presents the opinions I have formed at the present time, and I reserve the right to revise, supplement, or amend my opinions stated in this Declaration based on any new information that I may be asked to review.

5. I understand that Samsung Electronics Co. Ltd. and Samsung Electronics America, Inc. (collectively, “Petitioners” or “Samsung”) filed a petition for *Inter Partes* Review (“IPR”) of the ’536 patent, in which Petitioners assert that:

- Claims 1-12, 16-23, 30, 32, and 50-55 are obvious over U.S. Publication 2005/0278180 to O’Neill and Hanna (“O’Neill” or “EX-1005”) and U.S. Publication 2007/0174258 to Jones and Bostic (“Jones” or “Ex. 1006”) (Ground 1);
- Claims 13-15, 24, and 33-38 are obvious over O’Neill and Jones, and further in view of U.S. Publication 2010/0125458 to Franco et al. (“Franco” or “EX-1007”) (Ground 2);
- Claims 25-26, 31, and 39-43 are obvious over O’Neill and Jones, and further in view of U.S. Patent 7,609,829 to Wang et al. (“Wang” or “EX-1008”) (Ground 3); and,
- Claims 27-29 and 44-49 are obvious over O’Neill and Jones, and further in view of U.S. Patent 6,513,006 to Howard and Junqua (“Howard” or “EX-1009”) (Ground 4).

6. I have been asked, for purposes of Patent Owner's Preliminary Response, to analyze and respond to particular assertions in the Petition. I reserve the right to analyze and respond to other alleged patentability challenges if this proceeding is instituted.

7. As explained below, in my opinion, the Petition fails to show that claims 1-55 of the '536 Patent are rendered obvious.

8. I am being compensated at a rate of \$500 per hour for my study and other work in this matter. I am also being reimbursed for reasonable and customary expenses associated with my work in this investigation. My compensation is not contingent on the outcome of this matter or the specifics of my testimony.

II. QUALIFICATIONS

9. My curriculum vitae, attached here as EX-2026, lists my qualifications. To summarize, I recently retired from my position as a Distinguished Career Professor in the Language Technologies Institute at Carnegie Mellon University, a position which I had held for 16 years. After retiring from CMU, from July 2023 through June 2024 I consulted with the University of Colorado, Department Linguistics, regarding a DARPA project that has since concluded. I received my Bachelor of Science and Master of Science Degrees in Mathematics and Computer Science from Moscow State Pedagogical University in 1971. I received a Ph.D. in

Computer Science from Yale University in May 1979. My dissertation was entitled “Knowledge-based Parsing” and focused on natural language processing.

10. My first job after graduation was as a researcher (Member of Technical Staff) at Bell Laboratories focusing on natural language access to Yellow Pages. In the 1980s I was a Vice-President of Cognitive Systems, Inc, a company dedicated to commercialization of natural language processing. At Cognitive Systems, Inc., we built systems that extracted information from natural language money transfer telexes and other financial documents for major banks, including Citibank and Union Bank of Switzerland. These systems were put in operation. We also built prototypes of interactive natural language kiosks that sold financial products such as insurance and investments as well as helped customers manage their investment portfolios. These prototypes were created for Citibank and Societe Generale de Banque, a major Belgian Bank.

11. From 1989 through 2006 I was leading applied research projects at Accenture, first as Director of Human Systems Integration Laboratory and later as Chief Scientist and Global Director of Research. At Accenture, we focused on the emerging Internet and Ubiquitous Computing applications creating prototype demonstrations of how these technologies could create revolutionary changes in a range of industries. In 1994, we launched the first internet shopping agent that helped users find the best deal on music albums. Our prototypes included interactive natural

language home appliances such as medicine cabinets, wardrobes, health mirrors, smart kitchens, etc., which were featured in national and international news media. These systems featured automated interactive spoken dialog capabilities combined with a variety of physical sensors that helped users maintain their health, pick the right clothing for the occasion, create healthy menus for the family, etc. However, due to the limitations of the speech recognition technologies at that time, practical applications were deemed premature.

12. In 2007, after my retirement from Accenture, I was invited to join the faculty of Language Technologies Institute, a department at the School of Computer Science at Carnegie Mellon University in Pittsburgh, PA as Distinguished Career Professor, the position I held until my retirement in June of 2023. At Carnegie Mellon University, I participated in a number of research projects sponsored by major US Government agencies such as DARPA, IARPA and NMEC as well as companies such as PriceWaterhouseCoopers and Accenture. In addition, I consulted with several major companies such as Bank of New York/Mellon and MetLife. All of these projects involve extensive use of natural language processing. In-depth extraction and interpretation of information from natural language documents is the central challenge of the two DARPA projects in which I participated. Specifically relevant to spoken dialog systems were the projects involving the analysis of customer service phone calls at MetLife, speech interactions with robotic vehicles

sponsored by the National Robotics Engineering Center – NREC at CMU, and a dozen of student projects exploring “in-depth” conversations with artificial agents.

13. After retiring from CMU in June of 2023, I consulted with the University of Colorado, Department of Linguistics on a DARPA project through June 2024.

14. During my 45 years of professional experience since earning my Ph.D., my focus has always been on intelligent systems and, in particular, on the knowledge that is necessary for systems to interact intelligently with their users. I have written more than 70 publications in the areas of natural language processing, the human-to-machine interface, artificial intelligence, and data science. I hold 13 US patents related to the human-to-machine interface, agent-based systems, customized media services, multimedia agents, e-commerce, and mobile object tracking.

III. LEGAL PRINCIPLES

15. For my opinions in this declaration, I understand that it requires applying various legal principles. As I am not an attorney, I have been informed and understand from counsel about various legal principles that involve my analysis. I have used my understanding of those principles in forming my opinions. I summarize those principles as I understand them below.

16. For example, I understand that Petitioners bear the burden of proving unpatentability in this proceeding by a preponderance of the evidence. I understand

that this preponderance of the evidence standard means that Petitioners must show that unpatentability is more probable than not

17. I understand that a claimed invention is not patentable under 35 U.S.C. § 103 if it is obvious. A patent claim is unpatentable if the claimed invention would have been obvious to a person of ordinary skill in the field (which I discuss below) at the time the claimed invention was made. This means that even if all of the requirements of the claim cannot be found in a single prior art reference that would anticipate the claim, a person of ordinary skill in the relevant field who knew about all this prior art would have come up with the claimed invention.

18. I have been informed and understand that the obviousness analysis requires evaluating the claim language as a whole, including comparing each and every limitation of the properly construed claim language to the prior art.

19. I further understand that the ultimate conclusion of whether a claim is obvious should be based upon several factual determinations. That is, a determination of obviousness requires inquiries into: (1) the level of ordinary skill in the field; (2) the scope and content of the prior art; (3) what difference, if any, existed between the claimed invention and the prior art; and (4) any objective factors bearing on obviousness.

20. I understand that, in determining the level of ordinary skill in the field that someone would have had at the time the claimed invention was made, I should

consider: (1) the levels of education and experience of persons working in the field; (2) the types of problems encountered in the field; and (3) the sophistication of the technology.

21. I understand that, in determining the scope and content of the prior art, in order to be considered as prior art, a reference must be analogous art. I also understand that to be analogous art, the reference must be either (1) from the same field of endeavor as the claimed subject matter, regardless of the problem addressed, or (2) if not in the same field of endeavor, reasonably pertinent to the particular problem with which the inventor is involved. I am also familiar with the premise that for a reference to be reasonably pertinent, it must have logically commended itself to an inventor's attention at the time of invention.

22. I understand that a patent claim composed of several elements is not proved obvious merely by demonstrating that each of its elements was independently known in the prior art. In evaluating whether such a claim would have been obvious, I may consider whether there is a reason that would have prompted a person of ordinary skill in the field to combine the elements or concepts from the prior art in the same way as in the claimed invention.

23. I understand that in order to show obviousness based on a single reference or a combination of references, a particular motivation to modify the

reference or combine the teachings in the references, and a reasonable expectation of success must be shown.

24. I understand that the art must evidence a motivation to combine or modify the independently known elements to arrive at the claimed invention and an explanation as to how or why the references would be combined to arrive at the claimed invention to solve the particular problem. I understand that a challenger must show that there was a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does in an obviousness determination. I also understand that it is not enough to prove obviousness merely by a showing that the references were capable of combination without a suggestion of the desirability of the modification.

25. I further understand that there is no single way to define the line between true inventiveness on the one hand (which is patentable) and the application of common sense and ordinary skill to solve a problem on the other hand (which is not patentable). For example, market forces or other design incentives may be what produced a change, rather than true inventiveness. I may consider whether the change was merely the predictable result of using prior art elements according to their known functions, or whether it was the result of true inventiveness. I may also consider whether there is some teaching or suggestion in the prior art to make the modification or combination of elements claimed in the patent. I may consider

whether the innovation applies a known technique that had been used to improve a similar device or method in a similar way. I may also consider whether the claimed invention would have been obvious to try, meaning that the claimed innovation was one of a relatively small number of possible approaches to the problem with a reasonable expectation of success by those skilled in the art.

26. I also understand, however, that I must be careful not to determine obviousness using the benefit of hindsight; many true inventions might seem obvious after the fact. I should put myself in the position of a person of ordinary skill in the field at the time the claimed invention was made and I should not consider what is known today or what is learned from the teaching of the patent.

27. Finally, I understand that any obviousness rationale for modifying or combining prior art must include a showing that a person of ordinary skill would have had a reasonable expectation of success. I further understand that whether a proposed modification or combination of the prior art has a reasonable expectation of success is determined at the time the invention was made.

IV. SUMMARY OF OPINIONS

28. In my opinion, Petitioners' proposed combination of O'Neill and Jones does not render obvious Claims 1-12, 16-23, 30, 32, and 50-55 of the '536 Patent (Ground 1).

