

**IN THE UNITED STATES DISTRICT COURT
FOR THE EASTERN DISTRICT OF TEXAS
MARSHALL DIVISION**

DIALECT, LLC,

Plaintiff,

v.

MICROSOFT CORPORATION,

Defendants.

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Case No. 2:24-cv-01067-JRG

JURY TRIAL DEMANDED

**MICROSOFT CORPORATION'S PRELIMINARY INVALIDITY AND
SUBJECT MATTER ELIGIBILITY CONTENTIONS
AND P.R. 3-3 AND 3-4 DISCLOSURES**

Pursuant to Local Patent Rules (“P.R.”) 3-3 and 3-4 and the Court’s Order Extending P.R. 3-3 and 3-4 Deadlines (ECF No. 38), Microsoft Corporation (“Microsoft”) respectfully submits these Invalidity Contentions (“Invalidity Contentions”) and its P.R. 3-3 and 3-4 disclosures with respect to the asserted claims of U.S. Pat. No. 9,734,825 (the “825 patent”), U.S. Pat. No. 7,398,209 (the “209 patent”), U.S. Pat. No. 8,195,468 (the “468 patent”), U.S. Pat. No. 9,626,959 (the “959 patent”), and U.S. Pat. No. 7,634,409 (the “409 patent”), U.S. Pat. No. 8,015,006 (the “006 patent”), U.S. Pat. No. 7,809,570 (the “570 patent”), U.S. Pat. No. 7,917,367 (the “367 patent”), and U.S. Pat. No. 8,620,659 (the “659 patent”) (collectively, the “Asserted Patents”) identified by Plaintiff Dialect, LLC (“Dialect”) in its P.R. 3-1 Disclosure of Asserted Claims and Infringement Contentions on May 14, 2025:

Asserted Patent	Asserted Claims
U.S. Pat. No. 9,734,825	5-8 (“825 Patent Asserted Claims”)
U.S. Pat. No. 7,398,209	1, 2, 4, 5, 6, 7, 8, 9, 12, 13, 14 (“209 Patent Asserted Claims”)
U.S. Pat. No. 8,195,468	19, 20, 25, 26, 27, 28, 29, 30, 32 (“468 Patent Asserted Claims”)
U.S. Pat. No. 9,626,959	1, 2, 8 (“959 Patent Asserted Claims”)
U.S. Pat. No. 7,634,409	1, 2, 3, 6 (“409 Patent Asserted Claims”)
U.S. Pat. No. 8,015,006	1, 2, 3, 5 (the “006 Patent Asserted Claims”)
U.S. Pat. No. 7,809,570	1, 2, 3, 4, 5, 6, 7, 8 (the “570 Patent Asserted Claims”)
U.S. Pat. No. 7,917,367	11, 12, 15, 17, 18 (the “367 Patent Asserted Claims”)
U.S. Pat. No. 8,620,659	42 (the “659 Patent Asserted Claims”)

Collectively, these claims are referred to as the “Asserted Claims.”

In accordance with P.R. 3-3(a)–(d), Microsoft hereby identifies: (a) each currently known item of prior art that either anticipates or renders obvious each asserted claim; (b) how each such item of prior art (or a combination of several of the same) anticipates each asserted claim and/or

renders it obvious, the combinations that render the claims obvious, and motivations to combine supporting the obviousness combinations; (c) where each element in each Asserted Claim is disclosed, described, or taught in the prior art, in claim chart form, for which Microsoft provides separate charts for each primary reference and a chart that identifies the secondary references that also disclose, describe, teach, or suggest particular limitation(s) on a limitation-by-limitation basis; and (d) the other grounds for invalidating the Asserted Claims, including, without limitation, based upon indefiniteness under 35 U.S.C. § 112 ¶ 2 or enablement or written description under 35 U.S.C. § 112 ¶ 1, with respect to each Asserted Claim and based upon Microsoft's investigation to date and understanding of Plaintiff's assertions of the Asserted Claims, including the apparent scope and meaning Plaintiff is giving to the Asserted Claims. Further, Microsoft identifies the claims that claim patent-ineligible subject matter under 35 U.S.C. § 101.

I. RESERVATIONS

These Invalidity Contentions provided herein by Microsoft are provisional and subject to revision as provided in the Local Rules, Patent Rules, the Federal Rules of Civil Procedure, and/or any Order of this Court. For example, these Invalidity Contentions are based on Microsoft's current knowledge, understanding, and belief as to the facts and information available at this time. Microsoft has not yet completed its investigation, collection of information, discovery, or analysis in this action, and additional facts and information may require Microsoft to supplement or modify these contentions.

To the extent that Plaintiff's Infringement Contentions are understandable, Microsoft's Invalidity Contentions are based, at least in part, on Plaintiff's apparent constructions or assertions of the scope and meaning of the Asserted Claims and Plaintiff's application of those claims to the products actually charted in its Infringement Contentions.

In addition, Microsoft has not received or identified all of the documents that may be relevant to its Invalidity Contentions. Microsoft also has not had the opportunity to take the depositions of the named inventors of the Asserted Patents and/or other persons having potentially relevant information. Microsoft further is in the process of investigating prior art from third-party sources believed to have knowledge, documentation, and/or corroborating evidence relating to invalidity or prior art, and Microsoft has not yet had the opportunity to conduct any depositions relating to third-party sources of prior art. It is likely that Microsoft will hereafter discover additional prior art pertinent to the Asserted Claims of the Asserted Patents, and Microsoft reserves the right to seek to amend and/or supplement these Invalidity Contentions within a reasonable time after becoming aware of additional prior art. Microsoft also reserves the right to introduce and use such supplemental materials at trial.

Similarly, Microsoft has had little to no discovery concerning the claimed priority dates for the Asserted Patents. Microsoft disputes that the disclosures in the provisional and non-provisional filings cited for priority in the Asserted Patents support the purported full scope of the Asserted Claims, adequately disclose or describe the subject matter of the Asserted Claims, or provide adequate disclosure or support for the priority dates that Plaintiff appears to allege, which Microsoft notes have not been stated with specificity or on a claim-by-claim basis. Microsoft reserves the right to seek leave to supplement and/or amend these Invalidity Contentions and the identification and production of prior art accordingly.

Microsoft also reserves the right to supplement and/or amend these Invalidity Contentions after the Court has construed disputed claim terms. Microsoft's ultimate contentions concerning the validity of the claims of the Asserted Patents may change based upon the Court's construction of the claims or positions that Plaintiff may take concerning infringement or validity issues after

such construction.

To be clear, nothing contained in these Invalidity Contentions or any accompanying exhibits or claim charts should be understood or deemed to be an express or implied admission or contention with respect to the proper construction or scope of any terms in the Asserted Claims. Nor should they be understood to adopt Plaintiff's stated or implied claim construction or its proposed scope or meaning of any Asserted Claims. Microsoft's Invalidity Contentions rely on Plaintiff's apparent application of the Asserted Claims to the Accused Instrumentalities, insofar as they can be discerned or understood, under the principle that the scope of the claims must ultimately be the same for invalidity as it is for infringement under the Court's adjudication of the Asserted Patents. Microsoft further notes that it expressly denies that any accused product infringes the Asserted Patents or any Asserted Claim, and Plaintiff has not met its burden to show infringement by Microsoft of any Asserted Claim.

Microsoft provides the information below and in the attached charts and document production in order to comply with P.R. 3-3 and P.R. 3-4. Microsoft reserves the right to prove the invalidity of the Asserted Claims on bases other than those required to be disclosed in these Invalidity Contentions pursuant to P.R. 3-3. The production of documents that have been identified in these Invalidity Contentions shall not be deemed an admission that such documents are admissible or that Microsoft has waived any objections regarding the admissibility of such documents. Microsoft reserves all rights in that regard.

Pursuant to the provisions of P.R. 3-3, Microsoft identifies specific portions of prior art references that disclose, teach, or suggest the elements of the Asserted Claims. Although Microsoft has identified exemplary disclosures for each reference, each and every disclosure in the reference is not necessarily identified. The lack of a citation for an element is not an admission that the

element is not disclosed or is not inherent in the reference, particularly given that the precise scope and meaning Plaintiff is applying to the claims has not so far been made clear and it is not clear how Plaintiff asserts that many of the Accused Instrumentalities read on the Asserted Claims.

In an effort to focus the issues, Microsoft has identified only exemplary portions of cited references. It should be recognized that persons of ordinary skill in the art (or a “POSITA”) generally read a prior art reference as a whole and in the context of other publications, literature, and in light of the knowledge of one of ordinary skill in the art and/or any other pertinent background, skill, training, creativity, or understandings of the POSITA. In other words, to understand and interpret any specific statement or disclosure within a prior art reference, such persons would rely on other information within the reference, along with other publications and their scientific or engineering knowledge. Microsoft consequently reserves the right to rely upon other unidentified portions of the prior art references, other publications, and expert testimony as to the knowledge of a person of ordinary skill to provide context, and as aids to understanding and interpreting the portions that are identified. Microsoft also reserves the right to rely on other portions of other prior art references, other publications, and the testimony of experts to establish that a person of ordinary skill in the art would have been motivated to modify or combine certain of the cited references so as to render the Asserted Claims obvious. Further, where Microsoft identified a particular figure in a prior art reference, the identification should be understood to encompass the caption and description of the figure, as well as any text relating to the figure in addition to the figure itself. Similarly, where an identified portion of text refers to a figure, the identification should be understood to include the figure as well.

Microsoft further reserves the right to rely upon any applicable industry standards, customs, and background knowledge, as well as prior art cited in the file histories, reexamination

file histories, and any *inter partes* review or *ex parte* reexamination of the Asserted Patents and all related U.S. and foreign patent applications as invalidating references and/or to show the state of the art. Prior art not included in these Invalidity Contentions, whether known or unknown to Microsoft, may become relevant based on subsequent events. In particular, Microsoft is currently unaware of the extent, if any, to which Plaintiff will contend that limitations of the Asserted Claims are not disclosed in the prior art identified by Microsoft. Microsoft reserves all rights to use the references or other prior art identified in any related district court litigation, *inter partes* review or *ex parte* reexamination, including without limitation, the invalidity contentions from *VB Assets LLC v. Amazon.com, Inc.*, C.A. No. 1:19-CV-01410-MN (D. Del.), *Dialect, LLC v. Bank of America*, N.A, Case No.: 2:24-cv-207-JRG (E.D. Tex.), *VB Assets LLC v. Amazon.com, Inc.*, No. 1:23-cv-581-DJN-LRV (E.D. Vir.); the invalidity arguments or reasons for patent invalidity in the following PTAB Proceedings: *Microsoft Corp. v. Dialect, LLC*, IPR2025-00658 (PTAB), *Microsoft Corp. v. Dialect, LLC*, IPR2025-01229 (PTAB), *Microsoft Corp. v. Dialect, LLC*, IPR2025-01993 (PTAB), *Microsoft Corp. v. Dialect, LLC*, IPR2025-00658 (PTAB); *Microsoft Corp. v. Dialect, LLC*, IPR2025-01351 (PTAB); *Microsoft Corp. v. Dialect, LLC*, IPR2025-01352 (PTAB); *Meta Platforms, Inc. v. Dialect, LLC*, IPR2025-01335 (PTAB); *Meta Platforms, Inc. v. Dialect, LLC*, IPR2025-01336 (PTAB); and the Re-Examination Proceeding for U.S. Patent Application No. 90/015,338 (*Ex Parte* Re-Examination of '006 patent). The invalidity contentions, invalidity arguments, and other reasons for patent invalidity referenced in the preceding sentence are incorporated herein by reference.

Microsoft further intends to rely on inventor admissions, applicant's admissions, and admissions by the Plaintiff concerning claim scope or meaning and/or the prior art relevant to the Asserted Patents found in, *inter alia*, the Asserted Patents, the patent prosecution histories

(including foreign counterpart prosecution histories, all of which are hereby incorporated by reference) (including *inter partes* review and/or *ex parte* reexamination) for the Asserted Patents and related patents and/or patent applications; any deposition testimony of the named inventors on the Asserted Patents; and the papers filed and any evidence submitted by Plaintiff in connection with this litigation or other of its past, current, or future litigations or administrative proceedings (including *inter partes* review and/or *ex parte* reexamination) concerning or relating to one or more of the Asserted Patents. Microsoft further incorporates its answer to Plaintiff's Complaint (Docket Entry 13) and its Initial and Additional Disclosures.

II. IDENTIFICATION OF PRIOR ART (P.R. 3-3(A)) AND CLAIM CHARTS (P.R. 3-3(C))

Pursuant to P.R. 3-3(a) and subject to Microsoft's reservation of rights, Microsoft identifies the following prior art that anticipates and/or renders obvious the Asserted Claims, either expressly or inherently as understood by a person having ordinary skill in the art. Microsoft further incorporates by reference all prior art, publications, and other references identified or asserted in any current or future post-grant proceedings challenging the validity of the Asserted Patents. Additionally, Microsoft incorporates any potential future Petitions for *inter partes* review, *ex parte* reexamination, and/or any other post-grant proceedings that may be filed.

Pursuant to P.R. 3-3(c), Microsoft hereby identifies the following Exhibits which include claim charts specifying where in the charted prior art references—both as to the primary references and the secondary references relied on for the disclosed obviousness combinations—the elements of the asserted claims are found:

Asserted Patent	Exhibits
U.S. Pat. No. 9,734,825	A-1 to A-8
U.S. Pat. No. 7,398,209	B-1 to B-8

Asserted Patent	Exhibits
U.S. Pat. No. 8,196,468	C-1 to C-11
U.S. Pat. No. 9,626,959	D-1 to D-7
U.S. Pat. No. 7,634,409	E-1 to E-9
U.S. Pat. No. 8,015,006	F-1 to F-7
U.S. Pat. No. 7,809,570	G-1 to G-8
U.S. Pat. No. 7,917,367	H-1 to H-6
U.S. Pat. No. 8,620,659	I-1 to I-11

Microsoft notes that each exhibit discloses on a limitation-by-limitation basis the reference's disclosure, teaching, or suggestion of the limitations of the Asserted Claims in view of Plaintiff's apparent assertion of the Asserted Claims, and, in addition to such reference's disclosures, teachings, and suggestions, further discloses on a limitation-by-limitation basis in the chart for each patent providing additional disclosures that may be combined with the foregoing charted reference(s) to form obviousness combinations.

To the extent the Court's *Markman* ruling impacts the application of the prior art to the Asserted Claims and/or Plaintiff further clarifies how they are asserting the Asserted Claims and what scope or meaning they are applying to the various claim limitations, Microsoft reserves the right to amend or supplement these Invalidity Contentions. Microsoft also further states for clarity that while Microsoft relies on Plaintiff's apparent scope and meaning in its assertion of the Asserted Claims, the application of Plaintiff's apparent assertions to the prior art is in no way agreement with the scope and meaning of the Asserted Claims as apparently asserted by Plaintiff or an admission that Plaintiff's apparent assertions are correct. To the contrary, Microsoft denies that any accused product infringes any Asserted Patents, and Microsoft reserves all rights relating to the proper or correct scope and meaning of the Asserted Claims.

As discussed in more detail and defined below, on a patent-by-patent basis, the charted primary and secondary references are¹:

Primary References	Secondary References
U.S. Pat. No. 9,734,825	
<ul style="list-style-type: none"> • US 7,092,928 (“Elad-928”) • WO2000011571 (“Hartono”) • WO2001080096 (“Khan”) • Microsoft MiPad System (“MiPad 2002”) • MIT Galaxy System (“MIT Galaxy System 2002”) • Open Agent Architecture • General Magic Serengeti or Portico (“General Magic Systems”) • The Secondary References 	<ul style="list-style-type: none"> • WO2002089112 (“Robinson”); • US 8,392,188 (“Riccardi”); • US 6,675,159 (“Lin”); • US 6,895,083 (“Bers”); • US 2003/0216919 (“Roushar”); • US 5,946,654 (“Newman”); • US 7,062,488 (“Reisman”); • US 6,424,980 (“Iizuka”); • US 2002/0069194 (“Robbins”); • US 6,999,932 (“Zhou”); • US 5,689,697 (“Edwards”); • US 5,826,261 (“Spencer”); • US 6,262,730 (“Horvitz”); • XUEDONG HUANG ET AL., SPOKEN LANGUAGE PROCESSING (2001) (“Huang SLP”); • AAPA • The Primary References
U.S. Pat. No. 7,398,209	
<ul style="list-style-type: none"> • WO2001080096 (“Khan”) • US 7,092,928 (“Elad-928”) • WO2000011571 (“Hartono”) • Microsoft MiPad System (“MiPad 2002”) • MIT Galaxy System (“MIT Galaxy System 2002”) • Open Agent Architecture • General Magic Serengeti or Portico (“General Magic Systems”) • The Secondary References 	<ul style="list-style-type: none"> • WO2002089112 (“Robinson”); • US 8,392,188 (“Riccardi”); • US 6,675,159 (“Lin”); • US 6,895,083 (“Bers”); • US 2003/0216919 (“Roushar”); • US 5,946,654 (“Newman”); • US 7,062,488 (“Reisman”); • US 6,424,980 (“Iizuka”); • US 2002/0069194 (“Robbins”); • US 6,999,932 (“Zhou”); • US 5,689,697 (“Edwards”); • US 5,826,261 (“

¹ Microsoft does not concede that any reference is necessarily or solely “primary” or “secondary,” which “is merely a matter of presentation with no legal significance.” See *Schwendimann v. Neehna, Inc.*, 82 F.4th 1371, 1384 (Fed. Cir. 2023) (quoting and citing cases).

Primary References	Secondary References
	<ul style="list-style-type: none"> • Spencer”); • US 7,043,420 (“Ratnaparkhi”); • US 6,144,938 (“Surace”); • US 7,167,824 (“Kallulli”); • US 6,262,730 (“Horvitz”); • D. Moran et al., <i>Multimodal User Interfaces in the Open Agent Architecture</i>, Proceedings of 2nd Internal conference on Intelligent User Interfaces (1997) (“Moran”); • US 6,292,767 (“Jackson”); • US 5,754,939 (“Herz”); • US 6,173,279 (“Levin”); • US 5,652,897 (“Linebarger”); • XUEDONG HUANG ET AL., SPOKEN LANGUAGE PROCESSING (2001) (“Huang SLP”). • AAPA • The Primary References
U.S. Pat. No. 8,196,468	
<ul style="list-style-type: none"> • Dragon Naturally Speaking • IBM ViaVoice and WebSphere System • Telelogue System • Microsoft MiPad System (“MiPad”) • Nuance Communications System (“Nuance System”) • VoiceBox System • W3C Standards System (“W3C Standards”) • U.S. Patent No. 5,748,974 (“Johnson”) • U.S. Patent Publication No. 2004/0044516 (“Kennewick”) • U.S. Patent No. 6,964,023 (“Maes”) • The Secondary References 	<ul style="list-style-type: none"> • U.S. Patent No. 7,137,126 (“Coffman-126”); • U.S. Patent App. Pub. No. 2004/0044516 (“Kennewick”); • U.S. Patent App. Pub. No. 2003/0093419 (“Bangalore”); • U.S. Patent App. Pub. No. 2004/0225499 (“Wang-499”); • U.S. Patent No. 7,085,723 (“Ross-723”); • U.S. Patent No. 6,453,315 (“Weissman”); • U.S. Patent App. Pub. No. 2002/0160766 (“Portman”); • U.S. Patent App. Pub. No. 2002/0087315 (“Lee-315”); • U.S. Patent App. Pub. No. 2002/0087306 (“Lee-306”); • U.S. Patent No. 7,925,506 (“Farmaner”); • U.S. Patent No. 7,684,985 (“Dominach”);

Primary References	Secondary References
	<ul style="list-style-type: none"> • U.S. Patent App. Pub. No. 2004/0030556 (“Bennett-556”); • U.S. Patent App. Pub. No. 2004/0148170 (“Acero”); • U.S. Patent App. Pub. No. 2004/0176954 (“Wang-954”); • Microsoft Bob; • Microsoft Agent; • AAPA • The Primary References
U.S. Pat. No. 9,626,959	
<ul style="list-style-type: none"> • How to obey the 7 commandments for spoken dialogue?” Emiel Krahmer (“Krahmer”) • U.S. Patent Publication No. 2004/0044516 (“Kennewick”) • IBM ViaVoice and WebSphere System • Dragon Naturally Speaking • Robust Spoken Dialogue Management for Driver Information Systems,” Xavier Pouteau (“Pouteau”) • Microsoft MiPad (“MiPad”) • The Secondary References 	<ul style="list-style-type: none"> • U.S. Patent No. 6,622,119 (“Ramaswamy-119”); • Ramaswamy et al., A Pervasive Conversational Interface for Information Interaction, 6th European Conference on Speech Communication and Technology (1999) (“Ramaswamy NPL”), which is incorporated in Ramaswamy-119 by reference (<i>see</i> Ramaswamy-119 at 4:52-55) • XUEDONG HUANG ET AL., SPOKEN LANGUAGE PROCESSING (2001) (“Huang SLP”) • AAPA • The Primary References
U.S. Pat. No. 7,634,409	
<ul style="list-style-type: none"> • HETEROGENEOUS LEXICAL UNITS FOR AUTOMATIC SPEECH RECOGNITION: PRELIMINARY INVESTIGATIONS (“Bazzi”) • Microsoft MiPad (“MiPad”) • MIT Galaxy System (“MIT Galaxy System”) • U.S. Patent 7,366,699 (“Nishitani”) • XUEDONG HUANG ET AL., SPOKEN LANGUAGE PROCESSING (2001) (“Huang SLP”) • Telelogue System • IBM ViaVoice and WebSphere System 	<ul style="list-style-type: none"> • Data-Driven Approaches for Automatic Detection of Syllable Boundaries (“Tian-2004”) • U.S. Patent 6,108,627 (“Sabourin”) • U.S. Patent Pub. No. 2005/0055209 (“Epstein”) • AAPA • The Primary References

Primary References	Secondary References
<ul style="list-style-type: none"> • Integrating Syllable Boundary Information Into Speech Recognition, Wu (“Wu”) • The Secondary References 	
U.S. Pat. No. 8,015,006	
<ul style="list-style-type: none"> • WO2000011571 (“Hartono”) • WO2001080096 (“Khan”) • Microsoft MiPad System (“MiPad 2002”) • MIT Galaxy System (“MIT Galaxy System 2002”) • Open Agent Architecture • General Magic Serengeti or Portico (“General Magic Systems”) • The Secondary References 	<ul style="list-style-type: none"> • WO2002089112 (“Robinson”); • US 8,392,188 (“Riccardi”); • US 6,675,159 (“Lin”); • US 6,895,083 (“Bers”); • US 2003/0216919 (“Roushar”); • US 5,946,654 (“Newman”); • US 7,062,488 (“Reisman”); • US 6,424,980 (“Iizuka”); • US 2002/0069194 (“Robbins”); • US 6,999,932 (“Zhou”); • US 5,689,697 (“Edwards”); • US 5,826,261 (“Spencer”); • US 7,043,420 (“Ratnaparkhi”); • US 7,167,824 (“Kallulli”); • US 6,262,730 (“Horvitz”); and • XUEDONG HUANG ET AL., SPOKEN LANGUAGE PROCESSING (2001) (“Huang SLP”); • AAPA • The Primary References
U.S. Pat. No. 7,809,570	
<ul style="list-style-type: none"> • US 7,092,928 (“Elad-928”) • WO2000011571 (“Hartono”) • WO2001080096 (“Khan”) • Microsoft MiPad System (“MiPad 2002”) • MIT Galaxy System (“MIT Galaxy System 2002”) • Open Agent Architecture • General Magic Serengeti or Portico (“General Magic Systems”) • The Secondary References 	<ul style="list-style-type: none"> • WO2002089112 (“Robinson”); • US 8,392,188 (“Riccardi”); • US 6,675,159 (“Lin”); • US 6,895,083 (“Bers”); • US 2003/0216919 (“Roushar”); • US 5,946,654 (“Newman”); • US 7,062,488 (“Reisman”); • US 6,424,980 (“Iizuka”); • US 2002/0069194 (“Robbins”); • US 6,999,932 (“Zhou”); • US 5,689,697 (“Edwards”); • US 5,826,261 (“Spencer”); • US 7,043,420 (“Ratnaparkhi”); • US 7,167,824 (“Kallulli”); • US 6,262,730 (“Horvitz”); and

Primary References	Secondary References
	<ul style="list-style-type: none"> • XUEDONG HUANG ET AL., SPOKEN LANGUAGE PROCESSING (2001) (“Huang SLP”); • AAPA • The Primary References
U.S. Pat. No. 7,917,367	
<ul style="list-style-type: none"> • U.S. Patent Publication No. 2002/0059425 (“Belfiore”) • Intelligent Room System • U.S. Patent Publication No. 2004/0044516 (“Kennewick”) • U.S. Patent No. 7,203,907 (“Weng”), • Open Agent Architecture • The Secondary References 	<ul style="list-style-type: none"> • U.S. Publication No. 2002/0133354 (“Ross-354”) • WIPO Publication No. 2001/080096 (“Khan”) • WIPO Publication No. 2001/078065 (“Weber”) • AAPA • The Primary References
U.S. Pat. No. 8,620,659	
<ul style="list-style-type: none"> • Microsoft MiPad (“MiPad”) • TellMe System • HeyAnita System • General Magic Serengeti or Portico (“General Magic Systems”) • U.S. Patent No. 6,622,119 (“Ramaswamy-119”), which incorporates Ramaswamy et al., A Pervasive Conversational Interface for Information Interaction, 6th European Conference on Speech Communication and Technology (1999) (“Ramaswamy NPL”) (<i>see</i> Ramaswamy-119 at 4:52-55) • U.S. Patent Publication No. 2007/0038436 (“Di Cristo”) • Siri • Vlingo System (“Vlingo”) • Google Search and Google Voice Search • CALO System (“CALO”) • The Secondary References 	<ul style="list-style-type: none"> • “Probabilistic User Behavior Models,” Eren Manavoglu (“Manavoglu”) • WO2000011571 (“Hartono”) • U.S. Patent Publication No. 2005/0054381 (“Lee-381”) • XUEDONG HUANG ET AL., SPOKEN LANGUAGE PROCESSING (2001) (“Huang SLP”) • Microsoft Bob; • Microsoft Agent; • AAPA • The Primary References

A. Background and State of the Art

Microsoft played a significant role in the development and advancement of speech recognition technologies over the past several decades. The company's involvement in this field has resulted in the integration of speech recognition technology into multiple products and platforms, shaping the modern landscape of voice-based user interfaces. As the company continued to develop and integrate speech capabilities across its vast ecosystem of operating systems and applications, its research and development efforts contributed to fundamental advances in both the accuracy and usability of speech recognition systems.

By the early 1990s, automatic speech recognition (ASR) had advanced from simple isolated-word systems to more sophisticated, albeit still limited, continuous speech recognition. Companies such as IBM, Dragon Systems, and Kurzweil had developed commercial products that enabled dictation and voice commands. These systems often required extensive user training and were limited in vocabulary and environmental robustness. Microsoft recognized both the limitations and opportunities in the emerging speech recognition market and began to invest heavily in research and development in this domain.

Microsoft formally entered the commercial speech recognition arena in the mid-1990s, leveraging its expertise in software engineering and user interface design. The company's initial forays into speech technology were closely aligned with its vision of natural user interfaces for computing. Microsoft established dedicated research teams, notably, Microsoft Research (MSR), formally founded in 1991, to explore natural language and speech processing. Through the mid-1990s, MSR published foundational work on Hidden Markov Models (HMMs), feature extraction, and acoustic modeling - core technologies that underpin continuous speech recognition.

In 1998, Microsoft formally established a Speech Technology Group to focus on speech recognition and synthesis. The Speech Technology Group focused on technology with a goal of enabling voice interactions with a whole computer system. Initial work in support of this objective fell into four areas: speech recognition technology, code-named Whisper; speech synthesis technology, code-named Whistler; spoken language understanding technology, code-named Leap; and the Speech Software Developer's Kit that facilitates full integration of speech functionality into applications via the Microsoft Speech Application Programming Interface (SAPI).² These advances were the foundation for the company's first consumer-facing speech recognition products.

A significant milestone was Microsoft's introduction of speech recognition capabilities as part of the Microsoft Windows platform. In 1995, Microsoft released the Microsoft "Speech Application Programming Interface" (SAPI) version 1.0, providing third-party developers with APIs to access and utilize speech recognition and synthesis features on Windows devices. SAPI set the stage for subsequent integration of advanced speech technology into Microsoft's operating systems and productivity suites.

As an overview, the SAPI is a Microsoft-developed API that enables speech recognition and synthesis capabilities in Windows applications. SAPI 1.0, released in 1995 for Windows 95 and Windows NT 3.5, introduced low-level Direct Speech Recognition and Direct Text-to-Speech APIs. It also included simplified high-level interfaces like Voice Command and Voice Talk, allowing developers to integrate basic speech functionality into their applications.³

² See *Spoken Language Technology Research at Microsoft*, Xuedong Huang, <https://www.microsoft.com/en-us/research/publication/spoken-language-technology-research-at-microsoft/>

³ See *Microsoft Speech SDK SAPI 5.1*, at 227.

SAPI 3.0, launched in 1997, added support for discrete dictation recognition. SAPI 4.0, released in 1998, built upon the advancements of SAPI 3.0 to provide fully supported continuous dictation, command-and-control speech recognition, direct speech recognition, speech synthesis, and support for audio objects and telephony applications. The SAPI 4.0 software development kit (SDK) included both recognition and synthesis engines. SAPI 4.0 was supported by Windows 95, Windows NT 4.0, Windows 98, Windows 2000, Windows ME, Windows XP and later, and Windows Server 2003 and later.

In 2000, a complete redesign of the API was released as SAPI 5.0. The redesigned API introduced a shared recognizer runtime component that separated applications from speech engines, improving modularity and engine independence development. SAPI 5.0 also supported XML-based grammars, shared and in-proc recognizers, custom lexicons, object tokens for text-to-speech engines, speech synthesis capable of producing audio streams from text, and special acoustic models for children's speech and telephony speech. The SAPI 5.0 API was supported by the Microsoft operating systems that supported SAPI 4.0 and was shipped as part of Office XP in 2001.⁴

Microsoft continued development of the SAPI 5.0 API, releasing SAPI 5.1 in 2001 which added automation-compliant interfaces and enabling use with Visual Basic, JScript, and managed code. It shipped with Windows XP and included improved synthesis engines and broader language support.⁵ SAPI 5.2 was released in 2004 as a part of Microsoft Speech Server 2004. Speech Server supported voice-driven applications and telephony through both DTMF and speech interfaces, provided speech application language tags (SALT) support for multimodal applications employing

⁴ *Microsoft Speech SDK SAPI 5.1, supra*, at 2096.

⁵ See *Speech SDK 5.1*, <https://www.microsoft.com/en-us/research/publication/spoken-language-technology-research-at-microsoft/>

scalable, standards-based architectures. SAPI 5.2 added support for Speech Recognition Grammar Specification (SRGS) and Speech Synthesis Markup Language (SSML), enhancing server-side speech processing.⁶

Through the development of SAPI, Microsoft built a foundation to support speech recognition for Windows operating systems and applications as early as 1995. However, the advances Microsoft contributed to the field of Speech Recognition technology were not limited to the SAPI API.

Microsoft Agent is a product introduced by Microsoft in the late 1990s that enabled the inclusion of interactive animated characters into applications and web browsers that were capable of responding to user input via speech and text. Microsoft Agent 1.0 debuted in 1997 as part of the Windows 95 and Internet Explorer 4.0 ecosystem. It provided developers controls for embedding characters into applications and web pages, along with support for text-to-speech (TTS) and command-and-control speech recognition via the Microsoft Speech API (SAPI) 4.0. Agent characters such as Merlin, Genie, Peedy, and Robby were bundled with the platform and could be customized using the Microsoft Agent Character Editor. Agent characters were also embedded into the Microsoft Office Suite, such as the infamous Clippy.⁷

Microsoft Agent 2.0, released on October 12, 1998, included enhanced animation scripting, multilingual support, and tighter integration with SAPI. To enable speech input, Microsoft Agent

⁶ *Microsoft Launches Microsoft Speech Server 2004 R2 with Expanded Language Support and New Development Options*, Microsoft, May 23, 2005, <https://news.microsoft.com/source/2005/05/23/microsoft-launches-microsoft-speech-server-2004-r2-with-expanded-language-support-and-new-deployment-options/>; *Speech Utilities for Microsoft Speech Technologies*, Legacy Update, June 17, 2005, <https://legacyupdate.net/download-center/download/18885/speech-utilities-for-microsoft-speech-technologies>.

⁷ See *Welcome to Microsoft Agent*, Microsoft, July 20, 2001; *Microsoft Agent User Interface*, Microsoft, July 20, 2001.

provided command objects with voice properties, which enabled a virtual agent to load a compatible speech recognition engine based on the character's language identifier.⁸ Microsoft Agent utilized SAPI to locate and initialize the appropriate recognition engine automatically, however, the product also allowed developers specify a particular engine for speech recognition if so desired.

Microsoft Agent's speech recognition capabilities were designed to work with third-party engines that conformed to SAPI interfaces, and its speech services were automatically loaded upon initiation of a listening mode or when the application invoked a listening method. For speech output, Microsoft Agent provided a Speak method which triggered the loading of a compatible text-to-speech engine based on the language settings for an agent or a developer-specified language.⁹ Microsoft Agent laid the groundwork for future speech-enabled interfaces and remains a notable milestone in Microsoft's early efforts to humanize computing through voice and speech.

Microsoft's advancements in speech recognition software in the early 90's provided a framework to revolutionize the way people interact with software. By leveraging advances developed by MSR and the Speech Technology Group, Microsoft introduced software to transcribe and understand human speech - an invaluable tool to enhance user interaction with applications via virtual assistants and provided improved accessibility features allowing more users to use computing devices. Building on this foundation, Microsoft ventured into the realm of speech-enabled hardware devices.

MiPad, short for "Multimodal Interactive Notepad," was developed by the Speech Technology Group as part of a broader initiative codenamed Dr. Who, aimed at creating speech-

⁸ See *Accessing Speech Services (Microsoft Agent Control)*, Microsoft Learn, <https://learn.microsoft.com/en-us/windows/win32/lwef/accessing-speech-services->.

⁹ See *id.*

centric interaction frameworks for devices. Development began in 1998, with the first public demonstration of MiPad in 2000. MiPad served as a prototype platform to explore multimodal interaction, specifically the fusion of speech and pen input, on mobile devices. MiPad was designed to overcome the limitations of PDAs and early smartphones, which relied heavily on tiny styluses and minuscule keyboards. MiPad's ability to process speech input addressed the difficulties inherent to operating handheld devices, such as the struggle users had wrapping their hands around a small pen and hitting the tiny targets of an on-screen keyboard or using tiny physical keyboards.¹⁰

MiPad introduced a client-server architecture where the handheld device handled signal processing and UI logic while the server performed continuous speech recognition (CSR) and spoken language understanding (SLU), as shown below. The system used a large vocabulary, context-free grammars (CFGs), and n-gram language models to interpret user input. Of particular note, MiPad provided innovations related to a Tap and Talk interface, improved fuzzy soft keyboards, and distributed speech processing.¹¹

¹⁰ See *MiPad - Microsoft Research*, <https://www.microsoft.com/en-us/research/project/mipad/>.

