

**UNITED STATES PATENT AND TRADEMARK OFFICE**

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**BEFORE THE PATENT TRIAL AND APPEAL BOARD**

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

**v.**

**VB ASSETS, LLC,**  
*Patent Owner*

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**IPR2025-00870**  
**U.S. Patent No. 10,755,699**

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EX-2003	<a href="https://www.uspto.gov/patents/ptab/faqs/interim-processes-workload-management">https://www.uspto.gov/patents/ptab/faqs/interim-processes-workload-management</a> (“FAQs”)
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## I. INTRODUCTION

Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. (collectively, “Petitioners” or “Samsung”) filed a petition for *inter partes* review of claims 1-22 of U.S. Patent No. 10,755,699 (the “’699 Patent”) (the “Challenged Claims”), which is owned by VB Assets, LLC (“Patent Owner” or “VB Assets”). The Petition asserts four grounds: (i) Ground 1 challenges claims 1-22 as obvious over SmartKom (EX-1005) and Kobsa (EX-1006); (ii) Ground 2 challenges claims 1-18 as obvious over Barbara (EX-1007), Ross (EX-1008), and Kellner (EX-1023).

For the reasons set forth herein, Petitioners failed to meet their burden to show a reasonable likelihood of unpatentability of any of the Challenged Claims. *See* 37 C.F.R. § 42.108(c). Accordingly, Patent Owner requests that the Board deny institution of *inter partes* review.

## II. LEGAL PRINCIPLES

The Petition must both “clearly point out the differences between the claimed invention and [the prior art]” and “explain why a person of ordinary skill in the art would have found the claimed subject matter obvious in spite of those differences.” *Synopsys, Inc. v. Mentor Graphics Corp.*, IPR2012-00041, Paper 16, 14 (P.T.A.B. Feb. 22, 2013). Petitioners must recite where the challenged limitation is found in the reference(s) and explain why a POSITA would have modified the primary reference with the recited limitation from the secondary reference(s). *Microsoft*

*Corp. v. Secure Web Conf. Corp.*, IPR2014-00745, Paper 12, 11-13 (P.T.A.B. Sept. 29, 2014).

The Petition must establish, *with particularity*, the grounds and evidence that support invalidating the patented claims. 35 U.S.C. §312(a)(3). In addition, the Board institutes based on what the Petition *actually presents* and not what it could have reasonably contained. *In re Magnum Oil Tools Int'l, Ltd.*, 829 F.3d 1364, 1381 (Fed. Cir. 2016). The Board cannot “deviate from the grounds in the petition and raise its own” theories of invalidity. *Sirona Dental Sys. GmbH v. Institut Straumann AG*, 892 F.3d 1349, 1356 (Fed. Cir. 2018).

### **III. LEVEL OF ORDINARY SKILL IN THE ART**

Each of the arguments below should be considered from the standpoint of a POSITA in the field of the '699 Patent. For purposes of this POPR, Patent Owner adopts the definition proposed by Petitioners. Petition, 3. Patent Owner reserves all rights to challenge Petitioners' definition and/or further address the level of ordinary skill in the art if this proceeding is instituted.

### **IV. CLAIM CONSTRUCTION**

Petitioners note that the parties agreed that, in prior litigation involving the parent patent of the '699 Patent, the term “speech recognition engine” which also appear in the '699 Patent claims, means “software or hardware that recognizes the words or

phrases in the natural language utterance.” Petition, 4.<sup>1</sup> Patent Owner applies this construction for the purposes of this POPR. The failure of the Petition to render obvious the Challenged Claims is clear in view of the arguments below without construing any other specific claim term.

## V. ARGUMENT

### **A. GROUND 1 – The Petition Fails to Demonstrate a Reasonable Likelihood that the Challenged Claims are Unpatentable as Obvious over SmartKom and Kobsa**

The Petition fails to demonstrate a reasonable likelihood that the Challenged Claims are obvious over the combination of SmartKom (EX-1005) and Kobsa (EX-1006) for several key reasons set forth in detail below. First, the Petition is based on a cherry-picking of incongruous disclosures from SmartKom and Kobsa and a corresponding failure to explain how those disparate disclosures would work to meet the Challenged Claims. Second, Petitioners have not shown that the combined SmartKom-Kobsa system satisfies the claimed “accumulating” “short-term knowledge based on one or more natural language utterances during a predetermined time period.” Finally, Petitioners fail to show that a POSITA would have been motivated to combine SmartKom and Kobsa to reach the claimed invention.

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<sup>1</sup> Patent Owner reserves the right to later address constructions.

In view of these deficiencies, Petitioners have failed to demonstrate a reasonable likelihood of prevailing on its challenge based on the combination of SmartKom and Kobsa.

**1. The SmartKom + Kobsa Combination Fails to Describe a Coherent System that Includes all the Elements of the '699 Patent Claims**

First, Petitioners' argument that the combination of SmartKom and Kobsa renders the Challenged Claims obvious is based on a patchwork of cherrypicked pieces of SmartKom and Kobsa that, together, do not demonstrate a coherent system that includes all the elements of the claimed invention. Petitioners fail to provide the required "clear, evidence-supported account of the contemplated workings of the combination," and fail to show how the combination meets all the claim elements. *Personal-Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017). A clear, evidence-supported account of the contemplated workings of the combination is a prerequisite to "adequately explaining and supporting a conclusion that a relevant skilled artisan would have been motivated to make the combination and reasonably expect success in doing so." *Id.* With respect to Ground 1, the Petition does not present such a clear account.

**a. The Petition Fails to Explain How the Identified Disclosures from the Combination of SmartKom and Kobsa would Result in the Claimed Invention**

The Petition’s failure to identify a clear account of the contemplated workings of the combination is due, in part, to the broad-ranging nature of the disparate papers that make up SmartKom and Kobsa themselves. SmartKom is a textbook that “present the theoretical and practical foundations of multimodal dialogue systems using the results of [the] large-scale project SmartKom as the background for [the] discussion.” EX-1005, IX-XIV, 5. SmartKom does so in 38 different subparts based on the work of 70 different contributors. EX-1005, XV-XVIII; EX-2025, ¶57.

Neither SmartKom, nor Kobsa describe a single working system. EX-2025, ¶65. SmartKom describes the “results of [the] large-scale” SmartKom project in terms of discrete modules and concepts in its different sub-parts, which are authored by different contributors, and developed over time. *See* EX-1005, XV-XVIII. Kobsa also forms a collection of unintegrated conference papers from a workshop on user modeling involving 25 different researchers and presents a survey of the field of user modeling through discussion of individual contributions within the topic of the respective subfield and cross-references other contributions to achieve this end. EX-1006, V-VI; EX-2025, ¶63.