29. In my opinion, Petitioners' proposed combination of O'Neill, Jones, and Franco does not render obvious Claims 13-15, 24, and 33-38 of the '536 Patent (Ground 2).

30. In my opinion, Petitioners' proposed combination of O'Neill, Jones, and Wang does not render obvious Claims 25-26, 31, and 39-43 of the '536 Patent (Ground 3).

31. In my opinion, Petitioners' proposed combination of O'Neill, Jones, and Howard does not render obvious Claims 27-29 and 44-49 of the '536 Patent (Ground 4).

V. LEVEL OF ORDINARY SKILL IN THE ART

32. I understand that Petitioners provide the following definition of a POSITA:

A person of ordinary skill in the art ("POSITA") would have had a bachelor's degree in computer science, computing engineering, electrical engineering, or 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.

Pet. at 6.

33. For purposes of this Declaration in support of Patent Owner's Preliminary Response, I offer no independent opinion of the level of ordinary skill

in the art but have adopted the definition proposed by Petitioners. I reserve the right to further address the level of ordinary skill in the art if this proceeding is instituted.

34. Each of the arguments below should be considered from the perspective of a POSITA in the field of the '536 Patent and during the relevant time frame (e.g., February 6, 2007). During that time frame, as described above and as illustrated in my CV (*see* EX-2026), I had at least the requisite level of skill and experience to be a person of ordinary skill in the art. Furthermore, I am familiar with the level of skill in the art that a POSITA would have had at the time, as during the relevant time frame I regularly supervised, interacted with, and taught persons who had this level of skill.

VI. PROSECUTION HISTORY OF THE '536 PATENT

35. I have reviewed the prosecution history of the '536 Patent (EX-1002). Application No. 14/016,757, which later issued as the '536 Patent, was filed on September 3, 2013 as a continuation of Application No. 13/371,870 (now Pat. No. 8,527,274), which is a continuation of Application No. 12/847,564 (now Pat. No. 8,145,489), which is a continuation of Application No. 11/671,526 (now Pat. No. 7,818,176). *See* EX-1002, 1-38.

36. The Applicant filed a Preliminary Amendment on November 5, 2013, cancelling Claims 1-20 and adding Claims 21-55. EX-1002, 39-55.

37. Next, on January 29, 2014, the Office issued a Non-Final Office Action rejecting Claims 49, 51, and 52 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention and Claims 21-25, 30-35, 39-46, and 55 under 35 U.S.C. § 102(e) as being anticipated by Ashton (U.S. Pat. Publ. No. 2007/0203736). The Examiner noted that Claims 26-29, 36-38, 47, 48, 50, 53, and 54 were objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form, and that Claims 49, 51, and 52 would be allowable if the § 112 objections were overcome. EX-1002, 62-76.

38. In response, on May 9, 2014, the Applicant amended Claims 21-23, 27, 28, 30, 33, 35, 36, 46, and 48-55 were amended, Claims 24-26 were cancelled, and Claims 56-78 were added. As part of the claim amendments, the Applicant amended Claims 26-29, 36-38, and 47-54 in accordance with the Examiner's indication of allowable subject matter and amended Claims 21 and 55 to include the subject matter of (now-cancelled) Claim 26, which Applicant argued rendered the § 112 objections moot. EX-1002, 85-111.

39. The Office subsequently issued a Notice of Allowance on June 5, 2014. *See* EX-1002, 295-300.

40. On August 26, 2014, the Applicant filed an amendment to Claims 56, 59, 77, and 78 to “to correct minor errors . . . that were discovered upon review of

the above-referenced application prior to payment of the issue fee . . . so that the phrase ‘a user’ is recited prior to the phrase ‘the user.’” EX-1002, 339-364.

41. On September 2, 2014, the Office then issued a notice to file corrected application papers to correct reference to parent Application No. 11/671,526. EX-1002, 377-379.

42. Then, the Office issued a Supplemental Notice of Allowance on September 8, 2014. EX-1002, 383-384.

43. On October 2, 2014, the Applicant submitted a Response to Notice to File Corrected Application Papers. EX-1002, 385-394.

44. The patent issued on November 11, 2014. EX-1002, 398.

45. The Applicant filed a Request for Certificate of Correction on February 3, 2015, to correct the spelling of one of the inventor’s names. EX-1002, 399-400. The Office accepted this request and issued the correction on April 28, 2015. EX-1002, 401-407.

VII. REBUTTAL TO GROUND 1

46. For the reasons below, it is my opinion the O’Neill-Jones combination does not render obvious claims 1-12, 16-23, 30, 32, and 50-55.

A. Overview of Asserted Art

1. O'Neill

47. Petitioners admit that O'Neill discloses an “automatic dialogue system” for conducting a dialogue with “telephone callers.” Petition, 7 (citing EX-1005, ¶[0003]). Specifically, O'Neill teaches that “[a] dialogue manager is a component of an automatic dialogue system that implements strategies to control the nature and sequence of interactions between the user and the automatic dialogue system.” EX-1005, ¶[0003]. O'Neill's automatic dialog system uses the “DARPA Communicator system.” EX-1005, ¶[0005]; *see also id.*, ¶¶[0006]-[0019] (describing DARPA Communicator system).

48. O'Neill's dialogue manager is provided by a “cohort of [computational] agents,” where “[e]ach agent is a specialist in a particular transactional area.” EX-1005, ¶[0073]. O'Neill refers to its automatic dialogue manager as “the improved dialogue manager.” EX-1005, ¶[0072].

49. O'Neill's improved dialogue manager is “based on, and implements, object oriented design principles to intuitively decompose the cross-domain dialogue management task” using “[o]bject-oriented (O) design [to] enable[] the separation of inheritable generic functionality from domain-specific, specialized functionality (wherein the domain-specific functionality is supported by the generic functional elements).” EX-1005, ¶[0072].

50. O'Neill's system includes "an assignment unit, a plurality of processing units each of which comprise one or more processing rules, and a plurality of data storage units; wherein the assignment unit receives a communication from a user, assigns the communication to a processing unit according to the communication's semantic content and stores information relating to the communication in a data storage unit; and the assigned processing unit processes the communication in accordance with the processing unit's processing rules and provides a response to the user." EX-1005, Abstract.

51. O'Neill's stated purpose is to "cop[e] with user-initiated shifts of discourse focus" where "rules have been developed for controlling transfers," which are "restricted to ensure that the improved dialogue manager elicits information in a clearly defined context." Ex. 1005, ¶[0235]. O'Neill discloses that its architecture is designed in accordance with that purpose. *Id.*

52. O'Neill maintains and restricts discourse focus using "rules controlling transfers between different agents [which] assists the improved dialogue manager in maintaining discourse context by preventing interruptions to a given data elicitation task." EX-1005, ¶[0075].

53. O'Neill does not address advertisements or disclose promotions. While O'Neill can include a processing unit "adapted to acquire payment details from a

user,” such functionality is included as part of the accommodation and event booking capabilities of O’Neill. EX-1005, ¶[0068].

2. Jones

54. Jones discloses “[t]argeted advertisements [that are] provided to mobile device users based on one or more keywords in words spoken by the mobile device users.” EX-1006, Abstract.

55. Jones claims priority to a U.S. Application titled “A Scaleable Search System Using Human Searchers,” filed January 23, 2006. EX-1006, ¶[0001] (citing U.S. Appl. No. 11/336,928).

56. Accordingly, Jones discloses “[a] system and method are disclosed for linking an advertisement to correspond to one or more keywords and presenting the advertisement responsive to a voice query determined to contain at least one of the keywords by a human searcher.” EX-1006, ¶[0009].

57. Jones discloses “extracting a keyword from the converted text and allowing a human searcher to select an advertisement for the keyword and providing the advertisement to the user.” EX-1006, ¶[0010].

58. Jones defines a “provider” as “a guide or paid searcher [who] is a human searcher.” Ex. 1006, ¶[0022]. Jones’s “human searcher” is someone “who has registered to handle requests, who may be a professional, an amateur and/or volunteer searcher.” *Id.*

59. Jones discloses “databases including data accumulated based on a knowledge base of the provider, etc., including text, image, multimedia, or any other electronic information.” *Id.*

60. Jones “receives voice requests or queries submitted by users or information seekers from user devices 12, delivers the requests to providers for processing and returns responses resulting from the processing by the providers to the users.” EX-1006, ¶[0023]. “The providers using provider systems 20 may identify at least one category, subcategory, keyword, or area of interest pertaining to which the provider is willing to accept requests.” EX-1006, ¶[0024]; *see also id.*, ¶[0041] (“[T]he provider may have the option to choose the advertisement that is sent to a user who submitted the query, which might be based upon the query and/or keywords and/or the provider’s assessment of which advertisement to send” and which “may be accomplished by selecting from advertisement(s) predefined by a provider chosen to handle the query.”).

61. Jones does not maintain user profiles, instead, Jones “assign[s] user identifier to the user device 12 on [the port from which a call originated] for a particular session.” EX-1006, ¶[0026].

62. Jones displays information and results in “an audio/video message recorded by a provider” as well as visually using “information [that] may include not only advertisements, but also information such as video, graphics, music, games,

web links, etc. that will interact with and be displayed to the user.” EX-1006, ¶¶0036], ¶¶0028] (“[I]f the user views an advertisement, or clicks on a link, or purchases a product or orders a service offered related to an advertisement . . . the database 18 may be updated to reflect additional ad revenue with a credit of points and/or compensation, if appropriate, to the provider (or searcher).”) (emphasis added).

63. Jones’s “database 18 may maintain information about provider (or human searchers), requests submitted from the user devices 12, results generated by the providers in response to the requests, advertisements presented to the users while corresponding requests are being processed by the system 10 including advertisements previously presented for requests pertaining to similar subject matter” using “a record of advertisements presented in response to queries containing particular keyword(s) and whether users interacted with the advertisements.” EX-1006, ¶¶0032].

