

Preliminary Ineligibility Contentions for U.S. Patent 8,073,681

Pursuant to Chief Judge Gilstrap's Standing Order Regarding Subject Matter Eligibility Contentions, the following charts contain Samsung's Preliminary Ineligibility Contentions demonstrating that claims 1-36 of U.S. Patent No. 8,073,681 ("681 patent") are patent-ineligible under 35 U.S.C. § 101. Because the Court has yet to issue any claim constructions in this case, and to the extent Plaintiff contends that there are factual disputes that relate to eligibility of the asserted claims of the '681 patent, fact and expert discovery is ongoing, these contentions are preliminary only and Samsung reserves the right to supplement or modify these contentions in accordance with the agreed patent-disclosure procedures and the Docket Control Order in this case. Additionally, and in further consideration of the preliminary stages of the case, Samsung notes that the pinpoint citations referenced in this chart are not exhaustive, and Samsung reserves the right to rely on additional citations within any cited reference. Furthermore, citations to any figure, table, or chart are meant to encompass the language describing the figure, table, or chart, and vice versa. To the extent applicable, Samsung incorporates by reference its citations in its eligibility contentions for the other asserted patents.

To the extent applicable, Samsung further incorporates by reference its citation in the § 102/103 contentions, which illustrate that the claimed elements were well-understood, routine, and conventional.

Further, these charts sometimes incorporate Plaintiff's apparent interpretation of the breakdown of elements within the asserted claims, as reflected in Plaintiff's infringement contentions to date. Samsung does not concede that such interpretation is correct, and reserves its right to supplement these contentions accordingly.

Samsung reserves its right to supplement these contentions based on further discovery, including any supplemental infringement contentions or to any interrogatory response provided by Plaintiff purporting to rebut these ineligibility contentions.

VB Assets, LLC, v. Samsung Electronics Co., LTD.
No. 2:24-cv-00828-JRG (E.D. Tex.)
Defendants' Invalidity Contentions – Appendix G-1

Pursuant to Judge Gilstrap's Standing Order Regarding Subject Matter Eligibility Contentions, Samsung provides the following chart identifying each exception to eligibility (e.g., abstract idea, law of nature, and natural phenomenon) to which each Challenged Claim is directed and the factual and legal basis therefor, as well as identification of whether one or more of the Challenged Claims are representative of any other Challenged Claims. Samsung incorporates by reference the prior art identified in the '681 patent, the prosecution history of the '681 patent, any related litigations, and any related PTAB proceedings. Samsung further incorporates by reference any prior art identified or to be identified in its invalidity contentions and/or expert reports that will be provided according to the schedule provided by the Court's Docket Control Order (Dkt. No. 37).

Challenged Claims	Exception to Eligibility
Claims 1-36	<p>Each of the independent claims of the '681 patent are directed to the abstract idea of interpreting and responding to ambiguous utterances with the benefit of context. This is not a technological advancement in the art, but, as the patent discloses, a basic feature of all human communication. '681 patent, 1:30-33, 1:15-30, 5:48-55. It has also been long known in the art as a basic feature of all human communication. <i>See e.g.</i>, Paul Grice, <i>Studies in the Way of Words</i> (1989).</p> <p>Accordingly, the patent is subject to the "abstract idea" exception to patent eligibility under the Patent Act as construed by the Supreme Court in <i>Alice</i>.</p> <p><u>Representativeness</u></p> <p>As an initial matter, for the purpose of the <i>Alice</i> inquiry, Claim 1 is representative of all asserted claims of the '681 patent. VBA asserts independent claims 1, 13, and 25 and dependent claims 2-12, 14-24, and 26-36.</p> <p>Starting with the independent claims, the claims are meaningfully identical except for that claim 1 claims a method, claim 13 claims a non-transitory computer-readable medium containing computer-executable instructions, and claim 25 claims a system. This is displayed in the following table:</p>

Challenged Claims	Exception to Eligibility			
	Feature	Claim 1 (Method)	Claims 13 (Computer)	Claim 25 (System)
	Receives an utterance at a voice input device	✓	✓	✓
	Accumulates short-term shared knowledge	✓	✓	✓
	Accumulates long-term shared knowledge	✓	✓	✓
	Identifies a context for the utterance	✓	✓	✓
	Establishes an intended meaning	✓	✓	✓
	Generates a response	✓	✓	✓
	<p>The dependent claims do not alter the analysis as the dependent claims are substantially similar, if not substantially identical, and linked to the same abstract idea. <i>See Content Extraction & Transmission LLC v. Wells Fargo Bank, Nat. Ass’n</i>, 776 F.3d 1343, 1348 (Fed. Cir. 2014).</p> <p>For example, claims 2, 14, and 26 provide that the short-term knowledge is stored in a “short-term context stack”. Claims 3, 15, and 27 provide that the information in that short-term context stack “expires after a psychologically appropriate amount of time.” Claims 4, 16, and 28 describe that the long-term information “includes updating one of more long-term profiles” of the user to include new information contained in the current conversation.</p> <p>Claims 5, 17, and 29 claim variants of Independent Claims 1, 13, and 25 where determining the intended meaning of the utterance includes identifying a “conversational goal” and then sorting the conversation into a “conversational type” based on the “conversational goal.” Claims 6, 18, and 30 further narrow these claims by having the determination of an intended meaning comprise a “hypothesis having a degree of certainty about the intent that the user had in</p>			

Challenged Claims	Exception to Eligibility
	<p>speaking the words.” Claims 7, 19, and 31 further limits these claims by assigning the so-called “degree of certainty to the hypothesis” using one or more of the conversation type, information associated with the identified context, or a confidence level associated with the preliminary interpretation.” Claims 8, 20, and 32 further limit by grammatically or syntactically adapting the response based on the conversation type.</p> <p>Claims 9, 21, and 33 limit independent claims 1, 13, and 25 by claiming a grammatically or syntactically adapted response to influence a subsequent reply utterance by the user.</p> <p>Claims 10, 22, and 34 limit independent claims 1, 13, and 25 by claiming the use of “multiple preliminary interpretations” of the utterance with an initial interpretation being based on the preliminary interpretation with the highest confidence level and then replacing that preliminary interpretation where necessary where it is determined to be incorrect.</p> <p>Claims 11-12, 23-24, and 35-36 limit independent claims 1, 13, and 25 by using multi-modal inputs and outputs, respectively.</p> <p>As detailed above, all of the asserted dependent claims merely narrow the scope of the independent claims to use specific modalities or decision processes for obtaining the same abstract idea claimed in the independent claims. Because these limitations do not provide any additional inventive concept, their eligibility under 101 rises and falls with the independent claims.</p> <p><u>The ’681 Patent Claims an Abstract Idea</u></p> <p>In <i>Beteiro, LLC v. DraftKings Inc.</i>, the Federal Circuit recently identified certain “well-settled indicators of abstractness.” 104 F. 4th 1350, 1355 (Fed. Cir. 2024). These are: (1) claims that broadly recite generic steps; (2) claims drafted using largely result-focused functional language, and (3) claims that can be analogized to “longstanding ‘real-world’ activities.” <i>Id.</i> While each</p>

Challenged Claims	Exception to Eligibility				
	<p>of these indicators are sufficient to demonstrate abstractness, the claims of the ’681 patent exhibit all of the features identified by the court.</p> <p><i>First</i>, the claims are broad and cite generic steps. In considering the breadth and genericness of the claims, the focus must be on the actual claims. <i>See ChargePoint, Inc. v. SemaConnect, Inc.</i>, 920 F.3d 759, 769 (Fed. Cir. 2019) (“[T]he § 101 inquiry must focus on the language of the Asserted Claims themselves” (quoting <i>Synopsys, Inc. v. Mentor Graphics Corp.</i>, 839 F.3d 1138, 1149 (Fed. Cir. 2016))); <i>Alice</i>, 573 U.S. at 219, 134 S.Ct. 2347 (“On their face, the claims before us are drawn to the concept of intermediated settlement” (emphasis added)). When evaluating the claim language, the court must evaluate “the ‘focus of the claimed advance over the prior art’ to determine if the claim’s ‘character as a whole’ is directed to excluded subject matter.” <i>Intell. Ventures I LLC v. Erie Indem. Co.</i>, 850 F.3d 1315, 1325 (Fed. Cir. 2017) (quoting <i>Affinity Labs of Tex., LLC v. DIRECTV, LLC</i>, 838 F.3d 1253, 1257 (Fed. Cir. 2016)).</p> <p>While claim 1 of the ’681 patent includes extraneous verbiage designed to provide a perception of technological advancement and complexity in an attempt to remove the claimed invention from the realm of ineligible subject matter, it boils down to a claim over the following four-step process: (1) receiving an utterance, (2) acquiring and storing information about the current and earlier conversations, (3) determining the meaning of the utterance in view of the current and earlier conversations, and (4) responding based on the interpretation of the meaning of the utterance. Those four steps are set out below:</p> <table> <tr> <th>’681 patent</th><th>Claimed Concept</th></tr> <tr> <td>[1pre]: A method for providing a cooperative conversational voice user interface, comprising:</td><td>A method for speech recognition, comprising:</td></tr> </table>	’681 patent	Claimed Concept	[1pre]: A method for providing a cooperative conversational voice user interface, comprising:	A method for speech recognition, comprising:
’681 patent	Claimed Concept				
[1pre]: A method for providing a cooperative conversational voice user interface, comprising:	A method for speech recognition, comprising:				

VB Assets, LLC, v. Samsung Electronics Co., LTD.
No. 2:24-cv-00828-JRG (E.D. Tex.)
Defendants' Invalidity Contentions – Appendix G-1

Challenged Claims	Exception to Eligibility	
	[1A] receiving an utterance at a voice input device during a current conversation with a user, wherein the utterance includes one or more words that have different meanings in different contexts;	Step 1: Receiving an utterance that includes words with different meanings in different contexts;
	[1B] accumulating short-term shared knowledge about the current conversation, wherein the short-term shared knowledge includes knowledge about the utterance received during the current conversation;	Step 2: Observing and storing information about the current conversation
	[1C] accumulating long-term shared knowledge about the user, wherein the long-term shared knowledge includes knowledge about one or more past conversations with the user;	Step 2: Observing and storing information about one or more past conversations
	[1D] determining an intended meaning for the utterance, wherein determining the intended meaning for the utterance includes:	Step 3: Determining the meaning of the utterance by:
	[1D.1] identifying, at a conversational speech engine, a context associated with the utterance from the short-term shared knowledge and the long-term shared knowledge; and	Step 3: Identifying context for the utterance using information about the current conversation and one or more past conversations; and

VB Assets, LLC, v. Samsung Electronics Co., LTD.
No. 2:24-cv-00828-JRG (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Exception to Eligibility	
	<p>[1D.2] establishing the intended meaning within the identified context, wherein the conversational speech engine establishes the intended meaning within the identified context to disambiguate an intent that the user had in speaking the one or more words that have the different meanings in the different contexts; and</p>	<p>Step 3: Using the identified context to establish the intended meaning of one or more words in the utterance;</p>
	<p>[1E] generating a response to the utterance, wherein the conversational speech engine grammatically or syntactically adapts the response based on the intended meaning established within the identified context.</p>	<p>Step 4: Generating a response to the utterance that accounts for the intended meaning of the utterance.</p>
	<p>These steps—receiving a message, detecting information, and generating and transmitting a response—are exactly the type of steps that the Federal Circuit has “frequently” held to be abstract. <i>See, e.g., AI Visualize, Inc. v. Nuance Commc’ns, Inc.</i>, 97 F.4th 1371, 1378 (Fed. Cir. 2024) (“We have explained that the steps of obtaining, manipulating, and displaying data, particularly when claimed at a high level of generality, are abstract concepts.”); <i>Elec. Power Grp. LLC v. Alstom S.A.</i>, 830 F.3d 1350, 1354 (Fed Cir. 2016) (finding “a process of gathering and analyzing information of a specified content, then displaying the results” abstract); <i>Intell. Ventures I LLC v. Capital One Bank (USA)</i>, 792 F.3d 1363, 1369 (Fed. Cir. 2015) (finding “tailoring content based on the [user’s] location” abstract); <i>buySAFE, Inc. v. Google, Inc.</i>, 765 F.3d 1350, 1355 (Fed. Cir. 2014) (claiming “a computer receiv[ing] and send[ing] information over a network – with no further specification – is not even arguably inventive”).</p>	

Challenged Claims	Exception to Eligibility
	<p><i>Second</i>, the claims are drafted using largely result-focused functional language that “contain[s] no specificity about how the purported invention achieves those results.” <i>Beteiro, LLC v. DraftKings Inc.</i>, 104 F.4th 1350, 1356 (Fed. Cir. 2024). As the Federal Circuit has observed “[c]laims of this nature are almost always found to be ineligible for patenting under Section 101.” <i>Id.</i> (citing <i>Elec. Power Grp.</i>, 830 F.3d at 1356 (“[T]he essentially result-focused, functional character of claim language has been a frequent feature of claims held ineligible under § 101, especially in the area of using generic computer and network technology to carry out economic transactions.”); <i>Two-Way Media Ltd. v. Comcast Cable Commc’ns, LLC</i>, 874 F.3d 1329, 1337 (Fed. Cir. 2017) (“The claim requires the functional results of ‘converting,’ ‘routing,’ ‘controlling,’ ‘monitoring,’ and ‘accumulating records,’ but does not sufficiently describe how to achieve these results in a non-abstract way.”)).</p> <p>Namely, as illustrated with claim 1, the claims recite that utterances are “received”, without disclosing any technical insight into how they are received; that knowledge is “accumulated”, without any technical insight into how that knowledge is accumulated; that context is “determined”, without any insight into how context is determined; and that intended meanings are “established”, without any insight into how that meaning is established. At no point do the inventors disclose “how” these steps are accomplished; just that they are to be (some how, some way).</p> <p>Third, the claims are directly analogous to “longstanding ‘real-world’ (‘brick-and-mortar’) activities.” <i>Beteiro, LLC v. DraftKings Inc.</i>, 104 F.4th at 1356; <i>see also PersonalWeb Techs. LLC v. Google LLC</i>, 8 F.4th 1310, 1316 (Fed. Cir. 2021) (claims that “can be performed in the human mind” or “using a pencil and paper” are “a telltale sign of abstraction”); <i>Intell. Ventures I LLC v. Symantec Corp.</i>, 838 F.3d 1307, 1314 (Fed. Cir. 2016) (a claimed method’s similarity to “fundamental ... practices long prevalent” is yet another clue that the claims may be abstract and unpatentable). For example, since the beginning of time, humans and their brains (and animals’ too) have been parsing both short-term knowledge and long-term knowledge to facilitate communication. Short-term knowledge, the words being spoken in the moment, are of course critical to understanding the meaning of what is being conveyed. But just as critical</p>