¹¹ See Xuedong Huang et al., MIPAD: A Multimodal Interactive Prototype, in *Proc. IEEE Int'l Conf. on Acoustics, Speech, and Signal Processing (ICASSP)*, Jan. 2001, <https://www.microsoft.com/en-us/research/publication/mipad-a-multimodal-interactive-prototype/>; L. Deng et al., Speech and Language Processing for Multimodal Human-Computer Interaction, 36 *J. VLSI Signal Processing Systems (Special Issue)* 2-3 (February-March 2004).

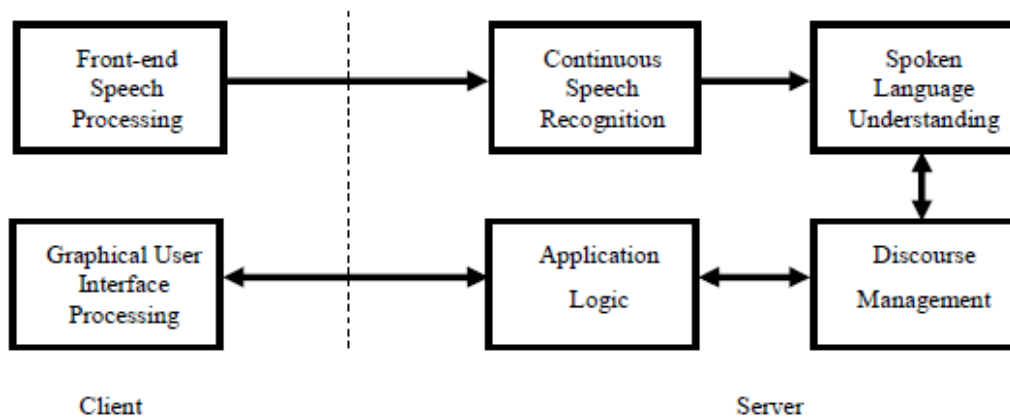


Figure 2: MiPad's client-server (peer-to-peer) architecture. The client is based on a Windows CE iPAQ, and the server is based on a Windows server. The client-server communication is currently based on the wireless LAN.

MiPad utilized Microsoft's Dr. Who Continuous Speech Recognition (CSR) engine. The Dr. Who CSR provided a number of speech recognition enhancements, including: Speaker-adaptive acoustic modeling using MLLR and MAP, noise robust front-end processing of speech input, unified language models that combine context-free grammars (CFGs) and n-gram language models, and plan-based dialog managers. By leveraging the Dr. Who CSR, MiPad was capable of interpreting varied phrasing and normalizing user intent when processing natural language data.¹² For instance, MiPad was capable of recognizing that phrases such as "fancy food, not too expensive" and "gourmet food, cheap" conveyed the same request.¹³

¹² See *MiPad - Microsoft Research, supra*.

¹³ See Li Deng et al., Distributed Speech Processing in MiPad's Multimodal User Interface, 10 IEEE Trans. Speech & Audio Processing 605 (2002), <https://www.microsoft.com/en-us/research/publication/distributed-speech-processing-in-mipads-multimodal-user-interface/>.

MiPad's Tap and Talk interface allowed a user to select a field in the device's graphical user interface before speaking, as exemplified below:¹⁴

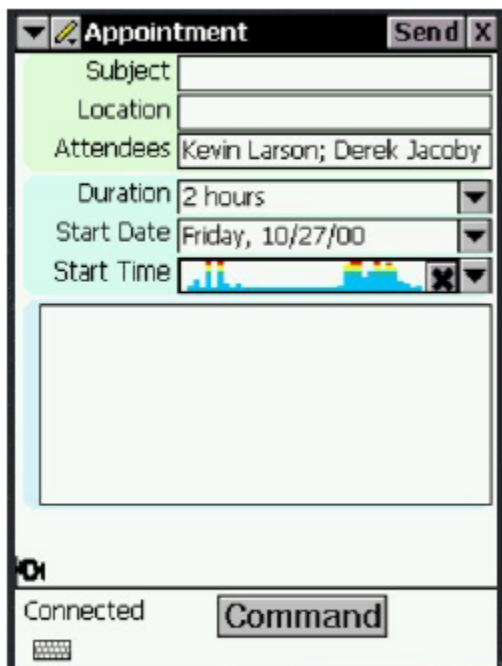


Figure 1. MiPad Screenshot. The user is tapping on the Start Time field and talking to the device.

The Tap and Talk interface allowed the MiPad to anticipate the type of input received via speech. The Tap and Talk paradigm enabled context-sensitive speech recognition, reducing ambiguity and improving accuracy when processing speech input. For example, tapping the "To" field before speaking helped the system expect a name, not a general phrase.¹⁵ MiPad further

¹⁴ See Li Deng et al., Distributed Speech Processing in MiPad's Multimodal User Interface, 10 IEEE Trans. Speech & Audio Processing 605 (2002), <https://www.microsoft.com/en-us/research/publication/distributed-speech-processing-in-mipads-multimodal-user-interface/>; Ye-Yi Wang, *Robust Language Understanding in MiPad*, Eurospeech (2001); see also Li Deng et al., Distributed Speech Processing in MiPad's Multimodal User Interface, 10 IEEE Trans. Speech & Audio Processing 605 (2002).

¹⁵ See See Xuedong Huang et al., MIPAD: A Multimodal Interactive Prototype, in *Proc. IEEE Int'l Conf. on Acoustics, Speech, and Signal Processing (ICASSP)*, Jan. 2001, <https://www.microsoft.com/en-us/research/publication/mipad-a-multimodal-interactive-prototype/>.

leveraged language models to correct miss-taps on a fuzzy keyboard and provided technology distributed speech processing in which speech input is compressed and transmitted wirelessly to a server for decoding.¹⁶

Building on the innovations of SAPI and MiPad, Microsoft continued to push the boundaries of speech recognition technology. The company's commitment to enhancing user interaction naturally extended into the automotive industry, where Microsoft made strides with its speech-enabled products. Leveraging the robust functionality of Windows CE, Microsoft developed advanced speech recognition systems tailored for automotive applications. These systems provide drivers with hands-free control over various functions, from navigation to communication to operating car stereos, thereby ensuring a safer driving experience. By integrating its cutting-edge software into the automotive sector, Microsoft paved the way for a future where vehicles are not only smarter but also more responsive to the needs of their users.

Microsoft's Automotive Business Unit (ABU) was created in 1995 in response to growing consumer demand for in-car connectivity and infotainment solutions. The unit was established as a multidisciplinary team composed of product developers and business leaders across North America, Japan, and Germany, with the goal of delivering embedded software platforms for automotive systems.¹⁷ In 1998, Microsoft partnered with Clarion to release the AutoPC, the first commercial in-car system based on Windows CE 2.0, which featured early voice control and infotainment capabilities.

¹⁶ *See id.*

¹⁷ *Microsoft Auto 4.0 Datasheet*, Microsoft Automotive Business Unit Overview, <https://download.microsoft.com/download/6/5/0/6505FA0E-1F39-4A34-BDC9-A655A5D3D2DB/MicrosoftAutoOverview.pdf>

AutoPC was a pioneering in-vehicle computing system that integrated speech technologies to enable hands-free control and safer driving experiences. AutoPC supported over 200 voice commands, allowing users to control music playback, make phone calls, retrieve contact information, and navigate menus - all without taking their hands off the wheel or eyes off the road. The system provided text-to-speech functionality to read aloud emails, messages, and navigation instructions, using synthesized speech to relay information back to the driver. AutoPC provided a number of speech-based applications such as a built-in voice memo recorder, address book, and navigation system. With access to GPS and map data, AutoPC could provide spoken turn-by-turn directions.¹⁸

AutoPC evolved into Windows CE for Automotive, which was announced in October 2000. Windows CE for Automotive introduced enhanced support for hands-free communication, navigation, and infotainment systems. Windows CE for Automotive's speech recognition functionality allowed drivers to interact with their vehicles using natural voice commands. Windows CE for Automotive provided a Speech User Interface (SUI) and leveraged SAPI 5.0 to support phonetic-based speech recognition and human-like text-to-speech (TTS) services. These technologies enabled safe, eyes-free access to features like address books, music playback, and turn-by-turn navigation. The system also included Driver Distraction Control safeguards, such as speech queuing and override mechanisms that paused voice interactions during unsafe driving conditions.

Windows CE for Automotive continued its evolution and was released as Windows Automotive 4.2 in June 2003. Windows Automotive 4.2. provided enhanced speech recognition

¹⁸ Paul Festa, Clarion to Build AutoPC Using MS Software, CNET (Jan. 8, 1998), available at <https://www.cnet.com/tech/tech-industry/clarion-to-build-autopc-using-ms-software>

capabilities as part of Microsoft's push to improve telematics and driver safety. Built on Windows CE.NET 4.2, the platform integrated Bluetooth connectivity and voice command functionality, thereby allowing drivers to interact with a vehicle's infotainment system using natural speech. Windows Automotive 4.2 provided features like hands-free calling, voice dialing, and audio system control via dashboard-mounted microphones and car speakers. The system leveraged SAPI to process commands locally, reducing latency and improving reliability of the speech interface. These features were designed to minimize driver distraction by eliminating the need to manually operate devices while driving. Windows Automotive 4.2 was adopted by manufacturers such as Volvo, Honda, and BMW, and marked a significant step toward mainstreaming voice-enabled functionality in vehicles.¹⁹

From the groundbreaking advancements in speech recognition software like SAPI to the innovations related to MiPad, Microsoft has consistently demonstrated its commitment to enhancing the user experience when dealing with various different types of devices. This dedication has seamlessly transitioned into various different industries, such as the automotive industry, where Microsoft's speech-enabled products, lead to a revolution in how users interact with their car's systems. These efforts collectively highlight Microsoft's vision of creating a cohesive and responsive technological ecosystem that spans various domains, ultimately enriching the lives of users worldwide.

Microsoft's speech recognition initiatives from the mid-1990s onward laid much of the groundwork for the voice-driven computing landscape that followed. With early public releases of

¹⁹ *Microsoft Brings Web Services and Bluetooth to Cars Worldwide*, Microsoft News Center (Apr. 28, 2003), <https://news.microsoft.com/source/2003/04/28/microsoft-brings-web-services-and-bluetooth-to-cars-worldwide/>.

SAPI, deep integration into flagship products, and a steady stream of published research and product documentation, Microsoft made key contributions to the state of the art.

B. Patent and Publication Art

The following patents and publications are prior art to each Asserted Patent under at least pre-AIA 35 U.S.C. §§ 102(a), (b), (e), (g), and/or 103 and/or provide information as to the background or state of the art in the relevant field. Microsoft does not concede that, in listing a prior art reference under a heading for one or more Asserted Patents, so-listed references are not prior art to other Asserted Patents. In addition to the patents and publications listed in the charts below, Microsoft incorporates by reference all related patents and patent applications and foreign counterparts, as well as all patents and applications and other materials they incorporate by reference. The following prior art documents are included in the document production Microsoft is providing concurrently with these Invalidity and Subject Matter Eligibility Contentions.

1. '825, '209, '006, and '570 Patents

Country	Patent No. / Publication No. / Title	First Named Inventor / Author / Source(s)	Date of Issue / Publ.
	A Robust System for Natural Spoken Dialogue	Allen	June 1, 1996
	Synchronization in an Asynchronous Agent-based Architecture for Dialogue Systems	Blaylock	July 2002
	The Model-Assisted Global Query System for Multiple Databases in Distributed Enterprises	Cheung	October 1996
	An Open Agent Architecture	Cohen	1994
	Using Dialog and Context in a Speech-Based Interface for an Information Visualization Environment	Cox	May 1, 2000
EP	1,094,406	Kuhn	April 25, 2001
	Software Agents	Genesereth	April 7, 2025

Country	Patent No. / Publication No. / Title	First Named Inventor / Author / Source(s)	Date of Issue / Publ.
	Applying the Adaptive Agent Oriented Software Architecture to the Parsing of Context Sensitive Grammars	Hodjat	May 2000
	SPICE A Multimodal Conversational User Interface to an Electronic Program Guide	Kellner	June 17-19, 2002
	Multimodal User Interfaces in the Open Agent Architecture	Moran	1997
	Dialogue Management in a Home Machine Environment: Linguistic Components over an Agent Architecture	Quesada	Jan., 2001
	GALAXY-II: A REFERENCE ARCHITECTURE FOR CONVERSATIONAL SYSTEM DEVELOPMENT1	Seneff	Nov., 1998
US	5,500,920	Kupiec	Mar. 19, 1996
US	5,652,897	Linebarger	Jul. 29, 1997
US	5,689,697	Edwards	Nov. 18, 1997
US	5,748,974	Johnson	May 5, 1998
US	5,754,939	Herz	May 19, 1998
US	5,946,654	Newman	Aug. 31, 1999
US	6,144,989	Hodjat	Nov. 7, 2000
US	6,163,768	Sherwood	Dec. 19, 2000
US	6,173,279	Levin	Jan. 9, 2001
US	6,208,972	Grant	Mar. 27, 2001
US	6,292,767	Jackson	Sep. 18, 2001
US	6,292,779	Wilson	Sep. 18, 2001
US	6,424,980	Iizuka	Jul. 23, 2002
US	6,498,921	Ho	Dec. 24, 2002
US	6,529,863	Ball	Mar. 4, 2003
US	6,633,846	Bennett	Oct. 14, 2003
US	6,675,159	Lin	Jan. 6, 2004
US	6,701,311	Biebesheimer	Mar. 2, 2004
US	6,735,592	Neumann	May 11, 2004
US	6,829,603	Chai	Dec. 7, 2004
US	6,851,115	Cheyser	Feb. 1, 2005
US	6,895,083	Bers	May 17, 2005
US	6,963,832	Vanhilst	Nov. 8, 2005
US	6,999,932	Zhou	Feb. 14, 2006
US	7,013,275	Arnold	Mar. 14, 2006

Country	Patent No. / Publication No. / Title	First Named Inventor / Author / Source(s)	Date of Issue / Publ.
US	7,043,420	Ratnaparkhi	May 9, 2006
US	7,062,488	Reisman	Jun. 13, 2006
US	7,092,928	Elad	Aug. 15, 2006
US	7,167,824	Kalluli	Jan. 23, 2007
US	7,289,964	Bowman-Amuah	Oct. 30, 2007
US	7,315,811	Cote	Jan. 1, 2008
US	7,319,992	Goas	Jan. 15, 2008
US	8,027,945	Elad	Sep. 27, 2001
US	8,392,188	Riccardi	Mar. 5, 2013
US	2001/0056344	Ramaswamy	Dec. 27, 2001
US	2002/0059069	Hsu	May 16, 2002
US	2002/0059204	Harris	May 16, 2002
US	2002/0069194	Robbins	Jun. 6, 2002
US	2002/0133488	De Bellis	Sep. 19, 2002
US	2002/0169597	Fain	Nov. 14, 2002
US	2002/0184023	Busayapongchai	Dec. 5, 2002
US	2003/0005174	Coffman	Jan. 2, 2003
US	2003/0182131	Arnold	Sep. 25, 2003
US	2003/0216919	Roushar	Nov. 20, 2003
WO	2000/011571	Hartono	Mar. 2, 2000
WO	2000/058945	Thelan	Oct. 5, 2000
WO	2001/080096	Khan	Oct. 25, 2001
WO	2002/089112	Robinson	Nov. 7, 2002
	Spoken Language Processing	Huang	2001
US	5826261	Spencer	Oct. 20, 1998
US	6144938	Surace	Nov. 7, 2000
US	6262730	Horvitz	Jul. 17, 2001

2. '468 Patent

Country	Patent No. / Publication No. / Title	First Named Inventor / Author / Source(s)	Date of Issue / Published
US	7,137,126	Coffman	Nov. 14, 2006
US	2004/0044516	Kennewick	Mar. 4, 2004
US	2003/0093419	Bangalore	May 15, 2003
US	2004/0225499	Wang	Nov. 11, 2004
US	7,085,723	Ross	Aug. 1, 2006
US	6,453,315	Weissman	Sept. 17, 2002
US	2002/0160766	Portman	Oct. 31, 2002
US	2002/0087315	Lee	July 4, 2002

Country	Patent No. / Publication No. / Title	First Named Inventor / Author / Source(s)	Date of Issue / Published
US	2002/0087306	Lee	July 4, 2002
US	7,925,506	Farmaner	Apr. 12, 2011
US	7,684,985	Dominach	Sept. 2, 2004
US	2004/0030556	Bennett	Feb. 12, 2004
US	2004/0148170	Acero	July 29, 2004
US	2004/0176954	Wang	Sept. 9, 2009
US	6,003,002	Netsch	Dec. 14, 1999
	Natural Language Understanding	Allen	1995
	Spoken Language Processing	Huang	2001
US	5,748,974	Johnson	May 5, 1998
US	2004/0044516	Kennewick	Mar. 4, 2004

3. '959 and '659 Patents

Country	Patent No. / Publication No. / Title	First Named Inventor / Author / Source(s)	Date of Issue / Publ.
US	7,567,946	Andreoli	Jul. 28, 2009
WO	03/012704	Azvine	Feb 13, 2003
US	2008/0133244	Bodin	Jun 5, 2008
WO	2001027803	Charnock	Apr 19, 2001
US	2007/0005646	Dumais	Jan. 4, 2007
	GUMS: A General User Modeling System	Finin	1986
US	5,754,939	Herz	May 19, 1998
US	6,144,989	Hodjat	Nov. 7, 2000
US	2004/0254957	Hytyniemi	Dec. 16, 2004
US	6,385,582	Iwata	May 7, 2002
	When Actions Have Consequences- Empirically Based Decision Making for Intelligent User Interfaces	Jameson	March, 2001
	Krahmer - How to obey the 7 commandments for spoken dialogue	Krahmer	1997
US	2005/0054831	Lee	Mar. 10, 2005
US	6,088,669	Maes	Jul. 11, 2000
	Probabilistic User Behavior Models	Manavoglu	2003
JP	2010-198243	Matsudaira	Sept. 9, 2010
US	2010/0094767	Miltonberger	Apr. 15, 2010
US	2007/0011039	Oddo	Jan. 11, 2007
JP	2001-034289	Osada	Feb 9, 2001

Country	Patent No. / Publication No. / Title	First Named Inventor / Author / Source(s)	Date of Issue / Publ.
	Robust Spoken Dialogue Management for Driver Information Systems	Pouteau	1997
	A Pervasive Conversational Interface for Information Interaction 10.21437/Eurospeech.1999-671	Ramaswamy	Sept. 5, 1999
US	US 6,622,119	Ramaswamy	Sep.16, 2003
	Artificial Intelligence Dialects of the Bayesian Belief Revision Language CRIS #160 STERN #87-73 Working Paper [S-R7-73 IEEE Transactions On Systems, Man, And Cybernetics, Vol 19, No. September/October 1989	Schocken	Revised Sept. 1989
US	5,712,957	Waibel	Jan. 27, 1998
US	6,751,591	Gorin	Jun.15,2004
US	7,386,454	Gopinath	Jun.10,2008
US	8,370,362	Szabo	Feb.5,2013
US	2005/0054381	Lee	Mar. 10, 2005
US	2005/0159949	Yu	Jul. 21, 2005
US	2005/0159950	Roth	Jul. 21, 2005
US	6,505,155	Vanbuskirk	Jan.7, 2003
	User Models in Dialog Systems	Wahlster	1989
	Natural Language Processing and User Modeling- Synergies and Limitations <i>User Modeling and User-Adapted Interaction</i> 11: 129-158, 2001. ((2001 Kluwer Academic Publishers. Printed in the Netherlands	Zukerman	Revised Mar. 28, 2000
	Predictive Statistical Models for User Modeling	Zukerman	2001
WO	2000/011571	Hartono	Mar. 2, 2000
US	2007/0038436	Di Cristo	Feb. 15, 2007
US	2004/0044516	Kennewick	Mar. 4, 2004
	Spoken Language Processing	Huang	2001

4. '409 Patent

Country	Patent No. / Publication No. / Title	First Named Inventor / Author / Source(s)	Date of Issue / Publ.
	AUTOMATIC MODELING FOR ADDING NEW WORDS TO A LARGE-VOCABULARY CONTINUOUS SPEECH RECOGNITION SYSTEM	Asadi	1991
US	2004/0186714A1	Baker	Sep. 23, 2004
	HETEROGENEOUS LEXICAL UNITS FOR AUTOMATIC SPEECH RECOGNITION: PRELIMINARY INVESTIGATIONS	Bazzi	2000
	Articulatory Methods for Speech Production and Recognition	Blackburn	1997
	Multi-Rate And Variable-Rate Modeling Of Speech At Phone And Syllable Time Scales	Cetin	2005
	A Syllabic-Filler Based Continuous Speech Recognizer For Unlimited Vocabulary	El Meliani	1995
US	2005/0055209	Epstein	Mar. 10, 2005
	Syllable-a-promising-recognition-unit-for-LVCSR	Ganapathiraju	1997
US	2007/0124147	Gopinath	May 31, 2007
	Advances In Alphadigit Recognition Using Syllables	Hamaker	1998
	Experiments In Syllable - Based Recognition Of Continuous Speech	Hunt	1980
US	7146319	Hunt	Dec. 5, 2006
	Speech Recognition Using Demi-Syllable Neural Prediction Model	Iso	1990
	Continuous Speech Recognition Using Syllables	Jones	1997
	Multilingual Syllabification Using Weighted Finite-State Transducers	Kiraz	1998
	Syllable-level desynchronisation of phonetic features for speech recognition	Kirchoff	1996
US	6470315	Netsch	Oct. 22, 2002
US	7366669	Nishitani	Apr. 29, 2008
	Continuous Speech Recognition Using Hidden Markov Models	Picone	Jul. 1990

Country	Patent No. / Publication No. / Title	First Named Inventor / Author / Source(s)	Date of Issue / Publ.
	A Tutorial on Hidden Markov Models and Selected Applications in Speech Recognition	Rabiner	Feb. 1989
US	6108627	Sabourin	Aug. 22, 2000
	Acoustic Model Clustering Based on Syllable Structure	Shafran	October 2003
	A Tree-Trellis Based Fast Search for Finding the N Best Sentence Hypotheses in Continuous Speech Recognition	Soong	Nov. 1990
US	5806032	Sproat	Sept. 8, 1998
	Data-Driven Approaches for Automatic Detection of Syllable Boundaries	Tian	2004
	Optimal Subset Selection from Text Databases	Tian	2005
US	7831549	Tian	Nov. 9, 2010
US	2006/0064177A1	Tian	Mar. 23, 2006
	Integrating Syllable Boundary Information Into Speech Recognition	Wu	April 1997
	A Syllable-Based Chinese Spoken Dialogue System for Telephone Directory Services Primarily Trained with A Corpus	Yang	Dec. 4, 1998
	Spoken Language Processing	Huang	2001
WO	2003/058603	Lyudovik	July 17, 2003

5. '367 Patent

Country	Patent No. / Publication No. / Title	First Named Inventor / Author / Source(s)	Date of Issue / Publ.
US	2002/0059425	Belfiore	May 16, 2002
US	7,224,987	Bhela	May 29, 2007
	Synchronization in an Asynchronous Agent-based Architecture for Dialogue Systems	Blaylock	July 2002
WO	02/093445	Gabrielsson	Nov. 21, 2002
	Context- Awareness on Mobile Devices – the Hydrogen Approach	Hofer	2002
US	2004/0044516	Kennewick	March 4, 2004

Country	Patent No. / Publication No. / Title	First Named Inventor / Author / Source(s)	Date of Issue / Publ.
	WatchMe: communication and awareness between members of a closely-knit group	Marmasse	2004
	ContextPhone: A Prototyping Platform for context-Aware Mobile Applications	Raento	2005
US	US 7,031,724	Ross	April 18, 2006
US	5,513,298	Stanford	April 30, 1996
US	6,725,281	Zintel	April 20, 2004
US	6,983,307	Mumick	Jan. 3, 2006
US	7,203,907	Weng	April 10, 2007
US	7,725,307	Bennett	May 25, 2010
US	8,332,227	Maes	Dec. 11, 2012
US	9,495,652	Cook	Nov. 15, 2016
US	2002/0133354	Ross	Sept.19, 2002
US	2006/0165060	Dua	July 27, 2006
WO	01/78065	Weber	Oct. 18, 2001
WO	01/80096	Khan	Oct. 25, 2001
	An Exploration on Mobile Social Networking: Dodgeball as a Case in Point	Ziv	June 2006

C. Prior Art Systems and Prior Inventions to the Asserted Patents

This case is in its early stages, and investigation into prior art systems is ongoing and may require, *inter alia*, third-party discovery. Microsoft contends that numerous systems are prior art under at least pre-AIA 35 U.S.C. § 102(a). Specifically, numerous systems invented, known, in public use, sold, on sale, or otherwise available in the United States are prior art to the Asserted Patents under at least pre-AIA 35 U.S.C. §§ 102(a), (b), (g), and/or 103, including at least the following products, as evidenced by the exemplary disclosures and references cited below. Microsoft notes that discovery is only just beginning, and Microsoft reserves the right to rely on earlier priority dates, additional implementations and disclosures relating to the identified systems, and such other information as revealed during discovery, in order to, for example, provide

obviousness combinations involving prior art systems. Microsoft's currently known supporting evidence relating to system prior art is included in the document production provided concurrently with these Invalidity and Subject Matter Eligibility Contentions.

1. Identification of Prior Art Systems to Each Asserted Patent

For example, for at least the '825 patent, the following systems or products are prior art:

Instrument, Device, or System	Exemplary Date Invented, Known, Used, On Sale, or Made by Another in the U.S.	Currently Known Associated Persons / Entities
MiPad 2002	As early as 2000	Microsoft
MIT Galaxy System 2002	As early as 1994	MIT
Open Agent Architecture	As early as 1994	SRI International
General Magic Systems	As early as 1998	General Magic, Inc.

As additional examples, the following systems or products are prior art to at least the '209 patent:

Instrument, Device, or System	Exemplary Date Invented, Known, Used, On Sale, or Made by Another in the U.S.	Currently Known Associated Persons / Entities
MiPad 2002	As early as 2000	Microsoft

Instrument, Device, or System	Exemplary Date Invented, Known, Used, On Sale, or Made by Another in the U.S.	Currently Known Associated Persons / Entities
MIT Galaxy System 2002	As early as 1994	MIT
Open Agent Architecture	As early as 1994	SRI International
General Magic Systems	As early as 1998	General Magic, Inc.

As additional examples, the following systems or products are prior art to at least the '468 patent:

Instrument, Device, or System	Exemplary Date Invented, Known, Used, On Sale, or Made by Another in the U.S.	Currently Known Associated Persons / Entities
Dragon Naturally Speaking	As early as 2000	Dragon Systems
IBM ViaVoice and WebSphere System	As early as 1997	IBM

Instrument, Device, or System	Exemplary Date Invented, Known, Used, On Sale, or Made by Another in the U.S.	Currently Known Associated Persons / Entities
Telelogue System	As early as 2000	Telelogue, Inc.
MiPad	As early as 2000	Microsoft
Nuance System	At least as early as 2004	Nuance Communications, Inc.
VoiceBox System	At least as early as 2003	VoiceBox Technologies
W3C Standards	At least as early as 2004	World Wide Web Consortium and third-parties implementing the W3C Standards
Microsoft Bob	March 10, 1995	Microsoft
Microsoft Agent	No later than July 20, 2001	Microsoft

As additional examples, the following systems or products are prior art to at least the '959

patent:

Instrument, Device, or System	Exemplary Date Invented, Known, Used, On Sale, or Made by Another in the U.S.	Currently Known Associated Persons / Entities
IBM ViaVoice and WebSphere System	As early as 1997	IBM
Dragon Naturally Speaking	As early as 2000	Dragon Systems
MiPad	As early as 2000	Microsoft

As additional examples, the following systems or products are prior art to at least the '409

patent:

Instrument, Device, or System	Exemplary Date Invented, Known, Used, On Sale, or Made by Another in the U.S.	Currently Known Associated Persons / Entities
MiPad	As early as 2000	Microsoft

Instrument, Device, or System	Exemplary Date Invented, Known, Used, On Sale, or Made by Another in the U.S.	Currently Known Associated Persons / Entities
MIT Galaxy System	No later than 2002	MIT
IBM ViaVoice and WebSphere System	As early as 1997	IBM
Telelogue System	As early as 2000	Telelogue, Inc.

As additional examples, the following systems or products are prior art to at least the '006 patent:

Instrument, Device, or System	Exemplary Date Invented, Known, Used, On Sale, or Made by Another in the U.S.	Currently Known Associated Persons / Entities
MiPad 2002	As early as 2000	Microsoft
MIT Galaxy System 2002	As early as 1994	MIT

Instrument, Device, or System	Exemplary Date Invented, Known, Used, On Sale, or Made by Another in the U.S.	Currently Known Associated Persons / Entities
Open Agent Architecture	As early as 1994	SRI International
General Magic Systems	As early as 1998	General Magic, Inc.

As additional examples, the following systems or products are prior art to at least the '570 patent:

Instrument, Device, or System	Exemplary Date Invented, Known, Used, On Sale, or Made by Another in the U.S.	Currently Known Associated Persons / Entities
MiPad 2002	As early as 2000	Microsoft
MIT Galaxy System 2002	As early as 1994	MIT
Open Agent Architecture	As early as 1994	SRI International

Instrument, Device, or System	Exemplary Date Invented, Known, Used, On Sale, or Made by Another in the U.S.	Currently Known Associated Persons / Entities
General Magic Systems	As early as 1998	General Magic, Inc.

As additional examples, the following systems or products are prior art to at least the '367 patent:

Instrument, Device, or System	Exemplary Date Invented, Known, Used, On Sale, or Made by Another in the U.S.	Currently Known Associated Persons / Entities
Intelligent Room	As early as 1998	MIT
Open Agent Architecture	As early as 1994	SRI International

As additional examples, the following systems or products are prior art to at least the '659 patent:

Instrument, Device, or System	Exemplary Date Invented, Known, Used, On Sale, or Made by Another in the U.S.	Currently Known Associated Persons / Entities
MiPad	As early as 2000	Microsoft

Instrument, Device, or System	Exemplary Date Invented, Known, Used, On Sale, or Made by Another in the U.S.	Currently Known Associated Persons / Entities
TellMe System	As early as 2000	[24]/7ai., Inc.
HeyAnita	As early as 2000	Kirusa
General Magic Systems	As early as 1998	General Magic, Inc.
Siri	February, 2010	Apple, Inc.
Vlingo	No later than December, 2010	Microsoft
Google Search and Google Voice Search	No later than June 14, 2011	Alphabet Inc.
CALO	No later than 2008	SRI International

Instrument, Device, or System	Exemplary Date Invented, Known, Used, On Sale, or Made by Another in the U.S.	Currently Known Associated Persons / Entities
Microsoft Bob	March 10, 1995	Microsoft
Microsoft Agent	No later than July 20, 2001	Microsoft

2. Identification Of Exemplary Supporting Evidence for Each Prior Art System

Instrument, Device, or System	Currently Known Exemplary Supporting Evidence ²⁰
MiPad and MiPad 2002 ²¹	<ul style="list-style-type: none"> • Bill Gates MiPad Demo at CES 2001, YouTube, available at https://www.youtube.com/watch?v=iZH5bbOHPOU (last visited September 10, 2024) • MiPad Demo by Kuansan Wang (2004), available at https://web.archive.org/web/20051019220306/http://research.microsoft.com/srg/videos/MipadDemo_2Mbit.wmv (last visited July 13, 2025) • X. Huang et al., <i>MiPad: a multimodal interaction prototype</i>, 2001 IEEE International Conference on Acoustics, Speech, and Signal Processing, Salt Lake City, Utah (2001) • X. Huang et al., <i>Spoken Language Processing</i>, (2001) • X. Huang et al., <i>Microsoft Windows Highly Intelligent Speech Recognizer: Whisper</i>, IEEE (1995)

²⁰ Microsoft reserves the right to rely on other evidence concerning the prior art systems and products, such as code contained in these products or their components, as they are revealed to Microsoft through its investigation and through discovery. The list provided herein of technical standards as exemplary supporting evidence for the teachings of these prior art products is intended to provide exemplary notice of the prior art systems and products based on information currently known or available.

²¹ MiPad 2002 refers to the MiPad system as it existed before the earliest priority date for the '825, '209, '006, and '570 patents.