64. Jones’s “database 18 may also maintain information associated with a number of advertisements presented while voice queries are being processed by the system 10, a number of times a particular advertisement is presented in association with one or more keywords, advertisements hand-selected by providers, etc.” EX-1006, ¶¶0031].

B. Petitioners Fail to Demonstrate Motivation to Combine O’Neill with Jones

65. In my opinion, a POSITA would not have been motivated to make Petitioners’ proposed combination.

66. Petitioners and their expert allege that a POSITA would have been motivated to combine O’Neill’s teachings regarding its interactive natural language dialogue system with the Jones system for providing targeted promotional content. Petition, 9; EX-1003, ¶161. I disagree.

67. I note that, while Petitioners use the same motivation to combine for all claims challenged in Ground 1, Petitioners’ proposed motivations to combine do not account for the differences between the challenged independent claims. For example, Claims 50-55 include limitations that require obtaining “user profile information associated with a user, wherein the user profile information specifies prior user interactions with items.” Petitioners assert that certain functionality in O’Neill and Jones address this limitation, and while I disagree with the merits of Petitioners’ arguments for the reasons discussed below, Petitioners’ alleged motivations to combine are lacking because they do not address this functionality. Petitioners do not explain why a POSITA would allegedly be motivated to combine teachings of Jones to arrive at the claimed invention including obtaining “user profile information associated with a user, wherein the user profile information specifies

prior user interactions with items.” Petitioners also fail to argue that a POSITA would have expected success in such a combination.

68. Petitioners and Mr. Lipoff offer four suggested motivations to combine to support the proposed combination. *See* Petition, 9-10; EX-1003, ¶¶160-169.

69. **First**, Petitioners allege that Jones “suggests the combination” and that “O’Neill also suggests the system can be combined with other systems.” EX-1003, ¶163 (citing EX-1006, [0025]; EX-1005, [0089]). In my opinion, the broad boilerplate statements identified by Petitioners do not demonstrate a motivation to combine the O’Neill and Jones references in the specific manner alleged in the Petition.

70. **Second**, Petitioners allege that “the systems disclosed in O’Neill and Jones are designed to help users with requests.” EX-1003, ¶164. This second alleged motivation to combine relies on Jones’s teaching that “the purpose of the system is to ‘receive[] voice requests or queries submitted by users or information seekers from user devices 12, deliver[] the requests *to providers* for processing and return[] responses *resulting from the processing by the providers* to the users.” *Id.* (emphasis added). Accordingly, Petitioners’ second alleged motivation is that “the systems are both designed to accomplish the same goal—*i.e., process and respond* to user requests,” which Petitioners admit is done by “providers” in Jones. *Id.* Petitioners also allege that “Jones and O’Neill both assist users with requests related to

identifying and connection with businesses, which would further motivate a POSITA to combine their respective teachings to enhance the combined system.”

Id. This motivation to combine is flawed because Petitioners and their expert never acknowledge that Jones defines “providers” as human searchers, thereby providing human-based assistance, while O’Neill’s purpose is to provide automated assistance to user requests. In my opinion, POSITA would see no reason to add Jones to O’Neill.

71. **Third**, Petitioners allege “the addition of the targeted advertising of Jones to the interactive dialogue system disclosed by O’Neill would provide opportunities to monetize and/or increase revenues of the interactive dialogue system, which the system in O’Neill is already designed to handle.” *Id.*, ¶165. But Petitioners do not consider that a POSITA would have understood Jones’ targeted advertising stems from human workers and, accordingly, in my opinion, Petitioners fail to explain why a POSITA would have reason to implement the Jones solution with O’Neill. Specifically, a POSITA would have understood that Jones does not have any automatic process to link keywords with advertisements, and instead, such linking only occurs with human provider involvement and those results are saved in Jones’s database. EX-1006, ¶¶[0009]-[0010], [0022]-[0024], [0030]-[0032], [0041]. O’Neill’s dialogue manager is automatic, and a POSITA would not have been motivated to look to a system that requires human involvement to modify O’Neill.

Moreover, a POSITA would have understood that Jones's "unguided search" is not "automatic" because the results of the unguided search require Jones's database to already be populated with historical results that Jones teaches only comes from human searcher involvement. Petitioners do not propose that a POSITA would have been motivated to deviate from Jones's disclosure to modify the system, including through combination with O'Neill, such that the database would be populated in any other way.

72. I disagree that a POSITA would be motivated to modify O'Neill with Jones because "adding the targeted advertising of Jones to O'Neill's interactive dialogue system would monetize the system" as Petitioners allege. Petition, 10; EX-1003, ¶165 (noting his opinion that adding the targeted advertising of Jones to the combination "would provide opportunities to monetize and/or increase revenues of the interactive dialogue system" in O'Neill). While O'Neill has payment processing means, such means are used to complete user requests such as booking a hotel. EX-1005, ¶[0068]. Jones's targeted advertising, which is presented to the user while the human searcher processes the user's request, runs counter to O'Neill's stated goal of maintaining discourse focus and completing one user request at a time. *Compare* EX-1005, ¶¶[0075], [0234]-[0235] *with* EX-1006, ¶[0028]. A POSITA would have understood that implementing Jones's targeted advertising, which interrupts a user's

request, to O'Neill's system would render O'Neill unsatisfactory for its originally intended purpose.

73. **Fourth**, Petitioners allege “the combination is nothing more than use of a known technique of targeted advertising (Jones) to improve a similar system that utilizes automatic speech recognition (O'Neill's interactive dialogue system)” and that “[b]oth Jones and O'Neill operate in the same way, as both systems rely on automatic speech recognition and processing to interact with a user who is requesting information from the systems.” EX-1003, ¶166. I disagree. The systems are not similar and do not operate in the same way. Jones's system does not automatically analyze natural language utterances to interact with the user's requests. Meanwhile, O'Neill is designed to avoid interruptions whereas the premise of Jones is to interrupt user requests with advertisements. Petitioners do not explain why a POSITA would allegedly be motivated to modify O'Neill's streamlined computational dialogue system with an interruption-based system having a foundation of human searchers. *Id.*, ¶164.

74. I note that Petitioners use the same four alleged motivations to combine for all challenged claims in Ground 1. However, independent Claims 50-55 differ from independent Claims 1 and 32 in that Claims 50-55 require obtaining user profile information associated with a user, tracking prior user interactions with items, and identifying categories of items based on the prior user interactions

specified by the user profile information. In my opinion, Petitioners' alleged motivations to combine (at Petition, 9-10) do not pertain to whether a POSITA would have been motivated to combine or modify either O'Neill or Jones to include such functionality. In my opinion, Petitioners' proposed motivations to combine would not have led a POSITA to arrive at the claimed invention of Claims 50-55. Specifically, Jones does not disclose user profiles. A POSITA would not have understood Jones to disclose information associated with a user nor prior user interactions with items.

75. In addition, although Petitioners do not explicitly admit that Jones's system utilizes human searchers (or even reference Jones's "providers"), Petitioners' alleged motivation to combine O'Neill with Jones hinges on teachings in Jones that are premised on the human "providers." Petition, 9-10; EX-1006, ¶[0022]. Petitioners never acknowledge this, and therefore Petitioners never explain why a POSITA would allegedly be motivated to modify O'Neill's computational dialogue manager with a human-based framework.

76. In my opinion, Jones's reliance on human searchers presents multiple problems with Petitioners' stated motivations to combine. For one, Petitioners do not address the issue at all, indeed Petitioners and their expert never acknowledge the human involvement in Jones's system in the first instance.

77. Petitioners seem to assume that a POSITA would have only considered Jones's selection of advertising which is based on keywords having been linked to advertisements, without considering how that linking occurred (indeed, Petitioners never address that aspect of Jones). Petition, 17-18, 42-43, 44-49. I disagree that a POSITA would have had such an understanding of Jones's disclosure. A POSITA would have reviewed Jones in its entirety and would have understood that Jones discloses linking keywords with advertisements using human searchers. Therefore, in my opinion, Petitioners rely on Jones's human-based system when they cite to Jones to disclose a system that "maintain[s] a record of advertisements" in a database and "[t]he system then accesses that information database when it selects and [sic] advertisement for the user. (EX-1006, ¶[0031])." Petition, 42; *see also id.*, 17-18 (relying on Jones's process for "looking up the keyword in an index having corresponding advertising" where the index is a database generated and populated by human searchers); EX-1006, ¶¶[0030]-[0033].

78. Jones describes a "database" that is populated with keywords and areas of interest which are identified and tagged by human searchers. EX-1006, ¶[0024]. For example, "[w]hen the server 16 receives a voice request from any of the user devices 12, the server 16, determines which provider(s), registered with the system 10 to handle requests and currently available, actually matches the request. The providers using provider systems 20 may identify at least one category, subcategory,

keyword, or area of interest pertaining to which the provider is willing to accept requests.” *Id.*

79. The results of this work are saved in the database. Jones explains that “[t]he database 18 may maintain information about provider (or human searchers), requests submitted from the user devices 12, results generated by the providers in response to the requests, advertisements presented to the users while corresponding requests are being processed by the system 10 including advertisements previously presented for requests pertaining to similar subject matter.” EX-1006, ¶[0032].

80. Petitioners rely on portions of Jones that pertain to Jones’s database 18 but do not consider that Jones’s database relies on human searchers to populate results. For example, as part of the proposed combination with O’Neill that allegedly satisfies Claims [1K]/[32K]¹, Petitioners cite to a portion of Jones that concerns Jones’s database (although Petitioners avoid using the word “database”). Petition, 17. Petitioners further rely on Jones’s database (this time explicitly referencing the database, but again ignoring the human involvement) to allegedly satisfy Claims

¹ Claim [1K] recites: “determining, by the one or more physical processors, promotional content based on the interpretation; Claim [32K] recites: “determine promotional content based on the interpretation.”