VB Assets, LLC, v. Samsung Electronics Co., LTD.
No. 2:24-cv-00828-JRG (E.D. Tex.)
Defendants' Invalidity Contentions – Appendix G-1

Challenged Claims	Exception to Eligibility	
	is long-term knowledge, such as the identity of the person speaking, which is used to understand the meaning of the uttered phrases. As one specific example in the law firm setting demonstrates, the claims read on a junior associate's response to a senior partner's query of "Is the Claim Chart you have been working on for me done?"	
	'681 patent	Everyday Conversation
	[1pre]: A method for providing a cooperative conversational voice user interface, comprising:	
	[1A] receiving an utterance at a voice input device during a current conversation with a user, wherein the utterance includes one or more words that have different meanings in different contexts;	Individual receives utterance: "Is the Claim Chart you have been working on for me done?" Note: Both "Claim Chart" and "me" have different meanings in different contexts.
	[1B] accumulating short-term shared knowledge about the current conversation, wherein the short-term shared knowledge includes knowledge about the utterance received during the current conversation;	Individual acquires short-term knowledge about the syntactical and grammatical meaning of the request including: -The literal words spoken -Speaker's tone and intonation -Speaker's body language
	[1C] accumulating long-term shared knowledge about the user, wherein the long-term shared knowledge includes knowledge	Individual has long-term knowledge about the speaker, including:

VB Assets, LLC, v. Samsung Electronics Co., LTD.
No. 2:24-cv-00828-JRG (E.D. Tex.)
Defendants' Invalidity Contentions – Appendix G-1

Challenged Claims	Exception to Eligibility	
	about one or more past conversations with the user;	-The identity of the speaker -The Claim Chart that the receiver had been working on for the speaker.
	[1D] determining an intended meaning for the utterance, wherein determining the intended meaning for the utterance includes:	Individual determines an intended meaning for the utterance by:
	[1D.1] identifying, at a conversational speech engine, a context associated with the utterance from the short-term shared knowledge and the long-term shared knowledge; and	Identifying that the context for the utterance is associated with the work that the Individual had been doing for the speaker on the '681 patent in the <i>VB Assets</i> case.
	[1D.2] establishing the intended meaning within the identified context, wherein the conversational speech engine establishes the intended meaning within the identified context to disambiguate an intent that the user had in speaking the one or more words that have the different meanings in the different contexts; and	Identifying that the speaker was asking whether the Individual's work on the preliminary ineligibility claim chart for the '681 patent had been completed.
	[1E] generating a response to the utterance, wherein the conversational speech engine grammatically or syntactically adapts the response based on the intended meaning established within the identified context.	Responding: "No, not yet. I have been busy. I hope to revert it to you by next week."

Challenged Claims	Exception to Eligibility
	<p>The named inventors of the 681 patent have admitted that the objectives of the '681 patent are to mimic quintessential human behavior. On the same day that the authors of the '681 patent filed the corresponding application, they published a marketing paper titled “Enhancing the VUE (Voice-User-Experience) Through Conversational Speech. In that publication, the authors explain how human-to-computer speech should, ideally, “follow the same model of human-to-human conversation” described in a 1975 paper, <i>Logic and Conversation</i>, by H.P. Grice, a philosopher of language. The Grice paper, in turn, described basic principles of human-to-human conversations, including that to understand an utterance, the hearer needs to know the “context, linguistic or otherwise, of the utterance,” and that the parties to a conversation must know that certain background knowledge and context “are available to both participants”</p> <p>These concessions were also admitted in the testimony provided by the named inventors under oath in parallel proceedings. For example, Thomas Freeman, a named inventor of the '681 patent, described how the '681 patent simply attempted to perform on a computer the principles that were discussed by Paul Grice more than four decades prior:</p> <p>Q. If we look at this from this paper you wrote with Mr. Baldwin, you're laying out here the principle of a cooperative conversation that Mr. Grice described in his paper in 1975, right?</p> <p>A. Correct.</p> <p>Q. And that included this notion of the parties in a conversation using shared knowledge, right?</p> <p>A. Correct again.</p> <p>Q. And that included both long-term shared knowledge and short-term shared knowledge, correct?</p> <p>A. Correct.</p> <p>Q. And so the notion of -- the importance of using long-term and short-term shared knowledge to understand what</p>

Challenged Claims	Exception to Eligibility
	<p>is being said in a conversation is something that you got from Mr. Grice; right?</p> <p>A. This was part of the intellectual averment, and this was a very useful way of sharpening our vocabulary around this, the answer is yes, sir.</p> <p>Q. I just want to be clear, this was Mr. Grice's idea, that wasn't your idea?</p> <p>A. Correct.</p> <p>Q. And then it talks about hypothesis building, intent determination, that also came from Mr. Grice's paper?</p> <p>A. Correct.</p> <p>Q. And adaptive response, that also came from Mr. Grice's paper?</p> <p>A. Correct.</p> <p>Q. And this marketing paper where you describe these principles that Mr. Grice had laid out, this is essentially the '681 patent in ordinary language, right?</p> <p>A. So this is '681 but '681 takes this to a machine, as opposed to human to human.</p> <p>Q. So what you did in the '681 patent is you said let's take all these ideas from Mr. Grice about a cooperative conversation, and let's propose that we should do the same thing when we talk to computers; right?</p> <p>A. Yes, sir. And he's attributed in the '681.</p> <p>Q. Actually when you went -- here in this paper you cite to Mr. Grice, if you look at the references in the back, can we look at page 7, please, Mr. Patterson, and blow up that first reference there.</p> <p>You credit Mr. Grice's paper here in this marking material you wrote, correct?</p>

VB Assets, LLC, v. Samsung Electronics Co., LTD.
No. 2:24-cv-00828-JRG (E.D. Tex.)
Defendants' Invalidity Contentions – Appendix G-1

Challenged Claims	Exception to Eligibility
	<p>A. Yes.</p> <p>Q. But when you filed the '681 patent, you didn't say anything about Mr. Grice, did you?</p> <p>A. We attributed the view paper, and the view paper attributes this.</p> <p>Q. There was nothing in the patent itself that says that these ideas about using long-term shared knowledge and short-term shared knowledge and intent determination and adapting a response, that that all came from Mr. Grice, that's not anywhere in your patent, is it?</p> <p>A. Well, it is attributed to the -- the paper is attributed, and the paper attributes that.</p> <p>Q. So you're saying -- just to be clear, Mr. Grice's article did not provide --</p> <p>A. Say again?</p> <p>Q. Mr. Grice's article that you got all these ideas from, you did not provide that to the Patent Office during the prosecution of the '681 patent, correct?</p> <p>A. It was included by reference.</p> <p>Q. Well it wasn't included by reference, what was included by reference was your view paper?</p> <p>A. Correct.</p> <p>Q. There is no reference in the '681 patent to Mr. Grice, or the paper you copied those ideas from, correct?</p> <p>A. There was no attempt to deny Mr. Grice's contribution.</p> <p>Q. I understand that, sir, and I'm not saying you were attempting to deny his contribution, I just want to state the facts. The fact is that the patent that you filed, the</p>

VB Assets, LLC, v. Samsung Electronics Co., LTD.
No. 2:24-cv-00828-JRG (E.D. Tex.)
Defendants' Invalidity Contentions – Appendix G-1

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	<p>'681 patent, doesn't say anywhere that these ideas came from Mr. Grice, correct?</p> <p>A. I disagree.</p> <p>Q. Well, do you want to look at the patent and show me where Mr. Grice's name appears?</p> <p>A. So it is in the reference to the view paper, and the view paper attributes him.</p> <p>Q. So you're saying if someone found the view paper and read it, they would figure out that actually these ideas came from Mr. Grice, but you didn't tell the Patent Office that, correct?</p> <p>A. We were talking about implementing a lot of these ideas in a machine, and that as such, that was less important.</p> <p><i>Trial Tr. 288:8-292:4</i></p> <p><i>VB Assets v. Amazon.com Services LLC</i>, No. 19-cv-01410, at ECF No. 304 (D. Del. Dec. 12, 2023)</p> <p>That the patent claims performing this process using electronic devices and off-the-shelf speech recognition software or hardware does not change the ultimate conclusion that the patent, like all the '681 family patents, is directed to the abstract idea of improving natural language processing using long-known conversational principles. Indeed, the Federal Circuit has repeatedly held that a patent is directed to an abstract idea when the claimed invention simply automates via computer a process that has been and can be effectuated by humans. <i>See CyberSource Corp., v. Retail Decisions, Inc.</i>, 654 F.3d 1366, 1373 (Fed. Cir. 2011). <i>See also Voter Verified, Inc. v. Election Sys. & Software LLC</i>, 887 F.3d 1376, 1385 (Fed. Cir. 2018) (holding patent claims directed to auto-verification of a ballot to be abstract because “[h]umans have performed [the act of voting] . . . for hundreds of years.”); <i>Repifi Vendor Logistics, Inc. v. IntelliCentrics, Inc.</i>, 2022 WL 794981, *2-3 (Fed. Cir. 2022) (claims were “directed to the</p>

VB Assets, LLC, v. Samsung Electronics Co., LTD.
No. 2:24-cv-00828-JRG (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

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	<p>abstract idea of credentialing visitors and checking them in and out”—a “long-standing human process” (quotation marks omitted)); <i>CardioNet, LLC v. InfoBionic, Inc.</i>, 816 F. App’x 471, 476–77 (Fed. Cir. 2020) (measuring heart data claims abstract because process “could otherwise be performed by a human”); <i>Perry St. Software, Inc. v. Jedi Techs., Inc.</i>, 548 F. Supp. 3d 418, 432 (S.D.N.Y. 2021) (“Jedi seeks to apply these age-old processes to the context of internet chatrooms. But facilitating human interactions or relationships – which could occur offline and without automation – is not a patent-eligible idea. It is, as Judge Sleet found in connection with Jedi’s earlier patents, nothing more than the mechanization of traditional processes designed to satisfy humanity’s desire for companionship.”)</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Pursuant to Judge Gilstrap’s Standing Order Regarding Subject Matter Eligibility Contentions, Samsung provides the following chart identifying a description of the industry, at the relevant time, in which the Challenged Claims are alleged to be well understood, routine, and conventional, and the factual and legal basis therefor; and a description of how each element of each Challenged Claim, both individually and in combination with the other elements of that claim, was well understood, routine, and conventional, in the relevant industry at the relevant time, and the legal and factual basis therefor.¹

The claims of the ’681 patent amount to nothing more than the practice of an abstract idea using conventional (even as of 2006) electronics. Such claims are not eligible for patent under current Section 101 jurisprudence. *See, e.g., Alice*, 573 U.S. at 223, 134 S.Ct. 2347 (“[T]he mere recitation of a generic computer cannot transform a patent-ineligible abstract idea into a patent-eligible invention.”); *BSG Tech.*, 899 F.3d at 1290-91 (“If a claim’s only ‘inventive concept’ is the application of an abstract idea using conventional and well-understood techniques, the claim has not been transformed into a patent-eligible application of an abstract idea.”).

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
[1P] A method for providing a cooperative conversational voice user interface, comprising:	Methods of providing a voice user interface were well understood, routine, and conventional in the relevant industry at the relevant time. For example, the intrinsic record, including the specification of the ’681 patent, discloses that numerous voice user interfaces existed as of the time of the ’681 patent. <i>See, e.g., ’681 patent at 1:38-44:</i>

¹ Samsung notes that under Supreme Court and Federal Circuit precedent, the Court need not, and should not, consider whether each and every element of each Challenged Claim was well understood, routine, and conventional. Rather, the only elements which should be considered under *Alice* step 2 are the elements that fall outside the scope of the abstract idea. *See Alice Corp. v. CLS Bank Int’l*, 573 U.S. 208, 221-224 (2014); *BSG Tech LLC v. BuySeasons, Inc.*, 899 F.3d 1281, 1290 (Fed. Cir. 2018) (“It has been clear since *Alice* that a claimed invention’s use of the ineligible concept to which it is directed cannot supply the inventive concept that renders the invention ‘significantly more’ than that ineligible concept.”). Here, element falls within the same abstract idea claimed by the patent generally.

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>“Incorporating a speech interface helps to alleviate this burden by making interaction easier and faster, but existing speech interfaces (when they actually work) still require significant learning on the part of the user. That is, existing speech interfaces are unable to bridge the gap between archaic Human-to-Machine interfaces and conversational speech that would make interaction with systems feel normal.”</p> <p>Additionally, '681 patent at 1:50-55 states:</p> <p>“Existing speech interfaces force users to dumb down their requests to match simple sets of instructions in simple languages in order to communicate requests in ways that systems can understand. Using existing speech interfaces, there is virtually no option for dialogue between the user and the system to satisfy mutual goals.”</p> <p>The '681 patent also discloses numerous prior art references that discuss or disclose voice-user interfaces, such as:</p> <ul style="list-style-type: none"> • Chai et al., “Mind: A Semantics-Based Multimodal Interpretation Framework for Conversational System.” Proceedings of the International CLASS Workshop on Natural, Intelligent and Effective Interaction in Multimodal Dialogue Systems, Jun. 2002, pp. 37-46. • Turunen, "Adaptive Interaction Methods in Speech User Interfaces." Conference on Human Factors in Computing Systems, Seattle, Washington, 2001, pp. 91-92. • Lin, Bor-shen, et al., “A Distributed Architecture for Cooperative Spoken Dialogue Agents with Coherent Dialogue State and History.” ASRU'99, 1999.