Instrument, Device, or System	Currently Known Exemplary Supporting Evidence ²⁰
	<ul style="list-style-type: none"> • Deng et al., <i>Distributed Speech Processing in MiPad's Multimodal User Interface</i>, IEEE Transactions on Speech and Audio Processing (2002) • L. Deng et al., <i>A Speech-Centric Perspective for Human-Computer Interface</i>, IEEE Workshop on Multimedia Signal Processing (2002) ("Deng II") • L. Deng et al., <i>Large-Vocabulary Speech Recognition Under Adverse Acoustic Environments</i>, ICSLP (2000) ("Deng III") • L. Deng et al., <i>Speech and Language Processing for Multimodal Human-Computer Interaction</i>, 36 J. VLSI Signal Processing Systems (Special Issue) 2-3 (February-March 2004) ("Deng IV") • Microsoft Speech SDK SAPI 5.1 (2000) ("SAPI"), available at https://documentation.help/sapi-5/documentation.pdf • Kuansan Wang, <i>Semantic Modeling for Dialog Systems in a Pattern Recognition Framework</i>, IEEE Workshop on Automatic Speech Recognition and Understanding (2001) ("Wang I") • Kuansan Wang, <i>Semantic Object Synchronous Understanding in SALT for Highly Interactive User Interface</i>, 16th Annual Symposium on User Interface Software and Technology (2003) ("Wang II") • Kuansan Wang, <i>A Detection Based Approach to Robust Speech Understanding</i>, Proc. of the Int. Conf. on Acoustics, Speech, and Signal Processing (May 2004) ("Wang III") • Kuansan Wang, <i>Implementation of a Multimodal Dialog System Using Extended Markup Languages</i>, International Conference on Spoken Language Processing (2000) ("Wang IV") • Kuansan Wang, <i>A Plan-based Dialog System with Probabilistic Inferences</i>, Sixth International Conference on Spoken Language Processing (2000) ("Wang V") • Wang et al., <i>Use and Acquisition of Semantic Language Model</i>, NAACL/HLT (Short Paper), Ass'n for Computational Linguistics, Boston, MA (2004) ("Wang VI") • Kuansan Wang, <i>Semantics Synchronous Understanding for Robust Spoken Language Applications</i>, 2003 IEEE Workshop on Automatic Speech Recognition and Understanding (2003) ("Wang VII") • Wang et al., <i>Mathematical Foundation of User Intent Recognition in NUI</i> (2004) ("Wang VIII") • Ye-Yi Wang et al., <i>A Unified Context-Free Grammar and N-Gram Model for Spoken Language Processing</i>, IEEE International Conference on Acoustics, Speech, and Signal Processing (2000) ("YWang I") • Ye-Yi Wang, <i>Robust Language Understanding in MiPad</i>, Eurospeech (2001) ("YWang II")

Instrument, Device, or System	Currently Known Exemplary Supporting Evidence ²⁰
	<ul style="list-style-type: none"> • Ye-Yi Wang, <i>A Robust Parser for Spoken Language Understanding</i>, Eurospeech (1999) (“YWang III”) • Yu et al., <i>Improved Name Recognition with User Modeling</i> (2003) (“Yu”) • U.S. Patent No. 8,301,436 by Kuansan Wang (“’436 patent”) • “Microsoft Speech Application SDK Beta” (2004) (“MiPad SDK”) • “Remarks by Bill Gates, Chairman, and Chief Software Architect, Microsoft Corporation” (2004) (“Remarks by Bill Gates”) • Bill Gates, “Developing Seamless Computing Experiences” (2004) (“Seamless Computing Experiences”) • “Voice Technology Goes Mainstream with Release of Microsoft Speech Server 2004” (2004) (“Release of Microsoft Speech Server”); • Forum 2000: Introducing NGWS (2000) (“Forum 2000”) • Dr. Who V2 (“Dr. Who”) • H. Jiang and L. Deng, <i>A Robust Training Strategy Against Extraneous Acoustic Variations for Spontaneous Speech Recognition</i>, ICSLP (2000) (“Jiang”).
TellMe System	<ul style="list-style-type: none"> • Not-So-Organic Grocery Store, TellMe Studio, available at https://web.archive.org/web/20040701212327/http://www.studio.TellMe.com/library2/code/ (July 01, 2004) • Not-So-Organic Grocery Store, TellMe Studio, available at http://www.studio.TellMe.com/library2/code/ex-114/index.vxml, (July 01, 2004) • Thomas R. Eisenmann and Nicole Tempest, TellMe Networks, Inc. Harvard Business School Case 801-319, November 2000 (Revised November 2005) • TellMe Networks, Inc., Clients, Fandango, available at https://web.archive.org/web/20031219031005/http://www.tellme.com/client-fandango.html (Dec. 19, 2003)
Hey Anita	<ul style="list-style-type: none"> • WO 2001/50453 (“Kovatch”) • http://web.archive.org/web/20001018141330/http://www.heyanita.com:80/html/about/index_privpol.html (“About Us”) • http://web.archive.org/web/20001015020330/http://www.heyanita.com:80/html/main/index.html (“Landing Page”) • http://web.archive.org/web/20001015020330/http://www.heyanita.com:80/html/main/index.html (“Landing Page Weather”) • http://web.archive.org/web/20001015020330/http://www.heyanita.com:80/html/main/index.html (“Landing Page Flight Tracker”) • http://web.archive.org/web/20001015020330/http://www.heyanita.com:80/html/main/index.html (“Landing Page Message Center”)

Instrument, Device, or System	Currently Known Exemplary Supporting Evidence ²⁰
	<ul style="list-style-type: none"> • https://web.archive.org/web/20010308210233fw_/http://www.heyanita.com/html/personalize/kwmessageCenter.htm (“Personalize Message Center”) • https://web.archive.org/web/20010308052544fw_/http://www.heyanita.com/html/personalize/kwSports.htm (“Personalize Sports”) • https://web.archive.org/web/20010308053112fw_/http://www.heyanita.com/html/personalize/kwStocks.htm (“Personalize Stocks”) • https://web.archive.org/web/20010308052728fw_/http://www.heyanita.com/html/personalize/kwExpress.htm (“Personalize Express”) • http://web.archive.org/web/20010128232700fw_/http://www.heyanita.com/html/buzz/pr000803.html (“NYTimes Article”) • http://web.archive.org/web/20010129012700fw_/http://www.heyanita.com/html/buzz/pr001003.html (“Microsoft Case Study”)
General Magic Systems	<ul style="list-style-type: none"> • U.S. Patent No. 6,366,650 (“Rhie”) • U.S. Patent No. 6,408,272 (“White”) • U.S. Patent App. No. 2005/0091057 (“Phillips”) • https://web.archive.org/web/20000815052638/http://www.generalmagic.com/ (“Landing Page”) • https://web.archive.org/web/20000815052850/http://www.generalmagic.com/solutions/insidegm_magichome.shtml (“magicTalk”) • https://web.archive.org/web/20000815065638/http://www.generalmagic.com/solutions/insidegm_magicvcmdet.shtml (“Design Methodology”) • https://web.archive.org/web/20000815054009/http://www.generalmagic.com/solutions/insidegm_magicvcm.shtml (“Patent Pending”) • https://web.archive.org/web/20000815080926/http://www.generalmagic.com/news/news_prrel980409.shtml (“Press Release April 9 1998”) • https://web.archive.org/web/20000815080823/http://www.generalmagic.com/news/news_prrel980715.shtml (“Press Release July 15 1998”) • https://web.archive.org/web/20000815080717/http://www.generalmagic.com/news/news_prrel990107.shtml (“Press Release January 7 1999”) • https://web.archive.org/web/20000815080656/http://www.generalmagic.com/news/news_prrel990412.shtml (“Press Release April 12 1999”) • https://web.archive.org/web/20000815054438/http://www.pcworld.com/pcworld/article/0,1510,11317,00.shtml (“PC World June 10 1999”)

Instrument, Device, or System	Currently Known Exemplary Supporting Evidence ²⁰
IBM ViaVoice and WebSphere System	<ul style="list-style-type: none"> • IBM ViaVoice for Windows Standard Edition User’s Guide, dated August, 2003. • IBM ViaVoice for Windows Personal Edition User’s Guide, dated August, 2002. • IBM ViaVoice for Windows Pro USB Edition User’s Guide, dated 2003. • “Client: IBM dictation software package gives computers a voice, dated Jun. 16, 1997. • “Comparison of Voice-Automated Transcription and Human Transcription in Generating Pathology Reports”, dated Jun., 2003. • “Speech-Based Real-Time Subtitling Services”, dated Oct., 2004. • “Interfacing COTS Speech Recognition and Synthesis Software to a Lotus Notes Military Command and Control Database”, dated Oct., 2002. • “Building Searchable Collections of Enterprise Speech Data”, dated Jun. 24, 2001. • “ISA: A Traffic Jam Information System Based on the IBM ViaVoice Telephony Toolkit”, dated 2000. • “Associating the Dialogue Move Engine with Speech Input”, dated Dec., 2000. • “Speech Technologies for E-language Project”, dated Jan. 24, 2003. • “Evaluating the Potential Effectiveness of Automatic Document Analysis”, dated 2004. • “Intelligent Voice Email Agent: A Multimedia Solution”, dated May 1, 2001. • “Voice recognition technology as a tool for behavioral research” (“White”), dated Feb., 2002. • “AIM Architecture for Financial services”, dated Feb., 2002. • “SenseShapes: Using Statistical Geometry for Object Selection in a Multimodal Augmented Reality System”, dated Oct. 10, 2003. • “Spoken Multilingual and Multimodal Dialogue Systems”, dated 2005. • “Talk To Me - Using Voice Server to Enable Business-to-Business Communication”, dated Dec. 29, 2000. • “IBM Eserver pSeries Sizing and Capacity Planning A Practical Guide”, dated Mar., 2004. • “SALT – Markup Language for Speech-Enabled Web Pages”, dated 2005. • “Speech in Call and Web Centers”, dated 2005. • “Meeting the Challenges of the Digital Medical Enterprise of the Future by Reusing Enterprise Software Components”, dated Dec. 1, 2004.

Instrument, Device, or System	Currently Known Exemplary Supporting Evidence ²⁰
	<ul style="list-style-type: none"> • “The IHE-Bus: A practical tool to instrument and simulate IHE deployment”, dated Aug. 25, 2005. • “An investigation of grammar design in natural-language speech-recognition”, dated 2003. • “Video Personalization System for Usage Environment”, dated Jul., 2002. • “Integration of voice commands into a virtual reality environment for assembly design”, dated 2005. • “IBM WebSphere Portal for Multiplatforms V5 Handbook”ma, dated Mar., 2004.
Dragon Naturally Speaking	<ul style="list-style-type: none"> • Lernout & Hauspie Speech Products N.V., Dragon Naturally Speaking 5 Quick Start (2000) (“Reference Card I”) • Lernout & Hauspie Speech Products N.V., Dragon Naturally Speaking 5 Essentials Quick Start (2000) (“Quick Start I”) • Lernout & Hauspie Speech Products N.V., Dragon Naturally Speaking 5 Quick Start (2000) (“Quick Start II”) • Lernout & Hauspie Speech Products N.V., Dragon Naturally Speaking 5 User’s Guide (2000) (“User’s Guide I”) • Lernout & Hauspie Speech Products N.V., Dragon Naturally Speaking 5 User’s Guide Professional Edition (2000) (“User’s Guide II”) • https://web.archive.org/web/20010608064211/http://www.dragonsys.com/support/faq/topten.html (“Dragon V.5 FAQ Page”) • https://web.archive.org/web/20010208102957/http://www.dragonsys.com:80/products/naturallyspeaking/professional/index.html (“Professional Solutions V.5 Fact Page”) • ScanSoft, Inc., Dragon Naturally Speaking 6 Quick Reference Card (2002) (“Reference Card II”) • ScanSoft, Inc., Dragon Naturally Speaking 6 User’s Guide (2002) (“User’s Guide III”) • ScanSoft, Inc., Dragon Naturally Speaking 6 User’s Guide Professional Edition (2002) (“User’s Guide IV”) • ScanSoft, Inc., Dragon Naturally Speaking 7 User’s Guide (2003) (“User’s Guide V”) • ScanSoft, Inc., Dragon Naturally Speaking 8 Quick Reference Card (2005) (“Reference Card III”) • ScanSoft, Inc., Dragon Naturally Speaking 8 User’s Guide (2005) (“User’s Guide VI”)

Instrument, Device, or System	Currently Known Exemplary Supporting Evidence ²⁰
Open Agent Architecture	<ul style="list-style-type: none"> • <i>Multimodal User Interfaces in the Open Agent Architecture</i>, available at https://www.sciencedirect.com/science/article/abs/pii/S0950705197000373 (“MMUI”) • <i>OAA Overview Presentation</i>, available at http://www.ai.sri.com/~oaa/oaasides/newoaa.ppt (“OAA Presentation”) • <i>An Open Agent Architecture</i>, available at http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.597.8879&rep=rep1&type=pdf (“OAA 94”) • <i>The Open Agent Architecture: A Framework for Building Distributed Software Systems</i>, available at https://www.semanticscholar.org/paper/The-Open-Agent-Architecture%3A-A-Framework-for-Martin-Cheyer/11eb3ffa179eaaddf3c02162050a0c3f5e0d4d33 (“OAA 99”) • <i>Information Brokering in an Agent Architecture</i>, available at http://dbmoran.users.sonic.net/dougmoran-com/dmoran/PAPERS/oaa-paam1997.pdf (“PAAM”)
Intelligent Room	<ul style="list-style-type: none"> • Michael Coen, A Prototype Intelligent Environment, MIT Artificial Intelligence Lab (“IR-Prototype”) • Michael Coen, Building Brains for Rooms: Designing Distributed Software Agents, MIT Artificial Intelligence Lab (“IR-Building”) • Michael Coen, Meeting the Computational Needs of Intelligent Environments: The Metaglu System, MIT Artificial Intelligence Lab (“IR-Meeting”) • Michael Coen, Learning Spatial Event Models from Multiple-Camera Perspectives (“IR-Learning”)
Nuance System	<ul style="list-style-type: none"> • V. Vanhoucke, Confidence Scoring and Rejection using Multi-Pass Speech Recognition, Menlo Park, CA, USA (2005) (“Vanhoucke”) • Nuance Communications, Inc., Nuance 8.5 Powerful Speech Recognition for Improved Customer Satisfaction and Cost Savings (“Data Sheet I”) • Nuance Communications, Inc., Nuance Speech Recognition System Version 8.5 Installation Guide (2004) (“Installation Guide 8.5”) • Nuance Communications, Inc., Nuance Speech Recognition System Version 7.0 Grammar Developer’s Guide (2001) (“Grammar Developer’s Guide 7.0”)

Instrument, Device, or System	Currently Known Exemplary Supporting Evidence ²⁰
	<ul style="list-style-type: none"> • Nuance Communications, Inc., Nuance Speech Recognition System Version 8.5 Grammar Developer’s Guide (2003) (“Grammar Developer’s Guide 8.5”) • Nuance Communications, Inc., Nuance Voice Platform™ Data Sheet (2003), available at https://web.archive.org/web/20031205012343/http://www.nuance.com/assets/pdf/nuance_voice_platform_datasheet_0903.pdf (“Data Sheet II”) • Michael H. Cohen, et al., Voice User Interface Design (2004), ISBN-10: 0-321-18576-5, (“Cohen”)
VoiceBox System	<ul style="list-style-type: none"> • “Microsoft Eases Passport Fears,” dated Jan. 10, 2003. • “One Voice Corporate Update,” dated Jun. 19, 2003. • “Proof is Now in Profits, Start-ups are Finding,” dated Mar. 28, 2003. • “SoundAdvice gives Voice to Computers,” dated Jun. 18, 2003. • “Speak Easy,” dated Jan. 6, 2003. • “Start-ups, Investors Both More Optimistic,” dated Jun. 6, 2003. • “Talk to this Software; it will Respond Interface/Company Profiles & Personalities,” dated May 5, 2003. • “The Seattle Times Business Profile Column,” dated May 5, 2003. • “VoiceBox Technologies Introduces a New Category of Computing: Voice Information Retrieval; 2003 International CES,” dated Jan. 8, 2003. • “VoiceBox Shines in High-Tech Home featured on MSNBC News Live,” dated Mar. 1, 2004. • “Voicebox Technologies Introduces the Wireless Remote for State-of-the-Art Alternate Room Voice Access to the Web,” dated Jan. 7, 2003. https://web.archive.org/web/20031123141853/http://www.voicebox.com:80/documents/wireless.php • “VoiceBox Introduces Talking Tablet PC’s and Smart Displays,” dated Jan. 9, 2003. https://web.archive.org/web/20030609041834/http://voicebox.com/documents/tablet.php • “VoiceBox Technologies Corporate Backgrounder,” dated Jun. 9, 2003. https://web.archive.org/web/20030609040933/http://voicebox.com/documents/backgrounder.php • “Voice Information Retrieval Software Smart Display Edition Product Overview,” dated Oct. 2, 2003.

Instrument, Device, or System	Currently Known Exemplary Supporting Evidence ²⁰
	<p>https://web.archive.org/web/20031002220009/http://www.voicebox.com/documents/VoiceBox_smart.pdf</p> <ul style="list-style-type: none"> • “A Technical Overview Part I,” dated Feb. 4, 2004. https://web.archive.org/web/20040204164239/http://www.voicebox.com/technology2.php • “A Technical Overview Part II,” dated Feb. 4, 2004. https://web.archive.org/web/20040204211642/http://www.voicebox.com/technology3.php • “Vehicle Solutions Telematics,” dated Jan. 22, 2004. https://web.archive.org/web/20040122155104/http://www.voicebox.com/auto.php • “Home Solutions The Digital Lifestyle,” dated Feb. 3, 2004. https://web.archive.org/web/20040203021532/http://www.voicebox.com/home.php • “Business Solutions The Mobile Professional,” dated Jan. 22, 2004. https://web.archive.org/web/20040122155453/http://www.voicebox.com/business.php • “VoiceBox Command List,” dated Feb. 13, 2004. https://web.archive.org/web/20040213044853/http://talktomepc.com/commands.htm • “TalkToMePC Home Page,” dated Nov. 27, 2003. https://web.archive.org/web/20031127120543/http://www.talktomepc.com/ • “About VoiceBox Voice – Low Vision,” dated Oct. 12, 2003. https://web.archive.org/web/20031012161921/http://www.talktomepc.com/about.htm • “TalktoMePC Launches New Web Site,” dated Oct. 1, 2003. https://www.speechtechmag.com/Articles/ReadArticle.aspx?ArticleID=31492 • “VoiceBox Tips and Tricks,” dated 2003. • “VoiceBox User’s Guide,” dated 2003. • “VoiceBox Voice Online Help,” dated 2003.
W3C Standards	<ul style="list-style-type: none"> • W3C Speech Recognition Grammar Specification Version 1.0 Standard (“SRGS 1.0”), dated March 16, 2004. • W3C Voice Extensible Markup Language (VoiceXML) Version 2.0 Standard (“VoiceXML 2.0”), dated March 16, 2004. • W3C Speech Synthesis Markup Language (SSML) Version 1.0 Standard (“SSML 1.0”), dated September 7, 2004. • W3C Semantic Interpretation for Speech Recognition Standard (“SISR”), dated November 8, 2004.

Instrument, Device, or System	Currently Known Exemplary Supporting Evidence ²⁰
	<ul style="list-style-type: none"> • W3C Pronunciation Lexicon Specification (PLS) Version 1.0 Standard (“PLS 1.0”), dated February 14, 2005. • W3C Voice Extensible Markup Language (VoiceXML) 2.1 Standard (“VoiceXML 2.1”), dated June 13, 2005. • W3C Voice Browser Call Control: CCXML Version 1.0 Standard (“CCXML 1.0”), dated June 29, 2005. • W3C State Chart XML (SCXML): State Machine Notation for Control Abstraction 1.0 Standard (“SCXML 1.0”), dated July 5, 2005. • W3C Speech Interface Implementations.
<p>MIT Galaxy System</p> <p>And</p> <p>MIT Galaxy System 2002²²</p>	<ul style="list-style-type: none"> • James R. Glass et al., “Real-Time Telephone-Based Speech Recognition in the Jupiter Domain” (1999) (“Glass I”) • James R. Glass et al., “Telephone-Based Conversational Speech Recognition in the Jupiter Domain” (1999) (“Glass II”) • Stephanie Seneff, “Response Planning and Generation in the Mercury Flight Reservation System” (2002), available at https://people.csail.mit.edu/seneff/mercury-generation.pdf (“Seneff I”) • Stephanie Seneff et al., “Dialogue Management in the Mercury Flight Reservation System” (2000) (“Seneff II”) • Stephanie Seneff et al., “Hypothesis Selection and Resolution in the Mercury Flight Reservation System” (2001) (“Seneff III”) • Stephanie Seneff et al., “Formal And Natural Language Generation in the Mercury Conversational System” (2000), (“Seneff IV”) • Stephanie Seneff et al., “Galaxy-II: A Reference Architecture for Conversational System Development” (1998) (“Seneff V”) • Stephanie Seneff et al., “Organization, Communication, And Control in The Galaxy-II Conversational System” (1999) (“Seneff VI”) • Stephanie Seneff et al., “Multimodal Discourse Modelling in a Multi-user Multi-domain Environment” (1996) (“Seneff VII”) • Stephanie Seneff et al., “Orion: From On-line Interaction to Off-line Delegation” (2000) (“Orion”) • Joseph Polifroni et al., “Galaxy-II as an Architecture for Spoken Dialogue Evaluation” (2000) (“Polifroni”) • Victor Zue et al., “Jupiter: A Telephone-Based Conversational Interface for Weather Information” (2000) (“Zue”) • Edward A. Filisko, “A Context Resolution Server for the Galaxy Conversational Systems” (2002), available at https://dspace.mit.edu/bitstream/handle/1721.1/87207/51175947-MIT.pdf (“Filisko”)

²² MIT Galaxy System 2002 refers to the MIT Galaxy System as it existed before the earliest priority date for the ’825, ’209, ’006, and ’570 patents.

Instrument, Device, or System	Currently Known Exemplary Supporting Evidence ²⁰
	<ul style="list-style-type: none"> • Hazen et al. “Recognition Confidence Scoring and Its Use in Speech Understanding Systems” (2002), available at https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=129000c04e7dc2f12d994e2dc2b07155b9028ac5 (“Hazen I”) • Timothy J. Hazen et al., “FST-Based Recognition Techniques for Multi-Lingual and Multi-Domain Spontaneous Speech” (2001), available at http://groups.csail.mit.edu/sls/archives/root/publications/2001/Hazen_FST.pdf (“Hazen III”) • Timothy J. Hazen, “The use of speaker correlation information for automatic speech recognition” (1998), available at https://dspace.mit.edu/bitstream/handle/1721.1/49989/39134616-MIT.pdf (“Hazen Thesis”) • Lauren M. Baptist, “A Language Generation Module for Conversational Systems” (2000), available at https://dspace.mit.edu/bitstream/handle/1721.1/81547/48252381-MIT.pdf (“Baptist”) • Simo O. Kamparri, “Word and Phone Level Acoustic Confidence Scoring for Speech Understanding Systems” (1999), available at https://groups.csail.mit.edu/sls/publications/1999/msthesis-kamppari.pdf (“Kamparri”) • Alex S. Park, “ASR Dependent Techniques for Speaker Recognition” (2002), available at https://dspace.mit.edu/bitstream/handle/1721.1/87287/51589209-MIT.pdf (“Park”) • Grace Chung et al. “Towards multi-domain speech understanding using a two-stage recognizer” (1999) (“Chung”) • Grace Chung, “Towards Multi-Domain Speech Understanding with Flexible and Dynamic Vocabulary” (2001), available at https://groups.csail.mit.edu/sls/publications/2001/GraceChungPhDThesis.pdf (“Chung Thesis”) • Xiaolong Mou et al. “Context-dependent Probabilistic Hierarchical Sub-lexical Modelling Using Finite State Transducers” (2001), available at https://groups.csail.mit.edu/sls/archives/root/publications/2001/mou-sublex.pdf (“Mou”) • MIT Voyager Spoken Language Video (1989) (“MIT Voyager Video”), available at https://www.youtube.com/watch?v=zS3baF8KHSE • MIT Galaxy Spoken Language Video (1994) (“MIT Galaxy Video”), available at https://www.youtube.com/watch?v=GuIMTw6QQsc • Orion: Spoken Language Task Delegation Video (2000) (“Orion Video”), available at https://www.youtube.com/watch?v=-rvWoI05hdc • Fast Match for Segment-Based Large Vocabulary Continuous Speech Recognition

Instrument, Device, or System	Currently Known Exemplary Supporting Evidence ²⁰
	<ul style="list-style-type: none"> • Porting the Galaxy System to Mandarin Chinese • WebGALAXY: Beyond Point and Click – A Conversational Interface to a Browser • Real-Time Probabilistic Segmentation for Segment-Based Speech Recognition • A Probabilistic Framework for Feature-Based Speech Recognition • TINA: A Natural Language System for Spoken Language Applications • Toward Systems that Understand Spoken Language • Yinhe: A Mandarin Chinese Version of the Galaxy System
Telelogue System	<ul style="list-style-type: none"> • International Pub. No. WO 03/058603
Siri	<ul style="list-style-type: none"> • https://web.archive.org/web/20100329060740/http://siri.com/ • https://web.archive.org/web/20100331130951/http://siri.com/about • https://web.archive.org/web/20100406041817/http://siri.com/about/technology • https://web.archive.org/web/20100409132922/http://siri.com/press/ • https://www.wired.com/2010/02/siri-voice-recognition-iphone/ • https://web.archive.org/web/20111005235600/http://www.apple.com/iphone/features/siri.html • https://www.gsmarena.com/apple_iphone_3gs-2826.php • https://www.gsmarena.com/apple_iphone_4s-4212.php
Vlingo	<ul style="list-style-type: none"> • https://www.youtube.com/@VlingoVoice/videos • https://web.archive.org/web/20110714195109/http://www.vlingo.com/apps • https://web.archive.org/web/20110706111352/http://www.vlingo.com/demo/examples • https://web.archive.org/web/20101231215931/http://www.vlingo.com/demo/videos • https://web.archive.org/web/20110717230602/http://www.vlingo.com/apps/feature-phones • https://web.archive.org/web/20110717230142/http://www.vlingo.com/about/technology • U.S. Patent No. 8,949,266

Instrument, Device, or System	Currently Known Exemplary Supporting Evidence ²⁰
Google Search and Google Voice Search	<ul style="list-style-type: none"> • https://web.archive.org/web/20110617093214/https://www.google.com/insidesearch/press.html#screenshots • https://web.archive.org/web/20120112163513/http://www.google.com/insidesearch/images/press/screenshot_voicesearchspeak2.jpg • https://web.archive.org/web/20110617063458/http://www.google.com/insidesearch/voicereach-chrome.html • https://www.macstories.net/stories/google-voice-search-for-ios-not-a-siri-competitor-still-a-solid-app/ • https://thenextweb.com/news/google-search-for-ios-gets-voice-features-that-let-you-ask-questions-listen-for-answers • https://web.archive.org/web/20110325183411/http://itunes.apple.com/us/app/google-search/id284815942?mt=8
CALO	<ul style="list-style-type: none"> • https://web.archive.org/web/20100830070200/http://www.calosystem.org/ • https://web.archive.org/web/20100819192533/http://www.calosystem.org/about/ • https://web.archive.org/web/20100820082318/http://www.calosystem.org/about/vision.html • https://web.archive.org/web/20100819192658/http://www.calosystem.org/publications • https://web.archive.org/web/20100819190506/http://www.darpa.mil/ipto/programs/pal/pal.asp • Continuous Refinement of Resource Estimates, D. N. Morley, K. L. Myers, and N. Yorke-Smith. Proceedings of the Fifth International Joint Conference on Autonomous Agents and Multi Agent Systems (AAMAS'06), Hakodate, Japan, May 2006 • Enriching Speech Recognition with Automatic Detection of Sentence Boundaries and Disfluencies, Y. Liu, E. Shriberg, A. Stolcke, D. Hillard, M. Ostendorf, and M. Harper (2006). IEEE Trans. Audio, Speech and Language Processing, 14(5), 1526-1540. • Multimodal New Vocabulary Recognition through Speech and Handwriting in a Whiteboard Scheduling Application, Edward C. Kaiser. Proceedings of the International Conference on Intelligent User Interfaces, San Diego, CA., January 9-12, 2005, pgs. 51-58. • Collaborative Multimodal Photo Annotation over Digital Paper, Paulo Barthelme, Edward Kaiser, Xiao Huang, David McGee, and Philip Cohen. ICMI'06, November 2-4, 2006; Banff, Alberta, Canada. • Demo: A Multimodal Learning Interface for Sketch, Speak and Point Creation of a Schedule Chart, Ed Kaiser, David Demirdjian, Alexander Gruenstein, Xiaoguang Li, John Niekrasz, Matt Wesson, and Sanjeev Kumar. Proceedings of the Sixth International Conference on Multimodal Interfaces (ICMI 2004), State College, Pennsylvania, USA, October 14-15, 2004, pgs. 329-330.

Instrument, Device, or System	Currently Known Exemplary Supporting Evidence ²⁰
	<ul style="list-style-type: none"> • Design and Implementation of the CALO Query Manager, Jose-Luis Ambite, Vinay K. Chaudhri, Richard Fikes, Jessica Jenkins, Sunil Mishra, Maria Muslea, Tomas Uribe, Guizhen Yang. Innovative Applications of Artificial Intelligence, July 2006. • Integration of Heterogeneous Knowledge Sources in the CALO Query Manager, Jose-Luis Ambite¹, Vinay K. Chaudhri, Richard Fikes, Jessica Jenkins, Sunil Mishra, Maria Muslea, Tomas Uribe, and Guizhen Yang. SRI Technical Report, August 2005. • Combining User Modeling and Machine Learning to Predict Users' Multimodal Integration Patterns, Xiao Huang, Sharon Oviatt, and Rebecca Lunsford. Technical paper by Natural Interaction Systems and Center for Human-Computer Communication. • Balancing Formal and Practical Concerns in Agent Design, David Morley and Karen Myers. Proceedings of AAAI Workshop on Intelligent Agent Architectures: Combining the Strengths of Software Engineering and Cognitive Systems, 2004. • Adjustable Autonomy Challenges in Personal Assistant Agents: A Position Paper, R. Maheswaran, M. Tambe, P. Varakantham, and K. Myers. The First International Workshop on Computational Autonomy - Potential, Risks, Solutions (Autonomy 2003), 2003. • Deploying a Personalized Time Management Agent, P. Berry, K. Conley, M. Gervasio, B. Peintner, T. Uribe, and N. Yorke-Smith. Proceedings of the Fifth International Joint Conference on Autonomous Agents and Multi Agent Systems (AAMAS'06) Industrial Track, Hakodate, Japan, May 2006.
Microsoft Bob	<ul style="list-style-type: none"> • https://winworldpc.com/product/microsoft-bob/100 (“WinWorld Microsoft BOB 1.00”) • https://web.archive.org/web/20180602125205/http://www.pcworld.com/article/193006/the_bob_chronicles.html (“The Bob Chronicles”) • U.S. Patent No. 5,682,469 (“the '469 patent”)
Microsoft Agent	<ul style="list-style-type: none"> • https://web.archive.org/web/20010801170026/http://www.microsoft.com/products/msagent/ (“Welcome to Microsoft Agent”); • https://web.archive.org/web/20010805225047/http://www.microsoft.com/products/msagent/sysreq.htm (“Microsoft Agent System Requirements”); • https://web.archive.org/web/20010805231123/http://www.microsoft.com/products/msagent/userinterface.htm (“Microsoft Agent User Interface”); • https://web.archive.org/web/20010728065048/http://www.microsoft.com/products/msagent/downloads.htm (“Microsoft Agent Downloads”); • https://web.archive.org/web/20010802043521/http://www.microsoft.com/products/msagent/datasheet.htm (“Microsoft Agent Datasheet”).

The above-cited supporting evidence discloses systems, products, and/or methods that

were known, in public use, and/or on sale in this country prior to the filing of the Asserted Patents, were known, in public use, and/or on sale in this country more than one year prior to the filing of the Asserted Patents, and/or constitute prior art under 35 U.S.C. § 102(g). Thus, the underlying sales, knowledge, products, and/or methods are invalidating prior art under at least pre-AIA 35 U.S.C. §§ 102(a), (b), (g), and/or 103, in addition to the published data sheets, specifications, and application notes constituting prior art printed publications.

D. The Intrinsic Record

The patents admit certain subject matter was in the prior art. Admitted prior art (“APA”), for example, is present in the following portions of the Asserted Patents:

Asserted Patent(s)	APA
U.S. Pat. Nos. 9,734,825, 7,398,209, 8,015,006, 7,809,570 ²³	Col. 1, lines 43-67; Col. 11, lines. 5-13; Col. 16, lines 34-36
U.S. Pat. No. 8,196,468	Col. 1, li. 26 – col. 2, li. 50; Col. 3, lines 46-49; Col. 5, lines 36-37; Col. 5, lines 58-59; Col. 7, lines 62-67; Col. 8, lines 28-31; Col. 8, lines 34-36; Col. 11, lines 47-53; Col. 13, lines 44-46; Col. 21, lines 37-40, Col. 21, lines 58-60, Col. 23, lines 26-35; Col. 25, lines 32-34; Col. 31, ln. 67-Col. 32, ln. 1
U.S. Pat. Nos. 8,620,659, 9,626,959 ²⁴	Col. 1, lines 31-53; Col. 15, lines 5-13; Col. 21, li. 57-Col. 22, li. 6; Col. 25, lines 48-58

²³ These Asserted Patents share a common specification and thus only one citation is given (to the '825 patent).

²⁴ These Asserted Patents share a common specification and thus only one citation is given (to the '659 patent).

Asserted Patent(s)	APA
U.S. Pat. No. 7,634,409	Col. 1, li. 33 – col. 2, li. 12; Col. 3, lines 7-13; Col. 7, lines 37-48; Col. 8, lines 56-67; Col. 11, lines 46-59
U.S. Pat. No. 7,917,367	Col. 1, lines 31-54; Col. 12, lines 20-28; Col. 19, lines 9-25

The prosecution history of the Asserted Patents and related patents may contain additional admissions regarding prior art, on which Microsoft reserves the right to rely.

E. Claim Terms Governed by Pre-AIA 35 U.S.C. § 112 ¶ 6

Microsoft identifies the following claim language as being governed by pre-AIA 35 U.S.C. § 112 ¶ 6. Microsoft reserves the right to argue during claim construction proceedings that other claim terms are governed by pre-AIA 35 U.S.C. § 112 ¶ 6.

Claim Language	Patents/Claims	Exemplary Identification of Corresponding Structure, Material, or acts in the Specification
"speech unit"	'006 Patent, Claims 1, 5	<i>See, e.g.:</i> '006 Patent: FIG. 1; 2:17-34; 10:6-55; 11:5-17; 15:23-16:4.
	'570 Patent, Claim 1	<i>See, e.g.:</i> '570 Patent: ²⁵ FIG. 1; 2:15-32; 10:4-53, 11:3-15; 15:21-16:3

III. WHETHER EACH ITEM ANTICIPATES OR RENDERS OBVIOUS THE ASSERTED CLAIMS (P.R. 3-3(B))

Pursuant to P.R. 3-3(b), Microsoft provides the below identification of exemplary anticipation and obviousness grounds that render the Asserted Claims invalid. The Asserted

²⁵ The substantive disclosures of the specification of the '006 and '570 patents are identical, and thus "speech unit" has the same corresponding structure in both patents.

Claims are invalid because the Asserted Patents fail to meet one or more of the requirements for patentability. Each of the prior art references and systems identified above and discussed in the accompanying exhibits, the underlying work, and/or the underlying apparatus or method qualifies as prior art under one or more sections of 35 U.S.C. §§ 102 and/or 103.

In an effort to focus the issues, Microsoft has cited representative portions of identified references, even where a reference may contain additional support for a particular claim element. In addition, persons of ordinary skill in the art generally read a prior art reference as a whole and in the context of other publications and literature, as well as their experience, skill, expertise, knowledge, and creativity. Thus, to understand and interpret any specific statement or disclosure within a prior art reference, such persons would rely on other information within the reference, along with other publications and their general knowledge, experience, skill, expertise, knowledge, creativity, and common sense. Microsoft may rely upon uncited portions of the prior art references, and on other publications and expert testimony to provide context and as aids to understanding and interpreting the portions that are cited and for further demonstrating the disclosures of the disclosed references and prior art. Microsoft may also rely on uncited portions of the prior art references, other disclosed publications, and the testimony of experts to establish that a person of ordinary skill in the art would have been motivated to modify or combine certain of the cited references so as to render the claims obvious.

A. Priority

The Asserted Patents were examined under the pre-AIA statutes. Plaintiff's Infringement Contentions do not provide a specific priority date for the Asserted Claims. Rather, they allege that the subject matter recited in the Asserted Claims is entitled to an "Earliest" possible priority date, such as the filing dates of the earliest of the applications to which the respective patent claims

priority, including provisional applications (June 3, 2002, for the '570 patent; June 3, 2002, for the '825 patent; June 3, 2002, for the '209 patent; August 31, 2005, for the '409 patent, and June 3, 2002, for the '006 patent) and non-provisional applications (August 5, 2005, for the '367 patent; August 29, 2005 for the '468 patent; August 10, 2005 for the '659 patent; August 10, 2005²⁶, for the '959 patent). (*See* Plaintiff's Infringement Contentions, Cover Pleading.)

A patent application is not entitled to the benefit of an earlier filing date of a related application unless the claim is properly supported and enabled by the written description in the earlier related application. 35 U.S.C. §§ 112, 120. Plaintiff has the burden to establish such benefit but has provided insufficient evidence to support its contentions that the Asserted Claims are entitled to claim priority back to the earlier-filed provisional applications or an earlier date of conception/due diligence. *See, e.g., Fairchild Semiconductor Corp. v. Power Integrations, Inc.*, 100 F. Supp. 3d 357, 368 (D. Del. 2015) (“[A] patentee has a burden to come forward with evidence to prove entitlement to claim priority to a filing date that predates the filing date of the patent.”). Microsoft does not concede or agree that any Asserted Claim of any Asserted Patent is entitled to claim priority back to the earlier-filed provisional applications. To the extent that a patent is entitled to priority after April, 2014 (*e.g.*, if the '825 Patent is only entitled to priority to May 15, 2014), then the accused Cortana System is prior art to that patent. *See Upsher-Smith Labs., Inc. v. PamLab, L.L.C.*, 412 F.3d 1319, 1322 (Fed. Cir. 2005) (“A century-old axiom of patent law holds that a product which would literally infringe if later in time anticipates if earlier.”) (internal

²⁶ For the '959 patent, Plaintiffs' Infringement Contentions, Cover Pleading identifies a priority date of no later than “December 8, 2014, the filing date of the earliest of the applications to which the '959 Patent claims priority.” This date does not correspond with the filing date for any application in the '959 patent priority chain. As such, Microsoft has assumed that Plaintiff's asserted priority date is August 10, 2005, the filing date for the earliest non-provisional application to which the '959 patent claims priority.

quotations omitted); *Peters v. Active Mfg. Co.*, 129 U.S. 530, 537 (1889) (“That which infringes, if later, would anticipate, if earlier.”).