The Petition cobbles together cherry-picked pieces from the broad-ranging disclosure of both SmartKom and Kobsa without adequate explanation as to how these disclosures would work as intended by the challenged claims. *Power-One, Inc. v. Artesyn Techs., Inc.*, 599 F.3d 1343, 1351 (Fed. Cir. 2010) (holding that obviousness requires some teaching of how the references could be combined to work together). Accordingly, the combination of SmartKom and Kobsa asserted by Petitioners fails to describe a coherent, working system that includes all elements of the Challenged Claims.

For example, the Challenged Claims recite a system and method for “generating natural language system responses adapted based on a user’s manner of speaking” which includes “one or more physical processors programmed with one or more computer program instructions” configured to: (i) “receive a user input comprising a natural language utterance,” (ii) “recognize one or more words or phrases from the natural language utterance,” (iii) “identify a context for the natural language utterance based on the one or more words or phrases recognized from the natural language utterance,” (iv) “determine an interpretation of the natural language utterance based on the identified context,” (v) “accumulate short-term knowledge based on one or more natural language utterances received during a predetermined time period, wherein the one or more utterances received during the predetermined

time period are related to a single conversation between a user and the computer system,” (vi) “accumulate long-term knowledge, wherein the long-term knowledge is accumulated based on one or more natural language utterances received prior to the predetermined time period,” (vii) “identify a manner in which the natural language utterance was spoken based on the short-term knowledge and the long-term knowledge,” and (viii) “generate a response to the natural language utterance based on the interpretation and the identified manner in which the natural language utterance was spoken.” *See, e.g.*, EX-1001, cl. 12. Petitioners cherry pick individual components from separate systems and generalized principles broadly applicable to all dialogue systems in the broad-ranging SmartKom and Kobsa references to reconstruct a system including these limitations using the benefit of hindsight. EX-2025, ¶166; *Orthopedic Equip. Co., Inc. v. United States*, 702 F.2d 1005, 1135 (Fed. Cir. 1983) (holding that it is improper to attempt to establish obviousness of a patent by using the patent as a guide to combining different prior art references to achieve the result of the claims); *In re Oetiker*, 977 F.2d 1443, 1447 (Fed. Cir. 1992) (“The combination of elements from non-analogous sources, in a manner that reconstructs the applicant’s invention only with the benefit of hindsight is insufficient to present a prima facie case of obviousness.”).

To illustrate this shortcoming, for the limitations requiring “short-term knowledge” and “long-term knowledge,” the Petition relies on four chapters in SmartKom, and one paper referenced in SmartKom to satisfy different limitations: (i) “In Context: Integrating Domain- and Situation-Specific Knowledge” authored by Robert Porzel, Iryna Gurevych, and Rainer Malak (EX-1005, 269); (ii) “The Prosody Module” authored by Viktor Zeibler, Johann Adelhart, Anton Batliner, Caremn Frank, Elmar Noth, Rui Ping Shi, and Heinrich Niemann (EX-1005, 139); (iii) “Discourse Modeling” authored by Jan Alexandersson and Norbert Pflieger (EX-1005, 237-253) (iv) “Emotion Analysis and Emotion-Handling Subdialogues” authored by Michael Streit, Anton Batliner, and Thomas Portele (EX-1005, 317-332); and (v) Luperfoy (EX-1012). *See* Petition, 29-36, 37-41. In addition, for “long-term” user models alone, the Petition relies on five different chapters of Kobsa: (i) User Models in Dialog Systems,” authored by Wolfgang Whalster and Alfred Kobsa, EX-1006, 4-34; (ii) A Taxonomy of Beliefs and Goals for User Models in Dialog Systems authored by Alfred Kobsa, the research of which was “supported by the German Science Foundation in its Special Collaborative Research Program No. 314 on AI and Knowledge-Based Systems,” and the development of the VIE-DPM system reported in this chapter was partly funded by Austrian Ministry of Science.” (EX-1006, 52 n.1; *see also* EX-1006, 52-68); (iii) Introduction to Part III

(“Exploiting User Models) (EX-1006, 195-199); (iv) The Use of Explicit User Models in a Generation System for Tailoring Answers to the User’s Level of Expertise,” authored by Cecile L. Paris (EX-1006, 200-232); and (v) “GUMS – A General User Modeling Shell,” authored by Timothy W. Finin (EX-2006, 411-430). *See* Petition, 34-37. These are merely exemplary to illustrate the broad range from which Petitioners select the disclosures relied upon by the Petition.

From a technical perspective, a POSITA would not have approached the problem solved by the ’699 Patent by combining unrelated pieces of separate systems with separate functionality, interfaces, and connections due to the vast possible potential design permutations. EX-2025, ¶68.<sup>2</sup> For example, to demonstrate the disclosure of “long-term knowledge based on one or more natural language

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<sup>2</sup> Accordingly, even if the Petition demonstrates that the foundational principles that underly the ’699 Patent (and all other dialogue systems) exist in the literature, the Petition fails to demonstrate how those principles would be organized, constrained, and functionally connected such that the proposed combination includes all the elements of the claimed invention. EX-2025, ¶68. *In re Kahn*, 441 F.3d 977, 986 (Fed. Cir. 2006) (“[M]ere identification in the prior art of each element is insufficient to defeat the patentability of the combined subject matter as a whole.”)

utterances received prior to the predetermined time period,” the Petition identifies SmartKom’s disclosure of a user model that provides “properties of the interlocutors,” further modified by Kobsa’s disclosure of “‘long-term’ user models that ‘describe relatively static characteristics of users’ such as ‘his/her knowledge about a domain’ and the system’s ‘assumptions about the user’s experience with respect to a domain of discourse.’” Petition, 35. The Petition further relies on Kobsa’s disclosure that the “knowledge stored in the user model can be acquired (accumulated) ‘either explicitly or implicitly.’” Petition, 35-36 (quoting EX-1006, 416). These few sentences are illustrative of Petitioners’ pieced-together, carefully selected quotes from SmartKom and Kobsa describing generalized disclosure applicable to all dialogue systems as well as over ten different implemented dialog systems. The user model in SmartKom does not refer to any component or module developed as part of the SmartKom project, but instead is a generalized “broad categorization[s] of the types of context relevant to spoken dialogue systems” and their “content and respective knowledge stores.” EX-1005, 274. Moreover, Kobsa’s disclosure “his/her prior knowledge about a domain” describes characteristics of a cooperative system, for which it gives examples of over ten different implemented systems. EX-1006, 5. Further, Kobsa’s disclosure of a user model that “contains individual assumptions about the user’s experience with respect to the domain of

discourse” that Petitioners rely on describes the user model of a specific implemented system described in Kobsa called “TAILOR,” which represents “assumptions in a list in the system’s knowledge base which are known to the user[.]” EX-1006, 197. This careful selection of quotes that are tied to many different aspects of different systems is illustrative of the shortcomings of the Petition due to its reconstruction of the invention using the claims as a guide.