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>Additional excerpts from the ’681 patent highlight the conventional nature of these voice-user interfaces:</p> <ul style="list-style-type: none"> • “Incorporating a speech interface helps to alleviate this burden by making interaction easier and faster, but existing speech interfaces (when they actually work) still require significant learning on the part of the user. That is, existing speech interfaces are unable to bridge the gap between archaic Human-to-Machine interfaces and conversational speech that would make interaction with systems feel normal.” (’681 patent at 1:38-44). • “According to another aspect of the invention, an exemplary cooperative conversational model may build upon free-form voice search, noise tolerance, and context determination to implement a conversational Human-to-Machine interface that reflects human interaction and normal conversational behavior.” (’681 patent at 15:33-38). • “Cooperative conversational model 300 may build upon free-form voice search 245, noise tolerance 250, and context determination 255 to implement a conversational Human-to-Machine interface that reflects how humans interact with each other and their normal behavior in conversation.” (’681 patent at 13:13-18). <p>Finally, the ’681 patent specification barely mentions, let alone describes, the hardware used to implement the claims. To the extent any hardware is disclosed, it is generic, consisting of devices such as a microphone to receive the utterance or a speaker to deliver the generated response (’681 patent at 7:10-12, 17:26-28). Such devices were standard technology at the time of the invention, and thus, the claims of the ’681 patent do not recite any improvement in computer technology.</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	Accordingly, the claims of the '681 patent merely implement known methods of voice user interfaces using generic hardware, without any inventive concept or technological advancement.
[1A] receiving an utterance at a voice input device during a current conversation with a user, wherein the utterance includes one or more words that have different meanings in different contexts;	<p>The claimed method of receiving an utterance at a voice input device containing words with different meanings in different contexts was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how to receive an utterance at a voice input device containing words with different meanings in different contexts. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>For example, the intrinsic record describes how “[t]he utterance component of input 105 may be processed by a speech recognition engine 110 (which may alternatively be referred to herein as Automatic Speech Recognizer 110, or as shown in FIG. 1, ASR 110) to generate one or more preliminary interpretations of the utterance. The speech recognition engine 110 may process the utterance using any suitable technique known in the art. For example, in one implementation, the speech recognition engine 110 may interpret the utterance using techniques of phonetic dictation to recognize a phoneme stream, as described in U.S. patent application Ser. No. 11/513,269, entitled ‘Dynamic Speech Sharpening,’ filed Aug. 31, 2006, which issued as U.S. Pat. No. 7,634,409 on Dec. 15, 2009, and which is hereby incorporated by reference in its entirety. The one or more preliminary interpretations generated by the speech recognition engine 110 may then be provided to a conversational speech engine 115 for further processing. Conversational speech engine 115 may include a</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>conversational language processor 120 and/or a voice search engine 125, described in greater detail in FIG. 2 below.” (’681 patent at 7:24-43).</p> <ul style="list-style-type: none"> • “Existing speech interfaces force users to dumb down their requests to match simple sets of instructions in simple languages in order to communicate requests in ways that systems can understand. Using existing speech interfaces, there is virtually no option for dialogue between the user and the system to satisfy mutual goals.” (’681 patent at 1:50-55). • “The utterance component of input 105 may be processed by a speech recognition engine 110 (which may alternatively be referred to herein as Automatic Speech Recognizer 110, or as shown in FIG. 1, ASR 110) to generate one or more preliminary interpretations of the utterance. The speech recognition engine 110 may process the utterance using any suitable technique known in the art.” (’681 patent at 7:24-43). <p>It was well known at the time of the ’681 patent that words could have different meanings in different contexts:</p> <ul style="list-style-type: none"> • Baldwin and Freeman (2006) disclose that “Intent Determination, or meaning, is derived in a large part from the context behind the person’s request.” They further explain that “Meaning is established within the context of a conversation.” • Grice (1975) discloses that to understand an utterance, the hearer needs to know the “context, linguistic or otherwise, of the utterance,” and that the parties to a conversation must know that certain background knowledge and context “are available to both participants”

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>Accordingly, the ‘681 patent does not introduce any new or inventive concept but instead applies well-known principles of speech recognition and contextual interpretation using conventional techniques.</p> <p>The handling of ambiguous language input at voice recognition devices was a known challenge addressed in earlier references such as <i>Spoken Language Processing: A Guide to Theory, Algorithm, and System Development</i> by Xuedong Huang, Alex Acero, and Hsiao-Wuen Hon (2001), which discusses voice input processing, word ambiguity, and context handling.</p>
<p>[1B] accumulating short-term shared knowledge about the current conversation, wherein the short-term shared knowledge includes knowledge about the utterance received during the current conversation;</p>	<p>The claimed method of accumulating short-term shared knowledge about the current conversation, including knowledge about the utterance received, was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how to accumulate short-term shared knowledge about the current conversation, including knowledge about the utterance received. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>For example, the intrinsic record describes how “just as humans rely on knowledge shared by participants to examine how much and what kind of information was available, Intelligent Hypothesis Builder 310 may leverage the identified conversation type and short-term and long-term shared knowledge to generate a degree of certainty for each hypothesis.” (‘681 patent at 15:49-52).</p> <p>The ‘681 patent further states:</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<ul style="list-style-type: none"> • "Moreover, because cooperative conversations model human conversations, short-term session data may be expired after a psychologically appropriate amount of time, thereby humanizing system behavior." 681 patent at 13:58-62). • "For example, humans frequently remember a number of recent utterances, especially when one or more previous utterances were misrecognized or unrecognized. Another participant in the conversation may limit correction to a part of the utterance that was misrecognized or unrecognized, or over subsequent utterances and/or other interactions, clues may be provided to indicate the initial interpretation was incorrect. Thus, by storing and analyzing multiple utterances, utterances from earlier in a conversation may be corrected as the conversation progresses." (' 681 patent at 6:30-39). • "Moreover, because cooperative conversations 300 model human conversations, short-term session data may be expired after a psychologically appropriate amount of time, thereby humanizing system behavior. For example, a human is unlikely to recall a context of a conversation from two years ago, but because the context would be identifiable by a machine, session context is expired after a predetermined amount of time to reduce a likelihood of contextual confusion based on stale data." (' 681 patent at 13:58-14:2). • "For example, humans frequently remember a number of recent utterances, especially when one or more previous utterances were misrecognized or unrecognized." (' 681 patent at 18:44-47). <p>Freeman and Baldwin (2006) disclose how cooperative conversation concepts were first described by Paul Grice in 1975 and how human-to-computer speech should, ideally, "follow the same model of human-to-human conversation"</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>described in Grice’s paper <i>Logic and Conversation</i> (1975). In explaining Grice, Freeman and Baldwin state, “There is shared short-term (session) knowledge about what the user has said, what they have done and where they are.”</p> <p>Further, the inventors of the ’681 patent have admitted under oath that the idea of “short-term” and “long-term” shared knowledge is well understood, routine, and conventional:</p> <p style="padding-left: 40px;">Q. And so the notion of—the importance of using long-term and short-term shared knowledge to understand what is being said in a conversation is something that you got from Mr. Grice; right?</p> <p style="padding-left: 40px;">A. This was part of the intellectual averment, and this was a very useful way of sharpening our vocabulary around this, the answer is yes, sir.</p> <p style="padding-left: 40px;">Q. I just want to be clear, this was Mr. Grice's idea, that wasn't your idea?</p> <p style="padding-left: 40px;">A. Correct.</p> <p><i>(Trial Tr. 289:4-16, VB Assets v. Amazon.com Services LLC, No. 19-cv-01410, at ECF No. 304 (D. Del. Dec. 12, 2023).)</i></p> <p>Accordingly, the ’681 patent does not introduce any new or inventive concept but instead applies well-known principles of short-term and long-term shared knowledge using conventional techniques.</p> <p>The concept of maintaining and updating short-term conversational context was widely recognized in the field, as reflected in <i>Dialogue Systems: Technology and Design</i> by Michael McTear (2004), which discusses the tracking and updating of dialogue context during interactions.</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
<p>[1C] accumulating long-term shared knowledge about the user, wherein the long-term shared knowledge includes knowledge about one or more past conversations with the user;</p>	<p>The claimed method of accumulating long-term shared knowledge about the user, including knowledge about one or more past conversations, was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how to accumulate long-term shared knowledge about the user, including knowledge about one or more past conversations. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>The idea of maintaining user profiles and long-term conversational history was a common practice in dialogue systems and user modeling, as described in <i>User Modeling and User-Adapted Interaction</i> by Alfred Kobsa and Wolfgang Wahlster.</p> <p>For example, the intrinsic record describes how “just as humans rely on knowledge shared by participants to examine how much and what kind of information was available, Intelligent Hypothesis Builder 310 may leverage the identified conversation type and short-term and long-term shared knowledge to generate a degree of certainty for each hypothesis.” (’681 patent at 15:49-54).</p> <p>The intrinsic record also states:</p> <ul style="list-style-type: none"> • “That is, just as humans rely on knowledge shared by participants to examine how much and what kind of information was available, the intelligent hypotheses may leverage the identified conversation type and shared knowledge to generate a degree of certainty for each hypothesis.” (’681 patent at 5:55-60).

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>Freeman and Baldwin (2006) disclose how cooperative conversation concepts were first described by Paul Grice in 1975 and how human-to-computer speech should, ideally, “follow the same model of human-to-human conversation” described in Grice’s 1975 paper <i>Logic and Conversation</i>. In explaining Grice, Freeman and Baldwin state that there is “long-term shared knowledge which is user-centric rather than session-based, such as who they are, their preferences, history of what they’ve done and said, and where they have been.”</p> <p>Finally, the inventors of the ’681 patent have admitted under oath that the idea of “short-term” and “long-term” shared knowledge is well understood, routine, and conventional:</p> <p style="padding-left: 40px;">Q. And so the notion of—the importance of using long-term and short-term shared knowledge to understand what is being said in a conversation is something that you got from Mr. Grice; right?</p> <p style="padding-left: 40px;">A. This was part of the intellectual averment, and this was a very useful way of sharpening our vocabulary around this, the answer is yes, sir.</p> <p style="padding-left: 40px;">Q. I just want to be clear, this was Mr. Grice's idea, that wasn't your idea?</p> <p style="padding-left: 40px;">A. Correct.</p> <p><i>(Trial Tr. 289:4-16, VB Assets v. Amazon.com Services LLC, No. 19-cv-01410, at ECF No. 304 (D. Del. Dec. 12, 2023).)</i></p> <p>Accordingly, the ’681 patent does not introduce any new or inventive concept but instead applies well-known principles of long-term shared knowledge using conventional techniques.</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
<p>[1D] determining an intended meaning for the utterance, wherein determining the intended meaning for the utterance includes:</p>	<p>There is no technical disclosure or explanation in the specification about how to determine an intended meaning for the utterance. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>The task of interpreting intended meaning from spoken language input was widely covered in foundational works such as <i>Foundations of Statistical Natural Language Processing</i> by Christopher D. Manning and Hinrich Schütze (1999), which discusses disambiguation and meaning inference based on linguistic context.</p> <p>As the authors of the ’681 patent disclosed in 2006, “Intent Determination, or meaning, is derived in a large part from the context behind the person’s request.”</p> <p>Freeman and Baldwin (2006) disclose how cooperative conversation concepts were first described by Paul Grice in 1975 and how human-to-computer speech should, ideally, “follow the same model of human-to-human conversation” described in Grice’s 1975 paper, <i>Logic and Conversation</i>.</p> <p>In <i>Logic and Conversation</i>, Grice explains how determining an intended meaning, which he referred to as “conversational implicature,” requires that “the hearer will rely on the following data: (1) the conventional meaning of the words used, together with the identity of any references that may be involved; (2) the CP and its maxims; (3) the context, linguistic or otherwise, of the utterance; (4) other items of background knowledge; and (5) the fact (or supposed fact) that all</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>relevant items falling under the previous headings are available to both participants and both participants know or assume this to be the case.”</p> <p>Similarly, the ’681 patent describes concepts such as short-term and long-term shared knowledge, but there is no technical disclosure or explanation in the specification about how the claimed invention purportedly accumulates and processes this knowledge. This further confirms that these processes were well understood, routine, and conventional at the time.</p> <p>The intrinsic record states:</p> <ul style="list-style-type: none"> • “That is, just as humans rely on knowledge shared by participants to examine how much and what kind of information was available, the intelligent hypotheses may leverage the identified conversation type and shared knowledge to generate a degree of certainty for each hypothesis.” (’681 patent at 5:55-60). • “Just as humans rely on knowledge shared by participants to examine how much and what kind of information was available, Intelligent Hypothesis Builder 310 may leverage the identified conversation type and short-term and long-term shared knowledge to generate a degree of certainty for each hypothesis.” (’681 patent at 15:49-54). <p>Despite referencing these processes, the ’681 patent does not provide a technical explanation for how the claimed methods actually function to accumulate or process shared knowledge. This further demonstrates that the claimed methods were well understood, routine, and conventional in the relevant industry at the relevant time.</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>Finally, the inventors of the ’681 patent have admitted under oath that the idea of “short-term” and “long-term” shared knowledge is well understood, routine, and conventional:</p> <p style="padding-left: 40px;">Q. And so the notion of—the importance of using long-term and short-term shared knowledge to understand what is being said in a conversation is something that you got from Mr. Grice; right?</p> <p style="padding-left: 40px;">A. This was part of the intellectual averment, and this was a very useful way of sharpening our vocabulary around this, the answer is yes, sir.</p> <p style="padding-left: 40px;">Q. I just want to be clear, this was Mr. Grice's idea, that wasn't your idea?</p> <p style="padding-left: 40px;">A. Correct.</p> <p><i>(Trial Tr. 289:4-16, VB Assets v. Amazon.com Services LLC, No. 19-cv-01410, at ECF No. 304 (D. Del. Dec. 12, 2023).)</i></p> <p>Accordingly, the ’681 patent does not introduce any new or inventive concept but instead applies well-known principles of intent determination and shared knowledge using conventional techniques, without providing any technical disclosure or explanation of how these functions are performed.</p>
<p>[1E] identifying, at a conversational speech engine, a context associated with the utterance from the short-term shared knowledge and the long-term shared knowledge; and</p>	<p>The claimed method of identifying, at a conversational speech engine, a context associated with the utterance from the short-term shared knowledge and the long-term shared knowledge was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how to identify, at a conversational speech engine, a context associated with the</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>utterance from the short-term shared knowledge and the long-term shared knowledge. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>Techniques for leveraging both short-term and long-term conversational context were standard practice in the field, as detailed in <i>Spoken Dialogue Systems</i> by Michael McTear (2004), which discusses methods for context identification using accumulated conversational data.</p> <p>To the extent that the claimed “conversational speech engine” relates to an “automated speech engine,” Michael Kennewick, a principal of VB Assets and a former officer of VoiceBox, has admitted that these engines were “commodity products” at the time of the priority date of this patent:</p> <p style="padding-left: 40px;">Q. And that software section, let's go to the next page, 0194. And if we could on that page, if you could put just the top paragraph on the screen. And kind of put it to the side so you can see both at the same time. During the opening by Amazon's counsel, you indicated that the original Cybermind used some software from IBM, did you hear that?</p> <p style="padding-left: 40px;">A. Yes.</p> <p style="padding-left: 40px;">Q. What was that, sir?</p> <p style="padding-left: 40px;">A. That was a component called the ASR, Automated Speech recognition engine, and that was pretty much a commodity product at the same time.</p> <p><i>(Trial Tr. 147:18-148:3, VB Assets v. Amazon.com Services LLC, No. 19-cv-01410, at ECF No. 304 (D. Del. Dec. 12, 2023).)</i></p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>Similarly, Thomas Freeman, an inventor of the '681 patent, has admitted that the so-called conversational speech engine was well understood, routine, and conventional at the time of the priority date of the '681 patent:</p> <p style="padding-left: 40px;">Q. Let's look at the patent again, please, Mr. Patterson, JTX-003. And let's look at Claim 40. Did you invent a conversational language processor?</p> <p style="padding-left: 40px;">A. Did I invent a conversational language processor?</p> <p style="padding-left: 40px;">Q. Yes, sir.</p> <p style="padding-left: 40px;">A. I did not.</p> <p><i>(Trial Tr. 284:2-8, VB Assets v. Amazon.com Services LLC, No. 19-cv-01410, at ECF No. 304 (D. Del. Dec. 12, 2023).)</i></p> <p>What disclosures do exist in the specification relating to this limitation indicate that what is claimed is the idea of achieving the claimed objective of identifying a context, describing that process simply as being achieved in the same way it is achieved by the human mind, e.g.:</p> <ul style="list-style-type: none"> • “Moreover, just as in human-to-human conversation, users may switch contexts at any time without confusion, enabling various context domains to be rapidly selected, without menu-driven dead ends, when an utterance is unambiguous.” ('681 patent at 4:28-32). • “Just as humans rely on knowledge shared by participants to examine how much and what kind of information was available, Intelligent Hypothesis Builder 310 may leverage the identified conversation type and short-term and long-term shared knowledge to generate a degree of certainty for each hypothesis.” ('681 patent at 15:49-54).