1. '659 Patent

Plaintiff has alleged a priority date of August 10, 2005 for the '659 patent, corresponding to the date Application No. 11/200,164 (the “'164 application”) was filed. (*See* Plaintiff’s Infringement Contentions, Cover Pleading, at 19).

The '659 patent is not entitled to the August 10, 2005 priority date because at least the limitations related to “determining whether a personalized cognitive model associated with the user includes sufficient information for predicting one or more subsequent actions associated with the user,” which is present in claim 42 of the '659 patent, are not properly supported and/or not enabled by the written description in the '164 application. Indeed, this limitation first appeared in an amendment made by the applicant on July 3, 2013. Therefore, the '659 patent is only entitled to priority as of the date this limitation first appeared, July 3, 2013, and in any event is not entitled to a priority date earlier than the filing date of the application that issued as the '659 patent: February 7, 2011.

B. Claim Terms Lacking Patentable Weight

Microsoft does not concede whether or not the preambles of the Asserted Claims are limiting. Indeed, Microsoft notes that Plaintiff’s Infringement Contentions do not concede or assert whether the preambles are limiting. Microsoft further reserves the right to argue that other claim terms are not entitled to patentable weight during claim construction proceedings.

C. Anticipation

The Asserted Claims are invalid as anticipated under 35 U.S.C. § 102 as disclosed in the claim charts included in Exhibits A-1 to A-8, B-1 to B-8, C-1 to C-11, D-1 to D-7, E-1 to E-9, F-

1 to F-7, G-1 to G-8, H-1 to H-6, and I-1 to I-11, which identify specific examples of where each limitation of the Asserted Claims is found in the primary prior art references, particularly in view of the scope of the claims as Plaintiff appears to assert them and insofar as Plaintiff's infringement contentions have been disclosed and can be understood. As explained above, the cited portions of prior art references identified in the attached claim charts are exemplary only and representative of the content and teaching of the prior art references, and should be understood in the context of the reference as a whole and as they would be understood by a person of ordinary skill in the art.

D. Obviousness

The concepts in each limitation of the Asserted Claims were not new or non-obvious. To the extent that any limitation is deemed not to be specifically disclosed by an item of prior art listed above and in Exhibits A-1 to A-8, B-1 to B-8, C-1 to C-11, D-1 to D-7, E-1 to E-9, F-1 to F-7, G-1 to G-8, H-1 to H-6, and I-1 to I-11, any purported differences are such that the claimed subject matter as a whole would have been obvious to one skilled in the art at the time of the alleged invention, in view of the state of the art and knowledge of those skilled in the art. The prior art would, therefore, render the relevant claims invalid as obvious under 35 U.S.C. § 103.

In addition, the references identified above render one or more Asserted Claims obvious when the references are modified, read in combination with each other, and/or when read in view of the state of the art and knowledge of those skilled in the art. Each and every reference identified is also relevant to the state of the art at the time of the alleged invention. Each of the references disclosed above may be modified and/or combined with one or more of the other references (including combinations of up to four or five references as further disclosed below) to render obvious (and therefore invalid) each of the Asserted Claims. Microsoft may rely upon a subset of the above-identified references or all of the references identified above, including all references in

Exhibits A-1 to A-8, B-1 to B-8, C-1 to C-11, D-1 to D-7, E-1 to E-9, F-1 to F-7, G-1 to G-8, H-1 to H-6, and I-1 to I-11, for purposes of obviousness depending on the Court's claim construction, positions taken by Plaintiff during this litigation, and further investigation and discovery.

Accordingly, to the extent that any of the foregoing references are found not to anticipate the Asserted Claims, the primary references alone or in combination with the secondary references disclosed in the claim charts render the Asserted Claims obvious. In other words, to the extent that any particular prior art reference is found not to disclose a particular claim element, that reference may be combined with the knowledge of one of ordinary skill in the art and/or other prior art references disclosed herein and set forth in the accompanying charts as possessing that claim element to render the Asserted Claims obvious.

In accordance with P.R. 3-3(b) and (c), prior art references and combinations rendering the Asserted Claims obvious, alone or in combination, are disclosed below and included in Exhibits A-1 to A-8, B-1 to B-8, C-1 to C-11, D-1 to D-7, E-1 to E-9, F-1 to F-7, G-1 to G-8, H-1 to H-6, and I-1 to I-11, which include exemplary claim charts for the Asserted Claims showing specifically where in each reference or combinations of references each Asserted Claim is found.

Moreover, in addition to the information contained throughout these Invalidity Contentions, Microsoft has identified additional exemplary motivations and reasons to combine the various references cited herein. *See infra* § III.F.

Thus, as also set forth in the next section, to the extent Plaintiff alleges any claim limitation or limitations are not disclosed in any reference identified in Section II above or Exhibits A-1 to A-8, B-1 to B-8, C-1 to C-11, D-1 to D-7, E-1 to E-9, F-1 to F-7, G-1 to G-8, H-1 to H-6, and I-1 to I-11, it would have been obvious to incorporate the missing feature, as disclosed in Exhibits A-1 to A-8, B-1 to B-8, C-1 to C-11, D-1 to D-7, E-1 to E-9, F-1 to F-7, G-1 to G-8, H-1 to H-6, and

I-1 to I-11, into the reference for the reasons disclosed herein, either by modifying the reference and/or by combining the reference with one or more of the other references (including combinations of multiple references).

Specific claim limitations with references that render the alleged claims obvious are identified below and in Exhibits A-1 to A-8, B-1 to B-8, C-1 to C-11, D-1 to D-7, E-1 to E-9, F-1 to F-7, G-1 to G-8, H-1 to H-6, and I-1 to I-11. For the references identified in Microsoft's claim charts, if any particular claim limitation is alleged to not be disclosed or inherent in those references, then it would have been obvious to modify and/or combine the charted reference with any one of the prior art references that disclose that limitation, as disclosed in the accompanying claim charts. Microsoft's list is not intended to be exhaustive. Microsoft also reserves the right to rely upon all or a subset of the prior art identified in these Invalidity Contentions or that is later discovered, in any combination or combinations, depending on the Court's claim construction and further investigation. Further, as Microsoft is currently unaware of the extent, if any, to which Plaintiff will contend that limitations of the Asserted Claims are not disclosed in the art identified herein, Microsoft reserves the right to identify other references and combinations that may render an allegedly missing limitation obvious. In addition, if and to the extent that Plaintiff challenges the correspondence of any of these references with respect to particular limitations of the Asserted Claims of the Asserted Patents, Microsoft reserves the right to supplement these Invalidity Contentions to identify further motivation to combine particular references with additional particularity.

E. Obviousness Combinations

As discussed above, to the extent Plaintiff alleges any claim limitation or limitations are not disclosed in any reference identified in Section II above, the following are exemplary

modifications and/or combinations of references which render the Asserted Claims obvious. As discussed further below and in the accompanying claim charts (*i.e.*, Exhibits A-1 to A-8, B-1 to B-8, C-1 to C-11, D-1 to D-7, E-1 to E-9, F-1 to F-7, G-1 to G-8, H-1 to H-6, and I-1 to I-11), additional modifications and/or combinations render the Asserted Claims obvious. Microsoft further reserves the right to supplement these Invalidity Contentions if/when Plaintiff provides fulsome infringement contentions as required by P.R. 3-1, as well as based on information learned from fact or expert discovery, and/or any positions Plaintiff may take in this case (including with respect to issues relating to claim construction, infringement, and/or invalidity). Moreover, obviousness combinations should be understood to disclose and provide notice of obviousness combinations based not just on the referenced printed publications themselves but also systems implementing the chips disclosed in those publications that were known, used, sold, or otherwise available in the United States before the priority date of the Asserted Claims.

1. '825 Patent Combinations

The '825 Patent Asserted Claims are rendered obvious by at least MiPad 2002 itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Horvitz, Huang SLP, MIT Galaxy, General Magic Systems, and Open Agent Architecture.

The '825 Patent Asserted Claims are rendered obvious by at least MIT Galaxy itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or

more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Horvitz, Huang SLP, MiPad 2002, General Magic Systems, and Open Agent Architecture.

The '825 Patent Asserted Claims are rendered obvious by at least Open Agent Architecture itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Horvitz, Huang SLP, MiPad 2002, General Magic Systems, and MIT Galaxy.

The '825 Patent Asserted Claims are rendered obvious by at least General Magic Systems itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Horvitz, Huang SLP, MiPad 2002, MIT Galaxy, and Open Agent Architecture.

The '825 Patent Asserted Claims are rendered obvious by at least Khan itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Robinson, Riccardi,

Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Horvitz, Huang SLP, MiPad 2002, MIT Galaxy, General Magic Systems, and Open Agent Architecture.

The '825 Patent Asserted Claims are rendered obvious by at least Elad-928 itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Horvitz, Huang SLP, MiPad 2002, MIT Galaxy, General Magic Systems, and Open Agent Architecture.

The '825 Patent Asserted Claims are rendered obvious by at least Hartono itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Horvitz, Huang SLP, MiPad 2002, MIT Galaxy, General Magic Systems, and Open Agent Architecture.

Microsoft notes that discovery is only just beginning, and Microsoft reserves the right to amend its invalidity contentions as discovery reveals additional prior art, including system prior art, in order to provide additional obviousness combinations.

2. '209 Patent Combinations

The '209 Patent Asserted Claims are rendered obvious by at least MiPad 2002 itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or

more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Ratnaparkhi, Surace, Kallulli, Horvitz, Moran, Jackson, Herz, Levin, Linebarger, Huang SLP, MIT Galaxy, General Magic Systems, and Open Agent Architecture.

The '209 Patent Asserted Claims are rendered obvious by at least MIT Galaxy itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Ratnaparkhi, Surace, Kallulli, Horvitz, Moran, Jackson, Herz, Levin, Linebarger, Huang SLP, MiPad 2002, General Magic Systems, and Open Agent Architecture.

The '209 Patent Asserted Claims are rendered obvious by at least Open Agent Architecture itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Ratnaparkhi, Surace, Kallulli, Horvitz, Moran, Jackson, Herz, Levin, Linebarger, Huang SLP, MiPad 2002, General Magic Systems, and MIT Galaxy.

The '209 Patent Asserted Claims are rendered obvious by at least General Magic Systems itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or

common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Ratnaparkhi, Surace, Kallulli, Horvitz, Moran, Jackson, Herz, Levin, Linebarger, Huang SLP, MiPad 2002, MIT Galaxy, and Open Agent Architecture.

The '209 Patent Asserted Claims are rendered obvious by at least Khan itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Ratnaparkhi, Surace, Kallulli, Horvitz, Moran, Jackson, Herz, Levin, Linebarger, Huang SLP, MiPad 2002, MIT Galaxy, General Magic Systems, and Open Agent Architecture.

The '209 Patent Asserted Claims are rendered obvious by at least Elad-928 itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Ratnaparkhi, Surace, Kallulli, Horvitz, Moran, Jackson, Herz, Levin, Linebarger, Huang SLP, MiPad 2002, MIT Galaxy, General Magic Systems, and Open Agent Architecture.

The '209 Patent Asserted Claims are rendered obvious by at least Hartono itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Ratnaparkhi, Surace, Kallulli, Horvitz, Moran, Jackson, Herz, Levin, Linebarger, Huang SLP, MiPad 2002, MIT Galaxy, General Magic Systems, and Open Agent Architecture.

Microsoft notes that discovery is only just beginning, and Microsoft reserves the right to amend its invalidity contentions as discovery reveals additional prior art, including system prior art, in order to provide additional obviousness combinations.

3. '468 Patent Combinations

The '468 Patent Asserted Claims are rendered obvious by at least VoiceBox System itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: MiPad, Nuance, W3C Standard, Telelogue System, Netsch, Coffman-126, Maes, Allen, and Huang SLP.

The '468 Patent Asserted Claims are rendered obvious by at least IBM ViaVoice & WebSphere System itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to:

MiPad, W3C Standard, Microsoft Bob, Microsoft Agent, Netsch, Coffman-126, Maes, Allen, Nuance and Huang SLP.

The '468 Patent Asserted Claims are rendered obvious by at least MiPad itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: W3C Standard, Microsoft Bob, Microsoft Agent, Netsch, Coffman-126, Maes, Allen, and Huang SLP.

The '468 Patent Asserted Claims are rendered obvious by at least Dragon Naturally Speaking System itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: MiPad, W3C Standard, Nuance, Telelogue System, Microsoft Bob, Microsoft Agent, Netsch, Coffman-126, Maes, Allen, and Huang SLP.

The '468 Patent Asserted Claims are rendered obvious by at least W3C Standards itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Nuance, MiPad, Telelogue System, Netsch, Coffman-126, Maes, Allen, and Huang SLP.

The '468 Patent Asserted Claims are rendered obvious by at least Nuance Speech Recognition Systems itself in view of the background knowledge, logic, judgment, intelligence,

creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: MiPad, W3C Standard, Telelogue System, Netsch, Coffman-126, Maes, Allen, and Huang SLP.

The '468 Patent Asserted Claims are rendered obvious by at least Telelogue System itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: MiPad, W3C Standards, Nuance, Netsch, Coffman-126, Maes, Allen, and Huang SLP.

The '468 Patent Asserted Claims are rendered obvious by at least Johnson in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: MiPad, W3C Standards, Nuance, Netsch, Coffman-126, Maes, Allen, and Huang SLP.

The '468 Patent Asserted Claims are rendered obvious by at least Kennewick itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: MiPad, W3C Standards, Nuance, Netsch, Coffman-126, Maes, Allen, and Huang SLP. Microsoft notes that discovery is only just beginning,

and Microsoft reserves the right to amend its invalidity contentions as discovery reveals additional prior art, including system prior art, in order to provide additional obviousness combinations.

4. '959 Patent Combinations

The '959 Patent Asserted Claims are rendered obvious by at least Dragon NaturallySpeaking itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Ramaswamy-119, Kennewick, Pouteau, and Krahmer.

The '959 Patent Asserted Claims are rendered obvious by at least IBM ViaVoice and Websphere itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Ramaswamy-119, Kennewick, Pouteau, and Krahmer.

The '959 Patent Asserted Claims are rendered obvious by at least MiPad itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Dragon NaturallySpeaking, IBM ViaVoice and Websphere, Kennewick, Ramaswamy-119, Pouteau, and Krahmer.

The '959 Patent Asserted Claims are rendered obvious by at least Kennewick itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a

POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Ramaswamy-119, Pouteau, and Krahmer.

The '959825 Patent Asserted Claims are rendered obvious by at least Pouteau itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Ramaswamy-119, Kennewick, and Krahmer.

The '959 Patent Asserted Claims are rendered obvious by at least Krahmer itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: MiPad, IBM ViaVoice and Websphere, Dragon NaturallySpeaking, Ramaswamy-119, Pouteau, and Kennewick.

Microsoft notes that discovery is only just beginning, and Microsoft reserves the right to amend its invalidity contentions as discovery reveals additional prior art, including system prior art, in order to provide additional obviousness combinations.

5. '409 Patent Combinations

The '409 Patent Asserted Claims are rendered obvious by at least the MIT Galaxy System itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-

limitation basis in the accompanying claim charts, including but not limited to: Bazzi, Wu, Nishitani, Soong, the Telelogue System, and Spoken Language Processing.

The '409 Patent Asserted Claims are rendered obvious by at least the Telelogue System itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Bazzi, the MIT Galaxy System, Nishitani, the IBM ViaVoice System, Wu, Tian-2004, and Sabourin.

The '409 Patent Asserted Claims are rendered obvious by at least the IBM ViaVoice & Websphere System itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Bazzi, Wu, Nishitani, Tian-2004, Sabourin, the MIT Galaxy System, Soong, and the Telelogue System.

The '409 Patent Asserted Claims are rendered obvious by at least Spoken Language Processing itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Bazzi, Wu, and Nishitani.

The '409 Patent Asserted Claims are rendered obvious by at least the MiPad itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a

POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Bazzi, Wu, Nishitani, Tian-2004, Sabourin, Spoken Language Processing, Soong, and the Telelogue System.

Microsoft notes that discovery is only just beginning, and Microsoft reserves the right to amend its invalidity contentions as discovery reveals additional prior art, including system prior art, in order to provide additional obviousness combinations.

6. '006 Patent Combinations

The '006 Patent Asserted Claims are rendered obvious by at least MiPad 2002 itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Ratnaparkhi, Kallulli, Horvitz, Huang SLP, MIT Galaxy, General Magic Systems, and Open Agent Architecture.

The '006 Patent Asserted Claims are rendered obvious by at least MIT Galaxy itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer,

Ratnaparkhi, Kallulli, Horvitz, Huang SLP, MiPad 2002, General Magic Systems, and Open Agent Architecture.

The '006 Patent Asserted Claims are rendered obvious by at least Open Agent Architecture itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Ratnaparkhi, Kallulli, Horvitz, Huang SLP, MiPad 2002, General Magic Systems, and MIT Galaxy.

The '006 Patent Asserted Claims are rendered obvious by at least General Magic Systems itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Ratnaparkhi, Kallulli, Horvitz, Huang SLP, MiPad 2002, MIT Galaxy, and Open Agent Architecture.

The '006 Patent Asserted Claims are rendered obvious by at least Khan itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Robinson, Riccardi,

Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Ratnaparkhi, Kallulli, Horvitz, Huang SLP, MiPad 2002, MIT Galaxy, General Magic Systems, and Open Agent Architecture.

The '006 Patent Asserted Claims are rendered obvious by at least Hartono itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Ratnaparkhi, Kallulli, Horvitz, Huang SLP, MiPad 2002, MIT Galaxy, General Magic Systems, and Open Agent Architecture.

Microsoft notes that discovery is only just beginning, and Microsoft reserves the right to amend its invalidity contentions as discovery reveals additional prior art, including system prior art, in order to provide additional obviousness combinations.

7. '570 Patent Combinations

The '570 Patent Asserted Claims are rendered obvious by at least MiPad 2002 itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Ratnaparkhi, Kallulli, Horvitz, Huang SLP, MIT Galaxy, General Magic Systems, and Open Agent Architecture.

The '570 Patent Asserted Claims are rendered obvious by at least MIT Galaxy itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Ratnaparkhi, Kallulli, Horvitz, Huang SLP, MiPad 2002, General Magic Systems, and Open Agent Architecture.

The '570 Patent Asserted Claims are rendered obvious by at least Open Agent Architecture itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Ratnaparkhi, Kallulli, Horvitz, Huang SLP, MiPad 2002, General Magic Systems, and MIT Galaxy.

The '570 Patent Asserted Claims are rendered obvious by at least General Magic Systems itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou,

Edwards, Spencer, Ratnaparkhi, Kallulli, Horvitz, Huang SLP, MiPad 2002, MIT Galaxy, and Open Agent Architecture.

The '570 Patent Asserted Claims are rendered obvious by at least Khan itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Ratnaparkhi, Kallulli, Horvitz, Huang SLP, MiPad 2002, MIT Galaxy, General Magic Systems, and Open Agent Architecture.

The '570 Patent Asserted Claims are rendered obvious by at least Elad-928 itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Ratnaparkhi, Kallulli, Horvitz, Huang SLP, MiPad 2002, General Magic Systems, and MIT Galaxy, and Open Agent Architecture.

The '570 Patent Asserted Claims are rendered obvious by at least Hartono itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Elad-928, Khan, Robinson, Riccardi, Lin,

Bers, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Edwards, Spencer, Ratnaparkhi, Kallulli, Horvitz, Huang SLP, MiPad 2002, General Magic Systems, and MIT Galaxy, and Open Agent Architecture.

Microsoft notes that discovery is only just beginning, and Microsoft reserves the right to amend its invalidity contentions as discovery reveals additional prior art, including system prior art, in order to provide additional obviousness combinations.

8. '367 Patent Combinations

The '367 Patent Asserted Claims are rendered obvious by at least Intelligent Room itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Kennewick, Ross-354, Khan, and Weber.

The '367 Patent Asserted Claims are rendered obvious by at least Open Agent Architecture itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Kennewick, Ross-354, Khan, and Weber.

The '367 Patent Asserted Claims are rendered obvious by at least Belfiore itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more

of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Kennewick, Ross-354, Khan, and Weber.

The '367 Patent Asserted Claims are rendered obvious by at least Kennewick itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Belfiore, Ross-354, Khan, and Weber.

The '367 Patent Asserted Claims are rendered obvious by at least Weng itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Kennewick, Ross-354, Khan, and Weber.

Microsoft notes that discovery is only just beginning, and Microsoft reserves the right to amend its invalidity contentions as discovery reveals additional prior art, including system prior art, in order to provide additional obviousness combinations.

9. '659 Patent Combinations

The '659 Patent Asserted Claims are rendered obvious by at least MiPad itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Ramaswamy-119 and Manavoglu.

The '659 Patent Asserted Claims are rendered obvious by at least the General Magic System itself in view of the background knowledge, logic, judgment, intelligence, creativity,

and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Ramaswamy-119 and Manavoglu.

The '659 Patent Asserted Claims are rendered obvious by at least HeyAnita itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Ramaswamy-119 and Manavoglu.

The '659 Patent Asserted Claims are rendered obvious by at least the TellMe System itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Ramaswamy-119, Manavoglu, HeyAnita, General Magic Systems, Microsoft Bob, Microsoft Agent, CALO, and MiPad.

The '659 Patent Asserted Claims are rendered obvious by at least Ramaswamy-119 itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Ramaswamy NPL (to the extent this reference is not considered a part of Ramaswamy-119) and Hartono.

The '659 Patent Asserted Claims are rendered obvious by at least Di Cristo itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a

POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Lee-381, Ramaswamy-119, and Ramaswamy NPL (to the extent this reference is not considered a part of Ramaswamy-119).

The '659 Patent Asserted Claims are rendered obvious by at least Siri itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Ramaswamy-119, Microsoft Bob, Microsoft Agent, and Manavoglu.

The '659 Patent Asserted Claims are rendered obvious by at least Vlingo itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Ramaswamy-119, Manavoglu, HeyAnita, General Magic Systems, Microsoft Bob, Microsoft Agent, CALO, and MiPad.

The '659 Patent Asserted Claims are rendered obvious by at least Google Search and Google Voice Search itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Ramaswamy-119, Manavoglu, HeyAnita, General Magic Systems, Microsoft Bob, Microsoft Agent, and MiPad.

The '659 Patent Asserted Claims are rendered obvious by at least CALO itself in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Ramaswamy-119, Manavoglu, HeyAnita, General Magic Systems, Microsoft Bob, Microsoft Agent, and MiPad.

Microsoft notes that discovery is only just beginning, and Microsoft reserves the right to amend its invalidity contentions as discovery reveals additional prior art, including system prior art, in order to provide additional obviousness combinations.

F. Motivation or Reasons to Combine

A person having ordinary skill in the art would have been motivated to modify and/or combine the references identified above and in Exhibits A-1 to A-8, B-1 to B-8, C-1 to C-11, D-1 to D-7, E-1 to E-9, F-1 to F-7, G-1 to G-8, H-1 to H-6, and I-1 to I-11, whether alone or in combination with one, two, or more references, including because, for example, the identified modifications and/or combinations fall into one or more of the following categories: (a) a modification and/or combination of elements known in the prior art according to known methods to yield a predictable result; (b) a modification and/or combination that is a simple substitution of one or more known elements for another to obtain a predictable result; (c) a modification and/or combination that involves using a known technique to improve a similar device or method in the same way; (d) a modification and/or combination that involves applying a known technique to a known device or method ready for improvement to yield a predictable result; (e) a modification and/or combination that results from a finite number of identified, predictable solutions with a reasonable expectation of success, such that the solution was one which was “obvious to try”; (f)

a modification and/or combination that results from known work in one field of endeavor prompting variations of it for use either in the same field or a different field based on design incentives or other market forces in which the variations were predictable to one of ordinary skill in the art; (g) a modification and/or combination that involves a teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill in the art to modify the prior art reference or to combine the teachings of various prior art references to arrive at the claimed invention; and/or (h) a modification and/or combination that involves common sense, common knowledge, industry trends, expectations, design incentives, engineering principles, market demand or pressure, market forces, the desire to improve features and performance (*e.g.*, become less expensive, become more commonly used, provide better performance, reduce costs, size or weight, or predictably achieve other clearly desirable results) and/or any of the other factors identified herein would have led to an obvious modification and/or combination. Each proposed combination would have had a reasonable expectation of success and would not have led to unexpected results. This is because, for example, the proposed combinations can be effectuated through the mere modification of device programming. Additional examples of specific motivations to combine the references identified above and in Exhibits A-1 to A-8, B-1 to B-8, C-1 to C-11, D-1 to D-7, E-1 to E-9, F-1 to F-7, G-1 to G-8, H-1 to H-6, and I-1 to I-11 are discussed further in the sections below.

The United States Supreme Court clarified the standard for what types of inventions are patentable in *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727 (2007) (“*KSR*”). In particular, the Supreme Court emphasized that inventions arising from ordinary innovation, ordinary skill, or common sense are not patentable. In that regard, a patent claim is invalid if the combination of elements was obvious to try or there existed at the time of the invention a known problem for which there was an obvious solution encompassed by the patent’s claims. When a work is available

in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. In addition, when there is a design need or market pressure to solve a problem and there are a finite number of predictable solutions, a person of ordinary skill in the art has good reason to pursue the known options. If a person of ordinary skill can implement a predictable variation, Section 103 bars its patentability.

In summary, *KSR* holds that patents that are based on new combinations of elements or components already known in a technical field may be found to be obvious. The Court in *KSR* rejected a rigid application of the teaching, suggestion, or motivation to combine test: “In determining whether the subject matter of a patent claim is obvious, neither the particular motivation nor avowed purpose of the patentee controls. What matters is the objective reach of the claim.” 127 S. Ct. at 1741-42. “Under the correct analysis, any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed.” *Id.* at 1742. In particular, in *KSR*, the Supreme Court emphasized the principle that “[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results.” *Id.* at 1739. A key inquiry is whether the “improvement is more than the predictable use of prior art elements according to their established functions.” *KSR*, 127 S.Ct. at 1740; *see also Leapfrog Enters. v. Fisher-Price, Inc.*, 485 F.3d 1157 (Fed. Cir. 2007). The rationale to combine or modify prior art references is significantly stronger when the references seek to solve the same problem, come from the same field, and correspond well. *In re Inland Steel Co.*, 265 F.3d 1354, 1362 (Fed. Cir. 2001).

Indeed, in view of the Supreme Court’s *KSR* decision, the PTO identified various rationales for finding a claim obvious, including those based on other precedents. Those rationales include:

- (A) Combining prior art elements according to known methods to yield predictable results;

(B) Simple substitution of one known element for another to obtain predictable results;

(C) Use of a known technique to improve similar devices (methods, or products) in the same way;

(D) Applying a known technique to a known device (method, or product) ready for improvement to yield predictable results;

(E) “Obvious to try” – choosing from a finite number of identified, predictable solutions, with a reasonable expectation of success;

(F) Known work in one field of endeavor may prompt variations of it for use in either the same field or a different one based on design incentives or other market forces if the variations would have been predictable to one of ordinary skill in the art;

(G) Some teaching, suggestion, or motivation in the prior art that would have led one of ordinary skill to modify the prior art reference or to combine prior art reference teachings to arrive at the claimed invention.

See Examination Guidelines for Determining Obviousness Under 35 U.S.C. § 103 in view of the Supreme Court Decision in KSR International Co. v. Teleflex, Inc., 72 Fed. Reg. 57526, 57529 (October 10, 2007). Such rationales apply in rendering obvious the claims of the Asserted Patents.

Although Microsoft contends that no specific motivation to combine is necessary for the references cited in the attached exhibits, Microsoft hereby identifies additional motivations and reasons to combine the cited art. These exemplary discussions regarding obviousness are illustrative, and not intended to be exhaustive.

First, one of skill in the art would have been motivated to combine one or more of the references identified in Exhibits A-1 to A-8, B-1 to B-8, C-1 to C-11, D-1 to D-7, E-1 to E-9, F-1 to F-7, G-1 to G-8, H-1 to H-6, and I-1 to I-11 with one another because they all relate to common objectives and subject matter. The references share commonalities in terms of their general subject matter, such as automated speech recognition systems, user-query or command processing

systems, voice-controlled systems, and information-retrieval systems, as well as the types of equipment, products, and/or approaches they describe. Moreover, a person of ordinary skill would have been motivated to combine the prior art based on the nature of the problem to be solved, the teachings of the prior art, and the knowledge of persons of ordinary skill in the art. The identified prior art addresses the same or similar technical issues and suggest the same or similar solutions to those issues.

Second, a person of ordinary skill in the art would have understood that the references identified above and in Exhibits A-1 to A-8, B-1 to B-8, C-1 to C-11, D-1 to D-7, E-1 to E-9, F-1 to F-7, G-1 to G-8, H-1 to H-6, and I-1 to I-11 explicitly or implicitly reference other prior art references in Exhibits A-1 to A-8, B-1 to B-8, C-1 to C-11, D-1 to D-7, E-1 to E-9, F-1 to F-7, G-1 to G-8, H-1 to H-6, and I-1 to I-11, share common authors, were presented at the same trade shows, events, meetings and conferences, and/or were developed at common companies or organizations, all of which would motivate one of skill in the art to combine them. For example, Ramaswamy-119 and Ramaswamy NPL share a common inventor/author, and thus a POSITA would have been motivated to combine them and combine the interrelated teachings. In another example involving Ramaswamy, both the Ramaswamy-119 prior art reference and IBM ViaVoice and Websphere System originate from IBM. A POSITA would have been motivated to look to other IBM materials when looking to improve upon either the Ramaswamy-119 reference or the IBM ViaVoice and Websphere System, and would thus have been motivated to combine them.

Third, the references identified in Exhibits A-1 to A-8, B-1 to B-8, C-1 to C-11, D-1 to D-7, E-1 to E-9, F-1 to F-7, G-1 to G-8, H-1 to H-6, and I-1 to I-11 are also within the same field of the Asserted Patents, *i.e.*, as automated speech recognition systems, user-query or command processing systems, voice-controlled systems, and information-retrieval systems; and each

grouping of exhibits is directed to similar subject matter within that field. Additionally, any products, devices, features, designs, or processes described in the references existed and/or were invented before or during the period in which the claimed inventions were developed, providing further motivation to combine them.

Fourth, many of the references in Exhibits A-1 to A-8, B-1 to B-8, C-1 to C-11, D-1 to D-7, E-1 to E-9, F-1 to F-7, G-1 to G-8, H-1 to H-6, and I-1 to I-11 have common design features, such as designs to be implemented on the same types of personal computing devices that include microphones, speakers, and local processing capabilities, or over the same networks. Additionally, many of the references in Exhibits A-1 to A-8, B-1 to B-8, C-1 to C-11, D-1 to D-7, E-1 to E-9, F-1 to F-7, G-1 to G-8, H-1 to H-6, and I-1 to I-11 have common components, such as software or application agents, software or application managers, or use common computing techniques, such as n-best hypothesis ranking. One of ordinary skill in the art would have been motivated and found it obvious to combine these references, with a reasonable expectation of success, to improve existing communication systems.

Thus, the motivation or reason to combine the teachings of the prior art references disclosed herein is found in the references themselves and in: (1) the nature of the problem being solved; (2) the express, implied, and inherent teachings of the prior art; (3) the knowledge of persons of ordinary skill in the art; (4) the fact that the prior art is generally directed towards the same problem; and/or (5) the predictable results obtained in combining the different elements of the prior art.

In addition to the exemplary motivations, suggestions, or reasons to combine described above, Microsoft identifies additional motivations to combine in the sections below. The exemplary motivations, suggestions, or reasons to combine described above and below are not

exclusive to any one of the Asserted Patents, nor are they exhaustive. Microsoft may identify further examples as the case proceeds. Microsoft further incorporates by reference the motivations to combine discussed in the prosecution histories of the Asserted Patents.

1. '825 Patent Motivations

For example, it would have been obvious to combine the references in Exhibits A-1 to A-8 in order to: enable natural language understanding by a computer system; increase the reliability and accuracy of interpretations of natural language speech utterances, information processing, and/or response generation; increase the speed, efficiency, and/or throughput of natural language speech interpretation, information processing, and/or response generation; obtain information from the Internet in a flexible, modular, and computationally inexpensive way; provide current relevant information; enable the system to respond to a greater number of types of user inputs, including, for example, different input modalities and/or different input topics; determine whether a particular task objective can be implemented; enabling the system to respond in ways that increase system effectiveness, efficiency, and/or user engagement by, for example, varying the output modality, varying the output presentation tone, varying the output presentation format, and/or varying the output presentation order; computerize or automate a user's actions; provide a system that is able to respond to multiple requests; provide a system that is able to respond to complex and/or compound requests; anticipate a user's needs and to address them address in advance of the user's request for them; improve user experience by, for example, increasing the overall efficiency of and/or ease of use of the system; respond to errors and to provide a computerized and automated means of responding to recognition and/or interpretation errors; improve error handling, by, for example, training how the system interprets or responds to natural language inputs by correcting errors; provide for a natural language-based way for users to interact

with the system and correct errors; conserve processing resources, for example, in the event of utterance recognition errors; separate electronic activity guides to make them easier to program and troubleshoot; improve the accuracy of the natural language processing, including the accuracy of input recognition and the user's intent or desired result output by, for example, analyzing common inputs, outputs, errors and/or misrecognitions; improving searching by utilizing feedback that is customized to particular tasks or domains; personalize the system to a user and to provide a mechanism to personalize the system to the user by; update the system in response to user activity; increase system robustness and reliability by, for example, distributing processing resources; increase system independence by, for example, consolidating processing resources.

2. '209 Patent Motivations

For example, it would have been obvious to combine the references in Exhibits B-1 to B-8 in order to: enable natural language understanding by a computer system; increase the reliability and accuracy of interpretations of natural language speech utterances, information processing, and/or response generation; increase the speed, efficiency, and/or throughput of natural language speech interpretation, information processing, and/or response generation; obtain information from the Internet in a flexible, modular, and computationally inexpensive way; provide current relevant information; enable the system to respond to a greater number of types of user inputs, including, for example, different input modalities and/or different input topics; determine whether a particular task objective can be implemented; enabling the system to respond in ways that increase system effectiveness, efficiency, and/or user engagement by, for example, varying the output modality, varying the output presentation tone, varying the output presentation format, and/or varying the output presentation order; computerize or automate a user's actions; provide a system that is able to respond to multiple requests; provide a system that is able to respond to

complex and/or compound requests; anticipate a user's needs and to address them address in advance of the user's request for them; improve user experience by, for example, increasing the overall efficiency of and/or ease of use of the system; respond to errors and to provide a computerized and automated means of responding to recognition and/or interpretation errors; improve error handling, by, for example, training how the system interprets or responds to natural language inputs by correcting errors; provide for a natural language-based way for users to interact with the system and correct errors; conserve processing resources, for example, in the event of utterance recognition errors; separate electronic activity guides to make them easier to program and troubleshoot; improve the accuracy of the natural language processing, including the accuracy of input recognition and the user's intent or desired result output by, for example, analyzing common inputs, outputs, errors and/or misrecognitions; improving searching by utilizing feedback that is customized to particular tasks or domains; personalize the system to a user and to provide a mechanism to personalize the system to the user by; update the system in response to user activity; increase system robustness and reliability by, for example, distributing processing resources; increase system independence by, for example, consolidating processing resources.