Petitioners’ combination of unrelated pieces of the references to cobble together the claimed “long-term knowledge” is important because the Challenged Claims do not merely require “long-term knowledge” but also recite the additional limitations of identifying “a manner in which the natural language utterance was spoken *based on* the . . . long-term knowledge.” EX-1001, cl. 12 (emphasis added). While the Petition relies on a fragmented collection of different aspects from SmartKom and Kobsa for the limitations directed to accumulating “long-term knowledge,” Petitioners rely on SmartKom’s “interaction module” for the limitations directed to identifying “a manner in which the natural language utterance was spoken *based on* the . . . long-term knowledge.” Petition, 38. Specifically, Petitioners allege that the interaction module delivers a “UserKnowledge set of model values” that “reflects the assumed task and paradigm knowledge of the user” that Petitioners argue “is obtained from the user model[.]” Petition, 38. There is no

support, however, that the UserKnowledge set of model values is obtained from any user model disclosed in SmartKom, at least because the list of indicators that are mapped to models such as the UserKnowledge models do not include any disclosure of a user model, and Petitioners do not identify the same. Petition, 38-39; EX-1005, 322 (Table 1, 2); EX-2025, ¶¶72-73. Even if there was such a disclosure, the Petition does not explain how the various systems from Kobsa, tied to the carefully selected quotes that Petitioners rely on to explain the alleged SmartKom-Kobsa user model, would or could be incorporated with SmartKom's interaction module to meet the claim limitations.

Thus, Petitioners failed to demonstrate how these disparate disclosures cherry-picked to satisfy different claim limitations relate to one another such that the asserted combination teaches a system that includes each and every claim limitation. EX-2025, ¶¶72-76; *InTouch Techs., Inc. v. VGo Communs., Inc.*, 751 F.3d 1327, 1348 (Fed. Cir. 2014) (holding that substantial evidence did not support a finding of obvious where the supporting expert "testimony was nothing more than impermissible hindsight; she opined that all of the elements of the claims disparately existed in the prior art, but failed to provide the glue to combine these references.")

For the foregoing reasons, the Petition fails to identify a coherent system that includes all the elements of the claimed invention.

**b. The Petition Fails to Explain How Multiple Possible Alternative Disclosures Interact to Satisfy the Claim Limitations**

Next, the Petition does not demonstrate a coherent system that includes all the elements of the Challenged Claims because Petitioners present multiple possible alternatives for the same claim limitations and do not explain with particularity how those multiple alternatives would interact to reach the claimed invention. *Juniper Networks, Inc. et al. v. Core Optical Techs., LLC*, IPR2020-01664, Paper 9, 11-12 (P.T.A.B. Apr. 16, 2021) (denying institution where petitioner presented “multiple alternatives without sufficient explanation as to how the multiple alternatives interact.”).

For example, the Petition argues that both SmartKom and Kobsa disclose techniques for accumulating “long-term knowledge” as required by the claims based on three separate and distinct alternatives techniques, but fails to explain how the alternative possible techniques from SmartKom and Kobsa would work together in the proposed combination to reach the claimed invention. Petition, 36; EX-2025, ¶¶83-84. Specifically, the Petition asserts that both SmartKom’s “interaction model” *and* Kobsa’s “General User Modeling System,” which can be “persistent,” disclose or teach accumulating “long-term knowledge.” Petition, 36-37.

The Petition fails to explain how these possible alternatives would fit, either alone or together, in the proposed combination in accordance with the claims. Worse, any explanation would fail because the possible alternatives teach different functionality. EX-2025, ¶¶83-84. *Samsung Elecs. Co., Ltd. v. Mojo Mobility Inc.*, IPR2023-01087, Paper 11 at 21 (P.T.A.B. Jan. 10, 2024) (denying institution where the petitioner “never explain[ed] what the combined system would look like or how it would work,” and the “significant differences” between the identified disclosures “ma[d]e it difficult to discern” how one reference would be incorporated into the other). SmartKom’s interaction model functions to “compute information on the user” to be used for example, “to adapt the interaction style of the system to the interaction style of the user.” EX-1005, 287. Contrarily, Kobsa’s General User Modeling System for building long term models does not function to compute interaction preferences of the user. Instead, Kobsa’s General User Modeling System is aimed at representing the “knowledge and beliefs of individuals.” EX-1006, 417; EX-2025, ¶84. Importantly, the system architecture for Kobsa’s General User Modeling System requires that the user modeling system does not have access to the interaction between the application and the user, which stands in contrast to the architecture of the interaction model in SmartKom. EX-1005, 285, EX-2025, ¶84. Moreover, Kobsa’s General User Modeling System relies on an initial selection of a

user stereotype by the application for the which the user model is built and used, a feature that is not present in SmartKom’s interaction modeling, or in any other component. EX-2025, ¶84.

Neither alternative identified for the “accumulat[ing] long-term knowledge” limitations describe the same functionality, and the Petition does not attempt to reconcile their inconsistencies or explain how, for example, Kobsa’s General User Modeling System (“GUMS”), where the user modeling component does not have access to the interaction between the application and the user, would be implemented to interact with SmartKom’s interaction modeling, which computes information on the users based on interactions. EX-2025, ¶84. Petitioners’ presentation of multiple alternatives without sufficient explanation as to how the multiple alternatives interact improperly shifts the burden of deciphering Petitioners’ arguments onto Patent Owner and the Board. *See* 35 U.S.C. § 312(a)(3) (A petition may be considered only if it “identifies, in writing and with particularity, each claim challenged, the grounds on which the challenge to each claim is based, and the evidence that supports the grounds for the challenge to each claim.”); *see also* 37 C.F.R. § 42.104(b) (Listing certain elements that a petition must satisfy in the “statement of the precise relief requested for each claim challenged.”).