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<ul style="list-style-type: none"> • “Just as humans rely on knowledge shared by participants to examine how much and what kind of information was available, the intelligent hypotheses may leverage the identified conversation type and shared knowledge to generate a degree of certainty for each hypothesis.” (’681 patent at 5:55-60). • “Thus, just as in human-to-human conversation, context domains may be rapidly selected, without menu-driven dead ends, when an utterance is unambiguous.” (’681 patent at 12:61-63). • “In addition, Intelligent Hypothesis Builder 310 may model human-to-human interaction by calculating a degree of certainty for each of the hypotheses.” (’681 patent at 15:47-49). • “The hypotheses may model human-to-human interaction to include a varying degree of certainty for each hypothesis.” (’681 patent at 5:53-55). • “According to another aspect of the invention, an exemplary cooperative conversational model may build upon free-form voice search, noise tolerance, and context determination to implement a conversational Human-to-Machine interface that reflects human interaction and normal conversational behavior.” (’681 patent at 15:33-38). • “Cooperative conversational model 300 may build upon free-form voice search 245, noise tolerance 250, and context determination 255 to implement a conversational Human-to-Machine interface that reflects how humans interact with each other and their normal behavior in conversation.” (’681 patent at 13:13-18). <p>Further, Freeman and Baldwin (2006) disclose how cooperative conversation concepts were first described by Paul Grice in 1975 and how human-to-computer speech should, ideally, “follow the same model of human-to-human conversation” described in Grice’s 1975 paper, <i>Logic and Conversation</i>. In</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>explaining Grice, Freeman and Baldwin state that there is “long-term shared knowledge which is user-centric rather than session-based, such as who they are, their preferences, history of what they’ve done and said, and where they have been.”</p> <p>In <i>Logic and Conversation</i>, Grice explains how determining an intended meaning, which he referred to as “conversational implicature,” requires that “the hearer will rely on the following data: (1) the conventional meaning of the words used, together with the identity of any references that may be involved; (2) the CP and its maxims; (3) the context, linguistic or otherwise, of the utterance; (4) other items of background knowledge; and (5) the fact (or supposed fact) that all relevant items falling under the previous headings are available to both participants and both participants know or assume this to be the case.”</p> <p>There is no technical disclosure or explanation in the specification about how the claimed conversational speech engine functions to identify a context associated with an utterance. This further confirms that such processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p>
<p>[1F] establishing the intended meaning within the identified context, wherein the conversational speech engine establishes the intended meaning within the identified context to disambiguate an intent that the user had in speaking the one or more words that have the different meanings in the different contexts; and</p>	<p>The claimed method of establishing the intended meaning within the identified context to disambiguate a user's intent was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how to establish the intended meaning within the identified context to disambiguate a user's intent. This lack of technical detail indicates that these processes were well</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>The disambiguation of user intent based on conversational context was a well-known approach, as described in <i>Natural Language Understanding</i> by James Allen (2nd edition, 1995), which covers techniques for interpreting ambiguous language through contextual analysis.</p> <p>To the extent that the claimed “conversational speech engine” relates to an “automated speech engine,” Michael Kennewick, a principal of VB Assets and a former officer of VoiceBox, has admitted that these engines were “commodity products” at the time of the priority date of this patent:</p> <p style="padding-left: 40px;">Q. And that software section, let's go to the next page, 0194. And if we could on that page, if you could put just the top paragraph on the screen. And kind of put it to the side so you can see both at the same time. During the opening by Amazon's counsel, you indicated that the original Cybermind used some software from IBM, did you hear that?</p> <p style="padding-left: 40px;">A. Yes.</p> <p style="padding-left: 40px;">Q. What was that, sir?</p> <p style="padding-left: 40px;">A. That was a component called the ASR, Automated Speech recognition engine, and that was pretty much a commodity product at the same time.</p> <p><i>(Trial Tr. 147:18-148:3, VB Assets v. Amazon.com Services LLC, No. 19-cv-01410, at ECF No. 304 (D. Del. Dec. 12, 2023).)</i></p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>Similarly, Thomas Freeman, an inventor of the ’681 patent, has admitted that the so-called conversational speech engine was well understood, routine, and conventional at the time of the priority date of the ’681 patent:</p> <p style="padding-left: 40px;">Q. Let's look at the patent again, please, Mr. Patterson, JTX-003. And let's look at Claim 40. Did you invent a conversational language processor?</p> <p style="padding-left: 40px;">A. Did I invent a conversational language processor?</p> <p style="padding-left: 40px;">Q. Yes, sir.</p> <p style="padding-left: 40px;">A. I did not.</p> <p><i>(Trial Tr. 284:2-8, VB Assets v. Amazon.com Services LLC, No. 19-cv-01410, at ECF No. 304 (D. Del. Dec. 12, 2023).)</i></p> <p>What disclosures do exist in the specification relating to this limitation indicate that what is claimed is the idea of achieving the claimed objective of identifying a context, describing that process simply as being achieved in the same way it is achieved by the human mind, e.g.:</p> <ul style="list-style-type: none"> • “Moreover, just as in human-to-human conversation, users may switch contexts at any time without confusion, enabling various context domains to be rapidly selected, without menu-driven dead ends, when an utterance is unambiguous.” (’681 patent at 4:28-32). • “Just as humans rely on knowledge shared by participants to examine how much and what kind of information was available, Intelligent Hypothesis Builder 310 may leverage the identified conversation type and short-term and long-term shared knowledge to generate a degree of certainty for each hypothesis.” (’681 patent at 15:49-54).

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<ul style="list-style-type: none"> • “Just as humans rely on knowledge shared by participants to examine how much and what kind of information was available, the intelligent hypotheses may leverage the identified conversation type and shared knowledge to generate a degree of certainty for each hypothesis.” (’681 patent at 5:55-60). • “Thus, just as in human-to-human conversation, context domains may be rapidly selected, without menu-driven dead ends, when an utterance is unambiguous.” (’681 patent at 12:61-63). • “In addition, Intelligent Hypothesis Builder 310 may model human-to-human interaction by calculating a degree of certainty for each of the hypotheses.” (’681 patent at 15:47-49). • “The hypotheses may model human-to-human interaction to include a varying degree of certainty for each hypothesis.” (’681 patent at 5:53-55). • “According to another aspect of the invention, an exemplary cooperative conversational model may build upon free-form voice search, noise tolerance, and context determination to implement a conversational Human-to-Machine interface that reflects human interaction and normal conversational behavior.” (’681 patent at 15:33-38). • “Cooperative conversational model 300 may build upon free-form voice search 245, noise tolerance 250, and context determination 255 to implement a conversational Human-to-Machine interface that reflects how humans interact with each other and their normal behavior in conversation.” (’681 patent at 13:13-18).

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>Freeman and Baldwin (2006) disclose how cooperative conversation concepts were first described by Paul Grice in 1975 and how human-to-computer speech should, ideally, “follow the same model of human-to-human conversation” described in Grice’s 1975 paper, <i>Logic and Conversation</i>. In explaining Grice, Freeman and Baldwin state that there is “long-term shared knowledge which is user-centric rather than session-based, such as who they are, their preferences, history of what they’ve done and said, and where they have been.”</p> <p>In <i>Logic and Conversation</i>, Grice explains how determining an intended meaning, which he referred to as “conversational implicature,” requires that “the hearer will rely on the following data: (1) the conventional meaning of the words used, together with the identity of any references that may be involved; (2) the CP and its maxims; (3) the context, linguistic or otherwise, of the utterance; (4) other items of background knowledge; and (5) the fact (or supposed fact) that all relevant items falling under the previous headings are available to both participants and both participants know or assume this to be the case.”</p> <p>There is no technical disclosure or explanation in the specification about how the claimed conversational speech engine functions to identify a context associated with an utterance or how it establishes an intended meaning within that context. This further confirms that such processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p>
[1G] generating a response to the utterance, wherein the conversational speech engine grammatically or syntactically adapts the	The claimed method of generating a response to the utterance by grammatically or syntactically adapting the response based on the intended meaning established

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
<p>response based on the intended meaning established within the identified context.</p>	<p>within the identified context was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how to generate a response to the utterance by grammatically or syntactically adapting the response based on the intended meaning established within the identified context. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>The generation of grammatically correct and contextually appropriate responses was a well-established technique, as detailed in <i>Speech and Language Processing</i> by Daniel Jurafsky and James H. Martin (2000), which discusses natural language generation and the adaptation of responses based on the intended meaning and context.</p> <p>Freeman and Baldwin (2006) disclose how cooperative conversation concepts were first described by Paul Grice in 1975 and how human-to-computer speech should, ideally, “follow the same model of human-to-human conversation” described in Grice’s 1975 paper, <i>Logic and Conversation</i>. In <i>Logic and Conversation</i>, Grice explains how determining an intended meaning, which he referred to as “conversational implicature,” requires that “the hearer will rely on the following data: (1) the conventional meaning of the words used, together with the identity of any references that may be involved; (2) the CP and its maxims; (3) the context, linguistic or otherwise, of the utterance; (4) other items of background knowledge; and (5) the fact (or supposed fact) that all relevant items falling under the previous headings are available to both participants and both participants know or assume this to be the case.”</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>Freeman and Baldwin (2006) also disclose the step of an “adaptive response,” described as follows:</p> <p style="padding-left: 40px;">As in a human conversation, the response of the system should be based on how confident the system is that its conclusion is correct. If it is certain, it should just execute the request. If it is less than certain but the range of choices are few or none, it should execute. If it is less than certain and the choices are many, it should ask.</p> <p>Under oath, Mr. Freeman admitted that the described “adaptive response” from Freeman and Baldwin corresponds to the limitation in the claim:</p> <p style="padding-left: 40px;">Q. And this marketing paper where you describe these principles that Mr. Grice had laid out, this is essentially the '681 patent in ordinary language, right?</p> <p style="padding-left: 40px;">A. So this is '681 but '681 takes this to a machine, as opposed to human to human.</p> <p><i>(Trial Tr. 289:20-24, VB Assets v. Amazon.com Services LLC, No. 19-cv-01410, at ECF No. 304 (D. Del. Dec. 12, 2023).)</i></p> <p>And Mr. Freeman further confirmed that this concept of an “adaptive response” also came from Mr. Grice:</p> <p style="padding-left: 40px;">Q. And adaptive response, that also came from Mr. Grice's paper?</p> <p style="padding-left: 40px;">A. Correct.</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p><i>(Trial Tr. 289:17-19, VB Assets v. Amazon.com Services LLC, No. 19-cv-01410, at ECF No. 304 (D. Del. Dec. 12, 2023).)</i></p> <p>There is no technical disclosure or explanation in the specification about how the claimed method generates an adaptive response based on confidence levels or other parameters. This further confirms that the claimed method merely applies well-known conversational principles using conventional techniques that were well understood in the industry at the time.</p>
<p>[2] The method of claim 1, wherein accumulating the short-term shared knowledge about the current conversation includes populating a short-term context stack with information about the utterance received during the current conversation.</p>	<p>Claim 2 is ineligible for at least the reasons set forth above. <i>See</i> claim [1].</p> <p>The claimed method of populating a short-term context stack with information about the utterance received during the current conversation was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how to populate a short-term context stack with information about the utterance received during the current conversation. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>The use of stack-based models for managing conversational state was established in the field, as described in <i>Speech and Language Processing</i> by Daniel Jurafsky and James H. Martin (1st edition, 2000), which discusses dialogue state tracking and context management techniques.</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>There is no technical disclosure or explanation in the specification about how to populate a short-term context stack with information from the current conversation. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>Further, Freeman and Baldwin (2006) describe how cooperative conversation concepts were first outlined by Paul Grice in 1975 and how human-to-computer speech should, ideally, “follow the same model of human-to-human conversation” as described in Grice’s 1975 paper, <i>Logic and Conversation</i>. In this work, Grice emphasizes the importance of identifying “the goals that are central to conversation/communication.”</p>
<p>[3] The method of claim 2, wherein accumulating the short-term shared knowledge about the current conversation further includes expiring the information about the utterance from the short-term context stack after a psychologically appropriate amount of time.</p>	<p>Claim 3 is ineligible for at least the reasons set forth above. <i>See</i> claim [2].</p> <p>The claimed method of expiring information about the utterance from the short-term context stack after a psychologically appropriate amount of time was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how to expire information about the utterance from the short-term context stack after a psychologically appropriate amount of time. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p>