3. '468 Patent Motivations

For example, it would have been obvious to combine the references in Exhibits C-1 to C-11 in order to allow users to interact with a system using the same or similar natural language utterances humans use to interact, which removes the requirement for the system to memorize commands, and enables faster, more efficient accomplishing of tasks such as completing transactions and setting up meetings; to provide a system able to perpetually enhance speech recognition by increasing the overall efficiency and ease of use of the system; to apply an n-gram model to improve the accuracy of a given transcript generated from an interpretation of a user's

utterance; to adapt to unique user linguistic idiosyncrasies such as regional accent; to create separate user profiles to enhance both the language interpretation capabilities of the device and to more efficiently direct the user to commonly asked-for information based on prior commands; to anticipate a user's needs and provide correct information in response to a request; to allow a user to assist in recognition improvement by correcting interpretation errors; to provide multiple methods of inputting a command such as through a stylus, verbally, visually, or by a combination of inputs; to more efficiently categorize recognized commands in a context stack, allowing for better interpretation of user intent; to modify a transcript of a language utterance with qualifiers such as mood or focus, which allows for more accurate recognition of a user's goals when issuing a command; to account for background noise when generating a transcript of a user's utterance; to improve the ability of speech systems to understand context; to reduce the number of required user interactions before providing the correct user-intended result; and to allow for a progressively more accurate model over iterative interactions from a user.

4. '959 Patent Motivations

For example, it would have been obvious to combine the references in Exhibits D-1 to D-7 in order to: enable natural language understanding by a computer system; increase the reliability and accuracy of interpretations of natural language speech utterances; enable the system to respond to a greater number of types of user inputs; computerize or automate a user's actions; provide a system that is able to respond to multiple requests; anticipate a user's needs and to address them address in advance of the user's request for them; improve user experience by, for example, increasing the overall efficiency of and ease of use of the system; respond to errors and to provide a computerized and automated means of responding to recognition and interpretation errors; improve error handling, by, for example, training how the system interprets or responds to natural

language inputs by correcting errors; provide for a natural language-based way for users to interact with the system and correct errors; conserve processing resources, for example, in the event of utterance recognition errors; improve the accuracy of the natural language processing, including the accuracy of input recognition and the user's intent or desired result output by, for example, analyzing common inputs, outputs, and errors or misrecognitions; personalize the system to a user and to provide a mechanism to personalize the system to the user; and update the system in response to user activity.

5. '409 Patent Motivations

For example, it would have been obvious to combine the references in Exhibits E-1 to E-9 in order to: increase the accuracy of, and system confidence, in phoneme and word recognition in spoken utterances; more efficiently generate an interpretation of a natural language utterance by, for example, improving n-gram scoring accuracy; decrease required system workload; implement an alternative means of speech recognition; better weigh probable and unlikely interpretations; filter out extraneous information detected by a microphone; and enable the system to recognize new vocabulary.

6. '006 Patent Motivations

For example, it would have been obvious to combine the references in Exhibits F-1 to F-7 in order to: enable natural language understanding by a computer system; increase the reliability and accuracy of interpretations of natural language speech utterances, information processing, and/or response generation; increase the speed, efficiency, and/or throughput of natural language speech interpretation, information processing, and/or response generation; obtain information from the Internet in a flexible, modular, and computationally inexpensive way; provide current relevant information; enable the system to respond to a greater number of types of user inputs,

including, for example, different input modalities and/or different input topics; determine whether a particular task objective can be implemented; enabling the system to respond in ways that increase system effectiveness, efficiency, and/or user engagement by, for example, varying the output modality, varying the output presentation tone, varying the output presentation format, and/or varying the output presentation order; computerize or automate a user's actions; provide a system that is able to respond to multiple requests; provide a system that is able to respond to complex and/or compound requests; anticipate a user's needs and to address them address in advance of the user's request for them; improve user experience by, for example, increasing the overall efficiency of and/or ease of use of the system; respond to errors and to provide a computerized and automated means of responding to recognition and/or interpretation errors; improve error handling, by, for example, training how the system interprets or responds to natural language inputs by correcting errors; provide for a natural language-based way for users to interact with the system and correct errors; conserve processing resources, for example, in the event of utterance recognition errors; separate electronic activity guides to make them easier to program and troubleshoot; improve the accuracy of the natural language processing, including the accuracy of input recognition and the user's intent or desired result output by, for example, analyzing common inputs, outputs, errors and/or misrecognitions; improving searching by utilizing feedback that is customized to particular tasks or domains; personalize the system to a user and to provide a mechanism to personalize the system to the user by; update the system in response to user activity; increase system robustness and reliability by, for example, distributing processing resources; increase system independence by, for example, consolidating processing resources.

7. '570 Patent Motivations

For example, it would have been obvious to combine the references in Exhibits G-1 to G-8 in order to: enable natural language understanding by a computer system; increase the reliability and accuracy of interpretations of natural language speech utterances, information processing, and/or response generation; increase the speed, efficiency, and/or throughput of natural language speech interpretation, information processing, and/or response generation; obtain information from the Internet in a flexible, modular, and computationally inexpensive way; provide current relevant information; enable the system to respond to a greater number of types of user inputs, including, for example, different input modalities and/or different input topics; determine whether a particular task objective can be implemented; enabling the system to respond in ways that increase system effectiveness, efficiency, and/or user engagement by, for example, varying the output modality, varying the output presentation tone, varying the output presentation format, and/or varying the output presentation order; computerize or automate a user's actions; provide a system that is able to respond to multiple requests; provide a system that is able to respond to complex and/or compound requests; anticipate a user's needs and to address them address in advance of the user's request for them; improve user experience by, for example, increasing the overall efficiency of and/or ease of use of the system; respond to errors and to provide a computerized and automated means of responding to recognition and/or interpretation errors; improve error handling, by, for example, training how the system interprets or responds to natural language inputs by correcting errors; provide for a natural language-based way for users to interact with the system and correct errors; conserve processing resources, for example, in the event of utterance recognition errors; separate electronic activity guides to make them easier to program and troubleshoot; improve the accuracy of the natural language processing, including the accuracy

of input recognition and the user's intent or desired result output by, for example, analyzing common inputs, outputs, errors and/or misrecognitions; improving searching by utilizing feedback that is customized to particular tasks or domains; personalize the system to a user and to provide a mechanism to personalize the system to the user by; update the system in response to user activity; increase system robustness and reliability by, for example, distributing processing resources; increase system independence by, for example, consolidating processing resources.

8. '367 Patent Motivations

For example, it would have been obvious to combine the references in Exhibits H-1 to H-6 in order to: improve the confidence and reliability of context identification for natural language processing; more accurately determine a relevant domain for subsequent processing of a user input; reduce computing resource utilization and a likelihood for user frustration resulting from inaccurate disambiguation and repeated exchanges/clarification requests; offer dynamic extensibility through multiple, potentially disparate software agents based on associated grammars and contextual relevance; and achieve improved context state management and the ability to maintain, or even switch between, multiple contemporaneous contexts for natural language processing.

9. '659 Patent Motivations

For example, it would have been obvious to combine the references in Exhibits I-1 to I-11 in order to: enable natural language understanding by a computer system, which enable the system to respond to a greater number of types of user inputs; improve the accuracy of the natural language processing, including the accuracy of input recognition and of the user's intent or desired result by, for example, analyzing inputs, outputs, and errors or misrecognitions; anticipate a user's needs and to address them address in advance of the user's request for them; computerize or automate a

user's actions; simplify the functionality of the system; expand functionality of the system; personalize the system to a user and to provide a mechanism to personalize the system to the user; update the system in response to user activity; and improve user experience by, for example, increasing the overall efficiency of and ease of use of the system.

G. Secondary Considerations

For any secondary consideration to be relevant, Plaintiff must establish a nexus between the secondary consideration and the claimed inventions. *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1312 (Fed. Cir. 2006). Plaintiff has not provided any evidence of any secondary considerations, much less any nexus between such secondary considerations and the claimed inventions of the Asserted Patents. For example, Plaintiff has not demonstrated any commercial success based on the Asserted Patents. Accordingly, there are no secondary considerations of non-obviousness that support the validity of the Asserted Patents. Microsoft reserves the right to amend these Invalidity Contentions to the extent Plaintiff identifies any alleged secondary considerations.

IV. INVALIDITY UNDER 35 U.S.C. § 112 (P.R. 3-3(D))

Pursuant to P.R. 3-3(d), Microsoft hereby identifies the below grounds upon which the Asserted Claims are invalid based on indefiniteness under 35 U.S.C. § 112, ¶ 2, and/or based on a failure to meet the enablement or written description requirements of 35 U.S.C. § 112, ¶ 1. Below are exemplary limitations that are invalid for failing to comply with these requirements. Each dependent claim that depends on an independent claim that is invalid, as identified below, is also invalid for the same or similar reasons. As asserted by Plaintiff, each Asserted Claim is invalid under 35 U.S.C. § 112.

Microsoft reserves the right to raise and address, once the parties have exchanged claim terms and proposed constructions, any other issues under 35 U.S.C. § 112, ¶ 2 arising out of those

exchanges. Microsoft similarly reserves the right to raise any additional 35 U.S.C. § 112, ¶ 2 issues based on fact or expert discovery in this case and/or any positions taken by Plaintiff, including with respect to issues relating to claim construction, infringement and/or invalidity. Microsoft further reserves the right to amend its invalidity contentions to the extent Plaintiff is allowed to provide additional claim charts.

Although complete phrases are sometimes identified below, Microsoft reserves the right to argue that any word or sub-phrase within a larger phrase also violates the written description, enablement, and/or definiteness requirements of 35 U.S.C. § 112.

A. Invalidity Based on Lack of Adequate Written Description and/or Enablement Under 35 U.S.C. § 112 ¶ 1

Section 112 ¶ 1 requires a patent to describe “the manner and process of making and using [the claimed invention], in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same.” A patent must disclose enough to permit a person of skill in the art, after reading the specification, to practice the claimed invention without undue experimentation. *Sitrick v. Dreamworks, LLC*, 516 F.3d 993, 999 (Fed. Cir. 2008). In other words, “[t]he full scope of the claimed invention must be enabled.” *Id.* at 999–1000 (“Because the asserted claims are broad enough to cover both movies and video games, the patents must enable both embodiments.”). “Enabling the full scope of each claim is ‘part of the quid pro quo of the patent bargain.’” *Id.* Accordingly, “[t]he more one claims, the more one must enable.” *Amgen Inc. et al. v. Sanofi, et al.*, 598 U.S. 594, 611 (2023). Examples of why all Asserted Claims are invalid for lack of enablement are set forth below. In addition, to satisfy the written description requirement, the patent “must ‘clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed.’” *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1351 (Fed. Cir. 2010) (*en banc*); see *Kao Corp. v. Unilever U.S.*,

Inc., 441 F.3d 963, 967–68 (Fed. Cir. 2006). “[E]nough [of the invention] must be included to convince a person of skill in the art that the inventor possessed the invention” *LizardTech, Inc. v. Earth Res. Mapping, Inc.*, 424 F.3d 1336, 1345 (Fed. Cir. 2005); *Gentry Gallery, Inc. v. Berkline Corp.*, 134 F.3d 1473, 1479 (Fed. Cir. 1998) (“To fulfill the written description requirement, the patent specification ‘must clearly allow persons of ordinary skill in the art to recognize that the inventor invented what is claimed.’”). Thus, “the hallmark of written description is disclosure,” and “the specification must describe an invention understandable to that skilled artisan and show that the inventor actually invented the invention claimed.” *Ariad*, 598 F.3d at 1351. Examples of reasons why all Asserted Claims are invalid for failing to meet the written description and/or enablement requirements are set forth below.²⁷

1. '825 Patent

At least the following claim limitations are invalid for failing the written description/enablement requirements:

- “a speech recognition engine,” claim 5;
- “creating, by the selected at least one of the plurality of domain agents, one or more queries based on the at least one query and/or command,” claim 5;
- “sending, by the selected at least one of the plurality of domain agents, the one or more queries in an asynchronous manner,” claim 5;
- “prior probabilities or fuzzy possibilities,” claim 5;
- “receiving, at a parser, keyword and associated prior probabilities or fuzzy possibilities from a system agent or an active domain agent of a plurality of autonomous executable domain agents,” claim 5;
- “send the duplicate queries in an asynchronous manner,” claim 8.

²⁷ Microsoft also incorporates by reference the identified claim language in the following § 112 ¶ 2 section.

2. '209 Patent

At least the following claim limitations are invalid for failing the written description/enablement requirements:

- “maintaining a dynamic set of prior probabilities or fuzzy possibilities usable at each stage of processing the received user utterance,” claim 1;
- “formulating the at least one request contained in the utterance in accordance with a grammar used by the selected domain agent,” claim 1;
- “a plurality of autonomous executable domain agents,” claim 1;
- “dynamically updating the information in the dictionary and phrase tables based on the dynamic set of prior probabilities or fuzzy possibilities,” claim 2;
- “scoring one or more possible contexts for the matched keywords using one or more of a profile of the user, data content associated with the domain agents, or a context stack of one or more recent contexts,” claim 4;
- “extracting one or more criteria and one or more parameters from the keywords contained in the recognized words and phrases using procedures sensitive to the determined context; inferring one or more criteria and one or more parameters using the dynamic set of prior probabilities or fuzzy possibilities; and transforming the extracted and the inferred criteria and parameters into a format compatible with the grammar used by the selected domain agent, the transformed criteria and parameters including all of the required values and one or more of the optional values,” claim 6;
- “submitting a plurality of asynchronous queries,” claim 8;
- “scoring a relevance of each of the asynchronously received results using the dynamic set of prior probabilities or fuzzy possibilities to determine one or more best responses to the at least one question,” claim 8;
- “asynchronously received results,” claim 9;
- “one or more scraping criteria,” claim 9;
- “selecting one or more best values for the determined tokens from the evaluated values, wherein the one or more best responses include the one or more selected best values,” claim 9;
- “a personality for presenting the one or more best responses,” claim 13;
- “a format template,” claim 13;
- “a text to speech engine,” claim 14.

3. '468 Patent

At least the following claim limitations are invalid for failing the written description/enablement requirements:

Term	Relevant Claim(s)
“a conversational voice user interface”	Claim 19

Term	Relevant Claim(s)
“receiving a multi-modal natural language input . . . including a natural language utterance a non-speech input provided by a user, wherein a transcription module . . . transcribes the non-speech input to create a non-speech based transcription”	Claim 19
“identifying the user that provided the multi-modal input	Claim 19
“creating a speech-based transcription of the natural language utterance using a speech recognition engine and a semantic knowledge-based module, wherein the semantic knowledge-based model includes a personalized cognitive model derived from one or more prior interactions between the identified user and the conversational voice user interface, a general cognitive model derived from one or more prior interactions between a plurality of users and the conversational voice user interface, and an environmental model derived from an environment of the identified user and the conversational voice user interface.”	Claim 19
“merging the speech-based transcription and the nonspeech-based transcription to create a merged transcription”	Claim 19
“identifying one or more entries in a context stack matching information contained in the merged transcription”	Claim 19
“determining a most likely context for the multi-modal input based on the identified entries”	Claim 19
“identifying a domain agent associated with the most likely context for the multi-modal input”	Claim 19
“generating a response to the user from content provided by the identified domain agent as a result of processing the request”	Claim 19
“wherein the generated response includes an aggregation of content gathered when the identified domain agent processed the request”	claim 20
“wherein the knowledge-enhanced speech recognition engine determines a most likely context for the follow-up multi-modal input using the updated context stack”	Claim 28
“the speech recognition engine creates a speech-based transcription of the follow-up natural language utterance using the updated semantic knowledge-based model”	Claim 29

4. '959 Patent

At least the following claim limitations are invalid for failing the written description/enablement requirements:

- “proactively performing, by the computer system, a second action specified by the natural language command based on the second interpretation,” claim 1;
- “personalized cognitive model,” claim 1;
- “an action that is predicted to be requested or taken by the user,” claim 8.

5. '409 Patent

At least the following claim limitations are invalid for failing the written description/enablement requirements:

- “A method for providing out-of-vocabulary interpretation capabilities and for tolerating noise when interpreting natural language speech utterances,” claim 1;
- “an acoustic grammar,” claim 1;
- “acoustic speech model,” claim 2;
- “transitions between the acoustic elements, wherein the transitions are constrained according to phonotactic rules of the acoustic speech model,” claim 3;
- “assigning a score to each of the plurality of candidate interpretations,” claim 6.

6. '006 Patent

At least the following claim limitations are invalid for failing the written description/enablement requirements:

Claim Element	Patent (Claims)
“a speech recognition engine”	Claims 1,5
“dynamically updating the information in the one or more dictionary and phrase tables based on a dynamic set of prior probabilities or fuzzy possibilities”	claim 1
“determining an identity associated with a user that spoke the utterance based on voice characteristics associated with the utterance”	claim 1
“associating the one or more recognized words or phrases and a pronunciation associated with the one or more recognized words or phrases with the determined identity and the request contained in the utterance in response to the one or more recognized words or phrases satisfying a predetermined confidence level”	claim 1
“parser”	claims 1, 5
“parsing...the one or more recognized words or phrases to determine a meaning associated with the utterance and a context associated with the request contained in the utterance”/“parsing...information [related /relating] to the utterance to determine a meaning associated with the utterance and a context	claims 1, 5

Claim Element	Patent (Claims)
“a speech recognition engine”	Claims 1,5
associated with the request contained in the utterance”	
“one or more recognized words or phrases are further associated with the determined context in response to the one or more recognized words or phrases satisfying the predetermined confidence level”	claim 1
“formulating, at the parser, the request contained in the utterance in accordance with a grammar used by a domain agent associated with the determined context”	claims 1, 5
“matching the one or more recognized words or phrases to a set of keywords associated with the dynamic set of prior probabilities or fuzzy possibilities”	claim 2
“scoring multiple possible contexts for the one or more recognized words or phrases matched to the set of keywords using a profile associated with the determined user identity, data content associated with the domain agent, or a context stack that includes one or more recent contexts”	claim 2
“selecting one of the scored multiple possible contexts having a higher score that satisfies the predetermined confidence level to be the determined context	claim 2
“requesting the user to verify the one or more recognized words or phrases in response to determining that none of the scored multiple possible contexts satisfy the predetermined confidence level”	claim 3
“determining the context based on information that the user provides in one or more subsequent natural language speech utterances”	claim 3
“determining one or more required values and one or more optional values associated with formulating the request in the grammar used by the domain agent.”	claim 5
“extracting one or more criteria and one or more parameters from the one or more keywords contained in the one or more recognized words or	claim 5

Claim Element	Patent (Claims)
“a speech recognition engine”	Claims 1,5
phrases...using procedures sensitive to the determined context”	
“inferring one or more further criteria and one or more further parameters associated with the request using a dynamic set of prior probabilities or fuzzy possibilities”	claim 5
“transforming the one or more extracted criteria, the one or more extracted parameters, the one or more inferred criteria, and the one or more inferred parameters into one or more tokens having a format compatible with the grammar used by the domain agent, wherein the one or more tokens include all the required values and one or more of the optional values associated with formulating the request in the grammar used by the domain agent”	claim 5

7. '570 Patent

At least the following claim limitations are invalid for failing the written description/enablement requirements:

- “a speech recognition engine,” claim 1;
- “multi-threaded environment,” claim 1;
- “a first plurality of asynchronous queries,” claim 1;
- “a second plurality of asynchronous queries,” claim 1;
- “prior probabilities or fuzzy possibilities,” claim 2;
- “scoring the plurality of asynchronously evaluated results with the first domain agent to determine one or more of the plurality of results that represents a best response to the first one of the multiple requests, wherein the one or more response events received at the event manager include the best response to the first one of the multiple requests,” claim 4;
- “probabilistic or fuzzy scoring techniques,” claim 5;
- “the first domain agent formatting the best response using a format template associated with the one or more contexts, criteria identified from the natural language speech utterance, or a profile for a user that provided the natural language speech utterance,” claim 6;
- “the first domain agent performing one or more variable substitutions and transformations using the format template to format the best response,” claim 7;
- “wherein processing the first one of the multiple requests further includes the first domain agent using probabilistic or fuzzy set decision methods to vary one or more of a personality for presenting the best response, an order for presenting tokens contained in the best response, or a terminology for presenting the tokens contained in the best response,” claim 8.

8. '367 Patent

At least the following claim limitations are invalid for failing the written description/enablement requirements:

- “context manager,” claim 11;
- “context input,” claim 11;
- “context change event,” claim 11;
- “context events,” claim 11;
- “context tracking module,” claim 12;
- “removing, by the context manager, one or more of the plurality of mobile devices from the plurality of mobile devices registered with the context manager,” claim 15;
- “a knowledge-enhanced speech recognition engine,” claim 17;
- “one or more contexts that completely or partially match one or more text combinations contained in text transcribed from the natural language utterance,” claim 17;
- “context description grammar,” claim 17; and
- “grammar expression entities,” claim 17.

9. '659 Patent

At least the following claim limitations of Claim 42 are invalid for failing the written description/enablement requirements:

- “personalized cognitive model”;
- “generalized cognitive model”;
- “sufficient information”; and
- “pattern(s) of interactions.”

B. Indefiniteness Under 35 U.S.C. § 112 ¶ 2

Based on Microsoft’s present understanding of Plaintiff’s infringement contentions, the Asserted Claims are indefinite under 35 U.S.C. § 112 ¶ 2 because, when read in light of the specifications and the prosecution histories, they fail to inform with reasonable certainty those skilled in the art about the scope of the invention, particularly in view of the broad manner in which Plaintiff asserts the claims. *See, e.g., Nautilus, Inc. v. Biosig Instruments, Inc.*, 572 U.S. 898, 901 (2014). Microsoft alleges that the following Asserted Claims, including all dependent claims that depend from such claims, are invalid because they include limitations and/or claim terms that fail

to satisfy the definiteness requirement of 35 U.S.C. § 112 ¶ 2. Microsoft incorporates by reference the identified claim language in the foregoing § 112 section, with the addition of the following:

1. '825 Patent

- a. “the particular domain indicates an area of expertise within which the domain agent is capable of responding to the queries and/or commands”

Claim 5 is invalid at least for reciting that “the particular domain indicates an area of expertise within which the domain agent is capable of responding to the queries and/or commands” which is indefinite. For example, it is unclear what constitutes an “area” of expertise, or how the domain “indicates” the “area of expertise.”

- b. “recognizing, by a speech recognition engine, one or more words in the user generated natural language speech utterance; receiving, at a parser, keyword and associated prior probabilities or fuzzy possibilities; determining, for the natural language speech utterance, a score for each of at least two possible contexts, wherein the scores are determined based on the received keyword and associated prior probabilities or fuzzy possibilities”

The claimed “keyword” of claim 5, is indefinite. For example, “keyword” is not defined with reference to any other claimed feature, and thus “keyword” could potentially refer to words recognized in the natural language speech utterance, or to words used when providing scores for possible contexts, *i.e.*, keywords previously associated with a given context. Additionally, what the “prior probabilities or fuzzy possibilities” is referring to, and what comprises these structures,

is unclear. Finally, what it means for a “keyword” to be “*associated*” with “prior probabilities or fuzzy possibilities” is unclear.

- c. “recognizing, by a speech recognition engine, one or more words in the user generated natural language speech utterance”

“[T]he user generated natural language speech utterance” of claim 5 is indefinite as the claim never recites that a natural language speech utterance from the user is received, provided, or otherwise conveyed in any way. No words can be recognized in the utterance because the user never provided the utterance, as the claim does not recite this step. Thus, claim 5 is indefinite.

- d. “parser”

The recited “parser” of claim 5 is indefinite as it is not clear what may meet this element.

- e. “asynchronous manner”

Claims 5 and 8 refer to sending queries “in an asynchronous manner,” which is indefinite because it is unclear what it means for queries to be sent in an “asynchronous manner.” For example, it is unclear if the queries must be out of synch in time or order of execution, or if each query must be sent independently of other queries, in order for the queries to be sent in an “asynchronous manner.”

2. '209 Patent

- a. “maintaining a *dynamic set of prior probabilities or fuzzy possibilities* usable at each stage of processing the received user utterance”

Claim 1 is invalid at least for reciting “maintaining a dynamic set of prior probabilities or fuzzy possibilities usable at each stage of processing the received user utterance” which is indefinite. For example, it is unclear what constitutes “a dynamic set” of prior probabilities or

fuzzy possibilities. Additionally, what the “prior probabilities or fuzzy possibilities” is referring to, and what comprises these structures, is unclear.

b. “a plurality of autonomous executable domain agents”

Claim 1 is invalid at least for reciting “a plurality of autonomous executable domain agents” which is indefinite. For example, it is unclear what makes a domain agent “autonomous.”

c. “dynamically updating the information in the dictionary and phrase tables based on the dynamic set of prior probabilities or fuzzy possibilities”

Claim 2 is invalid at least for reciting “dynamically updating the information in the dictionary and phrase tables based on the dynamic set of prior probabilities or fuzzy possibilities” which is indefinite. Compounding the “dynamic set issues” of claim 1, claim 2 likewise requires the information in the dictionary and phrase tables to be updated “dynamically,” which is a vague term and is not clarified in the specification.

d. “scoring one or more possible contexts for the matched keywords using one or more of a profile of the user, *data content associated with the domain agents*, or a context stack of one or more recent contexts”

Claim 4 is invalid at least for reciting “scoring one or more possible contexts for the matched keywords using one or more of a profile of the user, *data content associated with the domain agents*, or a context stack of one or more recent contexts” which is indefinite. The claim nor the specification provide any context for what the “data content associated with the domain agents” is.

- e. “submitting a plurality of asynchronous queries”/“asynchronously received results”

Claims 8, 9 and 10 refer to “submitting a plurality of asynchronous queries”/“asynchronously received results” which are indefinite terms because it is unclear what it means for queries and results to be sent or received asynchronously. For example, it is unclear if the queries must be out of synch in time or order of execution, or if each query/result must be sent/received independently of other queries/results for the asynchronous limitation to be met.

- f. “one or more scraping criteria”

Claim 9 is invalid at least for reciting one or more scraping criteria” which is indefinite. For example, it is unclear what the criteria are.

- g. a personality for presenting the one or more best responses”

Claim 13 is invalid at least for reciting “a personality for presenting the one or more best responses” which is indefinite. For example, it is unclear what constitutes “personality.”

- h. “a format template”

Claim 13 is invalid at least for reciting “a format template” which is indefinite. For example, it is unclear what constitutes such “format template.”

- i. “best”

Claims 8 and 9 refer to “determin[ing] one or more *best* responses to the at least one question” and “selecting one or more *best* values for the determined tokens,” respectively. The term “best” is indefinite as being a term of degree or as indicating a preference, where no criteria for determining what is “best” are present in the claims or specification.

3. '468 Patent

Term	§ 112 ¶ 2 Basis	Relevant Claim(s)
“a conversational voice user interface”	Indefinite pursuant to pre-AIA § 112, para. 2.	Claim 19
“receiving a multi-modal natural language input . . . including a natural language utterance a non-speech input provided by a user, wherein a transcription module . . . transcribes the non-speech input to create a non-speech based transcription”	Indefinite pursuant to pre-AIA § 112, para. 2.	Claim 19
“transcription module . . . transcribes the non-speech input to create a non-speech based transcription”	Indefinite for failure to disclose structure that performs the recited function of a means plus function claim term pursuant to pre-AIA § 112, para. 6.	Claim 19
“creating a speech-based transcription of the natural language utterance using a speech recognition engine and a semantic knowledge-based module, wherein the semantic knowledge-based model includes a personalized cognitive model derived from one or more prior interactions between the identified user and the conversational voice user interface, a general cognitive model derived from one or more prior interactions between a plurality of users and the conversational voice user interface, and an environmental model derived from an environment of the identified user and the conversational voice user interface.”	Indefinite pursuant to pre-AIA § 112, para. 2. Indefinite for failure to disclose structure that performs the recited function of a means plus function claim term pursuant to pre-AIA § 112, para. 6.	Claim 19
“identifying one or more entries in a context stack matching information contained in the merged transcription”	Indefinite pursuant to pre-AIA § 112, para. 2.	Claim 19
“determining a most likely context for the multi-modal input based on the identified entries”	Indefinite pursuant to pre-AIA § 112, para. 2.	Claim 19
“identifying a domain agent associated with the most likely context for the multi-modal input”	Indefinite pursuant to pre-AIA § 112, para. 2.	Claim 19
“the knowledge-enhanced speech recognition engine”	Indefinite pursuant to pre-AIA § 112, para. 2.	Claim 28

4. '959 Patent

- a. “accessing, by the computer system, a personalized cognitive model to proactively select a second interpretation of the natural language command responsive to an indication from the user that the first interpretation is not correct”

Claim 1 is invalid at least for reciting that “accessing, by the computer system, a personalized cognitive model to proactively select a second interpretation of the natural language command responsive to an indication from the user that the first interpretation is not correct” which is indefinite. For example, it is unclear how “a second interpretation” can be selected “proactively” but yet in a “responsive” manner, “to an indication from the user that the first interpretation is not correct.” Likewise, it is unclear to what the “proactive[] select[ion]” is proactive to. Finally, it is unclear how the “second interpretation” is obtained or where it is generated, as the claim fails to recite generating any interpretation other than the first (“generating, by the computer system, a first interpretation of the natural language command based on one or more recognized words of the natural language command”).

- b. “indication from the user”

Claim 1 is invalid at least for reciting “a indication from the user,” which is indefinite because it is not clear what an “indication” is.

- c. “personalized cognitive model”

Claim 1 is invalid at least for reciting a “personalized cognitive model,” which is an indefinite term. For example, it is not clear what structure this is referring to, or what its structure

is. Additionally, it is not clear what “cognitive” refers to, or what the structure or form of the “model” is, or what the “personalized cognitive model” does, or how it does it.

- d. “proactively performing, by the computer system, [a]/[the] second action”

Claims 1 and 2 are invalid at least for reciting that “proactively performing, by the computer system, [a]/[the] second action” which is indefinite. For example, it is unclear with respect to what the “second action” is performed “proactively”.

- e. “a second action specified by the natural language command based on the second interpretation”/“wherein proactively performing, by the computer system, a second action comprises performing the second action based on the one or more interpretations of the second natural language command”

Claims 1 and/or 2 is invalid as indefinite for reciting “a second action specified by the natural language command based on the second interpretation” (claim 1), while also reciting “wherein proactively performing, by the computer system, a second action comprises performing the second action based on the one or more interpretations of the second natural language command” in claim 2. Claim 1 provides that the second action is a second interpretation of the *first* natural language command, which claim 2 provides that the second action is based on one or more interpretations of the *second* natural language command, this elements within these claims are defined in contradictory ways and the correct understanding is not discernible.

- f. “The method of claim 1, wherein the second action includes an action that is predicted to be requested or taken by the user after the receipt of the natural language command.”

Claim 8 is invalid at least for reciting that “the second action includes an action that is predicted to be requested or taken by the user after the receipt of the natural language command” which is indefinite. For example, it is unclear what “predict[s]” the action that the user will “request[] or take[].” Additionally, this claim is indefinite because it is unclear what the “action” that is “predicted to be requested or taken by the user” may be. Further, it is unclear what the prediction is based on, as the claim only provides that the prediction is made “after” receipt of the natural language command.

g. Mixed Apparatus/Method Claims

At least claim 1 of the '659 patent recites both an apparatus and a method for using that apparatus. (See claim 1 (reciting method steps in the form of a program as part of a “computer system” (*i.e.*, “apparatus”) claim). Indeed, claim 1 improperly claims such device by reference to what it does (*i.e.*, “one or more processors executing one or more computer program instructions” that comprise “receiving, by the computer system, a natural language command,” “generating, by the computer system, a first interpretation of the natural language command,” “performing, by the computer system, a first action,” “accessing, by the computer system, a personalized cognitive model to proactively select a second interpretation,” and “proactively performing, by the computer system, a second action specified by the natural language command based on the second interpretation.”) As a result, claim 1 is invalid as indefinite. *IPXL Holdings*, 430 F.3d at 1384 (“Because claim 25 recites both a system and the method for using that system, it does not apprise a person of ordinary skill in the art of its scope, and it is invalid under section 112, paragraph 2.”).

Additionally, because claim 1 is invalid under *IPXL*, claims 2 and 8 are also invalid for depending on an invalid base claim.

5. '409 Patent

a. “out-of-vocabulary interpretation capabilities”

Claim 1 is invalid at least for reciting that “out-of-vocabulary interpretation capabilities” which is indefinite. For example, it is unclear what constitutes such “out-of-vocabulary interpretation capabilities.”

b. “tolerating noise when interpreting natural language speech utterances”

Claim 1 is invalid at least for reciting that “tolerating noise when interpreting natural language speech utterances” which is indefinite. For example, it is unclear how and to what extent noise is “tolera[ted].”