[30A]-[30C]², which Petitioners then rely upon to satisfy independent Claims [50D], [53D], [54D], and [55D]. Petition, 41-44 (Petitioners' positions for Claim [30A] are then relied upon to challenge independent Claims 50, 53, and 54).

81. Therefore, the proposed combination for independent Claims 1, 32, and 50-55 all depend on Jones's disclosure of a database. A POSITA would have understood that, without human involvement, Jones's database would not function as Jones teaches and Jones never considers a system that populates the database automatically or without human involvement. *See* EX-1006, ¶¶[0023]-[0024]; [0029]-[0032]. A POSITA would have therefore understood that the database leveraged searches (whether or not the search is guided by a human provider or unguided) are contingent on information populated by previous human searcher involvement. EX-1006, ¶¶[0030], [0046] ("The consumer 62 opting to conduct an

² Claim [30A] recites: "obtaining, by the one or more physical processors, user profile information associated with the user, wherein the user profile information specifies prior user interactions with items"; Claim [30B] recites: "identifying, by the one or more physical processors, categories of items based on the prior user interactions specified by the user profile information"; and Claim [30C] recites: "wherein determining the promotional content comprises determining a promotional item associated with one of the categories."

unguided search may also be provided with information stored in the database 18 (FIG. 1) including responses to previous requests, *data gathered by guide(s)* for responding to requests, etc., *which may be utilized to produce automated results* in response to the unguided search 61”) (emphasis added).

82. Indeed, even Jones’s figures depicting the unguided search that Petitioners rely upon also demonstrates that human providers (referred to as the ChaCha Guide in this embodiment) are required to clarify keywords. *See* EX-1006, ¶[0046] (“As illustrated in FIG. 3A, the ChaCha guide 64 may be consulted to clarify keyword(s) contained in the question submitted by the consumer 62 who opted to conduct the unguided search 61.”); *see also id.*, ¶¶[0043]-[0050]. In this way, Jones confirms the integral nature of human providers or guides to its system and framework—the database depends on human searcher work product and the system turns to human guides to intervene when a user’s utterance lacks clarity.

83. Petitioners regularly cite Paragraphs [0030]-[0031] of Jones to support their positions. *See* Petition 9, 12, 42-44. These paragraphs propose a use-case where a search can be done “without requesting assistance from a provider.” EX-1006, ¶¶[0030]-[0031]. But as I’ve explained, a POSITA would have understood such functionality would not exist without previous human involvement, which demonstrates that a POSITA would not have been motivated to implement Jones’s teachings at these paragraphs with a system (like O’Neill) that aims to be automatic.

84. For instance, Petitioners and their expert lean heavily on examples in Jones related to “a user searching for a location of a particular restaurant in Carmel, Ind.” EX-1006, ¶[0030]. But Petitioners never address the fact that Jones teaches the response in this example depends on the database that is compiled with human searcher work product. Likewise, Petitioners’ reliance on Jones’s next example relating to “restaurants in Indiana” is misplaced because the response depends on “data records in the database” such as an advertisement that “has been presented to similar previous queries.” EX-1006, ¶[0031]. A POSITA would have understood, based on Jones’s teachings discussed above, that such an advertisement would have only been presented for similar queries because of human searcher input: by tagging the utterance, identifying keywords, selecting the appropriate advertisement, and so on. Jones does not disclose any “data records” that would be available, without the human searchers’ involvement in the previous query, to provide an automatic response during an unguided search. Petitioners identify nothing in Jones that indicate how this would work.

85. A POSITA would have understood that it would not be trivial to modify a computational dialogue system (as in O’Neill) with solutions that depend on human involvement (as in Jones). For example, a POSITA would have understood that Jones does not teach an alternative to populating its database that does not rely upon human searchers, and further that Jones’s teachings as to the selection and

presentation of advertisements depend on its populated database. Therefore, a POSITA would not be motivated to implement these teachings in O'Neill, as doing so would require modification of O'Neill to accommodate human searcher involvement. This would run counter to the purpose of O'Neill, which a POSITA would have understood to be the goal of *replacing* "conventional human-human conversation[s]" with O'Neill's computational "improved dialogue manager." EX-1005, ¶¶[0263]-[0264].

86. Petitioners and their expert never allege that a POSITA would have been motivated to modify *Jones* so as to somehow remove the reliance on human searchers. Even if they had, in my opinion, such a theory would run counter to Jones's intended purpose of "allowing a human searcher to select an advertisement for the keyword and providing the advertisement to the user." EX-1006, ¶[0010]. Moreover, as discussed above, a POSITA would have understood that such a modification would involve an entirely new approach to populating Jones's database, which is nowhere disclosed or suggested in the reference itself.

87. Accordingly, it is my opinion that Petitioners' proposed modification of O'Neill with Jones, including specifically to incorporate Jones' database and related teachings, is unsupported and contradicted by the O'Neill and Jones references themselves. In addition, Petitioners do not provide a motivation to combine or reasonable expectation of success argument to support modification of

O'Neill with Jones to arrive at the claimed invention of Claims 50-55, which require obtaining "user profile information associated with a user, wherein the user profile information specifies prior user interactions with items" and identifying "categories of items based on the prior user interactions specified by the user profile information." As I discuss below with respect to those claims, Jones's database does not maintain user profiles, further undercutting any motivation to combine to arrive at the claimed invention.

C. Claims [1H]/[1I] and [32H]/[32I]

88. In my opinion, the Petition fails to show that the combination renders obvious the claims challenged in Ground 1 because the Petition relies on O'Neill to disclose Claims [1H]-[1I] and [32H]-[32I].³ Petition, 15-16.

³ Claim [1H] recites: "obtaining a first interpretation of the second natural language utterance from the first domain agent;" Claim [1I] recites: "obtaining a second interpretation of the second natural language utterance from the second domain agent;" Claim [32H] recites: "obtaining a first interpretation of the second natural language utterance from the first domain agent;" and Claim [32I] recites: "obtaining a second interpretation of the second natural language utterance from the second domain agent."

89. To do so, Petitioners map O'Neill's computational agents to the first and second domain agents. Petition, 15-16. But, in my opinion, it is incorrect to conclude—as Petitioners do— that “the domain agents *must* obtain interpretations.” Petition, 16.

90. Petitioners' expert asserts that “O'Neill discloses the use of the DomainSpotter to provide the natural language utterance to the domain agents,” with “agents” in the plural. EX-1003, ¶213. Likewise, Petitioners' expert alleges that “[a] POSITA would understand that when “each service agent 30 scores the parse of the initial user utterance against the semantic categories that it can process and returns the score to the DomainSpotter 60,” each of the service agents (i.e., the domain agents) is interpreting the natural language utterance to determine if it is the appropriate domain agent to handle the user's request.” EX-1003, ¶214. For the reasons discussed below, I disagree.

91. At the “DomainSpotter” stage that Petitioners rely upon, O'Neill's agents do not obtain interpretations but rather score “parse tags” against categories the agent can handle. EX-1005, ¶¶[0200]-[0202]. In my opinion, O'Neill does not pass the utterance to the multiple domain agents. O'Neill teaches that “[s]pecialized dialogue frames are [] provided with tags to identify their areas of specialization.” EX-1005, ¶[0183]. O'Neill explains that “[t]hese tags are used to match a specialized dialogue frame with a corresponding service or support agent.” *Id.*

92. A POSITA would have understood that O'Neill does not pass the utterance to various domain agents, where each domain agent would then obtain an interpretation of the utterance. Instead, DomainSpotter passes the tags and keywords extracted from the utterance to each domain agent for relevance scoring. EX-1005, ¶¶[0013], [0200], [0394].

93. Using these parse tags, O'Neill provides "[e]ach service agent . . . with a range of integer values for scoring the degree of relevance it assigns to different domain-specific parse tags." EX-1005, ¶[0201]. The degree of relevance is determined because "each service agent 30 scores the parse of the initial user utterance against the semantic categories that it can process and returns the score." *Id.* For example, if a given service agent is provided with 5 parse tags and the service agent is able to match 2 of those tags to categories it can process, the service agent would return a score of 2. This can be seen in Paragraph 294 of O'Neill, where it is disclosed that "four-star" and "hotel" would be "provided with a high score by the AccommodationExpert 31." EX-1005, ¶[0294].

94. At this point, based on the highest score, only one "service agent is selected to apply . . . more detailed processing of the user's enquiry." *Id.*, at Paragraph [02020]. A POSITA would have understood that the agent with the highest score is a single agent.