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>The management and timed expiration of conversational context based on models of human memory was discussed in <i>Cognitive Psychology and Its Implications</i> by John R. Anderson (6th edition, 2005), which covers theories of short-term memory decay and temporal dynamics relevant to managing transient information, as well as Michael McTear, <i>Spoken Dialogue Technology</i> (2004).</p> <p>Those disclosures that do exist demonstrate that what is claimed is simply an idea that achieves the cognitive function that is performed by humans every day:</p> <ul style="list-style-type: none"> • Moreover, because cooperative conversations model human conversations, short-term session data may be expired after a psychologically appropriate amount of time, thereby humanizing system behavior, reducing a likelihood of contextual confusion based on stale data, while also adding relevant information from an expired session context to long-term knowledge models (’681 patent at 4:65 – 5:4) • Moreover, because cooperative conversations 300 model human conversations, short-term session data may be expired after a psychologically appropriate amount of time, thereby humanizing system behavior. For example, a human is unlikely to recall a context of a conversation from two years ago, but because the context would be identifiable by a machine, session context is expired after a predetermined amount of time to reduce a likelihood of contextual confusion based on stale data. (’681 patent at 13:58-14:2) • “Thus, just as in human-to-human conversation, context domains may be rapidly selected, without menu-driven dead ends, when an utterance is unambiguous.” (’681 patent at 12:61-63). • The specification describes this “context stack” solely by reference to its function: “track[ing] conversation topics and attempt[ing] to fit a current

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>utterance into a most-recent context, next-most-recent topic.” (’681 patent at 11:41-43).</p> <p>Further, Freeman and Baldwin (2006) describe how the claimed context stack is purported to achieve exactly what humans do every day:</p> <p>“As in human conversation, the conversational speech system should know when a partial request is issued which is of relevance to the most recent context, (or, indeed, one of the most recent contexts under discussion) that the user's intent is most likely to be building on recently established context. This should be implemented as a context stack, which keeps track of the most recent topics of conversation and attempts to first fit the current utterance into a context it has understood recently. Most importantly, the current context stack should not constrain the user. All domains the system is aware of must be accessible, allowing the user to switch topics at any time, without system confusion.”</p> <p>Tom Freeman and Larry Baldwin, Enhancing the VUE™ (Voice-User-Experience) Through Conversational Speech, SAE Technical Paper Series (2006), at 5.</p>
<p>[4] The method of claim 3 wherein accumulating the long-term shared knowledge about the user includes updating one or more long-term profiles associated with the user to include information about the utterance received during the current</p>	<p>Claim 4 is ineligible for at least the reasons set forth above. <i>See</i> claim [3].</p> <p>The claimed method of updating one or more long-term profiles associated with the user to include information about the utterance received during the current conversation and relevant data associated with information expired from the</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
<p>conversation and relevant data associated with the information expired from the short, term context stack.</p>	<p>short-term context stack was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how to update one or more long-term profiles associated with the user to include information about the utterance received during the current conversation and relevant data associated with information expired from the short-term context stack. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>The concept of maintaining and updating user profiles with both recent and historical conversational data was established in the field, as described in <i>User Models in Dialog Systems</i>, Springer-Verlag (Kobsa & Wahlster eds., 1989), which discusses dynamic user modeling based on conversational interactions. Further, the management and timed expiration of conversational context based on models of human memory was discussed in <i>Cognitive Psychology and Its Implications</i> by John R. Anderson (6th edition, 2005), which covers theories of short-term memory decay and temporal dynamics relevant to managing transient information, as well as Michael McTear, <i>Spoken Dialogue Technology</i> (2004).</p> <p>The '681 patent describes long-term shared knowledge as part of a conventional process for tracking user interactions but does not disclose any novel method for structuring, updating, or applying this knowledge:</p> <p style="padding-left: 40px;">Just as humans rely on knowledge shared by participants to examine how much and what kind of information was available, Intelligent Hypothesis Builder 310 may leverage the identified</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>conversation type and short-term and long-term shared knowledge to generate a degree of certainty for each hypothesis.</p> <p><i>'681 patent at 15:49-54.</i></p> <p>Additionally, the '681 patent describes the process of updating shared knowledge in functional terms, without explaining how information is incorporated into long-term profiles.</p> <p>While the claim references updating long-term profiles with data from expired short-term contexts, the '681 patent does not describe any specific mechanism for how this transfer occurs, how relevance is determined, or what structure is used to maintain long-term profiles. The absence of any disclosed algorithm or technical process confirms that this step merely applies known user profiling and context-tracking techniques.</p> <p>Thus, the claimed method of accumulating long-term knowledge by updating profiles is well understood, routine, and conventional. The lack of specificity in how long-term knowledge is updated confirms that this step relies on standard data retention practices rather than providing any technological improvement.</p>
<p>[5P]. The method of claim 1, wherein determining the intended meaning for the utterance further includes:</p>	<p>Claim 5 is ineligible for at least the reasons set forth above. <i>See</i> claim [1].</p> <p>The claimed method of determining the intended meaning for the utterance was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how long-term profiles are updated to include information from the current conversation that has expired from the short-term context stack. This</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>demonstrates that it was well understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>Further, those disclosures that do exist demonstrate that what is claimed is simply an idea that achieves the cognitive function that is performed by humans every day:</p> <ul style="list-style-type: none"> • “Moreover, because cooperative conversations model human conversations, no may be expired after a psychologically appropriate amount of time, thereby humanizing system behavior, reducing a likelihood of contextual confusion based on stale data, while also adding relevant information from an expired session context to long-term knowledge models.” (’681 patent at 4:65 – 5:4). • “Moreover, because cooperative conversations 300 model human conversations, short-term session data may be expired after a psychologically appropriate amount of time, thereby humanizing system behavior. For example, a human is unlikely to recall a context of a conversation from two years ago, but because the context would be identifiable by a machine, session context is expired after a predetermined amount of time to reduce a likelihood of contextual confusion based on stale data.” (’681 patent at 13:58-14:2).
5[A] identifying a conversational goal associated with the utterance, roles associated with the user and one or more other participants in the current conversation, and an information allocation among the user and the one or more other participants in the current conversation; and	<p>The claimed method of identifying a conversational goal associated with the utterance, roles of the user and other participants, and information allocation among participants was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how to identify a conversational goal associated with the utterance, roles of the user and</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>other participants, and information allocation among participants. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>The identification of conversational goals, participant roles, and information flow was well-established, as discussed in <i>Spoken Dialogue Technology: Toward the Conversational User Interface</i> by Michael F. McTear (2004), and <i>Spoken Natural Language Dialogue Systems: A Practical Approach</i> by Ronnie W. Smith and D. Richard Hipp (1994), both of which explain techniques for modeling dialogue goals, participant roles, and the structure of conversational exchanges.</p> <p>The '681 patent describes conversational systems processing utterances and tracking context, but it does not disclose any specific method for identifying a conversational goal, user roles, or allocating information among participants:</p> <p style="padding-left: 40px;">“Just as humans rely on knowledge shared by participants to examine how much and what kind of information was available, Intelligent Hypothesis Builder 310 may leverage the identified conversation type and short-term and long-term shared knowledge to generate a degree of certainty for each hypothesis.” ('681 patent at 15:49-54).</p> <p>While this passage mentions leveraging conversation type and shared knowledge to interpret interactions, it does not describe how conversational goals, roles, or information distribution are identified or managed. Instead, it assumes pre-existing techniques for hypothesis scoring based on context.</p> <p>Additionally, the '681 patent states that conversational processing may involve user roles and shared knowledge, but it does not define how roles are assigned or how information is allocated among participants.</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>The claim does not specify how a conversational goal is determined, what criteria define user roles, or how information is distributed among participants. The absence of any algorithm or structured process for these functions confirms that this step relies on conventional methods of conversation tracking and role assignment rather than any novel technological advancement.</p> <p>Thus, the claimed method of identifying a conversational goal, user roles, and information allocation is well understood, routine, and conventional. The lack of specificity in how these elements are determined confirms that the claim merely describes known dialogue management practices without any disclosed technical improvement.</p>
<p>[5B] classifying one or more of the utterance or the current conversation into a conversation type based on one or more of the identified conversational goal, the identified roles, or the identified information allocation, wherein the conversational speech engine further establishes the intended meaning based on the conversation type.</p>	<p>The claimed method of classifying the utterance or the current conversation into a conversation type based on the identified conversational goal, identified roles, or identified information allocation, and establishing the intended meaning based on the conversation type, was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how to classify the utterance or the current conversation into a conversation type based on the identified conversational goal, identified roles, or identified information allocation, or how to establish the intended meaning based on the conversation type. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>The classification of conversations by type and the use of conversational goals, participant roles, and information structure to guide interpretation were established practices, as discussed in <i>Spoken Dialogue Technology: Toward the</i></p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p><i>Conversational User Interface</i> by Michael F. McTear (2004), and <i>Spoken Natural Language Dialogue Systems: A Practical Approach</i> by Ronnie W. Smith and D. Richard Hipp (1994), both of which describe dialogue system architectures that use conversation types and goals for managing and interpreting dialogue.</p> <p>Further, Freeman and Baldwin 2006 disclose how cooperative conversation concepts were first described by Paul Grice in 1975 and how human-to-computer speech should, ideally, “follow the same model of human-to-human conversation” described in a 1975 paper, <i>Logic and Conversation</i>, by Grice. One of those elements of “cooperativeness”, as identified by Freeman and Baldwin in 2006, was identifying “the type of conversation a user is having.” Namely, “is the conversation based on a request/command, learning, survey input, or is it a spontaneous exchange.” Tom Freeman and Larry Baldwin, <i>Enhancing the VUE™ (Voice-User-Experience) Through Conversational Speech</i>, SAE Technical Paper Series (2006), at 6.</p>
<p>[6] The method of claim 5 wherein the established intended meaning comprises a hypothesis having a degree of certainty about the intent that the user had in speaking the one or more words in the utterance.</p>	<p>Claim 6 is ineligible for at least the reasons set forth above. <i>See</i> claim [5].</p> <p>The claimed method of establishing an intended meaning comprising a hypothesis with a degree of certainty about the user's intent in speaking the utterance was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how to establish an intended meaning comprising a hypothesis with a degree of certainty about the user's intent. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>The use of hypothesis generation with associated certainty measures to interpret user intent in dialogue systems was a known approach, as discussed in <i>Spoken Dialogue Technology: Toward the Conversational User Interface</i> by Michael F. McTear (2004), <i>Spoken Natural Language Dialogue Systems: A Practical Approach</i> by Ronnie W. Smith and D. Richard Hipp (1994), and Hazen, T. J., Seneff, S., & Polifroni, J. (2002). <i>Recognition confidence scoring and its use in speech understanding systems</i>. Computer Speech & Language, 16(1), 49-67, all of which describe modeling conversational meaning as probabilistic or confidence-scored hypotheses.</p> <p>Further, those disclosures that do exist demonstrate that what is claimed is simply an idea that achieves the cognitive function that is performed by humans every day:</p> <ul style="list-style-type: none"> • “In addition, Intelligent Hypothesis Builder 310 may model human-to-human interaction by calculating a degree of certainty for each of the hypotheses.” (’681 patent at 15:47-49). • “The hypotheses may model human-to-human interaction to include a varying degree of certainty for each hypothesis.” (’681 patent at 5:53-55). • “Just as humans rely on knowledge shared by participants to examine how much and what kind of information was available, Intelligent Hypothesis Builder 310 may leverage the identified conversation type and short-term and long-term shared knowledge to generate a degree of certainty for each hypothesis.” (’681 patent at 15:49-54). • “Just as humans rely on knowledge shared by participants to examine how much and what kind of information was available, the intelligent hypotheses may leverage the identified conversation type and shared