6. '006 Patent

Claim Element	§ 112 ¶ 2 Invalidity Basis	Patent (Claims)
“dynamically updating the information in the one or more dictionary and phrase tables based on a dynamic set of prior probabilities or fuzzy possibilities”	Indefinite pursuant to pre-AIA § 112, para. 2.	claim 1
“associating the one or more recognized words or phrases and a pronunciation associated with the one or more recognized words or phrases with the determined identity and the request contained in the utterance in response to the one or more recognized words or phrases satisfying a predetermined confidence level”	Indefinite pursuant to pre-AIA § 112, para. 2.	claim 1
“parser”	Indefinite pursuant to pre-AIA § 112, para. 2.	claims 1, 5

Claim Element	§ 112 ¶ 2 Invalidity Basis	Patent (Claims)
<p>“parsing, at a parser coupled to the processing device, the one or more recognized words or phrases to determine a meaning associated with the utterance and a context associated with the request contained in the utterance, wherein the one or more recognized words or phrases are further associated with the determined context in response to the one or more recognized words or phrases satisfying the predetermined confidence level; formulating, at the parser, the request contained in the utterance in accordance with a grammar used by a domain agent associated with the determined context”</p>	<p>Indefinite for failure to disclose structure that performs the recited function of a means plus function claim term pursuant to pre- AIA § 112, para. 6.</p>	<p>claim 1</p>
<p>“parsing, at a parser coupled to the processing device, information relating to the utterance to determine a meaning associated with the utterance and a context associated with the request contained in the utterance, wherein the parsed information includes the one or more recognized words or phrases;</p> <p>formulating, at the parser, the request contained in the utterance in accordance with a grammar used by a domain agent associated with the determined context, wherein formulating the request in accordance with the grammar used by the domain agent includes:</p> <p>determining one or more required values and one or more optional values associated with formulating the request in the</p>	<p>Indefinite for failure to disclose structure that performs the recited function of a means plus function claim term pursuant to pre-AIA § 112, para. 6.</p>	<p>claim 5</p>

Claim Element	§ 112 ¶ 2 Invalidity Basis	Patent (Claims)
<p>grammar used by the domain agent;</p> <p>extracting one or more criteria and one or more parameters from one or more keywords contained in the one or more recognized words or phrases, wherein the parser extracts the one or more criteria and the one or more parameters using procedures sensitive to the determined context;</p> <p>inferring one or more further criteria and one or more further parameters associated with the request using a dynamic set of prior probabilities or fuzzy possibilities; and</p> <p>transforming the one or more extracted criteria, the one or more extracted parameters, the one or more inferred criteria, and the one or more inferred parameters into one or more tokens having a format compatible with the grammar used by the domain agent, wherein the one or more tokens include all the required values and one or more of the optional values associated with formulating the request in the grammar used by the domain agent”</p>		
<p>“matching the one or more recognized words or phrases to a set of keywords associated with the dynamic set of prior probabilities or fuzzy possibilities”</p>	<p>Indefinite pursuant to pre-AIA § 112, para. 2.</p>	<p>claim 2</p>
<p>“extracting one or more criteria and one or more parameters from the one or more keywords</p>	<p>Indefinite pursuant to pre-AIA § 112, para. 2.</p>	<p>claim 5</p>

Claim Element	§ 112 ¶ 2 Invalidity Basis	Patent (Claims)
contained in the one or more recognized words or phrases...using procedures sensitive to the determined context”		
“inferring one or more further criteria and one or more further parameters associated with the request using a dynamic set of prior probabilities or fuzzy possibilities”	Indefinite pursuant to pre-AIA § 112, para. 2.	claim 5

7. '570 Patent

a. “a [first]/[second] plurality of asynchronous queries”

Claim 1 recites “a [first]/[second] plurality of asynchronous queries,” which are indefinite terms because it is unclear what it means for queries to be asynchronous. For example, it is unclear what qualities are given to the queries themselves to make them “asynchronous,” or if “asynchronous” refers to how the queries are processed. In this case, it is unclear if the “asynchronous” queries must be processed out of synch in time or order of execution, or if each query must be sent independently of other queries.

b. “parser”

The recited “parser” of claim 1 is indefinite as it is not clear what may meet this element.

c. “applying *prior probabilities or fuzzy possibilities* to one or more of the words recognized in the electronic signal, a profile for a user that provided the natural language speech utterance, or a dialog history”

Claim 2 is invalid at least for reciting “*prior probabilities or fuzzy possibilities* to one or more of the words recognized in the electronic signal, a profile for a user that provided the natural

language speech utterance, or a dialog history” which is indefinite. Additionally, what the “prior probabilities or fuzzy possibilities” is referring to, and what comprises these structures, is unclear.

d. “best response”

Claim 3 recites “scoring the plurality of asynchronously evaluated results with the first domain agent to determine one or more of the plurality of results that represents a best response to the first one of the multiple requests,” and claims 6-8 refer to the “best response” The term “best” is indefinite as being a term of degree or as indicating a preference, where no criteria for determining what is “best” are present in the claims or specification.

e. “applying probabilistic or fuzzy scoring techniques to one or more of previously evaluated asynchronous results”

Claim 5 recites “applying probabilistic or fuzzy scoring techniques to one or more of previously evaluated asynchronous results,” which is indefinite. What the “*probabilistic or fuzzy scoring techniques*” are is unclear.

f. “wherein processing the first one of the multiple requests further includes the first domain agent using *probabilistic or fuzzy set decision methods*”

Claim 8 recites “wherein processing the first one of the multiple requests further includes the first domain agent using probabilistic or fuzzy set decision methods,” which is indefinite. What the “*probabilistic or fuzzy set decision methods*” are is unclear.

g. “one or more of a personality for presenting the best response”

Claim 8 is invalid at least for reciting a. “one or more of a personality for presenting the best response” which is indefinite. For example, it is unclear what constitutes “personality.”

8. '367 Patent

a. “processing multi-modal natural language inputs”

Claim 11 is invalid at least for reciting “processing multi-modal natural language inputs,” which is indefinite. For example, it is unclear now a “natural language input[]” can be “multi-modal.”

b. “context events”

Claim 11 is invalid at least for reciting “context events,” which is indefinite. For example, it is unclear what a “context event” from the claim, and further, the specification does not describe what a “context event” is.

c. “removing, by the context manager, one or more of the plurality of mobile devices from the plurality of mobile devices registered with the context manager”

Claim 11 is invalid at least for reciting “removing, by the context manager, one or more of the plurality of mobile devices from the plurality of mobile devices registered with the context manager,” which is indefinite. For example, it is unclear what actions constitute “removing . . . one or more of the plurality of [registered] mobile devices,” for example, un-registering or unsubscribing the the registered mobile device from a list, deleting all record of the mobile device, or disconnecting the device from receiving context change events.

d. “a multi-modal voice user interface”

Claim 17 is invalid at least for reciting that “a multi-modal voice user interface,” which is indefinite. For example, it is unclear now a “voice user interface” can be “multi-modal.”

e. “a knowledge-enhanced speech recognition engine”

Claim 17 is invalid at least for reciting that “a knowledge-enhanced speech recognition engine,” which is indefinite. For example, it is unclear what “knowledge-enhanced” means, or what it means for a “speech recognition engine” to be “knowledge-enhanced.”

f. “one or more contexts that completely or partially match one or more text combinations contained in text transcribed from the natural language utterance”

Claim 17 is invalid at least for reciting that “one or more contexts that completely or partially match one or more text combinations contained in text transcribed from the natural language utterance,” which is indefinite. For example, it is unclear what aspect of the context must be compared to the “text combinations contained in a text transcribed from the ... utterance” to determine whether there is a “complete[] or partial[] match.”

9. '659 Patent

a. “personalized cognitive model”

Claim 42 is invalid at least for reciting a “personalized cognitive model,” which is an indefinite term. For example, it is not clear what structure this is referring to, or what its structure is. Additionally, it is not clear what “cognitive” refers to, or what the structure or form of the “model” is, or what the “personalized cognitive model” does, or how it does it.

b. “generalized cognitive model”

Claim 42 is invalid at least for reciting a “generalized cognitive model,” which is an indefinite term. For example, it is not clear what structure this is referring to, or what its structure is. Additionally, it is not clear what “cognitive” refers to, or what the structure or form of the “model” is, or what the “generalized cognitive model” does, or how it does it.

- c. “the personalized cognitive model is generated based on a tracking of a *pattern of interactions* between the user and the system”/“the generalized cognitive model is generated based on a tracking of *patterns of interactions* between a plurality of users and the system”

Claim 42 is invalid for reciting that “the personalized cognitive model is generated based on a tracking of a *pattern of interactions* between the user and the system” and that “the generalized cognitive model is generated based on a tracking of *patterns of interactions* between a plurality of users and the system” which are both indefinite because what “interactions” are tracked is unclear, and moreover, what constitutes a “pattern” or “pattern(s)” is also unclear.

- d. “determining whether a personalized cognitive model associated with the user includes *sufficient information* for predicting one or more subsequent actions associated with the user”/ “a determination that the personalized cognitive model does not include the *sufficient information*”

Claim 42 is invalid at least for reciting that “sufficient information” which is indefinite. For example, it is unclear based on the claim and the specification what amount of information is “sufficient.”

- e. “one or more subsequent *actions*”

Claim 42 is invalid as indefinite for reciting “one or more subsequent *actions*,” because what may constitute an action is unclear.

f. Mixed Apparatus/Method Claims

At least claim 42 of the '659 patent recites both an apparatus and a method for using that apparatus. (See claim 42 (reciting method steps in the form of a program as part of a “computer system” (*i.e.*, “apparatus”) claim). Indeed, claim 42 improperly claims such device by reference to what it does (*i.e.*, “one or more processors executing one or more computer program instructions” that comprise “receiving a first input,” “generating an interpretation,” “generating a request,” “transmitting the request,” “determining whether a personalized cognitive model associated with the user includes sufficient information for predicting one or more subsequent actions,” and “predicting the one or more subsequent actions.”) As a result, claim 42 is invalid as indefinite. *IPXL Holdings*, 430 F.3d at 1384 (“Because claim 25 recites both a system and the method for using that system, it does not apprise a person of ordinary skill in the art of its scope, and it is invalid under section 112, paragraph 2.”).

C. Invalidity Based on 35 U.S.C. § 112 ¶ 4

Dependent claim 2 of the '959 patent is invalid because “wherein proactively performing, by the computer system, a second action comprises performing the second action based on the one or more interpretations of the second natural language command” is not a further limitation of “proactively performing, by the computer system, a second action specified by the natural language command based on the second interpretation.” See 35 U.S.C. § 112, ¶ 4; *Pfizer, Inc. v. Ranbaxy Labs. Ltd.*, 457 F.3d 1284, 1291 (Fed. Cir. 2006) (broadening dependent claims improper and invalid).

V. OTHER GROUNDS OF INVALIDITY

A. Obviousness-Type Double Patenting

Microsoft contends that one or more claims of the '825 and '570 patents are obvious under the doctrine of obviousness-type double patenting. In particular, the '825 Patent Asserted Claims are invalid based on the doctrine of obviousness-type double patenting over each of claim 13 of U.S. Patent No. 7,502,738 (the "'738 patent"), claim 5 of U.S. Patent No. 8,155,962, and claim 13 of U.S. Patent No. 8,155,962 (the "'962 patent"). For example:

Claim 13 of the '738 patent renders claim 5 of the '825 patent invalid under the doctrine of obviousness-type double patenting. To the extent that claim 13 of the '738 patent does not claim the following elements of claim 5 of the '825 patent:

- "a speech recognition engine";
- "determining, for the natural language speech utterance, a score for each of at least two possible contexts, *wherein the scores are determined based on the received keyword and associated prior probabilities or fuzzy possibilities*"; and
- "determining by the parser, a domain for the user generated natural language utterance based on the recognized one or more words of the natural language utterance and *the determined scores for each of the at least two possible contexts,*"

these limitations were well known to a POSITA at the time of the purported invention. Thus, claim 5 of the '825 patent is rendered obvious under the doctrine of obviousness-type double patenting by claim 13 of the '738 patent itself, in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as

disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Riccardi, Lin, Bers, and Newman.

The dependent asserted claims of the '825 patent are also invalid under the doctrine of obviousness-type double patenting by claim 13 of the '738 patent itself, in further view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in further combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Roushar, Reisman, Iizuka, Robbins, Zhou, Edwards, Moran, Linebarger, and Spencer. To the extent a limitation is not expressly or inherently disclosed, taught, or suggested by these combinations, it would have been obvious to modify and/or further combine additional references that disclose those limitations, as described in the accompanying claim charts, to meet that limitation. A POSITA would have been motivated to make these combinations for the exemplary reasons provided in § III.F, *supra*.

Claim 5 of the '962 patent renders claim 5 of the '825 patent invalid under the doctrine of obviousness-type double patenting. To the extent that claim 5 of the '962 patent does not claim the following elements of claim 5 of the '825 patent:

- “receiving, at a parser, keyword and associated prior probabilities or fuzzy possibilities from a system agent or an active domain agent of a plurality of autonomous executable domain agents”;
- “determining, for the natural language speech utterance, a score for each of at least two possible contexts, wherein the scores are determined based on the received keyword and associated prior probabilities or fuzzy possibilities”;

- “determining by the parser, a domain for the user generated natural language utterance based on the recognized one or more words of the natural language utterance and the determined scores for each of the at least two possible contexts”;
- “a plurality of autonomous executable domain agents”; and
- “selecting at least one of the plurality of autonomous executable domain agents based, at least in part, on the determined domain, wherein each of the plurality of domain agents is configured to respond to queries and/or commands within a particular domain, wherein the particular domain indicates an area of expertise within which the domain agent is capable of responding to the queries and/or commands,”

these limitations were well known to a POSITA at the time of the purported invention. Thus, claim 5 of the '825 patent is rendered obvious under the doctrine of obviousness-type double patenting by claim 5 of the '962 patent itself, in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, and Robbins.

The dependent asserted claims of the '825 patent are also invalid under the doctrine of obviousness-type double patenting by claim 5 of the '962 patent itself, in further view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in further combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Reisman, Iizuka, Robbins, Zhou,

Edwards, Moran, Linebarger, and Spencer. To the extent a limitation is not expressly or inherently disclosed, taught, or suggested by these combinations, it would have been obvious to modify and/or further combine additional references that disclose those limitations, as described in the accompanying claim charts, to meet that limitation. A POSITA would have been motivated to make these combinations for the exemplary reasons provided in § III.F, *supra*.

Claim 13 of the '962 patent renders claim 5 of the '825 patent invalid under the doctrine of obviousness-type double patenting. To the extent that claim 13 of the '962 patent does not claim the following elements of claim 5 of the '825 patent:

- “receiving, at a parser, keyword and associated prior probabilities or fuzzy possibilities from a system agent or an active domain agent of a plurality of autonomous executable domain agents”;
- “determining, for the natural language speech utterance, a score for each of at least two possible contexts, wherein the scores are determined based on the received keyword and associated prior probabilities or fuzzy possibilities”;
- “determining by the parser, a domain for the user generated natural language utterance based on the recognized one or more words of the natural language utterance and the determined scores for each of the at least two possible contexts”;
- “a plurality of autonomous executable domain agents”; and
- “selecting at least one of the plurality of autonomous executable domain agents based, at least in part, on the determined domain, wherein each of the plurality of domain agents is configured to respond to queries and/or commands within a particular domain, wherein the particular domain indicates an area of expertise within which the domain agent is capable of responding to the queries and/or commands,”

these limitations were well known to a POSITA at the time of the purported invention. Thus, claim 5 of the '825 patent is rendered obvious under the doctrine of obviousness-type double patenting by claim 13 of the '962 patent itself, in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Riccardi, Lin, Bers, Roushar, Newman, and Robbins.

The dependent asserted claims of the '825 patent are also invalid under the doctrine of obviousness-type double patenting by claim 13 of the '962 patent itself, in further view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in further combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Reisman, Iizuka, Robbins, Zhou, Edwards, Moran, Linebarger, and Spencer. To the extent a limitation is not expressly or inherently disclosed, taught, or suggested by these combinations, it would have been obvious to modify and/or further combine additional references that disclose those limitations, as described in the accompanying claim charts, to meet that limitation. A POSITA would have been motivated to make these combinations for the exemplary reasons provided in § III.F, *supra*.

Additionally, the '570 Patent Asserted Claims are invalid based on the doctrine of obviousness-type double patenting over each of claims 1 and 9 of the '962 patent. For example:

Claim 1 of the '962 patent renders claim 1 of the '570 patent invalid under the doctrine of obviousness-type double patenting. To the extent that claim 1 of the '962 patent does not claim the following elements of claim 1 of the '570 patent:

- “identifying *multiple requests* contained in the natural language speech utterance from the one or more words recognized in the electronic signal”;
- “*determining one or more contexts for the multiple requests* contained in the natural language speech utterance”; and
- “processing *the multiple requests* contained in the natural language speech utterance in a multi-threaded environment *with an event manager* that further operates on the computer device, wherein processing the multiple requests with the event manager includes: sending a first event to a first domain agent configured to process requests in *the one or more contexts*, wherein the first domain agent creates a first plurality of asynchronous queries to process a first one of *the multiple requests in response to receiving the first event from the event manager*”;
- “sending a second event to a second domain agent configured to process requests in the one or more contexts, wherein the second domain agent creates a second plurality of asynchronous queries to process a second one of the multiple requests in response to receiving the second event from the event manager”;
- “receiving one or more response events that include information from one or more of the first domain agent processing the first one of the multiple requests or the second domain agent processing the second one of the multiple requests,”

these limitations were well known to a POSITA at the time of the purported invention. Thus, claim 1 of the '570 patent is rendered obvious under the doctrine of obviousness-type double patenting

by claim 1 of the '962 patent itself, in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Moran, and Linebarger.

The dependent asserted claims of the '570 patent are also invalid under the doctrine of obviousness-type double patenting by claim 1 of the '962 patent itself, in further view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in further combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Riccardi, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Spencer, Edwards, Ratnaparkhi, Surace, Levin, and Kallulli. To the extent a limitation is not expressly or inherently disclosed, taught, or suggested by these combinations, it would have been obvious to modify and/or further combine additional references that disclose those limitations, as described in the accompanying claim charts, to meet that limitation. A POSITA would have been motivated to make these combinations for the exemplary reasons provided in § III.F, *supra*.

Claim 9 of the '962 patent renders claim 1 of the '570 patent invalid under the doctrine of obviousness-type double patenting. To the extent that claim 9 of the '962 patent does not claim the following elements of claim 1 of the '570 patent:

- “identifying *multiple requests* contained in the natural language speech utterance from the one or more words recognized in the electronic signal”;

- “*determining one or more contexts for the multiple requests contained in the natural language speech utterance*”; and
- “*processing the multiple requests contained in the natural language speech utterance in a multi-threaded environment with an event manager that further operates on the computer device, wherein processing the multiple requests with the event manager includes: sending a first event to a first domain agent configured to process requests in the one or more contexts, wherein the first domain agent creates a first plurality of asynchronous queries to process a first one of the multiple requests in response to receiving the first event from the event manager*”;
- “*sending a second event to a second domain agent configured to process requests in the one or more contexts, wherein the second domain agent creates a second plurality of asynchronous queries to process a second one of the multiple requests in response to receiving the second event from the event manager*”;
- “*receiving one or more response events that include information from one or more of the first domain agent processing the first one of the multiple requests or the second domain agent processing the second one of the multiple requests,*”

these limitations were well known to a POSITA at the time of the purported invention. Thus, claim 1 of the '570 patent is rendered obvious under the doctrine of obviousness-type double patenting by claim 9 of the '962 patent itself, in view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Hartono, Elad-928, Khan, Robinson, Moran, and Linebarger.

The dependent asserted claims of the '570 patent are also invalid under the doctrine of obviousness-type double patenting by claim 9 of the '962 patent itself, in further view of the background knowledge, logic, judgment, intelligence, creativity, and/or common sense of a POSITA and in further combination with the APA identified in § II.D, *supra* and/or with any one or more of the following additional references, as disclosed on a limitation-by-limitation basis in the accompanying claim charts, including but not limited to: Riccardi, Roushar, Newman, Reisman, Iizuka, Robbins, Zhou, Spencer, Edwards, Ratnaparkhi, Surace, Levin, and Kallulli. To the extent a limitation is not expressly or inherently disclosed, taught, or suggested by these combinations, it would have been obvious to modify and/or further combine additional references that disclose those limitations, as described in the accompanying claim charts, to meet that limitation. A POSITA would have been motivated to make these combinations for the exemplary reasons provided in § III.F, *supra*.

VI. INVALIDITY UNDER 35 U.S.C. § 101 FOR CLAIMING INELIGIBLE SUBJECT MATTER

Microsoft hereby provides notice that it contends that the Asserted Claims do not satisfy the requirements of patentability under 35 U.S.C. § 101. This Court has not yet construed any terms, phrases, or clauses of the Asserted Claims. For the purposes of providing notice regarding Microsoft's contention that the Asserted Claims do not satisfy the requirements of 35 U.S.C. § 101, Microsoft assumes constructions of many claim terms that are otherwise vague and undefined, but Microsoft does not concede that any of the claims are definite, enabled, adequately described or otherwise valid. Microsoft's contention that the Asserted Claims do not satisfy the requirements for patentability under 35 U.S.C. § 101 is based on information obtained to date, and Microsoft's discovery and investigation in connection with this lawsuit is ongoing. As such, to the extent allowed by the rules and the Court, Microsoft reserves the right to amend, supplement, and/or

modify its contentions regarding the lack of subject matter eligibility of the Asserted Claims. Microsoft also reserves the right to rely on expert testimony and third-party discovery in support of its contention that the Asserted Claims fail to satisfy the requirements for patentability under 35 U.S.C. § 101.

The Supreme Court has established a two-step framework “for distinguishing patents that claim laws of nature, natural phenomena, and abstract ideas from those that claim patent-eligible applications of those concepts.” *Alice Corp. Pty. v. CLS Bank Int’l*, 134 S. Ct. 2347, 2354-55 (2014); *Mayo Collaborative Servs. v. Prometheus Labs., Inc.*, 566 U.S. 66 (2012). In the first step, the court must determine whether the claims are directed to a patent-ineligible concept. *Alice*, 134 S. Ct. at 2355.

While the Supreme Court “has not established a definitive rule to determine what constitutes an ‘abstract idea’ sufficient to satisfy the first step of the *Mayo/Alice* inquiry,” *Enfish, LLC v. Microsoft Corp.*, 822 F.3d 1327, 1334 (Fed. Cir. 2016), the Court has recognized that “fundamental economic practice[s],” *Bilski v. Kappos*, 561 U.S. 593, 611 (2010), “method[s] of organizing human activity,” *Alice*, 134 S. Ct. at 2356, and mathematical algorithms, *Benson*, 409 U.S. at 64, are abstract ideas. The first step of the inquiry “looks at the ‘focus’ of the claims [and] their ‘character as a whole.’” *SAP America, Inc. v. InvestPic, LLC*, 898 F.3d 1161, 1167 (Fed. Cir. 2018). Courts “look to whether the claims in the patent focus on a specific means or method, or are instead directed to a result or effect that itself is the abstract idea and merely involves generic processes and machinery.” *Two-Way Media Ltd. v. Comcast Cable Commc’ns, LLC*, 874 F.3d 1329, 1337 (Fed. Cir. 2017). “In cases involving software innovations, [the step one] inquiry often turns on whether the claims focus on specific asserted improvements in computer capabilities or instead on a process or system that qualifies [as] an abstract idea for which computers are invoked

merely as a tool.” *TecSec, Inc. v. Adobe Inc.*, 978 F.3d 1278, 1293 (Fed. Cir. 2020) (citation omitted).

In the second step, having determined that a patent’s claims are directed to an abstract idea, the court must look to “the elements of the claim both individually and as an ‘ordered combination’” to see if there is an “‘inventive concept’—*i.e.*, an element or combination of elements that is ‘sufficient to ensure that the patent in practice amounts to significantly more than a patent upon the [ineligible concept] itself.’” *Id.* (alteration in original). “In applying step two of the *Alice* analysis, we ‘determine whether the claims do significantly more than simply describe [the] abstract method’ and thus transform the abstract idea into patentable subject matter.” *Intellectual Ventures I LLC v. Capital One Fin. Corp.*, 850 F.3d 1332, 1341 (Fed. Cir. 2017) (quoting *Ultraercial, Inc. v. Hulu, LLC*, 772 F.3d 709, 715 (Fed. Cir. 2014)).

The “second stage of the inquiry (where reached) looks more precisely at what the claim elements add.” *SAP*, 898 F.3d at 1167. “[S]imply appending conventional steps, specified at a high level of generality, to . . . abstract ideas cannot make those . . . ideas patentable.” *Mayo Collab. Servs. v. Prometheus Labs.*, 566 U.S. 66, 82 (2012). “[T]he prohibition against patenting abstract ideas cannot be circumvented by attempting to limit the use of [the idea] to a particular technological environment.” *Alice*, 134 S. Ct. at 2358 (quoting *Bilski*, 561 U.S. at 610-11). Thus, “the mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention.” *Id.* Further, neither “[a] simple instruction to apply an abstract idea on a computer” nor “claiming the improved speed or efficiency inherent with applying the abstract idea on a computer” satisfies the requirement of an “inventive concept.” *Intellectual Ventures I LLC v. Capital One Bank (USA)*, 792 F.3d 1363, 1367 (Fed. Cir. 2015). It is not enough to disclose an improvement in the specification; the Court must “analyze the asserted claims and determine

whether they capture these improvements.” *Berkheimer v. HP Inc.*, 881 F.3d 1360, 1369 (Fed. Cir. 2018).

The Supreme Court has consistently identified preemption as the “concern that undergirds . . . § 101 jurisprudence.” *Alice*, 134 S. Ct. at 2358. “[T]he underlying functional concern . . . is a relative one: how much future innovation is foreclosed relative to the contribution of the inventor.” *Mayo*, 566 U.S. at 88. However, simply because a claim does not completely preempt the use of an idea does not mean that the claim is patent-eligible. *See FairWarning IP, LLC v. Iatric Sys, Inc.*, 839 F.3d 1089, 1098 (Fed. Cir. 2016) (“While preemption may signal patent ineligible subject matter, the absence of complete preemption does not demonstrate patent eligibility.”) (internal quotation marks and citation omitted). Finally, the § 101 patent eligibility analysis also looks to the types of claims that other courts have analyzed. *See Enfish*, 822 F.3d at 1334 (“[B]oth this court and the Supreme Court have found it sufficient to compare claims at issue to those claims already found to be directed to an abstract idea in previous cases.”).

* * * *

The Asserted Claims do not fall within any of the categories of patent-eligible subject matter set forth in 35 U.S.C. § 101 including because each is drawn to one of the exceptions to patent eligibility recognized by the U.S. Supreme Court, the U.S. Court of Appeals for the Federal Circuit and/or the U.S. district courts. *See, e.g., Alice*, 134 S. Ct. 2347; *Mayo*, 132 S. Ct. 1289. Specifically, the Asserted Claims are directed to **abstract ideas** and claim nothing inventive to transform those abstract ideas into patent-eligible applications. For example, limiting claims to a particular field of use—such as speech recognition systems—is not enough to confer eligibility. *See Alice*, 134 S. Ct. at 2358. The Asserted Claims are therefore ineligible for patent protection under 35 U.S.C. § 101, as illustrated further below.

1. '825, '209, '006, '570 Patents

Patents; Claim(s)	Basis for Ineligibility
<p><u>'825 Patent:</u> Claims 5–8</p> <p>Representative claim(s): 5</p>	<p>Representative claim 5 of the '825 patent recites a method of recognizing words in a speech utterance, receiving, somehow and at an unspecified location, an undefined keyword and undefined “prior probabilities</p>
<p><u>'209 Patent:</u> Claims 1, 2, 4, 5, 6, 7, 8, 9, 12, 13, 14</p> <p>Representative claim(s): 1</p>	<p>or fuzzy possibilities” from agents; using an unspecified keyword and “associated” prior probabilities or fuzzy possibilities to determine a score for at least two possible contexts; determining a domain for the utterance based on the recognized words and the determined context scores and selecting a domain</p>
<p><u>'006 Patent:</u> Claims 1, 2, 3 and 5</p> <p>Representative claim(s): 1, 5</p>	<p>agent based on the determined domain; and generally processing the utterance by the domain agent by providing a query or command to the domain agent, creating queries by the domain agent, and the domain agent sending the queries to “local or external information sources.”</p>
<p><u>'570 Patent:</u> Claims 1, 2, 3, 4, 5, 6, 7, 8</p> <p>Representative claim(s): 1</p>	<p>Representative claim 1 of the '209 patent recites a method of receiving, recognizing, and parsing an utterance; selecting at least one domain agent based on the meaning of the utterance, formulating the request based on its context; and processing the request and presenting results of the processed request the request. ('209 patent at claim 1.) The claim also requires “maintaining a dynamic set of” undefined “prior probabilities or fuzzy possibilities,” which are usable in an unspecified way “at each stage of processing the received user utterance.”</p> <p>Representative claim 1 of the '570 patent recites a method of receiving, recognizing, and interpreting an utterance; and then processing multiple</p>

Patents; Claim(s)	Basis for Ineligibility
	<p>requests within the utterance. ('570 patent at claim 5.) It adds that the utterance interpretation includes identifying multiple requests in the utterance, and determining contexts for the multiple requests, as well as adding that processing the multiple requests include simply sending a first “event” to a first domain agent configured to process requests in the one or more contexts,” sending a second “event” to a second domain agent configured to process requests in the one or more contexts”; and receiving responses from the domain agents and creating a response to the multiple requests.</p> <p>Representative claim 1 of the '006 patent recites a method of receiving, recognizing, and parsing a spoken request; formulating the request based on its context; and responding to the request. ('006 patent at claim 1.) It adds that the request is recognized by somehow dynamically updating information in dictionaries or phrase tables in an undefined manner using “prior probabilities or fuzzy possibilities”; determining the identify of the user who spoke the utterance based on unspecified “voice characteristics”; and associating recognized words or phrases and the pronunciation of them with the determined identity and the request—in a manner unspecified—in response to the recognized words of phrases satisfying an also unspecified and undefined predetermined confidence level.</p> <p>Representative claim 5 of the '006 patent recites a method of receiving, recognizing, and parsing a spoken request; formulating the request based on its context; and responding to the request. ('006 patent at claim 5.) It adds that the</p>

Patents; Claim(s)	Basis for Ineligibility
	<p>request is formulated according to a “grammar” used by a generic domain agent; undefined “prior probabilities or fuzzy possibilities” are used, somehow, to make inferences about what is being requested; and the inferences are transformed into unspecified software “tokens” to be used—in an unspecified way—by the domain agent to generate a response.</p> <p>These claims lack any concrete or technological components to achieve the recited goal of receiving and responding to a spoken request and are aspirational.</p> <p>As an exemplary basis, the asserted claims of the ’209, ’570, and ’006 patents are directed to the abstract idea of responding to a spoken request using context, while the representative claim of the ’825 patent is directed to understanding (but not necessarily responding to) a spoken request using context. These practices have long been a feature of human interaction, and how humans process and respond to speech, as the patents confirm. Indeed, the patents explain that a person asking a question “rel[ies] heavily on context and the domain knowledge of the person answering.” (’006 patent at 1:34-37.)²⁸</p> <p>For example, to respond to an utterance a human must recognize the words of the utterance. A human’s recognition of words is often accomplished because the human already knows the words. As another example, when asking a</p>

²⁸ These Asserted Patents share a common specification and thus only one citation is given (to the ’006 patent).

Patents; Claim(s)	Basis for Ineligibility
	<p>question that falls within a particular domain, <i>i.e.</i>, subject matter area, the humans with knowledge of that particular domain would give the best answers. For example, a historian would be best suited to answer questions relating to their area of expertise. In this way, humans with expertise in a particular domain are “domain agents” that respond to queries within their domain. Context also plays an important role in determining the meaning of an utterance, such as location, past conversations, who is present, tone, and other contextual cues. These are unpatentable human activities and/or abstract ideas.</p> <p>The representative claims claim nothing more than the abstract idea, claiming only aspirational functions such as: “maintaining a dynamic set of prior probabilities or fuzzy possibilities usable at each stage of processing the received user utterance”; “dynamically updating [] information”; “interpret[]” or “determine” a meaning; “recognize[] . . . words or phrases”; selecting a domain agent; “formulating,” “creating,” or “generat[ing]” a query, request, or command; processing the request(s); “sending” and “receiving” responses; “creating,” “presenting,” or “generat[ing] a response,” and “execute the command” with no guidance about <i>how</i> to achieve those results. (’209 patent at claim 1, ’570 patent at claim 1, ’825 patent at claim 5, ’006 patent at claims 1, 5); <i>BSG Tech</i>, 899 F.3d at 1285 (“If a claimed invention only performs an abstract idea on a generic computer, the invention is directed to an abstract idea at step one” of <i>Alice</i>). These result-oriented claims are unpatentable. <i>Affinity Labs of Tex., LLC v. Amazon.com Inc.</i>, 838 F.3d 1266, 1269 (Fed. Cir. 2016);</p>

Patents; Claim(s)	Basis for Ineligibility
	<p><i>Apple, Inc. v. Ameranth, Inc.</i>, 842 F.3d 1229, 1244-45 (Fed. Cir. 2016); <i>IPA Techs., Inc. v. Amazon.com, Inc.</i>, 307 F. Supp. 3d 356, 363, 368-69 (D. Del. 2018).</p> <p>At <i>Alice</i> Step One, the claims must “sufficiently describe how to achieve [the solution] in a non-abstract way.” <i>Two-Way Media</i>, 874 F.3d at 1337. These claims do not. They describe no specific way to accomplish the goals of recognizing speech, determining a context, or generating a response as recited in the claims. They recite only generic computing components configured or programmed to do what a <i>human</i> does: recognize speech, use context to understand what the speaker means, and—for the ’209, ’570, and ’006 patents—respond. (’006 patent at 2:5-8 (“This environment makes maximum use of context, prior information, domain knowledge, and user specific profile data to achieve a natural environment for one or more users making queries or commands in multiple domains.”)). The representative claims for the ’006 and ’570 patents do not even attempt to dress up the abstract idea. They recite a method of performing the steps of speech recognition, understanding, and response, without any technical detail that would save the claim from abstractness. Proclaiming that a computer or processing device should act like a human—<i>i.e.</i>, understand and respond to speech using “context”—is not an invention. It is a mere restatement of the difficult problem to be solved. <i>Epic IP LLC v. Backblaze, Inc.</i>, 351 F. Supp. 3d 733, 740 (D. Del. 2018) (invalidating claims directed to “individuals getting together to</p>

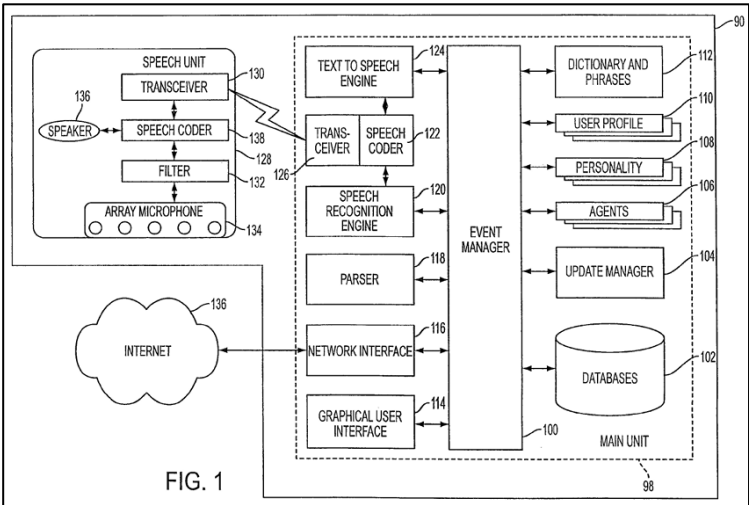
Patents; Claim(s)	Basis for Ineligibility
	<p>communicate”); <i>Gabara v. Facebook, Inc.</i>, 484 F. Supp. 3d 118, 127-28 (S.D.N.Y. 2020) (invalidating claims directed to “identifying topics in a conversation, searching the internet for those topics,” and generating new topics from the search results), <i>aff’d</i>, 852 F. App’x 541 (Fed. Cir. 2021). Moreover, even the process of speech understanding recited in these claims—matching recognized words with words associated with various contexts, reflects an abstract idea. And the ’825 patent, which does not require a response to be presented to the user, is invalid for being directed to an abstract idea for merely reciting reception and processing of data and transmissions, in the vein of <i>Electric Power Group v. Alstom S.A.</i>, 830 F.3d 1350 (Fed. Cir. 2016), and similar cases.</p> <p>Dialect cannot rely on the patents’ specifications to save the asserted claims. That is because “the <i>claim</i>—as opposed to something purportedly described in the specification”—must disclose a specific technological solution. <i>Two-Way Media</i>, 874 F.3d at 1338. In any event, these patents’ specifications fail to even suggest the use of any specific, unconventional technology to carry out the claimed functions. Indeed, the specifications describe the elements of the alleged invention as software “modules” or “engines” that are programmed—somehow, some way—to carry out the aspirational idea of responding to a spoken request using context. (<i>E.g.</i>, ’006 patent at 1:45-55, 2:35-53, 2:54-3:7 (describing “domain agents”), 17:49-51 (describing “parser”), 18:12-16 (describing “grammar” of domain agent),</p>

Patents; Claim(s)	Basis for Ineligibility
	<p>19:62-20:3 (describing “tokens” used to generate response to a request).)</p> <p>Indeed, the programming is left for others to devise. Just as the specifications admit, humans perform each of these steps, many times over, in any conversation, every day. Thus, these patents are directed to an abstract idea at <i>Alice</i> Step One.</p> <p>The representative claims of these patents also fail Step Two of the <i>Alice</i> test, as they recite no inventive concept. Generic computer technology, “well-understood, routine, conventional” elements, or “purely functional” elements cannot supply the required inventive concept. <i>Alice</i>, 573 U.S. at 221-26 (citing <i>Mayo</i>, 566 U.S. at 72-73, 77, 82). Yet here, that is all the patents disclose. Neither the claims nor the specifications recite any new computer hardware. They also recite no new software, and in fact confirm that speech recognition on computers existed long before the patents. (’006 patent at 1:33-55.) As described above, the asserted claims of the ’006 and ’750 patents recite generic processors and computing components performing the functions of receiving a request, interpreting it using context, and responding. (’570 patent at claim 1; ’006 patent at claims 1, 5.) The asserted claims of all of these patents are silent about <i>how</i> any of these functions are performed or implemented. The absence of “how to” dooms the claims. <i>Affinity</i>, 838 F.3d at 1268 (claims that merely “stat[e] [the relevant] functions in general terms” lack inventive concept at <i>Alice</i> Step Two); <i>see also Hawk Tech. Sys., LLC v. Castle Retail, LLC</i>, 60 F.4th 1349, 1358 (Fed. Cir. 2023) (invalidating claims “recited at such a level</p>

Patents; Claim(s)	Basis for Ineligibility
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of result-oriented generality that those claims amount to a mere implementation of an abstract idea”); *Dropbox, Inc. v. Synchronoss Techs., Inc.*, 815 F. App’x 529, 537 (Fed. Cir. 2020) (no inventive concept where the claims “provide[] less of ‘a specific means or method’ than ‘a result or effect that itself is the abstract idea and merely invokes generic processes and machinery’”). In fact, the only difference between these claims and the abstract idea itself—responding to spoken requests using context—is that the claims are carried out on a computer. This is insufficient to save the claims at *Alice* Step Two. *Alice*, 573 U.S. at 222-23 (a “computer implementation” of an abstract idea does “not supply the necessary inventive concept”); see also *Brunswick Corp. v. Volvo Penta of the Ams., LLC*, No. 1:22-CV-00108, 2022 WL 16856094, at *10 (E.D. Va. Nov. 10, 2022) (claims purporting to implement abstract idea on generic computers lack inventive concept).