95. This can be seen below in O'Neill's Figure 4, which "is a flow diagram of the strategy used by the improved dialogue manager for identifying an appropriate handling agent during a dialogue session," where the "DomainSpotter" is depicted. EX-1005, ¶[0085]. The input to DomainSpotter is the "[p]arsed input from user" and the function block 200 "[p]oll[s] each selected expert to determine which expert, if any, can best handle the input parse." *Id.*, Fig. 4. To carry this out, O'Neill "poll[s]" the service experts and only after a service expert is selected does O'Neill "[p]ass parse input to select expert." *Id.*

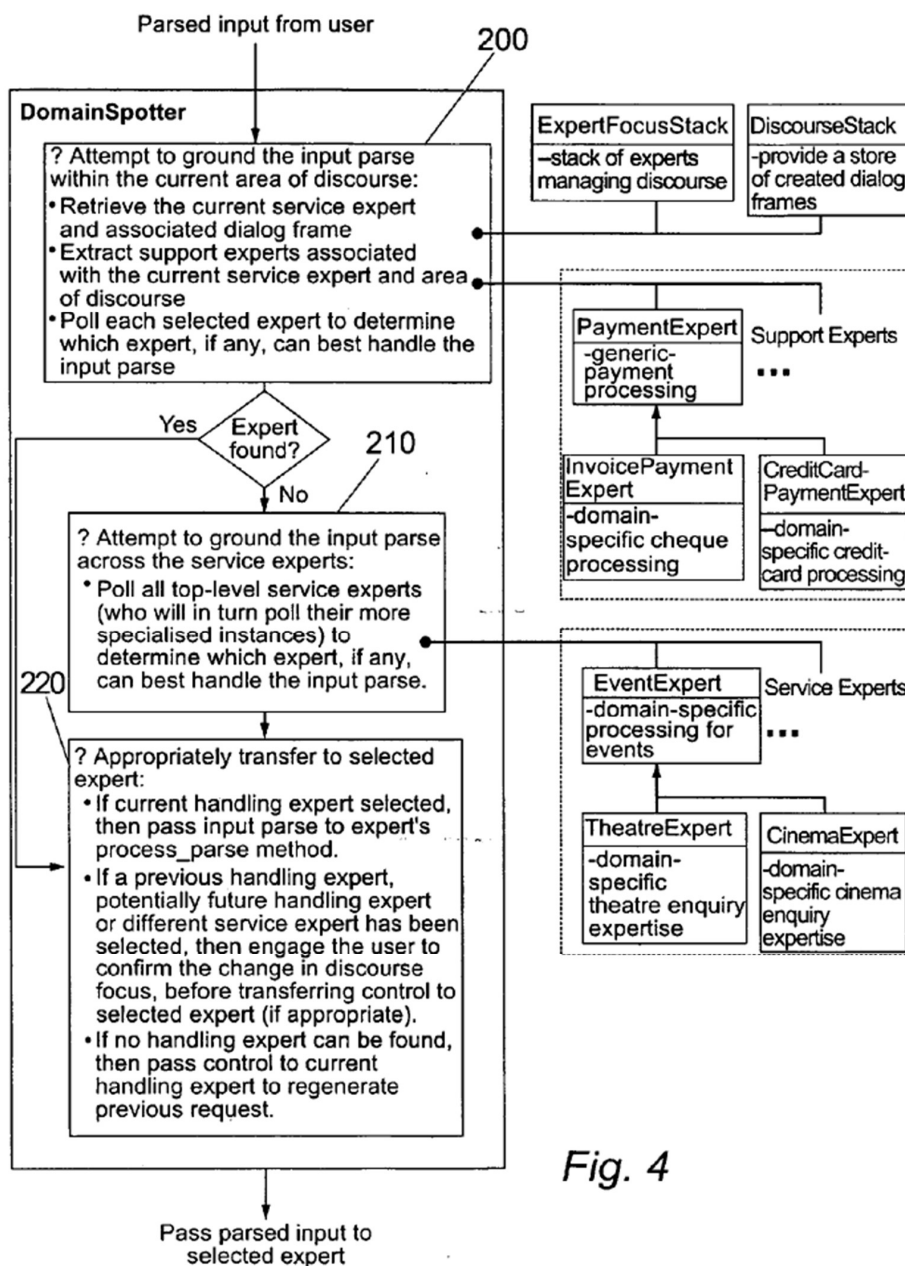


Fig. 4

96. In my opinion, a POSITA would have understood that O'Neill's DomainSpotter polls agents to match the parse tags against the categories that each agent can process, and DomainSpotter selects the agent with the highest score. It is

only at this point that the user's utterance is passed to that selected service agent for further processing. Thus, only one, the most relevant agent, performs processing of the utterance (which is Petitioners allege is interpretation).

97. I note that Petitioners' expert also states that "a POSITA would understand that a determination of a confirmation of 'Yes' in response to the system's observation 'So, you're staying in Dublin' is an interpretation of a second language utterance." EX-1003, ¶219; *see also* Petition, 16. However, to the extent this sentence can be understood, it does not disclose multiple domain agents that obtain different interpretations of the second language utterance. The Petition fails to explain how this disclosure relates to the claim limitations, either. Accordingly, it is my opinion that this additional statement by Petitioners' expert does not satisfy these claim limitations [1H]-[1I] / [32H]-[32I].

98. In my opinion, Petitioners and their expert have not identified a teaching in O'Neill where multiple domain agents obtain different interpretations of the second natural language utterance.

D. Claims [1J] and [32J]

99. Petitioners and their expert allege that the processing of the utterance by a *selected* service agent satisfies the "determining the interpretation" limitations

of Claims [1J] and [32J].⁴ *See* EX-1003, ¶221 (alleging that DomainSpotter “determine[s] that the AccommodationExpert is the appropriate domain agent to handle the request, which determines an interpretation so it can provide the response to the user.”). As I explain above, because the user’s utterance is only passed to one service agent for processing to “apply its domain-specific heuristics to the more detailed processing of the user’s enquiry,” only one service agent performs the additional processing of the utterance (which Petitioners allege is interpretation). EX-1005, ¶[0202]. In my opinion, the Petition fails to show that the combination renders obvious these claims.

E. Claims [1F] and [32F]

100. Petitioners and their expert rely on analysis for other limitations to allegedly disclose Claims [1F] and [32F].⁵ *See* EX-1003, ¶205 (citing analysis for

⁴ Claim [1J] recites: “determining the interpretation based on one or more of the first interpretation or the second interpretation;” Claim [32J] recites: “determining the interpretation based on one or more of the first interpretation or the second interpretation.”

⁵ Claim [1F] recites: “processing, by the one or more physical processors, based on the domain information, the one or more recognized words to determine an

Claims [1G]-[1J]/[32I]-[32J]); *see also* Petition, 14 (citing EX-1003, ¶205). I discuss my opinions relating to Claims [1H]-[1J]/[32I]-[32J] above and incorporate by reference that analysis here. I have reviewed Petitioners' arguments concerning Claim [1G]⁶ and these arguments do not resolve the issues with Petitioners' assertions as to Claims [1F] and [32F], which I discuss below. Accordingly, in my opinion, because Petitioners' arguments for Claims [1H]-[1J]/[32I]-[32J] fail to demonstrate obviousness of Claims [1F] and [32F], and because Claim [1G] does not resolve those failings either, the Petition fails to show that the combination renders these claims obvious.

interpretation of the second natural language utterance, wherein processing the one or more recognized words comprises;" and Claim [32F] recites: "process, based on the domain information, the one or more recognized words to determine an interpretation of the second natural language utterance, wherein processing the one or more recognized words comprises."

⁶ Claim [1G] recites: "providing the one or more recognized words to a first domain agent associated with a first domain and a second domain agent associated with a second domain."

101. Petitioners and their expert fail to properly consider the limitations of Claims [1F] and [32F]. At most, Petitioners' expert cites paragraphs [0052]-[0058] of O'Neill for disclosure "assigning the communication to one of a plurality of processing units, each of which comprises one or more processing rules, in accordance with the semantic contention of the communication." EX-1003, ¶205 (citing EX-1005, ¶¶[0052]-[0058]). But nowhere do Petitioners explain how O'Neill and/or Jones allegedly disclose processing "based on the domain information." Claims [1G]-[1J]/[32I]-[32J] do not address processing based on the domain information to determine an interpretation, accordingly, Petitioners have failed to address this limitation of Claim [1F]/[32F].

F. Independent Claims 50, 53-55

102. Petitioners allege that entries in Jones's database disclose Claim 30⁷— which Petitioners rely on for independent Claims 50, 53, 54, and 55. Petition, 41-44,

⁷ Claim [30A] recites: "obtaining, by the one or more physical processors, user profile information associated with the user, wherein the user profile information specifies prior user interactions with items;" Claim [30B] recites: "identifying, by the one or more physical processors, categories of items based on the prior user interactions specified by the user profile information;" and Claim [30C] recites:

44-49; EX-1003, ¶¶393-404. To support their assertion that Claim 30 is disclosed by the O'Neill-Jones combination, Petitioners quote Jones at Paragraphs [0032]-[0033]. But Jones does not disclose the concept of a user profile (at these paragraphs or anywhere else), and in fact, a POSITA would have understood that these paragraphs make very clear that instead of maintaining user profiles for individual users and their individual interactions, Jones's database 18 maintains records of *advertisements*—including their (human generated) association with keywords, typical length of engagement from past sessions with other users, and click-through rates based on the aggregated information across all users. EX-1006, ¶¶[0032]-[0033].

103. Jones uses previous results stored in the database, but these results are not tied to the present user. A POSITA reading the entirety of Jones would have understood that Jones does not disclose repeatedly presenting the same advertisement for a given user to view and click through repeatedly, which is how Petitioners and their expert appear to misunderstand this paragraph. For example, Mr. Lipoff confuses the tracking of individual user interactions and tracking of aggregate advertising utilization (e.g., click-through rates). EX-1003, ¶396.

“wherein determining the promotional content comprises determining a promotional item associated with one of the categories.”

Petitioners do not acknowledge this. As I explain above regarding the lack of motivation to combine O'Neill and Jones, which I incorporate by reference here, Petitioners never explain why it would be obvious to arrive at the claimed invention of Claims [30A]-[30C] (and, given Petitioners' reliance on those claims, Claims 50-55) in view of Jones's teaching of advertising-focused records in the database.

104. This focus on advertisements is clear from Jones's text, where it refers to "the number of times an advertisement has been presented." EX-1006, ¶[0033]. A POSITA would have understood this refers to times an advertisement has been presented in the past, irrespective of user. There are many instances where Jones explains that it tracks advertisements, not users. For example, Jones references "a user" when explaining that the advertisement-specific records in the database track "the length of time *a user* (or requester) viewed an advertisement, whether the user 'clicked through' or accessed the advertisement, where the user bought products or requested services" EX-1006, ¶[0033] (emphasis added). Given Jones's use of the indefinite article—"a user"—a POSITA would have understood Jones teaches aggregated data for all users rather than interactions specified to any one user.