**c. The Petition Relies on the Disclosure of Unasserted Prior Art References Inconsistent with the Disclosure of Asserted References**

Finally, the Petition’s identification of disparate and broad-ranging disclosures untethered to a single, coherent system is illuminated by Petitioners’ critical reliance on a reference that is not asserted as part of the combination in Ground 1. The Petition asserts that “SmartKom’s discourse state is ‘based on the three-tiered context representation presented in Luperfoy,” and therefore relies on Luperfoy’s disclosure to support Petitioners’ mistaken assertion that “SmartKom-Kobsa discloses or suggests accumulating short term knowledge during a conversation” to attempt to meet the claim limitations requiring “accumulat[ing . . .] short-term knowledge” “during a predetermined time period,” and “expir[ing]” one or more items of short-term knowledge that are based on one or more natural language utterances received prior to the predetermined time period (EX-1001, cl. 1, 10). Petition, 33-34. As an initial matter, Luperfoy is not a part of the asserted Ground 1. Thus, Petitioners rely on disclosure not from SmartKom, but from the unasserted Luperfoy paper (EX-1012) describing the decay of discourse objects overtime to satisfy these claim limitations, which is not consistent with fulfilling Petitioners’ burden. Petition, 33-34; *see Genius Sports, Ltd. v. SportscCastr Inc.*, IPR2025-00251, Paper 9 at 23 (P.T.A.B June 3, 2025) (denying institution of inter

partes review where “much of petitioner’s analysis [was] based on Herzog’s application server . . . , but Herzog is not an asserted reference in this ground.”).

Worse, Petitioners are wrong to rely on the Luperfoy reference to describe SmartKom’s discourse state because SmartKom’s approach to discourse state representation is not based on Luperfoy alone but is instead a “*compilation* of three [different] items,” only one of which relates to Luperfoy. EX-1005, 239-240 (emphasis added). Petitioners cannot meet their burden because Petitioners never explain the complexity of the “*compilation* of three [different] items,” or even how Luperfoy’s solution may factor into the ultimate compilation allegedly relied on by SmartKom. EX-2025, ¶86.

Even worse, the portions of Luperfoy relied upon by Petitioners describing “[d]iscourse objects” that “decay as a function of attentional focus” are not the portions of Luperfoy that SmartKom references. Rather, SmartKom discloses that its discourse representation uses the “modality-independent generic representation” based on the “modality layer, the discourse object layer and the domain object layer” of Luperfoy. EX-1005 at 239; EX-2025, ¶87. Petitioners fail to acknowledge that SmartKom never discusses incorporating Luperfoy’s “information decay” teaching. EX-2025, ¶87.

Petitioners cannot identify where SmartKom carries out any of Luperfoy's teachings directed to decaying discourse objects as a function of attentional focus as described in Luperfoy. This is not surprising, because not only does SmartKom incorporate aspects of Luperfoy that are different from the aspects relied upon by Petitioners, but SmartKom also employs an entirely different mechanism for discourse management using a single operation called overlay wherein discourse objects are accumulated but never expired or forgotten. EX-1005, 250-251; EX-2025, ¶88. SmartKom's approach describes overwriting parts of the old information with new information while keeping the old information still consistent with the new information. EX-1005, 246, 250-251; EX-2025, ¶88.

This matters because Petitioners misrepresent SmartKom. Petitioners allege that SmartKom satisfies claim limitations requiring a "predetermined time" because, in Petitioners' view, SmartKom "acknowledges [Luperfoy's] decay of information" when it discloses that the discourse memory runs out of memory for longer dialogues. Petition, 18; EX-1005, 242. Not so. SmartKom's system explicitly *does not* "forget" or "discard" contextual information, but actually *overaccumulates* contextual information with "*no control mechanism.*" EX-1005, 250-251 (emphasis added); EX-2025, ¶¶88-89. Thus, the SmartKom system explicitly teaches that it is not capable of limiting its accumulation of knowledge to a predetermined period of

time. Neither Petitioners nor their expert address this shortcoming in the SmartKom system—which is directly at odds with Luperfoy’s teachings that Petitioners mistakenly assume applies to SmartKom. EX-2025, ¶¶88-89

Further, Petitioners’ reliance on SmartKom *only*, not Luperfoy, in its asserted Ground, forecloses Petitioners’ ability to instead argue that a POSITA would be motivated to modify the teaching of SmartKom to implement Luperfoy’s decaying discourse objects solution. Petitioners never made the argument that SmartKom would employ just the Luperfoy solution for discourse representation in a straightforward manner, without the compiled ideas SmartKom also incorporates from Salmon-Alt (2000), Alexandersson (2003), or Wahlster (2000). EX-1005, 242. Therefore, Petitioners cannot do so now. *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1369 (Fed. Cir. 2016); 35 U.S.C. §312(a)(3) (requiring that IPR petitions identify “with particularity, each claim challenged, the grounds on which the challenges to each claim are based, and the evidence that supports the grounds for challenge to each claim.”).

Petitioners’ inappropriate reliance on a reference not asserted as a part of the Ground further highlights the reliance on disparate disclosures or individual pieces of different prior art systems that underlies Ground 1. Petitioners failed to meet their burden for this reason alone.

**2. The Petition Fails to Show that the SmartKom + Kobsa Combination Discloses or Teaches “accumulating short-term knowledge based on one or more natural language utterances during a predetermined time period”**

Next, the Petition fails to demonstrate a reasonable likelihood of success that the proposed SmartKom-Kobsa combination discloses or renders obvious the Challenged Claims because the Petition fails to show that the combination discloses, teaches, or suggests “accumulat[ing]/[e]” “short-term knowledge based on one or more natural language utterances during a predetermined time period.” EX-1001, cl. 1, 12.

The Petition provides two possible alternatives, one allegedly from SmartKom, and one from Kobsa, arguing that “short-term knowledge” is accumulated for a dialog “between the user and system over the shorter of (1) the duration of the conversation/dialog or (2) the size of short term storage (e.g., 30 minutes)—‘a predetermined period of time.’” Petition, 34.

As an initial matter, Petitioners’ assertion that the “predetermined period of time” limitations could be met by *either* an alleged disclosure of SmartKom, *or* a disclosure of Kobsa is facially invalid because Petitioners do not explain with particularity how these alternatives would interact to reach the claimed invention. *Juniper Networks, Inc. et al. v. Core Optical Techs., LLC*, IPR2020-01664, Paper 9, 11-12 (P.T.A.B. Apr. 16, 2021) (denying institution where petitioner presented

“multiple alternatives without sufficient explanation as to how the multiple alternatives interact.”).