This is confirmed by the specification, as not only do these claims lack any specific technological



solution, but so do their specifications. Indeed, the specifications recognize that speech recognition technology existed before the patents and was “successfully

Patents; Claim(s)	Basis for Ineligibility
	<p>used in a wide range of applications.” (’006 patent at 1:47-48.) They describe off-the-shelf microphones that receive a voice input. (<i>See also</i> ’006 patent at 7:33-35 (describing use of “array microphones to receive human speech”).) And they identify computers with generically-labeled software components or “modules” (shown in Figure 1 of the ’006 patent, above) as performing functions on this input, including a “speech recognition module,” a “parser for parsing,” a “network interface,” and a “dictionary and phrases module.” (’006 patent at 2:40-53, Fig. 1.) The components and modules are purely functional, and the specifications describe no technological details of any of them. (’006 patent at 2:17-24 (stating that system “takes action consistent with the command and performs other functions as detailed herein”), Fig. 1.</p> <p>For example, the “domain agents” are described only functionally: they “provide complete, convenient and re-distributable packages or modules of functionality, typically for a specific domain or application,” <i>i.e.</i>, they respond somehow to requests that fall within a specific domain or field of inquiry. (<i>Id.</i> at 2:57-63.) The specifications a number of example applications, white and yellow pages lookups, movie locator and ticket purchasing, recipes and meal planning, and others, with no details on <i>how</i> they perform any of these tasks. (<i>Id.</i> at 8:47-9:42.) The “parser” determines a “context for an utterance” using “prior probabilities or fuzzy possibilities.” (<i>Id.</i> at 18:49-51.) But the patents do not explain how. Instead, they recognize that “probabilistic and fuzzy set decision and matching methods”—about which the specifications provide no</p>

Patents; Claim(s)	Basis for Ineligibility
	<p>details—are an (unspecified) way of determining what type of response the user desires based on the domain, context, and prior interactions with the user, as one would do in everyday conversation. (<i>Id.</i> at 4:30-35.) The “grammar” of the ’006 patent claim is merely a format for packaging requests so that they can be processed by the corresponding domain agent, about which the specifications provide no details. (’006 patent at 18:12-16.) The “tokens” of the ’006 patent are any pieces of information that are used to generate a response to a request. (<i>Id.</i> at 19:62-20:3.)</p> <p>Microsoft contends that the foregoing is representative of all asserted claims for these patents, but nonetheless further addresses other claims. The remaining limitations of these patents all recite either further abstract ideas, or recite other well-understood, conventional, or routine activities in the relevant industry, as reflected in Microsoft’s accompanying claim chart exhibits. <i>See</i> Exhibits A-1 to A-8, B-1 to B-8, F-1 to F-7, G-1 to G-8. The remainder of the asserted claims of the ’825, 209, ’570, and ’006 patents do not add inventive concepts. For example, for the ’825 patent, claim 6 further specifies that the parser-generated queries or commands are abstractly “based on” the natural language utterance. Claim 7 makes the generic addition to claim 6 that the queries or commands include “a plurality.” Finally, claim 8 recites the creation of duplicate queries, and sending them in an asynchronous manner to information sources, which is a conventional activity in the prior art. <i>See Ex.</i> A-1 to A-8.</p>

Patents; Claim(s)	Basis for Ineligibility
	<p>For example, for the '209 patent, claim 2 recites the same limitations as are recited in claim 1 of the '006 patent and lack inventive concepts for the same reasons. Claim 4 recites matching keywords among the recognized words to keywords associated with the “prior probabilities or fuzzy possibilities,” which is an abstract, conventional human way of determining a context, and determining the context based on scores contexts for the matched keywords that match a predetermined confidence level, which is a conventional means to make a determination of context. Claim 5 adds only the abstract idea that, if no context has a score that is greater than the confidence level, requesting more input from the user and reevaluating the context based on the additional input. Claim 6 adds the same abstract ideas lacking inventive concepts recited in claim 5 of the '006 patent. Claim 7 makes the trivial additional that the utterance includes a question and a command, and further recites the conventional activities of: processing the command by directing it to local or remote processing devices; and processing the question by querying local and network information sources. The local or remote processing devices are entirely generic, conventional computers. Merely directing a command to such a device is purely abstract. <i>See ChargePoint, Inc. v. SemaConnect, Inc.</i>, No. CV MJG-17-3717, 2018 WL 1471685, at *9 (D. Md. Mar. 23, 2018), <i>aff'd</i>, 920 F.3d 759 (invalidating claims to “the abstract idea of sending requests, receiving commands, and executing commands on a device over a network.”). Claim 8 further recites the conventional steps of submitting a plurality of</p>

Patents; Claim(s)	Basis for Ineligibility
	<p>asynchronous queries, including duplicate queries, to information sources, receiving results of the queries, and scoring the results to determine a best response, which is itself an abstract idea. Claim 9 recites using of tokens and values extracted them for resolving “ambiguous, incomplete, or conflicting information” to determine the best response required by claim 8, which is a conventional activity. Claim 12 recites the conventional activity of, determining whether prior probabilities and fuzzy possibilities resolve “ambiguous, incomplete, or conflicting information,” and if this gap filling fails, resorting to the conventional activity of asking the user for additional information. This is also abstract in that it is a typical human process to ask for more information if a human cannot make a determination based on available information. Claim 13 recites a number of abstract steps, including selecting formats and personalities for presenting responses, determining an order for presenting tokens, and performing unspecified “variable substitutions and transformations” on the “best values” for tokens, including performing them by “prior probabilities or fuzzy possibilities.” Claim 14 recites the mere implementation of the abstract idea of selecting a format template of claim 13 by requiring the best response be formatted according to that template, and further recites the use of a conventional speech to text engine to present the responses to the user. <i>See</i> Ex. B-1 to B-8.</p> <p>For the '006 patent, claim 2 recites matching keywords among the recognized words to keywords associated with the “prior probabilities or fuzzy</p>

Patents; Claim(s)	Basis for Ineligibility
	<p>possibilities,” which is an abstract, conventional human way of determining a context, and determining the context based on scores for the matched keywords across multiple contexts, as well as user data and historical data, which is a conventional means to make a determination of context. Claim 3 recites the abstract and conventional steps of requesting user verification of recognized words and using subsequent user inputs to determine a context. <i>See</i> Ex. F-1 to F-7.</p> <p>For the '570 patent, claim 2 recites abstractly “applying” recognized words to “prior probabilities or fuzzy possibilities,” user profile information, or historical dialog information to determine one or more contexts, which out providing any specifics of how this “applying” takes place. The use of profile and historical dialog information is also a conventional means to determine relevant contexts for a user. Claim 3 recites the conventional step of the domain agents directing the queries to information sources to process the requests. Claim 4 further recites the conventional steps of submitting a plurality of asynchronous queries to information sources, receiving results of the queries and evaluating the results asynchronously, and scoring the results to determine a best response, which is itself an abstract idea. Claim 5 recites the abstract use of “probabilistic or fuzzy scoring techniques” to score the results, context determinations, criteria associated with the utterance and tokens with a desired response, dialog history, user profile, or domain agent-specific information. Claim 6 recites the abstract formatting of the best response into a template</p>

Patents; Claim(s)	Basis for Ineligibility
	<p>associated with contexts, utterance criteria, or user profile. Claim 7 further abstractly and without detail claims “performing one or more variable substitutions and transformations using the format template to format the best response.” Finally, claim 8 recites further abstract material by requiring use of probabilistic or fuzzy set decision methods to vary, in an unexplained way, the personality for presenting a best response, an order for presenting tokens, or terminology used for presenting the tokens. <i>See</i> Ex. G-1 to G-8.</p> <p>Nor can Dialect avoid the conventional nature of these claims by asserting that they include a specific ordered combination of known elements. An ordered combination lacks an inventive concept where the “recited physical components behave exactly as expected according to their ordinary use” or are “organized in a completely conventional way.” <i>TLI Commc’ns</i>, 823 F.3d at 615; <i>Two-Way Media</i>, 874 F.3d at 1341. For the ’209, ’570, and ’006 patents, a request must be received before it can be interpreted, and it must be interpreted in the right context before a response can be provided. Likewise, for the ’825 patent, a request must be received, the words must be recognized, the scores for possible contexts must be determined, and the domain must be determined, before the domain agent can process the request. These are the same fundamental processes that humans perform in any conversation. The claims fail both steps of the <i>Alice</i> test and are invalid.</p>

Pursuant to the Standing Order Regarding Subject Matter Eligibility Contentions, Microsoft further identifies all prior art materials identified in section II.A, *supra*, and prior art

systems and inventions in II.B, *supra*, as material upon which it seeks to rely to support its ineligibility contentions.

2. '468 Patent

Claim(s)	Basis for Ineligibility
<p>19-20, 25-30, 32</p> <p>Representative: claim 19</p>	<p>The challenged claims of the '468 Patent are directed to an abstract idea—<i>e.g.</i>, using speech and non-speech inputs (“multi-modal inputs”) to determine context and identify a domain agent to provide a response.</p> <p>Representative claim 19 recites functional, result-oriented steps for (1) receiving multi-modal input, (2) identifying a user, (3) creating a transcription based in part on prior interactions, (4) creating a “merged” transcription, (5) identifying and matching information, (6) “determining a most likely context,” (7) identifying a domain agent, (8) communicating a request, and (9) generating a response. (468 Patent at claim 19.) The '468 patent recites using a “context stack” containing unspecified “entries” that are compared against the merged transcription to determine a most likely context. (<i>Id.</i>) And the '468 patent adds the idea of somehow identifying the user and using an unspecified “semantic knowledge-based model” with information about (a) prior interactions with the user, (b) prior interactions with other users, and (c) the user’s environment, to transcribe the speech input. (<i>Id.</i>) The claim recites only black boxes to perform these steps: a “transcription module” that transcribes the non-speech input and a “speech recognition engine” that transcribes the speech input. (<i>Id.</i>)</p>

Claim(s)	Basis for Ineligibility
	<p data-bbox="440 233 1443 1146">Apart from generically receiving and sending data, the claims merely recite steps for transcribing and matching information related to a multi-modal input to determine context and provide a response. This is an ineligible abstract idea. Courts have repeatedly invalidated analogous claims for processing and transcribing information in multi-modal input. See, e.g., <i>Ginegar LLC v. Slack Techs., Inc.</i>, 634 F. Supp. 3d 769, 772–73 (N.D. Cal. 2022) (invalidating claims directed to “the abstract idea of combining different message types in a single transcript” that recited “multi-modal transcript unification logic”); <i>IPA Techs., Inc. v. Amazon.com, Inc.</i>, 307 F. Supp. 3d 356, 371 (D. Del. 2018) (invalidating claims for a “multi-modal feedback” system that “essentially requires gathering additional data in a non-spoken modality and using the data to modify the initial navigation query . . . from a spoken request”).</p> <p data-bbox="440 1184 1443 1803">Similarly, courts have repeatedly invalidated claims for “using computers to predict the intent of [users],” which “is insufficient to render [an] idea non-abstract.” <i>USC IP P’ship, L.P. v. Meta Platforms, Inc.</i>, 2023 WL 5606977, at *3 (Fed. Cir. Aug. 30, 2023); see also <i>Trinity Info Media, LLC v. Covalent, Inc.</i>, 72 F.4th 1355, 1362 (Fed. Cir. 2023) (invalidating claims that received and compared information to determine the “likelihood of [a] match”); <i>Free Stream Media v. Alphonso Inc.</i>, 996 F.3d 1355, 1361–62 (Fed. Cir. 2021) (invalidating claims for “matching [received] information with other content . . . based on relevancy”).</p>

Claim(s)	Basis for Ineligibility
	<p>Furthermore, transcribing and matching information to determine context, or a user’s intent, is an abstract idea because it constitutes a longstanding and fundamental human practice, dating back to the earliest examples of human translation and interpretation. See <i>Intell. Ventures</i>, 838 F.3d at 1313. Interpreting natural-language requests is equally fundamental and longstanding, and humans routinely do this in their minds.</p> <p>The challenged claims are also abstract because, “with the exception of generic computer-implemented steps,” they can be “performed by a human, mentally or with pen and paper.” <i>Id.</i> at 1318. A human could perform the same steps to receive multi-modal input (<i>e.g.</i>, speech and written correspondence), identify a user / speaker, create a transcription based in part on prior interactions with the speaker, create a transcription that includes other input, identify and match information, and determine a most likely context for the user’s request. For example, humans in customer service departments, help lines, and operators rely on preexisting contexts, responses, and guidelines developed for responding to customer requests or questions, and will analyze the words in a customer’s request (<i>e.g.</i>, both spoken requests and written correspondence) to create reports that may include transcripts and determine a most likely context for the customer’s request. See <i>Elec. Power Grp. V. Alstom S.A.</i>, 830 F.3d 1350, 1353 (Fed. Cir. 2016) (holding that claims for “collecting information, analyzing it, and displaying certain results” are directed to mental processes).</p>

Claim(s)	Basis for Ineligibility
	<p>Indeed, the specification admits that the claimed invention simulates human activity. <i>See</i> '468 patent at 5:36–37 (“the system may simulate some aspects of a human ‘personality’”), 7:62–67 (invention will “simulate the behavioral characteristics of real humans” and “also randomizes aspects of responses, just as a real human would do”), 8:34–36 (“This process may simulate the manner in which a human would address multiple questions from various sources.”). As an example of the simulated of human activity, when asking a question that falls within a particular domain, <i>i.e.</i>, subject matter area, the humans with knowledge of that particular domain would give the best answers. For example, a historian would be best suited to answer questions relating to their area of expertise. In this way, humans with expertise in a particular domain are “domain agents” that respond to queries within their domain. Context also plays an important role in determining the meaning of an utterance, such as location, past conversations, who is present, tone, and other contextual cues. These are unpatentable human activities and/or abstract ideas.</p> <p>Cognitive models are also akin to human cognition and interaction, and are thus unpatentable mental processes and/or means of organizing human activity. For example, for personalized cognitive models, based on past interactions with another individual, humans build expectations about the words the other individual will use, as well as, for example, the topics, domains, and subject matter the other individual will utter. For general</p>

Claim(s)	Basis for Ineligibility
	<p>cognitive models, based on past interactions with one or more other individuals, an individual human builds expectations about the words the other individuals will use, as well as, for example, the topics, domains, and subject matter the one or more other individuals will utter. An example of a generalized cognitive model in human interaction is if one person is discussing the latest headline news story, an individual might expect other individuals to also discuss the same headline news story.</p> <p>In addition, the claims are directed to an abstract idea because they are entirely functional and result-oriented—<i>e.g.</i>, they do not recite <i>how</i> a user is “identif[ied],” <i>how</i> a transcript is “create[ed],” <i>how</i> “prior interactions” are used or a “personalized cognitive model” is “derived,” <i>how</i> a transcript is “merg[ed],” <i>how</i> entries are “identif[ied],” <i>how</i> information is “match[ed],” <i>how</i> a most likely context is “determin[ed],” <i>how</i> a domain agent is “identif[ied],” or <i>how</i> a response is “generat[ed].” Because the claims recite “a desired function or outcome, without providing any limiting detail that confines the claim to a particular solution to an identified problem,” the “functional nature of the claim confirms that it is directed to an abstract idea.” <i>Affinity Labs</i>, 838 F.3d at 1269.</p> <p>The asserted claims of the ’468 patent are directed to the abstract idea of responding to a request using context, where the requests contain both a spoken portion and a non-spoken portion. (’468 patent at claim 19 (“method for processing multi-modal natural language inputs”).) The idea of this patent</p>

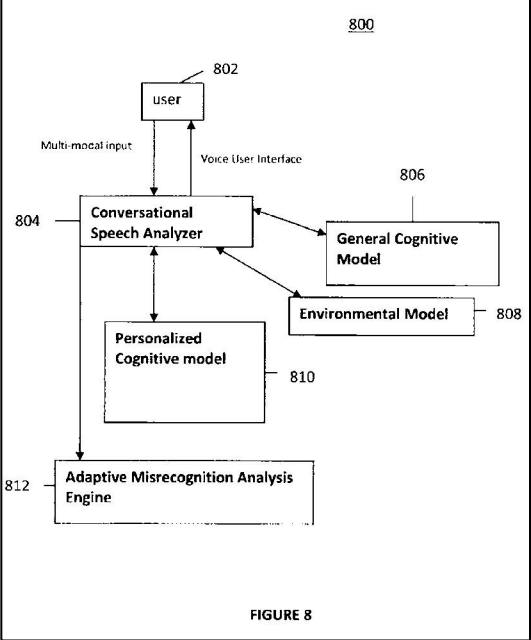
Claim(s)	Basis for Ineligibility
	<p>is no different than a human receiving spoken and non-spoken information—such as a student listening to a professor’s lecture while viewing notes on a blackboard—and merging the two pieces of information in their mind or writing them down before responding. The ’468 patent aspirationally seeks to have computers provide human-like, “natural responses” to natural language requests. (’468 patent at 38:40-42.) The patent claims the result of computers responding to such requests by doing what a human does in everyday multimodal conversations: relying on context. (<i>Id.</i> at 23:16-21 (the invention “makes maximum use of context, prior information and domain and user specific profile data to achieve a natural environment”), 1:49-52 (explaining that a person asking a question “relies heavily on context and domain knowledge” of the person they are speaking to).)</p> <p>The asserted claims do not recite any specific technology for using context to respond to a multimodal request, and thus they fail to describe how to achieve this aspirational result in a nonabstract way. <i>See Two-Way Media</i>, 874 F.3d at 1337. Asserted claim 19 of the ’468 patent recites similar human functions as being performed by generic black boxes—for example, a “transcription module” and “speech recognition engine.” (’468 patent at claim 19.) Such result-oriented claims are unpatentable. <i>Trinity Info Media</i>, 72 F.4th at 1362; <i>Affinity</i>, 838 F.3d at 1269; <i>Apple</i>, 842 F.3d at 1244-45; <i>IPA</i>, 307 F. Supp. 3d at 363, 368-69 (claims reciting “receiving,” “interpreting,” and</p>

Claim(s)	Basis for Ineligibility
	<p>“translating” a spoken request were “aspirational in nature and devoid of [] implementation details or [] description.”).</p> <p>The specification of the ’468 patent cannot cure the abstract nature of its claims. <i>Two-Way Media</i>, 874 F.3d at 1338. But, in any event, the specifications also disclose no specific solution for achieving the claimed result of responding to a multimodal request using context. They identify only preexisting technology and recite generically-labeled software “modules” that carry out the aspirational functions recited in the claims in an undisclosed way. ’468 patent at 1:28-36, 16:15-21 (reciting existing speech and non-speech interfaces), 23:56-61 (reciting “speech recognition engines that transcribe utterances to textual messages” using preexisting transcription methods), 24:40-48 (reciting use of “cognitive model” and “environmental model” to “enhance responses to commands,” with no description of how this is achieved.) Moreover, they repeatedly disclaim any specific technological implementation of these functions. (’468 patent at 3:23-27 (software modules “may be distributed in any way”), 17:45-54 (“The invention supports any suitable configuration [of servers].”), 23:33-35 (user interface components “may be distributed in any suitable manner”). The asserted claims of the ’468 patent are directed to an abstract idea in Step One of the <i>Alice</i> test.</p> <p>The ’468 patent claims also fail <i>Alice</i> Step Two. Neither the claims nor the specifications disclose any new hardware or software for achieving the aspirational result of responding to a multimodal request using context. (<i>See,</i></p>

Claim(s)	Basis for Ineligibility
	<p><i>e.g.</i>, '468 patent at 1:28-36, 16:15-21 (user interface may include conventional touch screen display or keypad.) Indeed, the patent confirms that computer-based “speech recognition” was “successfully used in a wide range of applications.” ('468 patent at 1:62-64.) The asserted claims recite only black-box modules and purely functional method steps—receiving spoken and non-spoken portions of a request, transcribing them into text and merging the text, comparing the request to known request formats, identifying a context or domain based on that comparison, and responding to the request—without explaining how these functions are carried out. ('468 patent at claim 19.) These claims have no inventive concept. <i>Affinity</i>, 838 F.3d at 1269 (invalidating claims “describ[ing] a desired function or outcome, without providing any limiting detail . . . to a particular solution”); <i>Apple</i>, 842 F.3d at 1245 (claims that “refer[red] to the use of . . . voice capture technologies without providing how these elements were to be technologically implemented” were non-inventive); <i>Dropbox</i>, 815 F. App'x at 537.</p> <p>The specification of the '468 patent admits that “[s]peech recognition has steadily improved in accuracy and today is successfully used in a wide range of applications,” and “[n]atural language processing has been applied to the parsing of speech queries.” '468 patent at 1:62–66. The specification admits that a “conventional microphone” may receive an utterance. <i>Id.</i> at 31:67. Similarly, the '468 patent admits that non-speech input is conventional, including “[c]onventional computer interfaces [that] use some</p>

Claim(s)	Basis for Ineligibility
	<p>combination of keyboards, keypads, point and click techniques and touch screen displays.” <i>Id.</i> at 1:29–31.</p> <p>Apart from generically and functionally described “interface,” “engine,” and “domain agent” elements, the claims do not recite any hardware, and the claims do not purport to require any specialized hardware or software. Instead, the specification makes clear that the alleged invention can be carried out using preexisting, conventional computers. See, <i>e.g.</i>, ’468 patent at 3:46–49 (“the system may be deployed in a network of devices that share a common base of agents, data, information, user profiles, histories or other components”), 5:58–59 (“The invention may be applied as a user interface to telematics systems in a wide variety of environments.”), 23:26–35 (“The telematic natural language interface may be deployed as part of, or a peripheral to a TCU or other mobile devices 36, as part of a mobile device interfaced to vehicle computers and other mobile system[s]</p> <p>Alternatively, the components of the interactive natural language telematic interface may be distributed in any suitable manner between these multiple computing platforms.”).</p> <p>The specification of the ’468 patent recites no specific technological solution to perform the functions of the claims either. Instead, they describe receiving requests through admittedly “conventional” interfaces such as touch screens and keypads. (’468 patent at 1:28-36, 16:15-21.) The specifications functionally describe a “multi-pass automatic speech recognition module” that</p>

Claim(s)	Basis for Ineligibility
	<p>transcribes a speech input to text using whatever technique “is . . . available,” such as preexisting “dictation grammar,” “large vocabulary grammar,” or “virtual dictation grammar” techniques. (<i>see</i> ’468 patent at 23:56-61 (“transcription may be performed using one or more conversational grammars, a context description grammar 112,” or any “other transcription methods”).)</p> <p>The specifications only superficially describe the “virtual dictation grammar” as having “decoy words for out-of-vocabulary words” without explaining how it transcribes speech to text, and they disclose nothing about how to implement the other “grammars” mentioned in name only. (<i>see</i> ’468 patent at 23:56-61.)</p> <p>Nowhere do they suggest that the transcription techniques are anything but conventional.</p> <p>The transcribing step of the ’468 patent claim recites a “semantic knowledge-based model” that the specification describes as three black boxes: a “personalized cognitive model,” a “general cognitive model,” and an “environmental model” (shown in Fig. 8 of the ’468 patent, at right).</p> <p>Confirming the abstract nature of the claims, the patent does not explain how these black boxes transcribe a</p>



Claim(s)	Basis for Ineligibility
	<p>spoken input into text as the claim requires. (<i>See</i> '468 patent at claim 19.)</p> <p>Instead, it states that any information about prior interactions with the user, general prior interactions with other users, or the user's environment, somehow "may be used to predict a user's next action" or "to enhance the interpretation of questions and/or commands," as humans have always done in conversations and with no instructions as to how these are used in the models. (<i>Id.</i> at 2:8-11, 23:64-24:48.)</p> <p>Receiving a request that has spoken and non-spoken portions does not change the abstract nature of the claims either. The asserted claim 19 of the '468 patent recites only a black-box "conversational voice user interface" to receive the request. The patent confirms that speech and non-speech interfaces were conventional technology, and prior art acknowledged in the patent itself confirms that multimodal conversation was known at the time. ('468 patent at Other Publications, 1:28-36, 16:15-21.)</p> <p>Further, although any inventive concept would need to be recited in the claims, and not merely in the specification, even the specification lacks any detail on how the remaining claimed functions could be achieved. Instead, the specification assumes any algorithms for carrying out the claimed functions are well-known to ordinarily skilled artisans. See, <i>e.g.</i>, '468 patent at 25:32-34 ("Agents 106 may include a collection of grammars, criteria handlers, and algorithms that are accessed to respond to a set of requests and/or commands."). For example, the specification recites other</p>

Claim(s)	Basis for Ineligibility
	<p>generic software modules, including a “context description grammar module 112” (<i>id.</i> at 13:64-14:1, Fig. 1), a “context stack” (<i>id.</i> at 14:16-19), and a “response generator module” (<i>id.</i> at 3:24-30). These software modules are described only by their function. (<i>Id.</i> at 13:64-14:1, 14:6-7, 14:16-21 (describing functions of “context description grammar,” “context stack,” “response generator module”).) The entries in the “context stack” of the ’468 patent claim are similar to the entries in the “context description grammar”; they are collections of “questions,” “keywords and criteria” that can be matched to a request to somehow determine a most likely context. (’468 patent at 32:55-64, 20:19-28 (request may be compared to “a set of expected contexts that are stored in a context stack to determine a most likely context”).) The specification discloses no specific solution for <i>how</i> to implement this matching to yield a “most likely context.” And, again, the “domain agents” are unspecified software “packages or modules” containing unspecified “data that is needed to extend or modify the functionality of the system” to respond to requests in a specific domain or field of inquiry. (’468 patent at 27:18-20.)</p> <p>As shown by the disclosures of the prior art charted as part of Exhibits C-1 to C-11, which are incorporated by reference, each and every limitation of the challenged claims was well understood, routine, and conventional in the industry.</p>

Claim(s)	Basis for Ineligibility
	<p>In addition to the individual elements, the ordered combination of recited elements as a whole was equally well understood, routine, and conventional. Indeed, the combination of elements is exactly what a person of skill in the art would expect, with no inventive concept or technical improvement. See <i>Two-Way Media</i>, 874 F.3d at 1339 (holding there was “no inventive concept in the ordered combination” where “[t]he claim uses a conventional ordering of steps—first processing the data, then routing it, controlling it, and monitoring its reception—with conventional technology to achieve its desired result,” which does “not contain an inventive concept”). These claims recite functions in the conventional order in which they would need to be performed. The request must be received before it is transcribed. Spoken and non-spoken portions must be converted into the same medium (e.g., text) before they are merged, and they must be merged before determining the context or domain of the full request. And the context or domain must be identified before responding to the request. <i>TLI Commc’ns</i>, 823 F.3d at 615; <i>Two-Way Media</i>, 874 F.3d at 1341 (steps “organized in a completely conventional way” are not inventive).</p> <p>Regardless, each limitation of the challenged claims is entirely in the abstract realm because it either restates the abstract idea under Alice step one or merely recites purely functional results, without specifying how the recited results are achieved, such that any alleged unconventionality is</p>

Claim(s)	Basis for Ineligibility
	<p>irrelevant as a matter of law. <i>See, e.g., Affinity Labs</i>, 838 F.3d at 1269; <i>SAP</i>, 898 F.3d at 1168; <i>BSG</i>, 899 F.3d at 1290.</p> <p>Moreover, because the challenged claims fail to provide sufficient limiting detail as to how the claimed functions are allegedly performed, the claims are unduly preemptive in scope, which confirms they are patent-ineligible. <i>See Athena</i>, 915 F.3d at 752 (“Preemption is sufficient to render a claim ineligible under § 101, but it is not necessary.”).</p> <p>Microsoft contends that the foregoing is representative of all Asserted Claims in this patent, but nonetheless further addresses other claims.</p> <p>The remainder of the asserted claims of the ’468 patent do not add inventive concepts. For example, for claim 20, including an aggregation of content in the gathered when the identified domain agent processes the request in the generated response was well known, routine, and conventional. <i>See Exhibits C-1 to C-11</i>. Regardless, these additional functions are themselves abstract. Claim 20 amounts merely to specifying the content on the response of the independent claim, which does not take the claim out of the realm of the abstract. Moreover, neither claim nor the specification recites any novel means of performing this feature. Instead, the specification assumes a person of ordinary skill in the art would know to implement these functions using conventional, available technologies. <i>See ’468 patent at 20:5-12</i> (explaining that a response generator module may be used to</p>

Claim(s)	Basis for Ineligibility
	<p>generate an aggregate response without providing any further information on how the module operates or performs this feature).</p> <p>For claim 25, verifying an identity of the user based on voiceprint matching, password matching, or pass-phrase matching was well known, routine, and conventional. <i>See</i> Exhibits C-1 to C-11. Regardless, these additional functions are themselves abstract. Neither the claims nor specification recite any novel means of performing these functional results. Instead, the specification assumes a person of ordinary skill in the art would know to implement these functions using conventional, available technologies. <i>See</i> '468 patent at 8:28–31, 11:47–53, 13:44–46. For example, the specification states that a conventional “PIN pad, etc.” can be used to achieve these functions. <i>Id.</i> at 13:45.</p> <p>For claim 26, receiving one or more follow-up multi-modal inputs at the conversational voice user interface, the follow-up multi-modal inputs including at least one of a follow-up natural language utterance or a follow-up non-speech input, was well known, routine, and conventional. <i>See</i> Exhibits C-1 to C-11. Regardless, these additional functions are themselves abstract. This claim merely limits the claimed receipt of information to “a particular field of information,” which “does not move the claims out of the realm of abstract ideas.” <i>SAP</i>, 898 F.3d at 1169; <i>see also Elec. Power Grp.</i>, 830 F.3d at 1355 (“enumerating types of information and information sources . . . for collection, analysis, and display does nothing significant to</p>

Claim(s)	Basis for Ineligibility
	<p>differentiate a process from ordinary mental processes”). Moreover, by reciting “follow-up” steps that mirror steps in the independent claim, this claim merely involves repetition of an abstract idea, which is not patent-eligible. <i>See Trinity Info Media, LLC v. Covalent, Inc.</i>, 562 F. Supp. 3d 770, 783 (C.D. Cal. 2021), <i>aff’d</i>, 72 F.4th 135 (invalidating dependent claims for “repeating the process [of the independent claim] for a plurality of next polling questions”); <i>cf. In re Harza</i>, 274 F.2d 669, 671 (C.C.P.A. 1960) (“mere duplication of parts has no patentable significance” absent an unexpected improvement). The specification also admits that “follow-up” input and searching is conventional. ’468 patent at 21:58–59 (“known systems may perform a follow-up search . . .”).</p> <p>For claim 27, updating a context stack and a semantic knowledge-based model in response to processing the request was well known, routine, and conventional. <i>See Exhibits C-1 to C-11</i>. Regardless, these additional functions are themselves abstract. This limitation amounts merely to updating and storing information, which is abstract, post-solution activity. <i>See Personalized Media Commc’ns, LLC v. Amazon.Com, Inc.</i>, 161 F. Supp. 3d 325, 332 (D. Del. 2015), <i>aff’d</i>, 671 F. App’x 777 (Fed. Cir. 2016) (invalidating claims directed to “the abstract idea of updating operating instructions”); <i>Bot M8 LLC v. Sony Corp. of Am.</i>, 465 F. Supp. 3d 1013, 1024 (N.D. Cal. 2020), <i>aff’d</i>, 4 F.4th 1342 (Fed. Cir. 2021) (“updating [] parameters based on prior results . . . remains abstract”).</p>

Claim(s)	Basis for Ineligibility
	<p data-bbox="440 233 1414 632">For claim 28, determining a most likely context for the follow-up multi-modal input using the updated context stack was well known, routine, and conventional. <i>See</i> Exhibits C-1 to C-11. Regardless, these additional functions are themselves abstract. As noted for claim 26, this claim merely repeats the steps of the independent claim for a “follow-up” iteration, which does not take the claims outside the realm of abstract ideas.</p> <p data-bbox="440 674 1414 1136">For claim 29, creating a speech-based transcription of the follow-up natural language utterance using the updated semantic knowledge-based model was well known, routine, and conventional. <i>See</i> Exhibits C-1 to C-11. Regardless, these additional functions are themselves abstract. As noted for claim 26, this claim merely repeats the steps of the independent claim for a “follow-up” iteration, which does not take the claims outside the realm of abstract ideas.</p> <p data-bbox="440 1178 1414 1724">For claim 30, querying one or more local or network information sources was well known, routine, and conventional. <i>See</i> Exhibits C-1 to C-11. Regardless, these additional functions are themselves abstract. This limitation amounts to sending and receiving information over a network, which is abstract. <i>See ChargePoint, Inc. v. SemaConnect, Inc.</i>, 920 F.3d 759, 766 (Fed. Cir. 2019) (invalidating claims directed to “the abstract idea of communicating requests to a remote server and receiving communications from that server, <i>i.e.</i>, communication over a network.</p>

Claim(s)	Basis for Ineligibility
	<p>For claim 32, processing the request by directing a command to one or more local or remote devices was well known, routine, and conventional. <i>See</i> Exhibits C-1 to C-11. Regardless, these additional functions are themselves abstract. The “local or remote devices” are entirely generic, conventional computers. Merely directing a command to such a device is purely abstract. <i>See ChargePoint, Inc. v. SemaConnect, Inc.</i>, No. CV MJG-17-3717, 2018 WL 1471685, at *9 (D. Md. Mar. 23, 2018), <i>aff’d</i>, 920 F.3d 759 (invalidating claims to “the abstract idea of sending requests, receiving commands, and executing commands on a device over a network.”).</p>

Pursuant to the Standing Order Regarding Subject Matter Eligibility Contentions, Microsoft further identifies all prior art materials identified in section II.A, *supra*, and prior art systems and inventions in II.B, *supra*, as material upon which it seeks to rely to support its ineligibility contentions.