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>knowledge to generate a degree of certainty for each hypothesis.” (’681 patent at 5:55-60).</p> <p>Freeman and Baldwin (2006) disclose how cooperative conversation concepts were first described by Paul Grice in 1975 and how human-to-computer speech should, ideally, “follow the same model of human-to-human conversation” described in Grice’s 1975 paper, <i>Logic and Conversation</i>. One of the elements of “cooperative conversation” as described by Freeman and Baldwin is the process of creating hypotheses with degrees of confidence over the recognition:</p> <p>“But if the system's recognition confidence for the criteria is low, or that there are a number of businesses with the name Admiral, Twin, and Admiral Twin with which it could be confused, the system is not at all sure that this is a good hypothesis ...</p> <p>System Reply: ‘Did you want a movie schedule for Admiral Twin Theater?’</p> <p>... and asks the user to direct the dialog with a ‘Yes’ or ‘No.’ In a multi-modal environment, alternatives could also be visually displayed.”</p> <p>Tom Freeman and Larry Baldwin, Enhancing the VUE™ (Voice-User-Experience) Through Conversational Speech, SAE Technical Paper Series (2006), at 7.</p>
<p>[7] The method of claim 6, further comprising generating a preliminary interpretation of the utterance at a speech recognition engine coupled to the voice input device and the conversational speech engine, wherein the conversational speech engine assigns the degree of certainty to</p>	<p>Claim 7 is ineligible for at least the reasons set forth above. <i>See</i> claim [6].</p> <p>The claimed method of generating a preliminary interpretation of the utterance at a speech recognition engine and assigning a degree of certainty to the hypothesis based on conversation type, identified context, or confidence level from the</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
<p>the hypothesis based on one or more of the conversation type, information associated with the identified context, or a confidence level associated with the preliminary interpretation generated at the speech recognition engine.</p>	<p>preliminary interpretation was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how to generate a preliminary interpretation of the utterance at a speech recognition engine and assign a degree of certainty to the hypothesis based on conversation type, identified context, or a confidence level associated with the preliminary interpretation. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>The generation of preliminary interpretations and the assignment of confidence scores were well-established techniques. Smith and Hipp's Spoken Natural Language Dialog Systems: A Practical Approach (1994) describes systems maintaining multiple hypotheses about user intent, each associated with a degree of certainty, to guide dialogue processing. McTear's Spoken Dialogue Technology (2004) similarly discusses the ranking of multiple hypotheses and the use of confidence thresholds to manage conversational state. Additional reinforcement is found in Hazen et al., Recognition confidence scoring and its use in speech understanding systems (2002), which explains a multi-tiered system computing phonetic, word, and utterance-level confidence scores to drive language understanding and dialogue actions. Moreover, Jiang's Confidence Measures for Speech Recognition: A Survey (2003) emphasizes that confidence measures are essential for robust natural language understanding and dialogue management by providing a quantitative estimate of hypothesis reliability.</p> <p>In addition, those disclosures that do exist demonstrate that what is claimed is simply an idea that achieves the cognitive function that is performed by humans every day:</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>In addition, Intelligent Hypothesis Builder 310 may model human-to-human interaction by calculating a degree of certainty for each of the hypotheses.</p> <p>’681 patent at 15:47-49.</p> <ul style="list-style-type: none"> • “Just as humans rely on knowledge shared by participants to examine how much and what kind of information was available, the intelligent hypotheses may leverage the identified conversation type and shared knowledge to generate a degree of certainty for each hypothesis.” (’681 patent at 5:55-60). • “The hypotheses may model human-to-human interaction to include a varying degree of certainty for each hypothesis.” (’681 patent at 5:53-55). <p>Further, Freeman and Baldwin (2006) disclose how cooperative conversation concepts were first described by Paul Grice in 1975 and how human-to-computer speech should, ideally, “follow the same model of human-to-human conversation” described in Grice’s 1975 paper, <i>Logic and Conversation</i>. One of the elements of “cooperative conversation” as described by Freeman and Baldwin is the process of creating hypotheses with degrees of confidence over the recognition:</p> <p>“But if the system's recognition confidence for the criteria is low, or that there are a number of businesses with the name Admiral, Twin, and Admiral Twin with which it could be confused, the system is not at all sure that this is a good hypothesis ...</p> <p>System Reply: ‘Did you want a movie schedule for Admiral Twin Theater?’</p> <p>... and asks the user to direct the dialog with a ‘Yes’ or ‘No.’ In a</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>multi-modal environment, alternatives could also be visually displayed.”</p> <p>Tom Freeman and Larry Baldwin, Enhancing the VUE™ (Voice-User-Experience) Through Conversational Speech, SAE Technical Paper Series (2006), at 7.</p>
<p>[8] The method of claim 5, wherein the conversational speech engine further grammatically or syntactically adapts the response based on the conversation type.</p>	<p>Claim 8 is ineligible for at least the reasons set forth above. <i>See</i> claim [5].</p> <p>The claimed method of grammatically or syntactically adapting the response based on the conversation type was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how to grammatically or syntactically adapt a response based on the conversation type. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>The grammatical and syntactic adaptation of responses according to conversation type was widely recognized in the field. Smith and Hipp’s Spoken Natural Language Dialog Systems: A Practical Approach (1994) discusses systems generating varied linguistic responses based on the conversational goal and structure. McTear’s Spoken Dialogue Technology (2004) further explains the adaptation of response strategies, including syntax and grammar, depending on conversational context and system role.</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>Further, Freeman and Baldwin 2006 disclose how cooperative conversation concepts were first described by Paul Grice in 1975 and how human-to-computer speech should, ideally, “follow the same model of human-to-human conversation” described in a 1975 paper, Logic and Conversation, by Grice. One of those elements of “cooperativeness”, as identified by Freeman and Baldwin in 2006, was identifying “the type of conversation a user is having.” Namely, “is the conversation based on a request/command, learning, survey input, or is it a spontaneous exchange.”</p> <p>Freeman and Baldwin 2006 disclose the step of an “adaptive response”, described as follows:</p> <p><u>Adaptive Responses</u></p> <p>As in a human conversation, the response of the system should be based on how confident the system is that its conclusion is correct. If it is certain, it should just execute the request. If it is less than certain but the range of choice are few or none, it should execute, if it is less than certain and the choices are many, it should ask.</p> <p>Tom Freeman and Larry Baldwin, Enhancing the VUE™ (Voice-User-Experience) Through Conversational Speech, SAE Technical Paper Series (2006), at 6.</p> <p>Under oath, Mr. Freeman admitted that the described “adaptive response” from Freeman and Baldwin corresponds to the limitation in the claim:</p> <p>Q. And this marketing paper where you describe these principles that Mr. Grice had laid out, this is essentially</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>the '681 patent in ordinary language, right? A. So this is '681 but '681 takes this to a machine, as opposed to human to human.</p> <p>Trial Tr. 289:20-24</p> <p><i>VB Assets v. Amazon.com Services LLC</i>, No. 19-cv-01410, at ECF No. 304 (D. Del. Dec. 12, 2023).</p> <p>And Mr. Freeman further confirmed that this concept of an “adaptive response” also came from Mr. Grice:</p> <p>Q. And adaptive response, that also came from Mr. Grice's paper? A. Correct. Trial Tr. 289:17-19</p> <p><i>VB Assets v. Amazon.com Services LLC</i>, No. 19-cv-01410, at ECF No. 304 (D. Del. Dec. 12, 2023).</p>
<p>[9] The method of claim 1, wherein the conversational speech engine grammatically or syntactically adapts the response to influence a subsequent reply utterance that the conversational speech engine expects from the user during the current conversation.</p>	<p>Claim 9 is ineligible for at least the reasons set forth above. <i>See</i> claim [1].</p> <p>The claimed method of grammatically or syntactically adapting the response to influence a subsequent reply utterance expected from the user during the current conversation was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how to grammatically or syntactically adapt a response to influence a subsequent reply</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>utterance expected from the user during the current conversation. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>The use of grammatical and syntactic adaptation to shape or influence user responses was a well-known dialogue management technique. Smith and Hipp's <i>Spoken Natural Language Dialog Systems: A Practical Approach</i> (1994) describes systems structuring output language to guide the user toward expected next actions or utterances. McTear's <i>Spoken Dialogue Technology</i> (2004) similarly explains that phrasing and syntactic structuring in system responses are critical tools for managing dialogue flow and constraining the user's input toward system-anticipated continuations.</p> <p>In addition, those disclosures that do exist demonstrate that what is claimed is simply an idea that achieves the cognitive function that is performed by humans every day:</p> <ul style="list-style-type: none"> • “Existing speech interfaces force users to dumb down their requests to match simple sets of instructions in simple languages in order to communicate requests in ways that systems can understand. Using existing speech interfaces, there is virtually no option for dialogue between the user and the system to satisfy mutual goals.” ('681 patent at 1:50-55). • “According to another aspect of the invention, an exemplary cooperative conversational model may build upon free-form voice search, noise tolerance, and context determination to implement a conversational Human-to-Machine interface that reflects human interaction and normal conversational behavior.” ('681 patent at 15:33-38).

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<ul style="list-style-type: none"> • “Cooperative conversational model 300 may build upon free-form voice search 245, noise tolerance 250, and context determination 255 to implement a conversational Human-to-Machine interface that reflects how humans interact with each other and their normal behavior in conversation.” (’681 patent at 13:13-18). <p>Freeman and Baldwin (2006) disclose how cooperative conversation concepts were first described by Paul Grice in 1975 and how human-to-computer speech should, ideally, “follow the same model of human-to-human conversation” as described in Grice’s 1975 paper, <i>Logic and Conversation</i>. One of the elements of “cooperativeness,” as identified by Freeman and Baldwin (2006), was the use of adaptive responses, which operated “as in human conversation,” as follows:</p> <p><u>Adaptive Responses</u></p> <p>As in a human conversation, the response of the system should be based on how confident the system is that its conclusion is correct. If it is certain, it should just execute the request. If it is less than certain but the range of choices are few or none, it should execute. If it is less than certain and the choices are many, it should ask.</p> <p>Tom Freeman and Larry Baldwin, Enhancing the VUE™ (Voice-User-Experience) Through Conversational Speech, SAE Technical Paper Series (2006), at 6.</p> <p>Under oath, Mr. Freeman admitted that the described “adaptive response” from Freeman and Baldwin corresponds to the limitation in the claim:</p> <p>Q. And this marketing paper where you describe these principles that Mr. Grice had laid out, this is essentially the ’681 patent in ordinary</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>language, right? A. So this is '681 but '681 takes this to a machine, as opposed to human to human.</p> <p><i>(Trial Tr. 289:20-24, VB Assets v. Amazon.com Services LLC, No. 19-cv-01410, at ECF No. 304 (D. Del. Dec. 12, 2023).)</i></p> <p>To the extent that the claimed “conversational speech engine” relates to an “automated speech engine,” Michael Kennewick, a principal of VB Assets and a former officer of VoiceBox, has admitted that these engines were “commodity products” at the time of the priority date of this patent:</p> <p>Q. And that software section, let's go to the next page, 0194. And if we could on that page, if you could put just the top paragraph on the screen. And kind of put it to the side so you can see both at the same time. During the opening by Amazon's counsel, you indicated that the original Cybermind used some software from IBM, did you hear that? A. Yes. Q. What was that, sir? A. That was a component called the ASR, Automated Speech recognition engine, and that was pretty much a commodity product at the same time.</p> <p><i>(Trial Tr. 147:18-148:3, VB Assets v. Amazon.com Services LLC, No. 19-cv-01410, at ECF No. 304 (D. Del. Dec. 12, 2023).)</i></p> <p>Similarly, Thomas Freeman, an inventor of the '681 patent, has admitted that the so-called conversational language processor, to the extent it relates to a</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>conversational speech engine, was well understood, routine, and conventional at the time of the priority date of the ’681 patent:</p> <p>Q. Let's look at the patent again, please, Mr. Patterson, JTX-003. And let's look at Claim 40. Did you invent a conversational language processor?</p> <p>A. Did I invent a conversational language processor?</p> <p>Q. Yes, sir.</p> <p>A. I did not.</p> <p><i>(Trial Tr. 284:2-8, VB Assets v. Amazon.com Services LLC, No. 19-cv-01410, at ECF No. 304 (D. Del. Dec. 12, 2023).)</i></p> <p>And Mr. Freeman further confirmed that this concept of an “adaptive response” also came from Mr. Grice:</p> <p>Q. And adaptive response, that also came from Mr. Grice's paper?</p> <p>A. Correct.</p> <p><i>(Trial Tr. 289:17-19, VB Assets v. Amazon.com Services LLC, No. 19-cv-01410, at ECF No. 304 (D. Del. Dec. 12, 2023).)</i></p>
[10P] The method of claim 1, further comprising:	Claim 10 is ineligible for at least the reasons set forth above. <i>See</i> claim [1].
[10A] generating multiple preliminary interpretations of the utterance at a speech recognition engine coupled to the voice input device and the conversational speech engine,	The claimed method of generating multiple preliminary interpretations of the utterance at a speech recognition engine, wherein an initial interpretation comprises one of the preliminary interpretations having the highest confidence

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
<p>wherein an initial interpretation of the utterance comprises one of the multiple preliminary interpretations having a highest confidence level; and</p>	<p>level, was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how to generate multiple preliminary interpretations of an utterance at a speech recognition engine or how to identify the initial interpretation based on the highest confidence level. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>The generation of multiple recognition hypotheses and the selection of the highest-confidence interpretation were well-known techniques. Smith and Hipp’s <i>Spoken Natural Language Dialog Systems: A Practical Approach</i> (1994) describe systems that maintain alternative hypotheses, each scored and selected based on relative confidence. McTear’s <i>Spoken Dialogue Technology</i> (2004) similarly explains the use of N-best lists and ranking hypotheses according to confidence scores to select the most likely user input. These methods are further detailed in Hazen et al., <i>Recognition confidence scoring and its use in speech understanding systems</i> (2002), where multiple recognition hypotheses are generated, assigned confidence scores, and ranked to determine the most probable interpretation. Jiang’s <i>Confidence Measures for Speech Recognition: A Survey</i> (2003) likewise emphasizes the critical role of confidence scoring in managing multiple competing interpretations in speech recognition systems.</p> <p>In addition, those disclosures that do exist demonstrate that what is claimed is simply an idea that achieves the cognitive function that is performed by humans every day:</p> <ul style="list-style-type: none"> • “The utterance component of input 105 may be processed by a speech recognition engine 110 . . . to generate one or more preliminary interpretations of the utterance.” (’681 patent at 7:24-43).