Even if reliance on multiple possible alternatives was sufficient to meet Petitioners’ burden, Petitioners have not shown that SmartKom discloses or suggests that short-term knowledge is accumulated over “the size of short term storage (e.g., 30 minutes).” Petition, 24. Instead, SmartKom states that “how and when” forgetting information to accommodate discourse memory running out is not a capability in SmartKom, but “an open and challenging issue” to be addressed in the future. EX-1005, 252. As explained above, the approach for discourse management in SmartKom is employed “without any control mechanism to accumulate information stemming from previous dialogue states,” which may lead to *overaccumulation*. EX-1005, 250-251; EX-2025, ¶¶92-93. Petitioners do not even attempt to explain how SmartKom’s disclosure that it does not have the capability of forgetting information from the discourse history would render obvious accumulating knowledge during “the size of short term storage (e.g., 30 minutes)” as suggested by the Petition. EX-2025, ¶¶92-93.

The alternative “duration of the conversation/dialog” that Petitioners identify from Kobsa does not cure the shortcomings in SmartKom. The second alternative advanced by Petitioners is derived from Kobsa’s disclosure of the so-called

GRUNDY system, where “at the end of a dialog session,” the system “records *all information* about the user inferred from his/her dialog in a corresponding file.” Petition, 18 (citing EX-1006, 10-11) (emphasis added). Even if SmartKom’s system did “acknowledge[] decay of information” by forgetting information after half an hour of discourse (it does not), Petitioners do not make any attempt to explain how or why a POSITA would reconcile this with Kobsa’s recording of “*all information* about the user inferred from his/her dialog behavior” that Petitioners rely on as disclosing the same limitation. EX-1006, 10-11 (emphasis added); EX-2025, ¶90. This lack of explanation is important because forgetting information after a certain amount of time, as Petitioners advance is disclosed by SmartKom, is at odds with *recording all* information about the user, as disclosed in Kobsa. EX-2025, ¶90. To discharge their burden, Petitioners needed to explain how the “multiple possible alternatives interact” to reach the claim limitations. *Juniper Networks*, IPR2020-01664, Paper 9, 11-12. Petitioners have not done so and accordingly do not demonstrate that the SmartKom-Kobsa combination discloses or suggests these limitations.

### **3. A POSITA Would Not be Motivated to Combine SmartKom and Kobsa to Reach the Claimed Invention**

Not only does the Petition fail to show that the proposed combination of SmartKom and Kobsa demonstrates a coherent system in accordance with all the

elements of the claimed invention, but the Petition also does not demonstrate that a POSITA would have been motivated to combine SmartKom and Kobsa in the manner that Petitioners suggest to reach the claimed invention.

First, as discussed above, Petitioners identified Kobsa's disclosure that "at the end of a dialog session," the GRUNDY system "records *all information* about the user inferred from his/her dialog behavior in a corresponding file," *and* SmartKom's disclosure of a discourse memory running out of memory for longer dialogues (more than half an hour of discourse) such that it is "*necessary to forget* information." Petition, 33-34 (emphases added). To reach its flawed conclusion that the SmartKom-Kobsa combination allegedly discloses the claim limitations requiring "short-term knowledge" accumulated during "a predetermined time period," Petitioners vaguely assert the "predetermined time period" is *either* "the shorter of (1) the duration of the conversation/dialog [as disclosed by Kobsa] or (2) the size of short term storage (e.g., 30 minutes)" as disclosed by SmartKom. *Id.*, 34.

This vague either/or assertion fails because Petitioners do not explain how and why a POSITA would have combined Kobsa's disclosure of GRUNDY (EX-1006, 10-11), and SmartKom's disclosure of the discourse memory. EX-2025, ¶90. Moreover, any explanation offered would fall short because of Kobsa's *explicit disclosure* that the GRUNDY system suffers from "legal, social and ethical

problems of security and privacy.” EX-1006, 10-11; EX-2025, ¶102. Kobsa’s disclosure would guide a POSITA to understand that systems like GRUNDY with an initial user model are rarely “developed and implemented” because of these problems. EX-1006, 11; EX-2025, ¶102. Thus, the Petition does not demonstrate a motivation to combine SmartKom and Kobsa to reach the claimed invention because a POSITA reviewing Kobsa “would be discouraged from following the path set out in the reference [recording information inferred about the user at the end of a dialog session], or would be led in a direction divergent from the path that was taken in the claim.” *Meiresonne v. Google*, 849 F.3d 1379, 1382 (Fed. Cir. 2017) (quoting *Galderma Labs., L.P. v. Tolmar, Inc.*, 737 F.3d 731, 738 (Fed. Cir. 2013)) (internal quotations omitted); EX-2025, ¶102.

Further, SmartKom’s disclosure of the need to implement *forgetting* information for long dialogs after 30 minutes in future designs is at odds with Kobsa’s disclosure of *recording all information* at the conclusion of a dialog session. EX-1006, 10-11; EX-2025, ¶101. Petitioners do not attempt to reconcile this difference, nor explain how a POSITA would have implemented a coherent system using these disclosures to reach the claimed invention

As a separate example, as set forth above, the Petition admits that SmartKom mentions user models or user profiles/preferences, but does not disclose further

details about these user models. Petition, 7-8. Specifically, the Petition relies on the generalized disclosure of a user model in SmartKom and the interaction model in SmartKom for its disclosure of “comput[ing] information on the user” to satisfy the claim limitations requiring “long-term knowledge.” Petition, 35-36 (“SmartKom describes an interaction model that ‘computes information on the user’[.]”). The Petition turns to Kobsa’s teachings regarding user models to fill the gap of SmartKom’s lack of disclosure of the details of user models or preferences. Petition, 7-8. The Petition argues that Kobsa describes techniques for “accumulating long-term knowledge” based on its teaching of the “user modeling component” as “part of the dialog system whose function is to incrementally construct a user model; to store, update, and delete entries; to maintain the consistency of the model; to supply other components of the system with assumptions about the user.” Petition, 35-37 (citing EX-1006, 6). Further, Petitioners allege that Kobsa’s General User Modeling System (“GUMS”) satisfies the claim requirements for “accumulating long-term knowledge” because GUMS “is designed for building long term models of individual users,” and the user model is persistent, because “at the end of a dialog session,” the system “records all information about the user inferred from his/her dialog behavior in a corresponding file.” Petition, 36 (citing EX-1006, 10-11).