105. As noted above, Claim [30B] recites: "identifying . . . *categories* of items based on the prior user interactions specified by the user profile information." Jones discloses keywords or categories of keywords but does not disclose categories of items based on the prior user interactions specified by the user profile information.

106. Petitioners again rely on the example in Jones concerning “restaurants in Indiana,” where the database records indicate that ads related to seafood restaurants have been presented to past users for similar queries, but in my opinion this example does not disclose “prior user interactions specified by the user profile information.” See EX-1003, ¶397 (citing EX-1006, ¶[0031]). In this “restaurants in Indiana” example, Jones’s resulting “seafood restaurant advertisement” was triggered by the keyword “restaurants,” not the prior user interactions specified by the user profile information. Combining Jones with O’Neill does not fix this problem because O’Neill does not disclose tracking “item categories” and the Petition does not assert that it does.

107. Jones discloses “[t]he user telephone number or other geographic data such as GPS coordinates may also be used to select from restaurant advertisements in Indiana to provide one in or near the designated geographic location.” EX-1006, ¶[0031]. Petitioners appear to rely on this for the “user profile information” of the claim limitation (although they do not specifically say) but overlook that Jones does not disclose “prior user interactions *specified* by the user profile information.” The records in the database are not specified by the user profile information and they do not contain user phone numbers or geo-locations, rather, the database records are keywords linked to advertisements by human searchers during requests made by different users.

108. Petitioners next turn to O'Neill, but do not demonstrate that O'Neill discloses categories or user profile information. Instead, Petitioners admit that O'Neill's dialogue manager at most "continues to use information from prior parts of the conversation with the user." EX-1003, ¶399. O'Neill explains that this functionality is used so the dialogue "evolve[s] dynamically, as agents are selected in light of the user's utterances or as a consequence of the agents' own rules." EX-1005, ¶[0077]. O'Neill then "store[s] data values elicited by the system from the user" in what O'Neill calls "a Knowledge Hierarchy" and/or a "knowledge tree" but Petitioners do not explain whether or how these components disclose identifying categories of items based on prior user interactions specified by the user profile information. In my opinion, a POSITA would not have understood O'Neill's knowledge hierarchy and/or tree to disclose Claim [30B].

VIII. REBUTTAL TO GROUND 2

A. Overview of Asserted Art

1. O'Neill and Jones

109. I incorporate by reference my discussion of O'Neill and Jones above.

2. Franco

110. Franco discloses improved recognition of utterances. EX-1007, Abstract.

111. Franco’s solution relies on “combining acoustic evidence from the first utterance with acoustic evidence from the subsequent utterance in order to recognize the first utterance.” EX-1007, Abstract. This solution “assume[s] that, if the first utterance has been incorrectly recognized on a first attempt, the user will repeat the first utterance . . . in the subsequent utterance.” *Id.*

112. Petitioners acknowledge that Franco’s solution involves “combining acoustic evidence.” Petition, 51-52.

113. Franco’s assumption that the subsequent utterance is entirely or largely a repeat of the first is key. EX-1007, ¶[0006]. If that assumption did not apply, Franco’s solution would combine two recordings that do not relate to each other acoustically, resulting in gibberish. *See* EX-1007, ¶¶[0017]-[0020].

114. A POSITA would have understood this limited use case, use of repetitive utterances to improve recognition, to limit the applicability of Franco. EX-1007, Abstract, ¶[0006].

B. Petitioners Fail to Demonstrate Motivation to Combine O’Neill-Jones with Franco

115. Petitioners provide two alleged motivations to modify the O’Neill-Jones combination of Ground 1 with Franco. In my opinion, Petitioners fail to demonstrate a motivation to combine these three references in the manner proposed.

116. **First**, Petitioners allege that “O’Neill express[es] a motivation to combine its system with systems like Franco, that could enhance the system in O’Neill to add correction of errors in speech recognition.” Petition, 50. But this logic is flawed because Franco’s solution applies only in the limited use case of merging repetitive utterances to improve recognition. EX-1007, Abstract, ¶¶[0017]-[0020].

117. Petitioners further assert that a POSITA would have been motivated to look to Franco to implement O’Neill’s “speech recognizer and dialogue manager” because O’Neill “does not provide all the details of the [DARPA Communicator system architecture]” that it utilizes. Petition, 50. Even if true, a POSITA would nevertheless have understood that Franco only addresses speech recognition and has a very narrow and specific use case. EX-1007, Abstract, ¶¶[0017]-[0020]. Accordingly, it is my opinion that a POSITA would not have been motivated to modify O’Neill’s improved dialogue manager with Franco.

118. **Second**, Petitioners allege a POSITA would have had motivation to combine Franco because Franco “suggest[s] that its method of error correction was broadly applicable and could be implemented and combined with speech recognition applications, like O’Neill and Jones.” Petition, 50; EX-1003, ¶529. But, even if Franco did disclose broad applicability to other systems, a POSITA would have understood the narrow *purpose* for which Franco could be used—improving recognition by acoustically merging repetitive utterances—restricted Franco’s

ability to solve the problem of the claimed invention. Thus, in my opinion, this argument fails to provide a basis as to why a POSITA would have been motivated to modify O'Neill and Jones in the proposed way to arrive at the claimed invention with a reasonable expectation of success.

119. In addition, Petitioners assert that O'Neill's discourse manager can "determine if the user's current utterance repeats," which demonstrates that combination with Franco would be redundant. Petition, 56 (citing EX-1005, ¶¶[0212]-[0213], [0236]). Moreover, Petitioners do not explain how Franco would work with this O'Neill functionality.

C. Claim [13C] and Independent Claims [33G], [36H].

120. Petitioners allege that Franco discloses Claim [13C]⁸, and Petitioners rely on their analysis of Claim [13C] to address independent Claims [33G] and

⁸ Claim [13C] recites: "processing, by the one or more physical processors, based on the third natural language utterance, the one or more recognized words to determine a reinterpretation of the second natural language utterance."

[36H].⁹ Petition, 51-56, 63-65. In my opinion, the Petition fails to show that the combination renders obvious these claims.

121. Petitioners allege that “the O’Neill-Jones-Franco combination” discloses Claim [13C]’s limitation requiring “determine[ing] a reinterpretation of the second natural language utterance.” Petition, 51. Petitioners’ argument is premised on Franco. However, confusingly, Petitioners’ expert admits that “Franco does not explicitly [sic] ‘determining a reinterpretation of the second language utterance.’” EX-1003, ¶552. I agree that Franco does not determine a reinterpretation. *See* EX-1007, Abstract.

122. Beyond the flawed motivation to combine, Petitioners’ proposed combination also fails to disclose claim limitations requiring a “reinterpretation of the second natural language utterance.” *See* Petition, 51-56. Petitioners do not identify support in Franco that indicates it determines that an interpretation was

⁹ Claim [33G] recites: “processing, by the one or more physical processors, based on the third natural language utterance, the one or more recognized words to determine a reinterpretation of the second natural language utterance;” and Claim [36H] recites: “determine promotional content based on one or more of the interpretation or the reinterpretation.”

incorrect or that any reinterpretation is performed. Instead, Franco performs recognition by merging repetitive utterances.

123. The Petition supports its assertion that Franco's system "reinterprets the misrecognized words from the first utterance in response to subsequent utterances" by quoting Franco at Paragraph [0020]. Petition, 55. Franco's passage does not use the word "reinterpretation," rather, Franco discusses "more accurate corrected recognition." EX-1007, ¶[0020]. In my opinion, Petitioners mischaracterize Franco when substituting "interpretation" for "recognition" despite Franco explicitly disclosing "recognition."

124. Petitioners' description of Franco's two examples are internally inconsistent. Both examples combine hypotheses of a first utterance, but while Petitioners admit the first example is "an effort to correct *recognition*," Petitioners describe the second example as "reinterpret[ing] the misrecognized words from the first utterance." Petition, 53-55 (emphasis added). Petitioners do not explain their view that the first example discloses recognition while the second discloses reinterpretation, and do not cite to any support to Franco or any other reference for that assertion.

125. Petitioners and their expert rely on analysis for Claims [13C] for independent Claims [33H] and [36H]. *See* Petition, 63-64. Therefore, for the reasons

discussed above, it is my opinion that Petitioners have failed to show the asserted prior art discloses these independent claims.

126. Petitioners separately allege that O'Neill's disclosure of a "confirmation strategy" is "determin[ing] a reinterpretation of the second natural language utterance" based on the "third natural language utterance." Petition, 56. However, a POSITA would have understood that O'Neill discloses its confirmation strategy confirms whether to "transfer[] (or refus[e] to transfer) to a new handling agent." EX-1005, ¶[0236]. Petitioners do not demonstrate how this functionality discloses "determin[ing] a reinterpretation of the second natural language utterance." O'Neill's other disclosed use for its confirmation strategy is where the system uses "the *system's previous intentions*" to "interpret the user's most recent utterance *in light of the improved dialogue manager's last utterance*." EX-1005, ¶¶[0212]-[0213] (emphasis added). Here, the interpretation is based on *the system's* last output, not natural language utterances of the user. Accordingly, a POSITA would not have understood this to disclose "determin[ing] a reinterpretation of the second natural language utterance" based on the "third natural language utterance."

127. Although this Ground allegedly asserts the combination of O'Neill and Franco (and Jones), Petitioners never consider the combination of O'Neill and Franco (let alone the full combination of O'Neill modified by Franco *and* Jones) when analyzing this limitation. *See* Petition, 49-56. Instead, Petitioners only address

O'Neill and Franco separately, with no explanation as to whether or how a POSITA would have modified O'Neill's system with Franco's to arrive at the invention claimed by Claim [13C] (and therefore Claims 33 and 36 given Petitioners' reliance on their Claim [13C] analysis for these independent claims). *Id.*; *see also* Petition, 63-66.