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<ul style="list-style-type: none"> • “For example, humans frequently remember a number of recent utterances, especially when one or more previous utterances were misrecognized or unrecognized. Another participant in the conversation may limit correction to a part of the utterance that was misrecognized or unrecognized, or over subsequent utterances and/or other interactions, clues may be provided to indicate the initial interpretation was incorrect. Thus, by storing and analyzing multiple utterances, utterances from earlier in a conversation may be corrected as the conversation progresses.” (’681 patent at 6:30-39). • “For example, humans frequently remember a number of recent utterances, especially when one or more previous utterances were misrecognized or unrecognized.” (’681 patent at 18:44-47).
<p>[10B] updating the short-term shared knowledge about the current conversation to remove the initial interpretation from the multiple preliminary interpretations in response to determining that the initial interpretation was incorrect, wherein the conversational speech engine determines the intended meaning based on one of the multiple preliminary interpretations having a next highest confidence level.</p>	<p>The claimed method of updating the short-term shared knowledge to remove the initial interpretation from multiple preliminary interpretations when determined to be incorrect, and determining the intended meaning based on the next highest confidence level, was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how to update the short-term shared knowledge by removing an initial interpretation determined to be incorrect or how to determine intended meaning based on a next highest confidence level. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>The management of multiple recognition hypotheses, including demoting or removing lower-confidence or incorrect interpretations and selecting among</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
	<p>remaining hypotheses based on confidence levels, was a common technique sometimes referred to as belief-updating. Bohus, D., & Rudnicky, A. I. (2005, November). Constructing accurate beliefs in spoken dialog systems. In IEEE Workshop on Automatic Speech Recognition and Understanding, 2005. (pp. 272-277). IEEE.</p> <p>McTear’s <i>Spoken Dialogue Technology</i> (2004) similarly explains dialogue systems leveraging N-best lists and confidence rankings to adaptively select interpretations. Hazen et al., <i>Recognition confidence scoring and its use in speech understanding systems</i> (2002) and Jiang’s <i>Confidence Measures for Speech Recognition: A Survey</i> (2003) also both set forth the relevant art.</p> <p>In addition, those disclosures that do exist demonstrate that what is claimed is simply an idea that achieves the cognitive function that is performed by humans every day:</p> <ul style="list-style-type: none"> • “For example, humans frequently remember a number of recent utterances, especially when one or more previous utterances were misrecognized or unrecognized. Another participant in the conversation may limit correction to a part of the utterance that was misrecognized or unrecognized, or over subsequent utterances and/or other interactions, clues may be provided to indicate the initial interpretation was incorrect. Thus, by storing and analyzing multiple utterances, utterances from earlier in a conversation may be corrected as the conversation progresses.” (’681 patent at 6:30-39). • “For example, humans frequently remember a number of recent utterances, especially when one or more previous utterances were misrecognized or unrecognized.” (’681 patent at 18:44-47).

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
[11] The method of claim 1, wherein the user speaks the utterance in a multi-modal input that further includes one or more non-voice inputs relating to the utterance.	<p>Claim 11 is ineligible for at least the reasons set forth above. <i>See</i> claim [1].</p> <p>The claimed method of receiving a user utterance as part of a multi-modal input, including one or more non-voice inputs relating to the utterance, was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how to process a multi-modal input that includes both a spoken utterance and one or more non-voice inputs relating to the utterance. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>The use of multi-modal input, combining speech with non-speech modalities such as gesture, touch, or typed input, was widely recognized and studied before the relevant time. McTear's Spoken Dialogue Technology (2004) discusses integrating speech input with other modalities to enhance conversational systems. Additional support can be found in Oviatt's Ten Myths of Multimodal Interaction (1999), which describes how multi-modal systems combine speech and non-voice inputs to interpret user intent more accurately and robustly. These sources demonstrate that handling multi-modal user input was a well-established and conventional practice.</p>
[12] The method of claim 1, wherein the conversational speech engine generates the response in a multi-modal output that includes one or more non-voice outputs that relate to the	<p>Claim 12 is ineligible for at least the reasons set forth above. <i>See</i> claim [1].</p> <p>The claimed method of generating a response in a multi-modal output, including one or more non-voice outputs related to the utterance or tasks executed to</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Exhibit A24

Claim Language	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
utterance or one or more tasks executed to process a request identified from the intended meaning.	<p>process a request identified from the intended meaning, was well understood, routine, and conventional in the relevant industry at the relevant time.</p> <p>There is no technical disclosure or explanation in the specification about how to generate a multi-modal output that includes non-voice outputs related to the utterance or associated task execution. This lack of technical detail indicates that these processes were well understood, routine, and conventional in the relevant industry at the relevant time period.</p> <p>The generation of multi-modal outputs—such as visual displays, graphical updates, or haptic feedback—alongside or instead of spoken responses was well known in the field. McTear’s Spoken Dialogue Technology (2004) describes multi-modal dialogue systems that generate both speech and non-speech outputs to support user interactions. Oviatt’s Ten Myths of Multimodal Interaction (1999) similarly explains that multi-modal systems use non-voice outputs to enhance understanding and response appropriateness, particularly when executing tasks identified through spoken input. These references show that generating coordinated multi-modal responses based on user utterances and intended meaning was a conventional practice.</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Pursuant to Judge Gilstrap’s Standing Order Regarding Subject Matter Eligibility Contentions, Samsung provides the following chart identifying any other factual or legal basis for why the Challenged Claims are otherwise ineligible for patent protection.

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
[13A] receive an utterance at a voice input device, during a current conversation with a user, wherein the utterance includes one or more words that have different meanings in different contexts;	Claim element 13A is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [1A].
[13B] accumulate short-term shared knowledge about the current conversation, wherein the short-term shared knowledge includes knowledge about the utterance received at the voice during the current conversation;	Claim element 13B is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [1B].
[13C] accumulate long-term shared knowledge about the user, wherein the long-term shared knowledge includes knowledge about one or more past conversations with the user;	Claim element 13C is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [1C].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
[13D] identify a context associated with the utterance, wherein a conversational speech engine identifies the context associated with the utterance from the short-term shared knowledge and the long-term shared knowledge;	Claim element 13D is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [1E].
[13E] establish an intended meaning for the utterance within the identified context, wherein the conversational speech engine establishes the intended meaning within the identified context to disambiguate an intent that the user had in speaking the one or more words that have the different meanings in the different contexts; and	Claim element 13E is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [1F].
[13F] generate a response to the utterance, wherein the conversational speech engine grammatically or syntactically adapts the response based on the intended meaning established within the identified context.	Claim element 13F is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [1G].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
[14] The non-transitory computer readable medium of claim 13 , wherein to accumulate the short-term shared knowledge about the current conversation, the computer-executable instructions are further operable when executed to populate a short-term context stack with information about the utterance received during the current conversation.	Claim element 14 is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [2].
[15] The non-transitory computer readable medium of claim 14 , wherein to accumulate the short-term shared knowledge about the current conversation, the computer-executable instructions are further operable when executed to expire the information about the utterance from the short-term context stack after a psychologically appropriate amount of time.	Claim element 15 is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [3].
[16] The non-transitory computer readable medium of claim 15 , wherein to accumulate the long-term shared knowledge about the user, the computer-executable	Claim element 16 is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [4].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
instructions are further operable when executed to update one or more long-term profiles associated with the user to include information about the utterance received during the current conversation and relevant data associated with the information expired from the short term context stack.	
[17P] The non-transitory computer readable medium of claim 13 , wherein the computer-executable instructions are further operable when executed to:	Claim element 17P is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [13].
[17A] identify a conversational goal associated with the utterance, roles associated with the user and one or more other participants in the current conversation, and an information allocation among the user and the one or more other participants in the current conversation; and	Claim element 17A is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [5A].
[17B] classify one or more of the utterance or the current conversation into a conversation	Claim element 17B is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [5B].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
type based on one or more of the identified conversational goal, the identified roles, or the identified information allocation, wherein the conversational speech engine further establishes the intended meaning based on the conversation type.	
[18] The non-transitory computer readable medium of claim 17 , wherein the established intended meaning comprises a hypothesis having a degree of certainty about the intent that the user had in speaking the one or more words in the utterance.	Claim element 18 is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [6].
[19] The computer-readable medium of claim 18 , wherein the computer-executable instructions are further operable when executed to generate a preliminary interpretation of the utterance at a speech recognition engine, wherein the conversational speech engine assigns the degree of certainty to the hypothesis based on one or more of the conversation type,	Claim element 19 is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [7].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
information associated with the identified context, or a confidence level associated with the preliminary interpretation generated at the speech recognition engine.	
[20] The non-transitory computer readable medium of claim 17 , wherein the conversational speech engine further grammatically or syntactically adapts the response based on conversation type.	Claim element 20 is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [8].
[21] The non-transitory computer readable medium of claim 13 , wherein the conversational speech engine grammatically or syntactically adapts more the response to influence a subsequent reply utterance that the conversational speech engine expects from the user during the current conversation.	Claim element 21 is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [9].
[22P] The non-transitory computer readable medium of claim 13 , wherein the computer-executable	Claim element 22P is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [10P].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
instructions are further operable when executed to:	
[22A] generate multiple preliminary interpretations of the utterance at a speech recognition engine, wherein an initial interpretation of the utterance comprises one of the multiple preliminary interpretations having a highest confidence level; and	Claim element 22A is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [10A].
[22B] update the short-term shared knowledge about the current conversation to remove the initial interpretation from the multiple preliminary interpretations in response to determining that the initial interpretation was incorrect, wherein the conversational speech engine identifies the context associated with the utterance and establishes the intended meaning for the utterance based on one of the multiple preliminary interpretations having a next highest confidence level.	Claim element 22B is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [10B].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
[23] The non-transitory computer readable medium of claim 13 , wherein the user speaks the utterance in a multi-modal input that further includes one or more non-voice inputs relating to the utterance.	Claim element 23 is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [11].
[24] The non-transitory computer readable medium of claim 13 , wherein the conversational speech engine generates the response in a multi-modal output that includes one or more non-voice outputs that relate to the utterance or one or more tasks executed to process a request identified from the intended meaning.	Claim element 24 is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [12].
[25P] A system for providing a cooperative conversational voice user interface, comprising:	Claim element 25P is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [1P].
[25A] a voice input device configured to receive an utterance during a current conversation with a user, wherein the utterance includes one or more words that	Claim element 25A is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [1A].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
have different meanings in different contexts; and	
[25B] a conversational speech engine, wherein the conversational speech engine includes one or more processors configured to:	
[25C] accumulate short-term shared knowledge about the current conversation, wherein the short-term shared knowledge includes knowledge about the utterance received during the current conversation;	Claim element 25C is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [1B].
[25D] accumulate long-term shared knowledge about the user, wherein the long-term shared knowledge includes knowledge about one or more past conversations with the user;	Claim element 25D is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [1C].
[25E] identify a context associated with the utterance from the short-term shared knowledge and the long-term shared knowledge;	Claim element 25E is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [1E].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
[25F] establish an intended meaning for the utterance within the identified context to disambiguate an intent that the user had in speaking the one or more words that have the different meanings in the different contexts; and	Claim element 25F is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [1F].
[25G] generate a grammatically or syntactically adapted response to the utterance based on the intended meaning established within the identified context.	Claim element 25G is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [1G].
[26] The system of claim 25 , wherein to accumulate the short-term shared knowledge about the current conversation, the one or more processors are further configured to populate a short-term context stack with information about the utterance received during the current conversation.	Claim element 26 is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [2].
[27] The system of claim 26, wherein to accumulate the short-term shared knowledge about the current conversation, the one or	Claim element 27 is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [3].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
more processors are further configured to expire the information about the utterance from the short-term context stack after a psychologically appropriate amount of time.	
[28] The system of claim 27 , wherein to accumulate the long-term shared knowledge about the user, the one or more processors are further configured to update one or more long-term profiles associated with the user to include information about the utterance received during the current conversation and relevant data associated with the information expired from the short term context stack.	Claim element 28 is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [4].
[29P] The system of claim 25 , wherein the one or more processors are further configured to:	Claim element 29P is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [5P].
[29A] identify a conversational goal associated with the utterance, roles associated with the user and one or more other participants in	Claim element 29A is <u>well-understood, routine, and conventional</u> for at least the reasons set forth above. See claim element [5A].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
the current conversation, and an information allocation among the user and the one or more other participants in the current conversation; and	
[29B] classify one or more of the utterance or the current conversation into a conversation type based on one or more of the identified conversational goal, the identified roles, or the identified information allocation, wherein the one or more processors are further configured to establish the intended meaning based on the conversation type.	Claim element 29B is ineligible for at least the reasons set forth above. See claim [5B].
[30] The system of claim 29 wherein the established intended meaning comprises a hypothesis having a degree of certainty about the intent that the user had in speaking the one or more words in the utterance.	Claim element 30 is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [6].
[31] The system of claim 30 , further comprising a speech recognition engine configured to	Claim element 31 is well-understood, routine, and conventional for at least the reasons set forth above. See claim element[7].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
generate a preliminary interpretation of the utterance, wherein the one or more processors are further configured to assign the degree of certainty to the hypothesis based on one or more of the conversation type, information associated with the identified context, a confidence level associated with the preliminary interpretation generated at the speech recognition engine.	
[32] The system of claim 29 wherein the one or more processors are further configured to generate the grammatically syntactically adapted response based on the conversation type.	Claim element 32 is well-understood, routine, and conventional for at least the reasons set forth above. See claim element[8].
[33] The system of claim 25 , wherein the one or more processors are further configured to generate the grammatically or syntactically adapted response to influence a subsequent reply utterance expected from the user during the current conversation.	Claim element 33 is well-understood, routine, and conventional for at least the reasons set forth above. See claim element[9].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
[34P] The system of claim 25 , further comprising a speech recognition engine configured to:	Claim element 34P is well-understood, routine, and conventional for at least the reasons set forth above. See claim element[10P].
[34A] generate multiple preliminary interpretations of the utterance, wherein an initial interpretation of the utterance comprises one of the multiple preliminary interpretations having a highest confidence level; and	Claim element 34A is well-understood, routine, and conventional for at least the reasons set forth above. See claim element[10A].
[34B] update the short-term shared knowledge about the current conversation to remove the initial interpretation from the multiple preliminary interpretations in response to determining that the initial interpretation was incorrect, wherein the one or more processors are configured to identify the context associated with the utterance and establish the intended meaning for the utterance based on one of the multiple preliminary interpretations having a next highest confidence level.	Claim element 34B is well-understood, routine, and conventional for at least the reasons set forth above. See claim element[10B].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
[35] The system of claim 25 , wherein the user speaks the utterance in a multi-modal input that further includes one or more non-voice inputs relating to the utterance.	Claim element 35 is well-understood, routine, and conventional for at least the reasons set forth above. See claim element[11].
[36] The system of claim 25 , wherein the grammatically or syntactically adapted response comprises a multi-modal output that includes one or more non-voice outputs that relate to the utterance or one or more tasks executed to process a request identified from the intended meaning.	Claim element 36 is well-understood, routine, and conventional for at least the reasons set forth above. See claim element[12].
[37A] A method for providing a cooperative conversational voice user interface, comprising:	Claim element 37A is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [1P].
[37B] receiving an utterance at a voice input device during a current conversation with a user;	Claim element 37B is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [1A].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
[37C] accumulating short-term shared knowledge about the current conversation, wherein the short-term shared knowledge includes knowledge about the utterance received during the current conversation;	Claim element 37C is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [1B].
[37D] accumulating long-term shared knowledge about the user, wherein the long-term shared knowledge includes knowledge about one or more past conversations with the user;	Claim element 37D is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [1C].
[37E] determining an intended meaning for the utterance, wherein determining the intended meaning for the utterance includes:	Claim element 37E is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [1D].
[37F] identifying, at a conversational speech engine, a context associated with the utterance from the short-term	Claim element 37F is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [1E].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
shared knowledge and the long-term shared knowledge;	
[37G] inferring additional information about the utterance from the short-term shared knowledge and the long-term shared knowledge in response to determining that the utterance contains insufficient information to complete a request in the identified context; and	
[37H] establishing the intended meaning within the identified context based on the additional information inferred about the utterance; and	
[37I] generating a response to the utterance based on the intended meaning established within the identified context.	