The Petition does not, however, explain how, in the proposed combination, a POSITA would incorporate Kobsa's persistent GUMS with SmartKom's interaction model or the interaction module that Petitioners allege determine a manner of speaking. Instead, the Petition merely states that a "POSITA would therefore have been motivated to add Kobsa's teachings into SmartKom to improve the user experience by providing user-specific and tailored responses." Petition, 8. This alleged motivation falls short because it fails to address the implementation of user model information in SmartKom, and how Kobsa's teaching could accordingly be "added" to SmartKom to reach the claimed invention. EX-2025, ¶97

This shortcoming is underscored by SmartKom's explicit disclosure that "general user model information is supplied via external sources, e.g., via a user's *SmartCard*," while the SmartKom system only "actively monitors" "interaction preferences of the users." EX-1005, 276 (emphasis in original). EX-2025, ¶98. This external plug-in user model in SmartKom, with no active monitoring of user information other than interaction preferences, is entirely inconsistent with the "persistent" user model in Kobsa, which "records *all information* about the user inferred from his/her dialog behavior" "at the end of a dialog session." Petition, 36; EX-1006, 10-11; EX-2025, ¶98. A plug-in, e.g., *removable*, SmartCard inherently cannot be persistent such that it would store, update, and maintain entries in a user

model because it is external to the system and the user must be able to plug it in to supply the system with the user model, and remove it therefrom. EX-2025, ¶¶98-99.

Petitioners have not identified any disclosure in SmartKom showing that, when plugged in, the SmartCard would engage in “incrementally construct[ing]; to store, update, and delete entries; to maintain the consistency of the model,” as Kobsa’s “persistent” user model requires. Instead, SmartKom says to the contrary, there is no active monitoring or updating of user model information. EX-1005, 276 Accordingly, SmartKom’s plug-in user model is inconsistent with incorporating the persistent user model of Kobsa. EX-2025, ¶¶98-100. Petitioners do not even address SmartKom’s disclosure of an external plug-in user model, let alone explain how the persistent user model of Kobsa could be incorporated into a SmartCard, for example, to be used in SmartKom’s system.

**B. GROUND 2 – The Petition Fails to Demonstrate a Reasonable Likelihood that the Challenged Claims are Unpatentable as Obvious over Barbara, Ross, and Kellner**

Ground 2 of the Petition relies on the combination of Barbara (EX-1007), Ross (EX-1008), and Kellner (EX-1023). As set forth in detail below, the Petition fails to demonstrate a reasonable likelihood that the Challenged Claims are obvious over Barbara, Ross, and Kellner for several key reasons. First, the Petition fails to show that Barbara, Ross, and Kellner disclose, teach, or suggest

“accumulate[ing]/[e]” “short-term knowledge based on one or more natural language utterances received during a predetermined time period,” and “accumulat[ing]/[e]” “long-term knowledge, where the long-term knowledge is accumulated based on one or more natural language utterances receive prior to the predetermined time period.” EX-1001, cl. 1, 12. Next, the Petition does not show that Barbara, Ross, and Kellner disclose, teach, or suggest the claimed “computer-implemented method” or the claimed “system for generating natural language responses adapted based on a user’s manner of speaking” comprising “one or more physical processors programmed with one or more computer program instructions” configured to perform the functionality recited in the Challenged Claims because Barbara is fundamentally based on manual interpretation by human operators. Finally, any combination based on Barbara, Ross, and Kellner does not demonstrate obviousness of the Challenged Claims because the Petition fails to establish that a POSITA would be motivated to combine Barbara, Ross, and Kellner to reach the claimed invention. For at least these reasons, Petitioners have not demonstrated a reasonable likelihood that the Challenged Claims are obvious over Barbara, Ross, and Kellner.

**1. The Petition Fails to Show that the Barbara + Ross + Kellner Combination Discloses or Teaches “accumulate[ing]/[e]” “short-term knowledge based on one or more natural language utterances received during a predetermined time period,” and “accumulat[ing]/[e]” “long-term knowledge, where the long-term knowledge is accumulated based on one or more natural language utterances receive prior to the predetermined time period”**

The Petition alleges that the claim limitations requiring “accumulate[ing]/[e]” “short-term knowledge based on one or more natural language utterances received during a predetermined time period,” and “accumulat[ing]/[e]” “long-term knowledge, where the long-term knowledge is accumulated based on one or more natural language utterances receive prior to the predetermined time period”. In Petitioners’ view, “implementing Ross’s teachings regarding purging information from the ‘conversational record’ allows Barbara’s dialog history to be expired and long-term data to be retained.” Petition, 66-67. The Petition, however, does not identify any disclosure in Ross suggesting to a POSITA that the indexed information in Ross’s conversational record as applied to Barbara’s dialogue history would or should be recorded if it has long-term significance. Instead, Ross *only* suggests purging (e.g., deleting) what Petitioners have identified as the short-term knowledge, and Petitioners have not pointed to any disclosure in Ross that suggests that *any* information should be kept unless it is relevant to active goals of the conversation. EX-2025, ¶117. This is not surprising, as Ross’s conversational record is directed to

indexing each utterance and the results of its semantic analysis “until it is no longer relevant to active goals.” EX-1008 at ¶57. Because Ross only discloses purging (i.e., deleting) information, there is no suggestion in Ross that items of short-term knowledge would be *accumulated* during a predetermined period of time, nor that items accumulated prior to the predetermined time would be included as long-term knowledge, as those items would be purged, according to Ross’s organizational structure relied upon by Petitioners. EX-2025, ¶117; Accordingly, the Petition does not show that the Barbara-Ross combination discloses or suggests these limitations.

**2. The Petition Fails to Show that the Barbara-Ross Combination Discloses or Suggests the Claimed “computer-implemented method” or the claimed “system for facilitating natural language system responses” “comprising one or more physical processors programmed with one or more computer program instructions” Because Barbara is Based on Manual Interpretation Using Human Assistance**

Petitioners assert that the Barbara, Ross, and Kellner combination renders obvious the Challenged Claims. However, the Petition fails to demonstrate that the combination of Barbara, Ross, and Kellner disclose or render obvious the claimed “computer-implemented method” or the claimed “system for facilitating natural language system responses” “comprising one or more physical processors programmed with one or more computer program instructions” because Barbara’s automatic recognition process that Petitioners rely on in its obviousness challenge is

fundamentally based on manual interpretation by human operators. EX-2025, ¶¶108-109, 119-122. Manual interpretation by a human to determine the correct text utterance and the correct intended meaning of an utterance is inconsistent with the requirements of the Challenged Claims that the computer system, not a human operator, is configured to perform these steps. EX-2025, ¶¶119-122

Specifically, as shown in Figure 7 below, Barbara's recognition process relies on manual interpretation of both the interpretation of the recognized text value of the utterance and for determining the intent of the user's utterance when the system cannot deduce it. EX-2025, ¶¶108-09; EX-1007, Fig. 7.