D. Claims [14] and [34], [15B]/[35B], and Independent Claims [33H], [36H]

128. Petitioners address Claims 14 and 34 together—which Petitioners rely on for independent Claims 33 and 36.¹⁰ Petition, 56-57, 63-65. Petitioners allege that “[t]he only difference between claims [14] and [34] and [1K]/[32K] is that claims [14] and [34] require determining the promotional content based on the ‘reinterpretation’ rather than the ‘interpretation’ of the second natural language utterance.” Petition, 57. Without any explanation or basis in the patent or its intrinsic record, Petitioners assume that the differences between these different claims and

¹⁰ Claim [14] recites: “[t]he method of claim 13, wherein determining the promotional content comprises determining the promotional content based on the reinterpretation;” Claim [34] recites: “The method of claim 33, wherein determining the promotional content comprises determining the promotional content based on the reinterpretation.”

claim terms are immaterial. Even if true (without admitting that it would be true), Petitioners' arguments do not demonstrate that Claims 14 and 34 would have been obvious.

129. Petitioners broadly allege that the O'Neill-Jones-Franco system would "determine the promotional content" using "the interpretation of the utterance that is operative at the time the promotional content is generated." Petition, 57. Petitioners never explain how the alleged combination would "reinterpret" let alone how it would determine the promotional content based on such a reinterpretation. In my opinion, the Petition fails to show that the combination renders these claims obvious.

130. I note that Petitioners and their expert assume in this section that "reinterpretation" is disclosed for the reasons addressed with respect to Claim [13C]. I disagree, and I incorporate by reference my above discussion as to why the asserted references fail to render Claim [13C] obvious.

131. In this section, beyond relying on analysis for other Claims which I have already addressed, Petitioners' expert identifies only three alleged disclosures in the prior art. However, in my opinion, none of the additional identified disclosures disclose the claim. Moreover, none of these three additional disclosures remedies the issues I discuss above which demonstrate that the asserted combination of O'Neill, Jones, and Franco does not disclose the claim.

132. First, Petitioners' expert states that "Jones discloses using keywords from the user's request to target advertisement [sic]." EX-1003, ¶557. In my opinion, this does not disclose Claims 14 and 34 or the required "reinterpretation." Nor does this disclosure remedy the issues discussed above with respect to Claim [13C].

133. Next, Petitioners' expert states that Jones discloses Claim 14 because "the disclosed system uses a number of factors to weight and determine the appropriate 'promotional content', including the user's request and other factors." EX-1003, ¶558. Petitioners' expert cites to an example in Jones concerning a request for showtimes at The Kennedy Center that leads to advertisements for Broadway shows. *Id.* But in my opinion this does not disclose Claims 14 and 34 or the required "reinterpretation," and in fact Petitioners' expert never states that it does. *Id.* Nor does this disclosure remedy the issues discussed above with respect to Claim [13C].

134. Last, Petitioners' expert cites again to Jones to address "an example in which the user requests information related to restaurants" and then determines promotional content related to the request. EX-1003, ¶560. Here too, Petitioners' expert fails to explain how this example demonstrates Claims 14 and 34 or the required "reinterpretation." Instead, Jones discloses that "when a user requests information pertaining to 'restaurants in Indiana'" the Jones system can present restaurant advertisements to the user. EX-1006, ¶[0031]. In my opinion the "restaurants" example in Jones does not disclose Claims 14 and 34 or the required

“reinterpretation.” Nor does this disclosure remedy the issues discussed above with respect to Claim [13C].

135. Petitioners’ expert never cites to O’Neill and never cites to Franco. *See generally* EX-1003, ¶¶555-561. Even if Petitioners’ expert had done so, Franco is directed to recognition by merging repetitive utterances as I explain above in the overview of Franco and with respect to Claim [13C].

136. Petitioners and their expert rely on analysis for Claims 14 and 34 for independent Claims [33H] and [36H]. Therefore, for the reasons discussed above, it is my opinion that Petitioners have failed to show the asserted prior art discloses these independent claims. *See* Petition, 63-64.

E. Claim [24] and Independent Claims [37E]/[37I] and [38E], [38H]/[38I]

137. Petitioners allege that Franco discloses Claims [24A]-[24C], and Petitioners rely on their analysis of Claims [24A]-[24C] to address independent Claims [37E]/[37I] and [38E], [38H]/[38I].¹¹ Petition, 59-63, 65-66.

¹¹ Claim [37E] recites: “determining, by the one or more physical processors, that at least one request of the one or more requests is incomplete or ambiguous;” Claim [37I] recites: “interpreting, by the one or more physical processors, the at least one incomplete or ambiguous request based on the interaction;” Claim [38E] recites:

138. For Claim [24A] ¹², Petitioners separately rely on O’Neill’s DiscourseManager confirmation strategy, Jones’s “prompt [of] the user to clarify,” and Franco’s merging of utterances for better recognition. Petition, 59. Nowhere do Petitioners address the supposed combination of O’Neill, Jones, and Franco, nor do Petitioners explain which of these three differing processes would be used (or whether some or all of them would be modified and combined with some or all of them). Petitioners rely on their Claim 13 analysis for this limitation, which I disagree with for the reasons I discuss above and incorporate by reference here.

“determine that at least one request of the one or more requests is incomplete or ambiguous;” Claim [38H] recites: “monitor interaction of the user with the promotional content;” and Claim [38I] recites: “interpret the at least one incomplete or ambiguous request based on the interaction..”

¹² Claim [24A] recites: “[t]he method of claim 16, further comprising: determining, by the one or more physical processors, that at least one request of the one or more requests is incomplete or ambiguous.”

139. For Claim [24B]¹³, Petitioners cite to only O’Neill and Jones and similarly fail to consider the combination. Petition, 60-61. As I explain above, Jones does not monitor interactions of the user with the promotional content, and I incorporate by reference that discussion here. Petitioners cite to O’Neill, but ignore that O’Neill does not disclose promotional content, as I explain above and I incorporate that discussion by reference here.

140. For Claim [24C]¹⁴, Petitioners acknowledge that “O’Neill does not explicitly disclose interpreting an incomplete or ambiguous request based on an interaction of a user with promotional content . . .” Petition, 61. I agree. Petitioners rely on Franco to meet this limitation, alleging that “the ‘subsequent utterance’ used by Franco to interpret the prior utterance can include an ‘interaction of the user with the promotional content.’” Petition, 62-63. Petitioners ignore that Franco is limited to narrow circumstances where a user repeats an utterance, which the Franco system merges because Franco assumes the utterances are repeats. Accordingly, a POSITA

¹³ Claim [24B] recites: “monitoring, by the one or more physical processors, interaction of the user with the promotional content.”

¹⁴ Claim [24C] recites: “interpreting, by the one or more physical processors, the at least one incomplete or ambiguous request based on the interaction.”

would have understood that Franco does *not* include an interaction of the user with promotional content as a subsequent utterance, as that would not satisfy Franco's assumption concerning repeat utterances. Petitioners do not allege that any other aspect of O'Neill, Jones, or Franco discloses an "interaction of the user with the promotional content," therefore, it is my opinion that Petitioners have not demonstrated that Claim [24C] is obvious over the combination of O'Neill, Jones, and Franco. Petition, 62-63.

141. Petitioners and their expert rely on analysis for Claim 24 for independent Claims [37E]/[37I] and [38E], [38H]/[38I]. Therefore, for the reasons discussed above, it is my opinion that Petitioners have failed to show the asserted prior art discloses these independent claims. *See* Petition, 65-66.

IX. REBUTTAL TO GROUND 3

A. Overview of Asserted Art

1. O'Neill and Jones

142. I incorporate by reference my discussion of O'Neill and Jones above.

2. Wang

143. Wang discloses a "voice application creation and deployment system" that "includes a voice application server for creating and serving voice applications, at least one voice portal node for client interaction, and an inference engine that can

be called during a voice interaction to determine and insert appropriate inference dialogs into the call flow.” EX-1008, Abstract.

144. Wang “pertains particularly to methods and apparatus for conducting automated voice transactions in a platform independent manner.” EX-1008, 2:25-28.

145. Wang discloses an “inference engine,” which is called “to decide whether an inference of client need can be made based on analysis of existing data related to the interaction during a pre-determined point in an active call flow of the served voice application, and if an inference is warranted, determines which inference dialog will be executed and inserted into the call flow.” EX-1008, 1:57-67.

146. Wang explains that “[b]y providing multi-slot capability and a rich semantic base 50 for voice recognition much more work can be accomplished using less request/response interaction.” EX-1008, 55:50-52.