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
38. The method of claim 37, wherein the established intended meaning comprises an implicit hypothesis having a corresponding degree of certainty about an intent that the user had in speaking the utterance.	
[39A] A non-transitory computer readable medium containing computer-executable instructions for providing a cooperative conversational voice user interface, the computer-executable instructions operable when executed to:	Claim element 39A is well-understood, routine, and conventional for at least the reasons set forth above. See claim elementclaim [1P].
[39B] receive an utterance at a voice input device during a current conversation with a user;	39B is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [1A].
[39C] accumulate short-term shared knowledge about the current conversation, wherein the short-term shared knowledge includes knowledge about the utterance	Claim 39C is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [1B].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
received during the current conversation;	
[39D] accumulate long-term shared knowledge about the user, wherein the long-term shared knowledge includes knowledge about one or more past conversations with the user;	Claim 39D is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [1C].
[39E] identify a context associated with the utterance, wherein a conversational speech engine identifies the context associated with the utterance from the short-term shared knowledge and the long-term shared knowledge;	Claim 39E is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [1D].
[39F] infer additional information about the utterance from the short-term shared knowledge and the long-term shared knowledge in response to determining that the utterance contains insufficient information to complete a request in the identified context;	Claim 39F is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [37G].
[39G] establish an intended meaning for the utterance within	Claim 39G is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [37H].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
the identified context based on the additional information inferred about the utterance; and	
[39H] generate a response to the utterance based on the intended meaning established within the identified context.	Claim 39H is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [37I].
[40] The non-transitory computer readable medium of claim 39, wherein the established intended meaning comprises an implicit hypothesis having a corresponding degree of certainty about an intent that the user had in speaking the utterance.	Claim 40 is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [38].
[41A] A system for providing a cooperative conversational voice user interface, comprising:	Claim 41A is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [25P].
[41B] a conversational speech engine, wherein the conversational speech engine includes one or more processors configured to:	Claim 41B is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [25B].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
[41C] accumulate short-term shared knowledge about the current conversation, wherein the short-term shared knowledge includes knowledge about the utterance received during the current conversation;	Claim 41C is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [25C].
[41D] accumulate long-term shared knowledge about the user, wherein the long-term shared knowledge includes knowledge about one or more past conversations with the user;	Claim 41D is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [25D].
[41E] identify a context associated with the utterance from the short-term shared knowledge and the long-term shared knowledge;	Claim 41E is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [25E].
[41F] infer additional information about the utterance from the short-term shared knowledge and the long-term shared knowledge in response to determining that the utterance contains insufficient information to complete a request in the identified context;	Claim 41F is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [37G].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Description of the Industry and Description of How Each Element Was Well-Understood, Routine, and Conventional
[41G] establish an intended meaning for the utterance within the identified identify a context based on the additional information inferred about the utterance; and	Claim 41G is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [37H].
[41H] generate a response to the utterance based on the intended meaning established within the identified context.	Claim 41H is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [37I].
[42] The system of claim 41, wherein the established intended meaning comprises an implicit hypothesis having a corresponding degree of certainty about an intent that the user had in speaking the utterance.	Claim 42 is well-understood, routine, and conventional for at least the reasons set forth above. See claim element [38].

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Pursuant to Judge Gilstrap’s Standing Order Regarding Subject Matter Eligibility Contentions, Samsung provides the following chart identifying any other factual or legal basis for why the Challenged Claims are otherwise ineligible for patent protection.

Challenged Claims	Other Bases for Why the Challenged Claims are Patent-Ineligible
1-42	<p>The challenged claims reflect long-understood and well-known concepts in linguistics, computational linguistics, and natural language understanding, as reflected in the cited references, in addition to the following:</p> <p>Bub, T., Wahlster, W., & Waibel, A. Verbmobil: The combination of deep and shallow processing for spontaneous speech translation. German Research Center for Artificial Intelligence; Carnegie Mellon University.</p> <p>Oh, A. H., & Rudnick, A. I.. Stochastic language generation for spoken dialogue systems. Carnegie Mellon University.</p> <p>Batliner, A., Zeißler, V., Frank, C., Adelhardt, J., Shi, R. P., & Nöth, E. (2003). We are not amused – But how do you know? User states in a multi-modal dialogue system. University of Erlangen-Nuremberg.</p> <p>Aust, H., Oerder, M., Seide, F., & Steinbiss, V. (1995). A spoken language inquiry system for automatic train timetable information. Philips Research Laboratories.</p> <p>Jönsson, A.. A dialogue manager using initiative-response units and distributed control. Linköping University.</p> <p>Aust, H., Oerder, M., Seide, F., & Steinbiss, V. (1994). Experience with the Philips automatic train timetable information system. Philips Research Laboratories.</p> <p>Juneja, A. (2004). Approaches to dialogue system design. Carnegie Mellon University.</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Other Bases for Why the Challenged Claims are Patent-Ineligible
	<p>Allen, J. F., Byron, D. K., Dzikovska, M., Ferguson, G., Galescu, L., & Stent, A. (2001). Towards conversational human-computer interaction. <i>AI Magazine</i>, 22(4), 27–37.</p> <p>Gorin, A. L., Parker, B. A., Sachs, R. M., & Wilpon, J. G. (1996). How may I help you? AT&T Research.</p> <p>Allen, J., Byron, D., Dzikovska, M., Ferguson, G., Galescu, L., & Stent, A. (1998). An architecture for a generic dialogue shell. <i>Natural Language Engineering</i>, 1(1), 1–24.</p> <p>Veldhuijzen van Zanten, G. (1998). Adaptive mixed-initiative dialogue management. IPO Center for Research on User-System Interaction.</p> <p>Allen, J., Ferguson, G., & Stent, A. (2001). An architecture for more realistic conversational systems. University of Rochester.</p> <p>Banuazizi, A., & Creswell, C. (n.d.). Is that a real question?: Final rises, final falls and discourse function in yes-no question intonation. University of Pennsylvania.</p> <p>Bohus, D., Raux, A., Harris, T. K., Eskenazi, M., & Rudnicky, A. I. (2007). Olympus: An open-source framework for conversational spoken language interface research. Carnegie Mellon University.</p> <p>Blaylock, N. (2002). Managing communicative intentions in dialogue using a collaborative problem-solving model (Technical Report 774). University of Rochester.</p> <p>Microsoft. (2004). Microsoft Speech Server 2004: Product datasheet. Microsoft Corporation.</p> <p>Graesser, A. C., VanLehn, K., Rosé, C. P., Jordan, P. W., & Harter, D. (2001). Intelligent tutoring systems with conversational dialogue. <i>AI Magazine</i>, 22(4), 39–51.</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Appendix G-1

Challenged Claims	Other Bases for Why the Challenged Claims are Patent-Ineligible
	<p>Hieronymus, J. L., & Dowding, J. (2004). Clarissa spoken dialogue system for procedure reading and navigation. NASA Ames Research Center.</p> <p>LumenVox.. LumenVox Speech Driven Assistant: Printed documentation. LumenVox.</p> <p>Walton, D. (2007). Dialogical models of explanation. Association for the Advancement of Artificial Intelligence.</p> <p>Cohen, P. R., Johnston, M., McGee, D., Oviatt, S., Pittman, J., Smith, I., Chen, L., & Glow, J. (1997). QuickSet: Multimodal interaction for distributed applications. Oregon Graduate Institute of Science and Technology.</p> <p>Cohen, P. R. (1997). Modeling speech acts for natural language interfaces. Oregon Graduate Institute of Science and Technology.</p> <p>Johnston, M. (2000, November 20). Comdex: One Voice shows off talking Web navigator 'TVAN'. Network World, IDG Communications, Inc.</p> <p>Ferguson, G., & Allen, J. F. (1998). TRIPS: An integrated intelligent problem-solving assistant. University of Rochester.</p> <p>Allen, J. F., Ferguson, G., & Stent, A. (2001). An architecture for more realistic conversational systems. University of Rochester.</p> <p>Nguyen, P. (2005, March). The first step: Open speech standards. Customer Interaction Solutions, 23(9), 1–2.</p> <p>Chai, J., Pan, S., Zhou, M. X., & Houck, K. (2005). Context-based multimodal input understanding in conversational systems. IBM T. J. Watson Research Center.</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Other Bases for Why the Challenged Claims are Patent-Ineligible
	<p>Doherty, P., Haslum, P., Merz, T., Skarman, E., Conte, G., Duranti, S., Heintz, F., Pettersson, P.-O., Persson, T., & Wingman, B. (2004). A distributed architecture for intelligent unmanned aerial vehicle experimentation. Linköping University.</p> <p>Chu-Carroll, J. (2000). MIMIC: An adaptive mixed initiative spoken dialogue system for information queries. Lucent Technologies Bell Laboratories.</p> <p>Alexandersson, J., Maier, E., & Reithinger, N. (1995). A robust and efficient three-layered dialogue component for a speech-to-speech translation system. DFKI GmbH.</p> <p>Sitter, S., & Stein, A. (1992). Modeling information-seeking dialogues: The conversational roles (COR) model. GMD-IPSI.</p> <p>Berg, M. M. (2014). Modelling of natural dialogues in the context of speech-based information and control systems [Doctoral dissertation, Christian-Albrechts-Universität zu Kiel].</p> <p>Voxify, Inc. (2005). Automated Agents™ for airlines. Voxify Data Sheet (DS_Airline_May05_v04).</p> <p>Voxify, Inc. (2005). Automated Agents™ for utilities. Voxify Data Sheet (DS_Utility_May05_V03).</p> <p>Gorin, A. (2002, November 6). Semantic Information Processing of Spoken Language - How May I Help You? IEEE Communications Society North Jersey Chapter and NJIT Electrical and Computer Engineering Department.</p> <p>Goldman, E. L., Panttaja, E., Wojcikowski, A., & Braudes, R. (2001). Voice portals—Where theory meets practice. International Journal of Speech Technology, 4, 227–240. IJST-voice-portal</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Appendix G-1

Challenged Claims	Other Bases for Why the Challenged Claims are Patent-Ineligible
	<p>Harris, T. K., & Lewis, M. (2005). Heterogeneous multi-robot dialogues for search tools. Proceedings of the 2005 IEEE International Conference on Robotics and Automation.</p> <p>Error Handling. Internal technical documentation on speech application development and recovery strategies. Error Handling</p> <p>EDN. (2001, June 5). Speaking tour: ASR and TTS follow the money. EDN Magazine.</p> <p>Graesser, A. C., Lu, S., Jackson, G. T., Mitchell, H. H., Ventura, M., Olney, A., & Louwerse, M. M. (2004). AutoTutor: A tutor with dialogue in natural language. Behavior Research Methods, Instruments, & Computers, 36(2), 180–192.</p> <p>Hirschberg, J. (1999). Communication and prosody: Functional aspects of prosody. In Proceedings of the ISCA Workshop on Dialogue and Prosody.</p> <p>Jurafsky, D., & Martin, J. H. (2006). Dialogue and conversational agents. In Speech and Language Processing: An Introduction to Natural Language Processing, Computational Linguistics, and Speech Recognition (Draft of November 12, 2006).</p> <p>Guinn, C. I. (1996). Mechanisms for mixed-initiative human-computer collaborative discourse. Proceedings of the 34th Annual Meeting of the Association for Computational Linguistics.</p> <p>Stent, A. J., Marge, M., & Singhai, A. (2005). Evaluation methods for spoken dialog systems. IBM Research Technical Report.</p> <p>Raux, A., Langner, B., Bohus, D., Black, A. W., & Eskenazi, M. (2005). Let's Go Public! Taking a spoken dialog system to the real world. In Proceedings of Interspeech 2005. IS051938</p>

Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Other Bases for Why the Challenged Claims are Patent-Ineligible
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Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

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Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Appendix G-1

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Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

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Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants’ Invalidity Contentions – Appendix G-1

Challenged Claims	Other Bases for Why the Challenged Claims are Patent-Ineligible
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Mobile Data Technologies, LLC v. Samsung Electronics Co. Ltd., and Samsung Electronics America, Inc.
No. 2:24-cv-00435-JRG-RSP (E.D. Tex.)
Defendants' Invalidity Contentions – Appendix G-1

Challenged Claims	Other Bases for Why the Challenged Claims are Patent-Ineligible
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