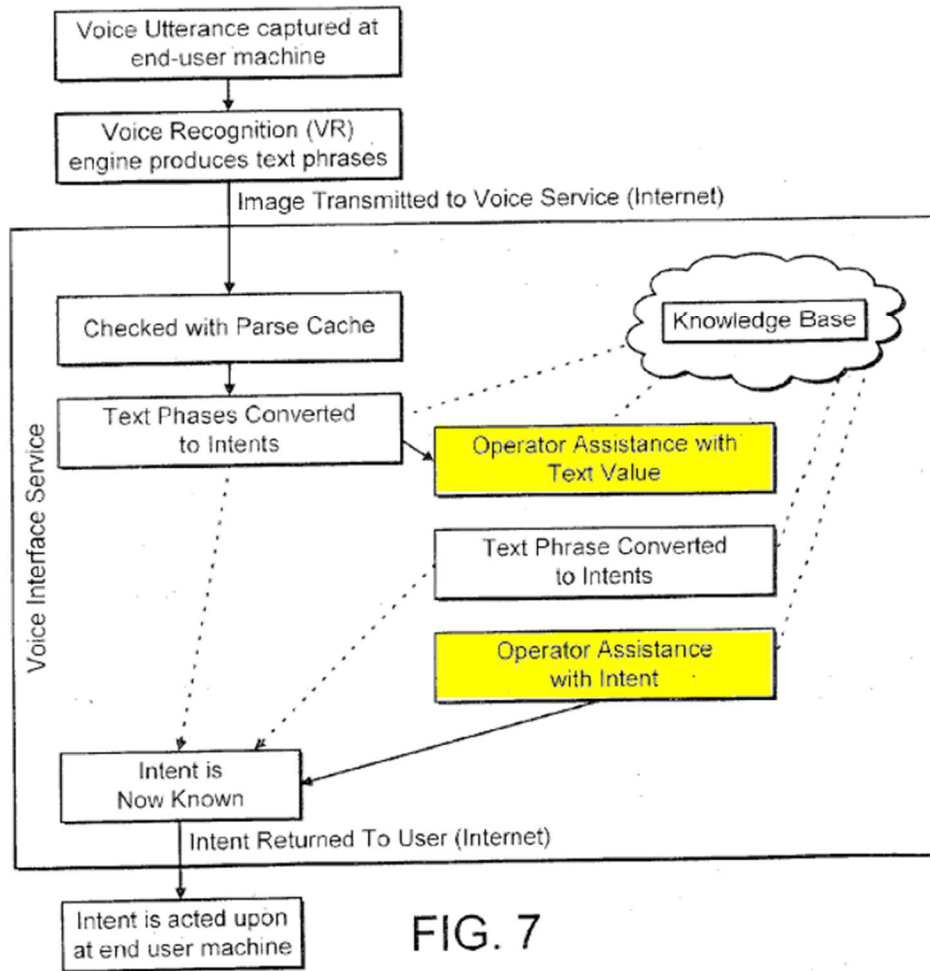


FIG. 7

EX-1007, Fig. 7 (annotated); EX-2025, ¶108.

Figure 7 shows that, before intent is known, Barbara's system requires operator assistance for manual interpretation with determining both the correct text value of the utterance, and the intent. EX-1007, ¶¶[0085], Fig. 7; EX-2025, ¶108.

Barbara's recognition process evaluates guesses as to what was said using the knowledge and information databases. EX-1007, ¶¶[0088], [0118]. These guesses are scored for likelihood that each is correct. EX-1007, ¶[0099]; EX-2025, ¶109.

However, if a text value cannot be determined by the system to a certain criteria of confidence, the audio file associated with the utterance is replayed for a human operator who performs manual interpretation and chooses the correct textual interpretation. EX-1007, ¶[0100]; EX-2025, ¶109.

After the text value has been determined using this manual interpretation, Barbara's intention recognition process follows. However, if the system cannot automatically deduce what the user wanted to do despite knowing what they said, a second human operator is engaged to assist, who hears what was said and performs manual interpretation of the meaning of the utterance. EX-1007, ¶ [0104]-[0105]; EX-2025, ¶109. Thus, Barbara's voice interface system fundamentally relies on human operators, in addition to the system itself, being used for the utterance text recognition and the intention recognition. EX-2025, ¶121.

The Challenged Claims explicitly articulate that the claimed method steps of claim 1 are "computer-implemented" including "recognizing, by the computer system, a user input comprising a natural language utterance," "identifying, by the computer system, a context for the natural language utterance," and "determining, by the computer system, an interpretation of the first natural language utterance" EX-1001, cl. 1, Likewise, claim 12 recites a system with "one or more physical processors programmed with one or more computer program instructions" that are

configured to perform the claimed functionality. Manual interpretation by a human to determine the intention for an utterance is inconsistent with these explicitly recited limitations. EX-2025, ¶¶120-22.

The Petition fails to address that determining the text recognition of an utterance and the meaning of the utterance in Barbara's system is fundamentally based on the backstop provided by manual interpretation by a human. Even if Petitioners did address this shortcoming of Barbara, it is fatal to Petitioners' argument that the Barbara and Ross combination render disclose or render obvious the Challenged Claims.

### **3. A POSITA Would Not Be Motivated to Combine Barbara, Ross, and Kellner to Reach the Claimed Invention**

Finally, any proposed combination of Barbara, Ross, and Kellner would fail because a POSITA would not be motivated to combine these references as Petitioners suggest since the proposed combination would not work. EX-2025, ¶¶126-135. The Petition asserts that a POSITA would have been motivated to combine Barbara and Ross such that the knowledge and/or information database in Barbara's voice interface system would be modified by Ross's conversational records for storing a dialog history. Petition, 66. This proposed combination relies on applying Ross's teaching that the information "is eventually purged from the conversational record when it is no longer relevant to active goals" to expire the

dialog history contained in Barbara's knowledge and/or information database. Petition, 66; EX-1008, ¶[0057]. The Petition alleges that a POSITA would be so motivated because this "data management approach improves storage efficiency and reduces need for extensive hardware storage." Petition, 67. However, any proposed benefit of this asserted combination is entirely undermined by the fact that Barbara's recognition process would not work if modified by Ross as Petitioners argue. EX-2025, ¶¶126-135.