147. Wang’s examples demonstrate that its system addresses new requests as the user presents them, even if the new request does not have anything to do with the ongoing request and response. *See* EX-1008, 56:6-11; Fig. 40B. For example, when “[t]he system recognizes the prompt of 4011 even though it does not have anything to do with the response of step 4010,” Wang “saves the information on the

first request and performs a lookup for the highest-ranking artist 10 that plays similar music, again attributes of a class or genre of music.” *Id.*

148. An example of this is shown at step 4013 in Figure 40B of Wang, copied below, where the system immediately addresses the question about the return policy:

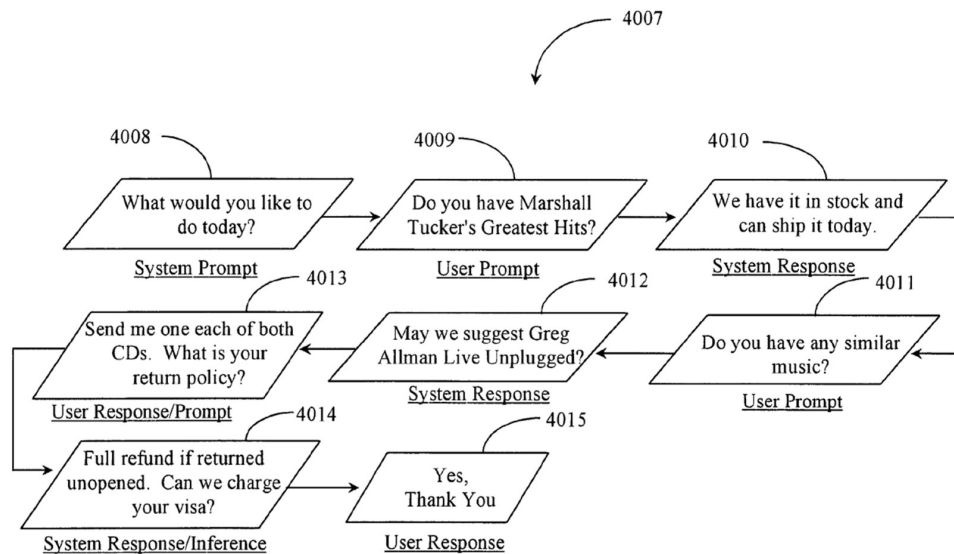


Fig. 40B (natural language recognition)

EX-1008, Fig. 40B.

149. In situations like this where Wang switches focus, the processing for the original or previous request “can take place in the background while the system addresses the second part of the response.” EX-1008, 56:21-23.

150. Rather than address one subject or focus at a time, Wang discloses “combining dialogs to build complex natural language prompts or responses is

enabled partly by providing rich semantics and partly by inferring client preference through analyzing historical data.” EX-1008, 56:31-34.

B. Petitioners Fail to Demonstrate Motivation to Combine O’Neill-Jones with Wang

151. Petitioners provide two alleged motivations to modify the O’Neill-Jones combination of Ground 1 with Wang. In my opinion, Petitioners fail to demonstrate a motivation to combine these three references in the manner proposed.

152. First, Petitioners allege that “O’Neill express[es] a motivation to combine its system with systems like Wang, that could enhance the system in O’Neill to understand multi-request utterances in speech recognition.” Petition, 68.69. This alleged reason is flawed because a POSITA would have understood that Wang’s approach to multi-request utterances is contrary to O’Neill’s system architecture, which is predicated on processing (and completing) one request per utterance.

153. Wang’s “multi-request utterance” process is designed to shift the original focus to “the background while the system addresses the” new request. EX-1008, 56:12-23

154. O’Neill’s stated purpose, on the other hand, is to “cop[e] with user-initiated shifts of discourse focus” where “rules have been developed for controlling

transfers,” which are “restricted to ensure that the improved dialogue manager elicits information in a clearly defined context.” EX-1005, ¶[0235].

155. A POSITA would have understood that Wang strategy of shifting focus when there is a multi-request utterance from the user is contrary to O’Neill’s strategy to cope with user-initiated shifts of discourse focus. Petitioners and their expert never address this dichotomy. In my opinion, this vastly different approach to managing user discourse would mean that a POSITA would not have looked to modify O’Neill (or the O’Neill and Jones combination) with Wang.

156. This can be seen in the disclosure that Petitioners rely upon in Wang to meet certain claim limitations. For example, to allegedly satisfy claim [25A] Petitioners cite Wang’s disclosure that “order preparation can take place in the background while the system addresses” an utterance which asks the seller to send two CDs and asks a question about the return policy. Petition, 69-70 (citing EX-1008, 56:16-18, 21, 23). O’Neill, on the other hand, makes clear that its “strategy *must be capable of coping* with user-initiated shifts of discourse focus” such that “user-initiated transfers of dialogue control are *restricted* to ensure that the improved dialogue manager elicits information in a clearly defined context.” EX-1005, ¶[0235]. O’Neill further details a “number of rules [that] have been developed for controlling transfers of dialogue control” in order to “provid[e] a degree of contextual coherency to a dialogue session.” EX-1005, ¶[0235]. A POSITA would

have understood from O'Neill that its improved dialogue manager requires this strategy, and that Wang's shifting focus would not "ensure that the improved dialogue manager elicits information in a clearly defined context." EX-1005, ¶[0235].

157. Second, Petitioners allege that "Wang discloses the benefit of being able to process multi-request utterances in customer service applications." Petition, 68-69. I disagree that this disclosure would have motivated a POSITA to combine Wang with O'Neill because the manner in which Wang provides this "benefit" is to shift focus to address the newest request. As I discuss above, a POSITA would have appreciated that Wang's approach to multi-request utterances is incompatible with O'Neill's architecture.

158. Petitioners next allege the combination would have been predictable to a POSITA and that the POSITA would have had a reasonable expectation of success. Petitioners' allegation is based solely on their view that "Wang discloses that its features can be broadly implemented in 'serving voice applications to clients over a communication network.'" Petition, 69. In my opinion, this does not demonstrate that a POSITA would have had a reasonable expectation of success in combining the O'Neill-Jones system with Wang's features. Regardless of whether Wang states that its features can be implemented in various systems, a POSITA would have understood that Wang's features are contrary to O'Neill's features and strategy.

Accordingly, a POSITA would not have had a reasonable expectation of success in Petitioners' proposed combination.

X. REBUTTAL TO GROUND 4

A. Overview of Asserted Art

1. O'Neill and Jones

159. I incorporate by reference my discussion of O'Neill and Jones above.

2. Howard

160. Howard discloses "a speech-enabled system for filtering information and for navigating through complex menu structures with the assistance of one or more electronic activity guides." EX-1009, 1:60-63. To do so, "[t]he system automatically filters the contents of the guide and supplies the user with on-screen display or synthesized speech responses to the user's request." EX-1009, Abstract.

161. Howard discloses that "the user, about ready to make a shopping trip, might speak into a microphone associated with the refrigerator and ask, 'What can I make for dinner?'" EX-1009, 2:37-39. Howard's "natural language dialog module would access the appropriate electronic activity guide (the one associated with the refrigerator) and then retrieve information that associates possible dinner menus with items in the refrigerator." EX-1009, 2:39-42. After "[t]he system would make suggestions about possible menus, alerting the user to ingredients that may need to be acquired" then "[t]he user could then say, 'I think I will make chicken stew

tonight. Please print me a shopping list.” EX-1009, 2:42-47. In response to this utterance, Howard discloses the system could “send a print job to the user’s computer for printing.” EX-1009, 2:46-50.

B. Claim [27A] and Independent Claims 44, 49.

162. Petitioners allege that Howard discloses Claim [27A]¹⁵ because “Howard provides an example of a *single user utterance* which includes multiple requests.” Petition, 79-80 (citing EX-1009, 2:37-50); *see also id.*, (“That utterance contains two separate requests sent to two separate devices.”). Petitioners rely on their analysis of Claim [27A] to address independent Claims 44 and 49. In my opinion, the Petition fails to show that the combination renders obvious these claims.

163. Petitioners only cite Howard at 2:37-50 when analyzing Claim [27A]. Petition, 79-80.

¹⁵ Claim [27A] recites: “[t]he method of claim 16, wherein the one or more requests include a first request to be processed by a first device associated with the user and a second request to be processed by a second device associated with the user.” For context, Claim [16A] recites: “[t]he method of claim 1, further comprising: identifying, by the one or more physical processors, one or more requests associated with the second natural language utterance.”

164. Petitioners' own description of Howard does not support this allegation,

however. The Petition recites:

[In Howard, the] ***user asks*** "What can I make for dinner?" (EX-1009, 2:37-39.) The system would then check the contents of the refrigerator and make suggestions about possible menus and what groceries may need to be acquired. ***In response the user says*** "I think I will make chicken stew tonight. Please print me a shopping list." (EX-1009, 2:46-47.) That utterance contains two separate requests sent to two separate devices: (1) the user is requesting that the refrigerator ("first device associated with the user") ascertain which items for chicken stew are not in the refrigerator ("first request"); and (2) the user is requesting that the printer ("second device associated with the user") print the shopping list ("second request"). (EX-1009, 2:37-50.)

Petition, 79-80.

165. I have bolded and italicized where Petitioners themselves have identified two separate utterances. Petitioners' own argument makes clear that Howard discloses multiple, separate, utterances with only one request in each. *See* EX-1009, 2:37-50. Petitioners' expert similarly mischaracterizes Howard's example as having two separate utterances. *See* Ex. 1003, ¶829.

166. Howard's second utterance is "I think I will make chicken stew tonight. Please print me a shopping list." EX-1009, 2:37-50. In this single utterance, there is one request, namely the single request to print the shopping list for the missing items

that had already been identified for each recipe in the first request which was in the first utterance of “What can I make for dinner.” EX-1009, 2:37-50.

167. Petitioners do not identify any other support in Howard, nor do Petitioners rely on O’Neill or Jones to meet this limitation.

168. In my opinion, Petitioners never demonstrate that Howard discloses multiple requests in a single utterance, or explain how the Howard system would function with such an utterance.

169. Petitioners and their expert rely on analysis for Claim [27A] for independent Claims [44D] and [49D]. Therefore, for the reasons discussed above, it is my opinion that Petitioners have failed to show the asserted prior art discloses these independent claims. *See* Petition, 65-66.

XI. CONCLUSION

170. In sum, it is my opinion that Grounds 1-4 of the Petition do not render Claims 1-55 of the ’536 Patent unpatentable as obvious for the reasons I discuss above.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on the 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.

Executed on August 20, 2025 in New York, NY.

A handwritten signature in cursive script that reads "Anatole Gershman".

Dr. Anatole Gershman