3. '959 Patent

Claim(s)	Basis for Ineligibility
<p>1-2, 8 Representative: claim 1</p>	<p>As an exemplary basis, the claims of the '959 patent are directed to the abstract idea of responsively selecting another interpretation of a command and performing an action based on the interpretation. The claims recite nothing more to transform the abstract idea into a patent-eligible application. The method recited in representative claim 1 for correcting misrecognitions is simply interpreting a first command, and in response to the user who issued the command indicating that the interpretation is incorrect, reinterpreting the</p>

Claim(s)	Basis for Ineligibility
	<p>command. This method is simply the human activity of a speaker telling a listener that the listener heard the speaker wrong, and the listener changing their understanding of what they heard based thereon, which is an unpatentable natural human activity, mental processes and/or abstract idea. Indeed, it is the stated goal of the '959 patent to enable human-like interaction with machines. <i>See</i> '959 patent at 1:38-51 (“A machine’s ability to communicate with humans in a natural manner remains a difficult problem. ... Yet the ability to allow a person to make natural language speech-based request remains a desirable goal.”), 12:54-56 (“Barriers to natural human request-response interaction between humans and machines include that natural language queries may be incomplete in their definition.”), 29:19-21 (“The response may also be formatted to reflect a particular personality or tone to the response in order to make the response more ‘human.’”).</p> <p>Moreover, personalized cognitive models are unpatentable as a mental process, as humans make their own “personalized cognitive models” as part of human cognition. For example, based on past interactions with another individual, humans build expectations about the words the other individual will use, as well as, for example, the topics, domains, and subject matter the other individual will provide.</p> <p>Moreover, the claim only recites functional goals; it does not recite specific technical details of how these functional goals are achieved. For example, it does not describe how the personalized cognitive model is</p>

Claim(s)	Basis for Ineligibility
	<p>accessed, how a second interpretation is selected (or even how a second interpretation is made), and what the personalized cognitive model consists of. Because the claims recite “a desired function or outcome, without providing any limiting detail that confines the claim to a particular solution to an identified problem,” the “functional nature of the claim confirms that it is directed to an abstract idea.” <i>Affinity Labs</i>, 838 F.3d at 1269. Though the claims must recite material to make the claim patent-eligible, not even the specification provides clarity for the black box that is the “personalized cognitive model.” See <i>Two-Way Media</i>, 874 F.3d at 1338 (“the claim—as opposed to something purportedly described in the specification”—must disclose a specific technological solution.”); see also ’959 patent at 13:23-31 (generically providing that “According to one embodiment of the invention, personalized cognitive model 810 is a model derived from a user’s interaction pattern with the system and may be used to predict what actions the user may take next in time, thus assisting with speech recognition and/or question or command recognition. Personalized cognitive model 810 may track actions performed by the user. When the system is attempting to predict user behavior, the personalized cognitive model may be consulted first.”), 4:57-64 (cognitive models provide undescribed “statistical abstracts of user interaction patterns”).</p> <p>The remainder of claim 1 recites only generic, well-known components that do not provide an “inventive concept.” See Exhibits D-1 to D-7. The method itself is not inventive and recites well-understood operations.</p>

Claim(s)	Basis for Ineligibility
	<p>For example, reciting that the steps take place on a generic “computer system,” which “comprises one or more physical processors executing one or more computer program instructions” does not make the claim patent eligible. <i>See, e.g., BSG Tech LLC v. Buyseasons, Inc.</i>, 899 F.3d 1281, 1285 (Fed. Cir. 2018) (“If a claimed invention only performs an abstract idea on a generic computer, the invention is directed to an abstract idea at step one.”). Providing commands to a machine, in spoken form and in other forms such as by text or mouse input, and the machine generating interpretations of those commands, was also well known. <i>See</i> Exhibits D-1 to D-7; ’959 patent at 1:52-55 (“Speech recognition has steadily improved in accuracy and today is successfully used in a wide range of applications. Natural language processing has been applied to the parsing of speech queries.”). Likewise, forming multiple interpretations of an utterance was a well-understood aspect of speech recognition systems. <i>See</i> Exhibits D-1 to D-7. And computers performing actions based on inputs (whether spoken or not) is a well-understood and conventional activity. <i>See id.</i>, ’959 patent at 1:43-46 (“By contrast, machine-based queries (<i>e.g.</i>, questions, commands, requests, and/or other types of communications) may be highly structured and may not be inherently natural to the human user.”).</p> <p>In addition to the individual elements, the ordered combination of recited elements as a whole was equally well understood, routine, and conventional. Indeed, the combination of elements is exactly what a person of skill in the art would expect, with no inventive concept or technical</p>

Claim(s)	Basis for Ineligibility
	<p>improvement. <i>See Two-Way</i>, 874 F.3d at 1339 (holding there was “no inventive concept in the ordered combination” where “[t]he claim uses a conventional ordering of steps—first processing the data, then routing it, controlling it, and monitoring its reception—with conventional technology to achieve its desired result,” which does “not contain an inventive concept”).</p> <p>Microsoft contends that the foregoing is representative of all Asserted Claims in this patent, but nonetheless further addresses other claims:</p> <p>The remainder of the asserted claims of the '959 patent do not add inventive concepts and/or recite additional ineligible subject matter. For example, the first two limitations of claim 2 (“receiving, by the computer system, a second natural language command from the user” and “generating, by the computer system, one or more interpretations of the second natural language command,”) recite the same well understood, conventional, and routine activities set out in claim 1, just that they are performed again for a second command. Providing a machine the ability to handle multiple commands is entirely conventional. <i>See Exhibits D-1 to D-7</i>. Additionally, the final limitation of claim 2 (“wherein proactively performing, by the computer system, a second action comprises performing the second action based on the one or more interpretations of the second natural language command”) recites the routine and conventional activity of implementing the understood command contained in the interpretation. <i>See id.</i> Further, the three limitations of claim 2 are also performed in the order a person of ordinary skill in the art</p>

Claim(s)	Basis for Ineligibility
	<p>would expect them to be performed in—first, a command is received, then it is interpreted, and finally an action corresponding to the command is performed. <i>See Two-Way</i>, 874 F.3d 1329, 1339 (Fed. Cir. 2017).</p> <p>Claim 8 recites predicting an action after receipt of the natural language command, which is unpatentable as an abstract idea. Indeed, courts have repeatedly invalidated claims for “using computers to predict the intent of [users],” which “is insufficient to render [an] idea non-abstract.” <i>USC IP</i>, 2023 WL 5606977, at *3; <i>see also Trinity Info Media, LLC v. Covalent, Inc.</i>, 72 F.4th 1355, 1362 (Fed. Cir. 2023) (invalidating claims that received and compared information to determine the “likelihood of [a] match”); <i>Free Stream Media</i>, 996 F.3d at 1361–62 (invalidating claims for “matching [received] information with other content . . . based on relevancy”). Moreover, the subject matter of claim 8 is entirely conventional. <i>See Exhibits D-1 to D-7</i>.</p>

Pursuant to the Standing Order Regarding Subject Matter Eligibility Contentions, Microsoft further identifies all prior art materials identified in section II.A, *supra*, and prior art systems and inventions in II.B, *supra*, as material upon which it seeks to rely to support its ineligibility contentions.

4. '409 Patent

Claim(s)	Basis for Ineligibility
1-3, 6	As an exemplary basis, the claims of the '409 patent are directed to the abstract idea of interpreting utterances by mapping sounds to parts of words,

Claim(s)	Basis for Ineligibility
<p data-bbox="203 233 406 268"><u>Representative:</u></p> <p data-bbox="203 304 308 340">Claim 1</p>	<p data-bbox="440 233 1443 1218">and claim nothing more to transform the abstract idea into a patent-eligible application. The method recited in representative claim 1 (<i>e.g.</i>, the steps of “receiving an utterance” from a user”; “recognizing a stream of phonemes contained in the utterance” on an electronic device”; “mapping the recognized stream of phonemes to an acoustic grammar that phonemically represents one or more syllables, the recognized stream of phonemes mapped to a series of one or more of the phonemically represented syllables”; and including the syllables mapped to the stream of phonemes, “generating at least one interpretation of the utterance”) is simply a recitation of how humans interpret speech. Indeed, it is expressly stated that the invention uses speech “recognition techniques used by humans, such as interpreting speech using words, word sequences, word combinations, word positions, context, phonetic similarities between two or more words, parts of speech, or other techniques.” <i>See</i> ’409 patent at 2:16-31.</p> <p data-bbox="440 1255 1443 1839">Additionally, phonemes, syllables and other linguistic components are fundamental elements of human communication and cognition, and are thus unpatentable abstract ideas. <i>See Alice</i>, 573 U.S. at 220 (2014) (holding that abstract ideas are not confined to “preexisting, fundamental truth[s]” that “exis[t] in principle apart from any human action.”); <i>see also Le Roy v. Tatham</i>, 55 U.S. (14 How.) 156, 175 (1853) (“A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right.”).</p>

Claim(s)	Basis for Ineligibility
	<p data-bbox="440 237 1435 926">As another example of the abstract nature of the claim, the stated purpose of the claim, to “provid[e] out-of-vocabulary interpretation capabilities and for tolerating noise when interpreting natural language speech utterances,” is directed to ineligible subject matter. Indeed, what these “capabilities” are, and what it means to “tolerat[e]” noise is unclear, vague, and abstract. Moreover, the claim recites no manner to achieve the out-of-vocabulary “capabilities” or to noise is “tolerat[ed].” Because the claims recite “a desired function or outcome, without providing any limiting detail that confines the claim to a particular solution to an identified problem,” the “functional nature of the claim confirms that it is directed to an abstract idea.”</p> <p data-bbox="440 961 846 999"><i>Affinity Labs</i>, 838 F.3d at 1269.</p> <p data-bbox="440 1041 1435 1808">The remainder of claim 1 recites only generic, well-known, components and steps that do not provide an “inventive concept.” See Exhibits E-1 to E-9. The method itself is not inventive and recites well-understood operations and linguistic components. For example, recognizing phonemes, including in a “stream,” in an utterance is a well-known, routine, and conventional activity. See ’409 patent, at 1:44-64, 2:46-56, 3:7-13, 6:6-12 (“Those skilled in the art will recognize other advantages of phonemic recognition.”), 7:21-29, 7:37-48; Exhibits E-1 to E-9. Mapping a stream of phonemes to syllables, including to a “series” of syllables, is also a well-known, routine, and conventional activity. See ’409 patent at 2:16-31; Exhibits E-1 to E-9. Indeed, references to generic and existing speech recognition</p>

Claim(s)	Basis for Ineligibility
	<p>technology cannot supply an inventive concept. <i>IPA</i>, 307 F. Supp. 3d at 370 (claims directed to interpreting a spoken request did not supply an inventive concept where the specification disclosed the use of conventional speech recognition engines). Further, the '409 patent concedes that a person of ordinary skill is familiar with acoustic grammars, so this element cannot supply an inventive concept either. '409 patent at 2:46-56 (“Phoneme recognition may be based on any suitable acoustic grammar that maps a speech signal into a phonemic representation. For example, the English language may be broken down into a detailed grammar of the phonotactic rules of the English language. Portions of a word may be represented by a syllable, which may be further broken down into core components of an onset, a nucleus, and a coda, which may be further broken down into sub-categories. Various different acoustic grammars may be formed as trees with various branches representing many different syllables forming a speech signal.”); <i>see also</i> Exhibits E-1 to E-9. And forming at least one interpretation of an utterance by mapping recognized phonemes and/or syllables in the utterance to words is also a routine activity when interpreting spoken utterances. '409 patent at 1:44-64, 2:46-56, 3:7-13, 6:6-12, 7:21-29, 7:37-48; Exhibits E-1 to E-9.</p> <p>Further, claim 1 of the '409 patent does not provide <i>how</i> an utterance is “receiv[ed],” <i>how</i> a stream of phonemes are “recogniz[ed],” <i>how</i> the recognized stream of phonemes is “mapp[ed]” to an acoustic grammar, or <i>how</i> at least one interpretation of the utterance is “generat[ed].” Because the claims</p>

Claim(s)	Basis for Ineligibility
	<p>recite “a desired function or outcome, without providing any limiting detail that confines the claim to a particular solution to an identified problem,” the “functional nature of the claim confirms that it is directed to an abstract idea.” <i>Affinity Labs</i>, 838 F.3d at 1269.</p> <p>In addition to the individual elements, the ordered combination of recited elements as a whole was equally well understood, routine, and conventional. Indeed, the combination of elements is exactly what a person of skill in the art would expect, with no inventive concept or technical improvement. <i>See Two-Way</i>, 874 F.3d at 1339 (holding there was “no inventive concept in the ordered combination” where “[t]he claim uses a conventional ordering of steps—first processing the data, then routing it, controlling it, and monitoring its reception—with conventional technology to achieve its desired result,” which does “not contain an inventive concept”).</p> <p>Microsoft contends that the foregoing is representative of all Asserted Claims in this patent, but nonetheless addresses other claims. The remainder of the asserted claims of the ’409 patent do not add inventive concepts and/or recite additional ineligible subject matter. <i>See Exhibits E-1 to E-9</i>. For example, claim 2, in addition to reciting the conventional acoustic grammar (see above), also recites that the acoustic grammar “phonemically representing the one or more syllables” is done “in accordance with acoustic elements of an acoustic speech model.” This additional limitation is abstract in that an acoustic speech model is not defined in the claim or in the specification.</p>

Claim(s)	Basis for Ineligibility
	<p>Additionally, reciting that each “syllable is represented by acoustic elements for an onset, a nucleus, and a coda” is merely the recitation of the foundational elements of a syllable: an onset, a nucleus, and a coda. This, like claim 1, is merely a recitation of linguistic components, and the claim is drawn to an unpatentable abstract idea. <i>See Alice</i>, 573 U.S. at 220 (holding that abstract ideas are not confined to “preexisting, fundamental truth[s]” that “exis[t] in principle apart from any human action.”); <i>see also Le Roy</i>, 55 U.S. (14 How.) at 175 (“A principle, in the abstract, is a fundamental truth; an original cause; a motive; these cannot be patented, as no one can claim in either of them an exclusive right.”); ’409 patent, at 2:50-56 (“Portions of a word may be represented by a syllable, which may be further broken down into core components of an onset, a nucleus, and a coda”), 6:21-26 (“For example, the English language may be mapped into a detailed acoustic grammar representing the phonotactic rules of English, where words may be divided into syllables, which may further be divided into core components of an onset, a nucleus, and a coda, which may be further broken down into one or more sub-categories.”).</p> <p>For claim 3, including transitions between the acoustic elements according to phonotactic rules of the acoustic speech model is a well-understood and conventional feature to include in speech recognition systems. <i>See Exhibits E-1 to E-9</i>. Finally, claim 6 specifies that instead of there being “at least one” interpretation of the utterance, as is recited in claim 1, there are</p>

Claim(s)	Basis for Ineligibility
	<p>a “plurality of candidate interpretations of the utterance.” As described in claim 1, generating at least one (including a plurality) of interpretations of an utterance is a well-understood, routine, and conventional activity in speech recognition. <i>See also</i> Exhibits E-1 to E-9. Additionally, assigning a score to an interpretation and selecting the best-scored interpretation is an abstract idea. Courts have repeatedly invalidated claims directed to familiar concepts of ranking and selecting” the highest-ranked or scored option, particularly where (as here) “[t]he claim does not specify any particular metric or method for ranking.” <i>Cisco Sys., Inc. v. Uniloc, 2017 LLC</i>, 813 F. App’x 495, 497–98 (Fed. Cir. 2020) (invalidating claims for “ranking stations based on antenna performance characteristics and selecting the station with the highest rank”); <i>see also, e.g., Free Stream Media Corp. v. Alphonso Inc.</i>, 996 F.3d 1355, 1361–62 (Fed. Cir. 2021) (invalidating claims “directed to: (1) gathering information about television users’ viewing habits; (2) matching the information with other content . . . based on relevancy to the television viewer; and (3) sending that content to a second device”); <i>Semantic Search Techs. LLC v. Aldo U.S., Inc.</i>, 425 F. Supp. 3d 758, 776 (E.D. Tex. 2019) (invalidating claims for “collecting information from the user,” “maintaining and storing potentially related information,” and “ranking information based on potential relevancy (scoring)”); <i>Receivership Est. of AudienceScience Inc. v. Google LLC</i>, No. 22-CV-04756-EJD, 2024 WL 1975473, at *6 (N.D. Cal. May 2, 2024) (invalidating claims for “selecting [a] subject in accordance with a</p>

Claim(s)	Basis for Ineligibility
	<p>selection weighting for each subject based upon a performance score”); <i>Relevant Holdings, LLC v. MindGeek USA Inc.</i>, No. 2:21-CV-03174-MCS-KES, 2021 WL 6103350, at *4 (C.D. Cal. Aug. 30, 2021) (invalidating claims for “ranking categories . . . based on applying a multivariate mathematical formula to generate a score”); <i>S.I.SV.EL. Societa Italiana per lo Sviluppo Dell’ Elettronica S.p.A v. Rhapsody Int’l Inc.</i>, No. CV 18-69-MN-CJB, 2019 WL 2491898, at *6 (D. Del. June 14, 2019) (invalidating claims for “ranking attributes based on the highest factor”). Additionally, this scoring and selecting idea is conventionally implemented in speech recognition systems to select an interpretation. <i>See</i> Exhibits E-1 to E-9.</p>

Pursuant to the Standing Order Regarding Subject Matter Eligibility Contentions, Microsoft further identifies all prior art materials identified in section II.A, *supra*, and prior art systems and inventions in II.B, *supra*, as material upon which it seeks to rely to support its ineligibility contentions.

5. '367 Patent

Claim(s)	Basis for Ineligibility
<p>11-12, 15, 17-18 Representative: claim 11</p>	<p>Representative claim 11 recites a method comprising the steps of: registering a plurality of devices at a “registration module” following a communication from the devices; subscribing the registered devices to “context events”; receiving an undefined “context input” from one of the registered devices, which includes a further undefined “context change event”; and then informing the registered devices of the context change event by</p>

Claim(s)	Basis for Ineligibility
	<p>synchronizing a “context” across the mobile devices. As an exemplary basis, this claim is directed to the abstract idea of synchronizing a context across a group of registered devices and claims nothing more to transform the abstract idea into a patent-eligible application (e.g., the steps of “registering a plurality of mobile devices with a context manager,” “subscribing the plurality of mobile devices registered with the context manager to one or more context events,” “receiving, at the context manager, a context input,” and “informing the plurality of mobile devices registered with the context manager of the context change event”). Indeed, synchronizing or updating information stored across devices is a recognized abstract idea. <i>See Personalized Media Commc’ns, LLC v. Amazon.Com, Inc.</i>, 161 F. Supp. 3d 325, 332 (D. Del. 2015), <i>aff’d</i>, 671 F. App’x 777 (Fed. Cir. 2016) (invalidating claims directed to “the abstract idea of updating operating instructions”); <i>Bot M8 LLC v. Sony Corp. of Am.</i>, 465 F. Supp. 3d 1013, 1024 (N.D. Cal. 2020), <i>aff’d</i>, 4 F.4th 1342 (Fed. Cir. 2021) (“updating [] parameters based on prior results . . . remains abstract”). Furthermore, this claimed method is akin to multiplayer gaming. When multiple players are engaged in the same game, the game state (player positions, scores, object interactions) needs to be consistent across all players’ devices. Thus, a change in one player’s position, score, or object interaction needs to be updated to the other player’s devices. This is achieved through synchronization, where a server acts as the “context manager,” receiving updates and broadcasting them to all connected clients. Calendar</p>

Claim(s)	Basis for Ineligibility
	<p>synchronization is another example of an implementation of this abstract idea. For example, if a meeting is scheduled in one calendar application, it is synchronized across all connected calendars (e.g., Google Calendar, Outlook) and across various devices where the calendars are accessed.</p> <p>Additionally, the claim provides no functional details about <i>how</i> “regist[r]ation” and “subscri[ption]” take place, <i>how</i> the context manager “receiv[es]” a context input, or <i>how</i> the plurality of mobile devices registered with the context manager are “inform[ed]” of the context change event. Because the claims recite “a desired function or outcome, without providing any limiting detail that confines the claim to a particular solution to an identified problem,” the “functional nature of the claim confirms that it is directed to an abstract idea.” <i>Affinity Labs</i>, 838 F.3d at 1269.</p> <p>The remainder of claim 11 recites only conventional and well-known components that are routinely implemented, which do not provide an “inventive concept.” The method itself is not inventive, and recites well-understood operations. <i>See</i> Exhibits H-1 to H-6.</p> <p>In addition to the individual elements, the ordered combination of recited elements as a whole was equally well understood, routine, and conventional. Indeed, the combination of elements is exactly what a person of skill in the art would expect, with no inventive concept or technical improvement. <i>See Two-Way</i>, 874 F.3d at 1339 (holding there was “no inventive concept in the ordered combination” where “[t]he claim uses a</p>

Claim(s)	Basis for Ineligibility
	<p>conventional ordering of steps—first processing the data, then routing it, controlling it, and monitoring its reception—with conventional technology to achieve its desired result,” which does “not contain an inventive concept”).</p> <p>Microsoft contends that the foregoing is representative of all Asserted Claims in this patent, but nonetheless further addresses other claims:</p> <p>The remainder of the asserted claims of the '367 patent do not add inventive concepts and/or recite additional ineligible subject matter. For example, claim 12 furthers the abstract idea of claim 11 by providing that a “context tracking module” informs devices of the context change event. This merely provides a generic “module” charged with achieving the goal of informing the other devices of the context change. Neither the claim nor the specification (which Dialect could not rely on in any event, <i>see Two-Way Media</i>, 874 F.3d at 1338) recites what this module comprises, confirming the abstract nature of the claim. <i>See Affinity Labs</i>, 838 F.3d at 1269. Moreover, although the '367 does not provide any context for this term, using context tracking modules is a routine and conventional activity. <i>See Exhibits H-1 to H-6</i>.</p> <p>Claim 15 continues the abstract idea of claim 11 by requiring removal of a device from the group of devices (“plurality of mobile devices registered with the context manager”). By reciting “follow-up” steps that mirror steps in the independent claim, this claim merely involves repetition of an abstract idea, which is not patent-eligible. <i>See Trinity Info Media, LLC v. Covalent</i>,</p>

Claim(s)	Basis for Ineligibility
	<p><i>Inc.</i>, 562 F. Supp. 3d 770, 783 (C.D. Cal. 2021), <i>aff'd</i>, 72 F.4th 135 (invalidating dependent claims for “repeating the process [of the independent claim] for a plurality of next polling questions”); <i>cf. In re Harza</i>, 274 F.2d 669, 671 (C.C.P.A. 1960) (“mere duplication of parts has no patentable significance” absent an unexpected improvement). Moreover, management of registered devices, including management by removal of a registered device from the group, is a routine, conventional, and well-understood activity. <i>See</i> Exhibits H-1 to H-6.</p> <p>Claim 17 recites “receiving a natural language utterance at a multi-modal voice user interface associated with at least one of the plurality of mobile devices registered with the context manager,” which is a conventional, and well-understood activity.” <i>See</i> Exhibits H-1 to H-6. Claim 17 goes on to recite “identifying, using a knowledge-enhanced speech recognition engine associated with the at least one mobile device, one or more contexts that completely or partially match one or more text combinations contained in text transcribed from the natural language utterance, wherein identifying the matching contexts includes comparing the text combinations against one or more grammar expression entries in a context description grammar and one or more expected contexts stored in a context stack synchronized through the context manager.” This is an unpatentable abstract idea because it constitutes a longstanding and fundamental human practice (transcribing and comparing texts), dating back to the earliest examples of human writing and</p>

Claim(s)	Basis for Ineligibility
	<p>recordkeeping. <i>See Intel. Ventures</i>, 838 F.3d at 1313. Likewise, it also recites the abstract idea of scoring options and selecting the highest scored option (<i>i.e.</i>, “scoring each of the identified matching contexts; and selecting the matching context having a highest score as a most likely context for the natural language utterance”). Courts have repeatedly invalidated claims directed to familiar concepts of ranking and selecting the highest-ranked or scored option, particularly where (as here) “[t]he claim does not specify any particular metric or method for ranking.” <i>Cisco Sys., Inc. v. Uniloc, 2017 LLC</i>, 813 F. App’x 495, 497–98 (Fed. Cir. 2020) (invalidating claims for “ranking stations based on antenna performance characteristics and selecting the station with the highest rank”); <i>see also, e.g., Free Stream Media Corp. v. Alphonso Inc.</i>, 996 F.3d 1355, 1361–62 (Fed. Cir. 2021) (invalidating claims “directed to: (1) gathering information about television users’ viewing habits; (2) matching the information with other content . . . based on relevancy to the television viewer; and (3) sending that content to a second device”); <i>Semantic Search Techs. LLC v. Aldo U.S., Inc.</i>, 425 F. Supp. 3d 758, 776 (E.D. Tex. 2019) (invalidating claims for “collecting information from the user,” “maintaining and storing potentially related information,” and “ranking information based on potential relevancy (scoring)”); <i>Receivership Est. of AudienceScience Inc. v. Google LLC</i>, No. 22-CV-04756-EJD, 2024 WL 1975473, at *6 (N.D. Cal. May 2, 2024) (invalidating claims for “selecting [a] subject in accordance with a selection weighting for each subject based upon a performance score”);</p>

Claim(s)	Basis for Ineligibility
	<p><i>Relevant Holdings, LLC v. MindGeek USA Inc.</i>, No. 2:21-CV-03174-MCS-KES, 2021 WL 6103350, at *4 (C.D. Cal. Aug. 30, 2021) (invalidating claims for “ranking categories . . . based on applying a multivariate mathematical formula to generate a score”); <i>S.I.SV.EL. Societa Italiana per lo Sviluppo Dell’ Elettronica S.p.A v. Rhapsody Int’l Inc.</i>, No. CV 18-69-MN-CJB, 2019 WL 2491898, at *6 (D. Del. June 14, 2019) (invalidating claims for “ranking attributes based on the highest factor”). Moreover, Courts have repeatedly invalidated analogous claims for processing and transcribing information in multi-modal input. <i>See, e.g., Ginegar LLC</i>, 634 F. Supp. 3d at 772–73 (invalidating claims directed to “the abstract idea of combining different message types in a single transcript” that recited “multi-modal transcript unification logic”); <i>IPA</i>, 307 F. Supp. 3d at 371 (invalidating claims for a “multi-modal feedback” system that “essentially requires gathering additional data in a non-spoken modality and using the data to modify the initial navigation query . . . from a spoken request”). Additionally, the use of a “knowledge-based speech recognition engine,” does not render this claim patentable, as references to generic and existing speech recognition technology cannot supply an inventive concept, and this claim does not set forth how or what “knowledge-based” adds beyond the conventional “speech recognition engine.” <i>See IPA</i>, 307 F. Supp. 3d at 370 (claims directed to interpreting a spoken request did not supply an inventive concept where the specification disclosed the use of conventional speech recognition engines).</p>

Claim(s)	Basis for Ineligibility
	<p>Claim 18 adds the routine and well-understood method step of “a communication from the at least one mobile device that indicates a change in context to the most likely context.” <i>See</i> Exhibits H-1 to H-6. This merely specifies the information synchronized in the abstract idea of claim 11 and is itself unpatentable. <i>See SAP</i>, 898 F.3d at 1169; <i>see also Elec. Power Grp.</i>, 830 F.3d at 1355 (“enumerating types of information and information sources . . . for collection, analysis, and display does nothing significant to differentiate a process from ordinary mental processes”).</p>

Pursuant to the Standing Order Regarding Subject Matter Eligibility Contentions, Microsoft further identifies all prior art materials identified in section II.A, *supra*, and prior art systems and inventions in II.B, *supra*, as material upon which it seeks to rely to support its ineligibility contentions.

6. '659 Patent

Claim(s)	Basis for Ineligibility
42	<p>As an exemplary basis, the asserted claim of the '659 patent is directed to the abstract idea of predicting subsequent action of a user inputting a natural language utterance and claims nothing more to transform the abstract idea into a patent-eligible application (<i>e.g.</i>, performing, “by a computer system that includes one or more processors,” the steps of “receiving a first input of a user that comprises a natural language utterance”; “generating an interpretation of the natural language utterance...”; generating a request based on the interpretation”; “transmitting the request to a domain agent for processing”; “determining whether a personalized</p>

Claim(s)	Basis for Ineligibility
	<p>cognitive model associated with the user includes sufficient information for predicting one or more subsequent actions associated with the user...”; and “predicting the one or more subsequent actions based on a generalized cognitive model in response to a determination that the personalized cognitive model does not include the sufficient information”). Indeed, courts have repeatedly invalidated claims for “using computers to predict the intent of [users],” which “is insufficient to render [an] idea non-abstract.” <i>USC IP</i>, 2023 WL 5606977, at *3; <i>see also Trinity Info Media, LLC v. Covalent, Inc.</i>, 72 F.4th 1355, 1362 (Fed. Cir. 2023) (invalidating claims that received and compared information to determine the “likelihood of [a] match”); <i>Free Stream Media</i>, 996 F.3d at 1361–62 (invalidating claims for “matching [received] information with other content . . . based on relevancy”). This method is akin to predictive text functionality. For example, where a user inputs text into a web search field and then the web search field recommends searches based on the inputted text is an example of a predicted next action (subsequent words that the user would type) based on the earlier action (earlier typed words).</p> <p>Additionally, this claim recites an unpatentable mathematical algorithm and/or an unpatentable “mental process” by reciting determining whether there is sufficient data, which is, in essence, determining whether the value of data collected exceeds a value above which the data is deemed “sufficient.”</p> <p>This claim also recites features of human interaction, including how humans process and respond to speech. For example, to respond to an utterance a human</p>

Claim(s)	Basis for Ineligibility
	<p>must recognize the words of the utterance. A human’s recognition of words is often accomplished because the human already knows the words. As another example, when asking a question that falls within a particular domain, <i>i.e.</i>, subject matter area, the humans with knowledge of that particular domain would give the best answers. For example, a historian would be best suited to answer questions relating to their area of expertise. In this way, humans with expertise in a particular domain are “domain agents” that respond to queries within their domain. Context also plays an important role in determining the meaning of an utterance, such as location, past conversations, who is present, tone, and other contextual cues. These are unpatentable human activities and/or abstract ideas.</p> <p>Cognitive models are also akin to human cognition and interaction, and are thus unpatentable mental processes and/or means of organizing human activity. For example, for personalized cognitive models, based on past interactions with another individual, humans build expectations about the words the other individual will use, as well as, for example, the topics, domains, and subject matter the other individual will utter. For general cognitive models, based on past interactions with one or more other individuals, an individual human builds expectations about the words the other individuals will use, as well as, for example, the topics, domains, and subject matter the one or more other individuals will utter. An example of a generalized cognitive model in human interaction is if one person is discussing the latest headline news story, an individual might expect other individuals to also discuss the same headline news story.</p>

Claim(s)	Basis for Ineligibility
	<p>The remainder of claim 42 recites only generic, well-known, components that do not provide an “inventive concept.” <i>See</i> Exhibits I-1 to I-11. The method itself is not inventive and recites well-understood operations. <i>See id.</i> For example, receiving an utterance, generating an interpretation of it, generating a request based on the interpretation, and transmitting the request to a domain agent for processing, are standard, routine, conventional, and well-understood activities. <i>See id.</i>; ’959 patent at 1:38-55 (“A machine’s ability to communicate with humans in a natural manner remains a difficult problem. Cognitive research on human interaction shows that verbal communication, such as a person asking a question or giving a command, typically relies heavily on context and domain knowledge of the target person. By contrast, machine-based queries (<i>e.g.</i>, questions, commands, requests, and/or other types of communications) may be highly structured and may not be inherently natural to the human user. Thus, verbal communications and machine processing of requests that are extracted from the verbal communications may be fundamentally incompatible. Yet the ability to allow a person to make natural language speech-based request remains a desirable goal. Speech recognition has steadily improved in accuracy and today is successfully used in a wide range of applications. Natural language processing has been applied to the parsing of speech queries.”). Predicting user actions, whether associated with a specific user and a prior input, or associated with a plurality of users, are also routine, conventional, and well-understood operations. <i>See</i> Exhibits I-1 to I-11. Likewise, generating personalized and generalized cognitive models “based on a tracking of patterns of interactions</p>

Claim(s)	Basis for Ineligibility
	<p>between [the user]/[a plurality of users] and the system” is routine, conventional, and well-understood, as is using these models to predict user behavior. <i>See id.</i> Finally, reciting that the steps take place on a generic “computer system,” which “comprises one or more physical processors executing one or more computer program instructions” does not make the claim patent eligible. <i>See, e.g., BSG Tech LLC v. Buyseasons, Inc.</i>, 899 F.3d 1281, 1285 (Fed. Cir. 2018) (“If a claimed invention only performs an abstract idea on a generic computer, the invention is directed to an abstract idea at step one.”). Moreover, aside from reciting abstract ideas, each limitation merely recites purely functional results, without specifying how the recited results are achieved, such that any alleged unconventionality is irrelevant as a matter of law. <i>See, e.g., Affinity Labs</i>, 838 F.3d at 1269; <i>SAP</i>, 898 F.3d at 1168; <i>BSG</i>, 899 F.3d at 1290.</p> <p>In addition to the individual elements, the ordered combination of recited elements as a whole was equally well understood, routine, and conventional. Indeed, the combination of elements is exactly what a person of skill in the art would expect, with no inventive concept or technical improvement. <i>See Two-Way Media Ltd. v. Comcast Cable Commc’ns, LLC</i>, 874 F.3d 1329, 1339 (Fed. Cir. 2017) (holding there was “no inventive concept in the ordered combination” where “[t]he claim uses a conventional ordering of steps—first processing the data, then routing it, controlling it, and monitoring its reception—with conventional technology to achieve its desired result,” which does “not contain an inventive concept”).</p>

Pursuant to the Standing Order Regarding Subject Matter Eligibility Contentions, Microsoft further identifies all prior art materials identified in section II.A, *supra*, and prior art systems and inventions in II.B, *supra*, as material upon which it seeks to rely to support its ineligibility contentions.

VII. ACCOMPANYING DOCUMENT PRODUCTION

Pursuant to P.R. 3-4(b) and concurrently with the service of these Invalidity and Subject Matter Eligibility Contentions, Microsoft has produced prior art references and preliminary evidence concerning prior art systems. Many of these prior art references and corroborating evidence are cited in and support the accompanying invalidity charts. Microsoft further refers to Plaintiff's document production accompanying its infringement contentions served on May 14, 2025, which includes, *inter alia*, prosecution histories for the Asserted Patents,²⁹ and documents purportedly concerning the conception, reduction to practice, design, and development of each claimed invention.

²⁹ The prosecution histories of the Asserted Patents are incorporated by reference, including all rejections and prior art contained therein.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that on August 20, 2025, a true and correct copy of the foregoing document was served by electronic mail on all counsel of record.

/s/ Thatcher A. Rahmeier
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