The Petition relies on Barbara's automatic recognition process in the proposed combination as rendering obvious the Challenged Claims. Crucial to the function and purpose of Barbara's recognition process is the continual construction and maintenance of the information database and knowledge base disclosed therein. Barbara's information database is built up over time "by recording personal details or preferences from what has been said, or from the user directly entering information into the system," (EX-1007, ¶[0088]) and Barbara's knowledge base stores the correct utterance text and the correct intention. EX-1007, ¶[0106].

Barbara's recognition process works by generating a packet that comprises, in part, the best guesses as to what was said in a received utterance and an indication of the likelihood that the guesses are correct. EX-1007, ¶[0086]; EX-2025, ¶105-107. The guesses in the packet are evaluated by the system against the information

database and the knowledge base. EX-1007, ¶¶[0088], [0106]; EX-2025, ¶¶105-107, 126-28. Part of this process is mapping every sub-phrase from the sentence to a possible intention until the whole phrase is mapped to a set of possible intentions for the utterance. EX-2025, ¶126. Then, a heuristic calculation is done for the confidences of each possible intention based on the success of mapping rules in the history of the system. EX-1007, ¶[0118]; EX-2025, ¶107. Rule confidences are periodically calculated based on an analysis of the knowledge base, meaning that the knowledge base, and its history of correctly interpreted utterances, is continually used in the process for successfully recognizing utterances as the Barbara system is used. EX-1007, ¶[0118]; EX-2025, ¶¶105-07, 127-28.

Another part of evaluating the best guesses in Barbara's recognition process includes searching the information database for words that are similar to those that are being interpreted, and sending a message to the server if any word is identified along with its meaning and the confidence of the interpretation. EX-1007, ¶[0089]; EX-2025, ¶¶ 105-07, 126

Thus, in order for Barbara's system to perform its process for recognizing the intention of an utterance, the history of the correct utterance text and correct intention in the knowledge base must be as "broadly applicable as possible" and continually maintained so that confidences for the intention of recognized utterance

can continually be calculated by the system. EX-1007, ¶[0110]; EX-2025, ¶¶105-07, 125-132. Moreover, the function and purpose of Barbara's recognition process is also reliant on a robustly maintained information database so that the best guesses can be effectively evaluated against the history of personal details based on what has been said overtime. EX-2025, ¶132.

The need for Barbara's databases to be continually maintained in order to continually calculate the confidence scores for each word for Barbara's system to work is entirely inconsistent with Ross's conversational record that purges the indexed utterances and results of its semantic analysis when it is no longer relevant. EX-1008, ¶[0057]; EX-2025, ¶131. Periodically purging the information stored in the knowledge base or information database from Ross is therefore incompatible with the function and purpose of the Barbara's recognition system because, if purged, Barbara's recognition process would be unable to successfully calculate the confidences of each interpreted utterance. In particular, there would not be history of prior, correct utterances recognition and intention in the knowledge base to calculate these confidences. EX-2025, ¶¶131-32. In addition, the proposed modification would also keep Barbara's recognition process from being functional because the history, "built up over time" based on what has been said is also analyzed in order to interpret the best guesses and confidences for utterances received by

Barbara's system. Barbara simply would not function with Ross's purge requirement. EX-2025, ¶132. Thus, Petitioners have not demonstrated a supported basis as to why a POSITA would be motivated to combine Barbara and Ross. *See Keurig Green Mountain, Inc. v. Touch Coffee & Beverages, LLC*, IPR2016-01390, Paper 18 at 10 (P.T.A.B. Jan. 4, 2017) ("Petitioner does not show sufficiently that a person of ordinary skill in the art would have has a reason to make all the modifications needed to make the combination of Castellani and Yoakim work as intended.").

A POSITA would not be motivated to combine Barbara and Ross with Kellner for similar reasons. Kellner's system "in a position to generate system outputs adapted to a user's style of speech with a style of speech considered pleasant by the respective user," and therefore "the inhibition threshold of the use the dialog system can be lowered." Ex. 1023, ¶[0005]. As the Petitioners argue, Kellner's system can capture additional user information as the user interacts more with the system and therefore provide more tailored results. Petition, 68-69. Thus, just like Barbara, Kellner effectively discloses a functional positive feedback loop. EX-2025, ¶134. Just as the continued success of subsequent interpretations and the resulting function of Barbara's system is reliant on the continual correct recognition of the utterance text and intent and building the database with that history, The continued function

of Kellner's system is based on increased interactions with the system due to lowered inhibition thresholds when the user gets pleasant responses. EX-1023, ¶[0005]; EX-2025, ¶134. As explained above, this feedback loop of Kellner is entirely inconsistent with Ross's periodic purging of the conversational record. Kellner's continued use of a user model to adapt the style of speech and/or the behavior or the user to increase user interaction with the system would be completely undermined if the conversational history used to collect information about the style of speech to better adapt future responses was purged. EX-2025, ¶134.

Accordingly, a POSITA would not be motivated to modify Barbara or Kellner using Ross's disclosure because the combined system simply would not work if modified in the way that Petitioners suggest.

## **VI. CONCLUSION**

For at least the foregoing reasons, Petitioners failed to meet their burden to show a reasonable likelihood of unpatentability of any of the Challenged Claims. *See* 37 C.F.R. § 42.108(c). Accordingly, Patent Owner respectfully requests that the Board deny institution of *inter partes* review.

Dated: September 10, 2025

Respectfully submitted,

By: / Christopher TL Douglas /  
Christopher TL Douglas, Reg. No. 56,950

**CERTIFICATION UNDER 37 C.F.R. §42.24**

Pursuant to 37 C.F.R. §42.24(d), I certify that this brief complies with the type-volume limits of 37 C.F.R. §42.24 because it contains 8,006 words, according to the word-processing system used to prepare this brief, excluding the parts that are exempted by 37 C.F.R. §42.24 (including the table of contents, a table of authorities, a listing of facts which are admitted, a certificate of service or this certificate word count, and appendix of exhibits).

Dated: September 10, 2025

By: / Christopher TL Douglas /  
Christopher TL Douglas

**CERTIFICATE OF SERVICE**

Pursuant to 37 C.F.R. §42.6(e), the undersigned hereby certifies that true and correct copies of the foregoing **PATENT OWNER'S PRELIMINARY RESPONSE and VB ASSETS EXHIBITS 2025-2026** were served in their entirety on September 10, 2025 by filing these documents through Patent Trial and Appeal Case Tracking System (P-TACTS) as well as delivering true and correct copies by electronic mail on Petitioners' lead and backup counsel at the following email addresses (as agreed by counsel for Petitioners):

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Dated: September 10, 2025

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