

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WHATFIX INC.,
Petitioner,

v.

WALKME LTD.,
Patent Owner.

IPR2023-01368
Patent 10,819,664 B2

Before CHARLES J. BOUDREAU, KARA L. SZPONDOWSKI,
and MICHAEL T. CYGAN, *Administrative Patent Judges*.

SZPONDOWSKI, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining Some Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

We instituted an *inter partes* review of claims 1–9, 12–16, 18–23, 25, 26, 28–31, and 33 of U.S. Patent 10,819,664 B2, issued on October 27, 2020 (Ex. 1001, “the ’664 patent”), in response to a Petition (Paper 2, “Pet.”) filed by Whatfix Inc. (“Petitioner”). Paper 12 (“Dec.”). During the trial, WalkMe Ltd. (“Patent Owner”) filed a Response to the Petition (Paper 19, “PO Resp.”), Petitioner filed a Reply (Paper 27, “Reply”), and Patent Owner filed a Sur-reply (Paper 33, “Sur-reply”).

We held a combined oral hearing in this proceeding, IPR2023-01379, and IPR2024-00065 on December 18, 2024, and a copy of the transcript was entered into the record. Paper 39 (“Tr”).

We have jurisdiction under 35 U.S.C. § 6 (2018). This Decision is a Final Written Decision under 35 U.S.C. § 318(a) as to the patentability of the claims on which we instituted trial. Petitioner has the burden of proving unpatentability of a claim by a preponderance of the evidence. 35 U.S.C. § 316(e).

Based on the complete record, Petitioner has shown, by a preponderance of the evidence, that claims 1–8, 12, 13, 16, 19–23, 26, 29, 31 of the ’664 patent are unpatentable. Petitioner has *not* shown by a preponderance of the evidence that claims 9, 14, 15, 18, 25, 28, 30, and 33 of the ’664 patent are unpatentable.

II. BACKGROUND

A. *Real Parties in Interest*

Petitioner identifies Whatfix Inc. and Whatfix Private Limited as the real parties in interest. Pet. 87. Patent Owner identifies itself as the real party in interest. Paper 15, 2 (Patent Owner’s Updated Mandatory Notices).

B. *Related Matters*

The parties indicate that the ’664 patent is involved in *WalkMe Ltd., v. Whatfix Inc.*, Case No. 1:23-cv-00227-MN (D. Del). Paper 6, 2 (Petitioner’s Updated Mandatory Notices); Paper 15, 2.

The parties also identify that the ’664 patent is the subject of IPR2023-01443 (institution denied), and identify as related matters IPR2023-01379 and IPR2024-00065, involving patents related to the ’664 patent. Paper 6, 2; Paper 15, 2. Patent Owner reports that the district court litigation has been stayed pending resolution of this and the identified related *inter partes* review proceedings. Paper 15, 2.

C. *The ’664 Patent (Ex. 1001)*

The ’664 patent is titled “Chat-Based Application Interface for Automation” and generally relates to “user-interfaces for automation processes that utilize chat bots.” Ex. 1001, code (54), 1:16–17.

The ’664 patent discloses a “technical solution . . . to use a natural language interface to receive input from the user, and based thereon, select an automation process to be executed,” where “[t]he automation process may be executed in a manner that manipulates the [graphical user interface (GUI)] of the target system, in a similar manner to the manner in which the user operates.” Ex. 1001, 8:65–9:4. “The target system, generally referred

to as the computer program, may be a website, a web-based system, a native mobile application . . . , a desktop application . . . , or the like.” *Id.* at 8:9–13.

The ’664 patent discloses exemplary embodiments for a non-programmer user to define a flow of conversation for a chat bot. *See, e.g.*, Ex. 1001, Figs. 1–3. For example, a user “may define which questions the bot would ask, which remarks it will make, [and] flow control operations that may be based on evaluated conditions.” *Id.* at 11:48–50. Further, “the user may define for a conversation flow which automation process is invoked,” or “that a conversation is associated with multiple automation processes, one of which may be selected based on the interaction with the user.” *Id.* at 11:52–57. The automation process may also be defined by a user. *Id.* at 14:29–30.

Figure 2A, reproduced below, shows a flowchart in accordance with an exemplary embodiment:

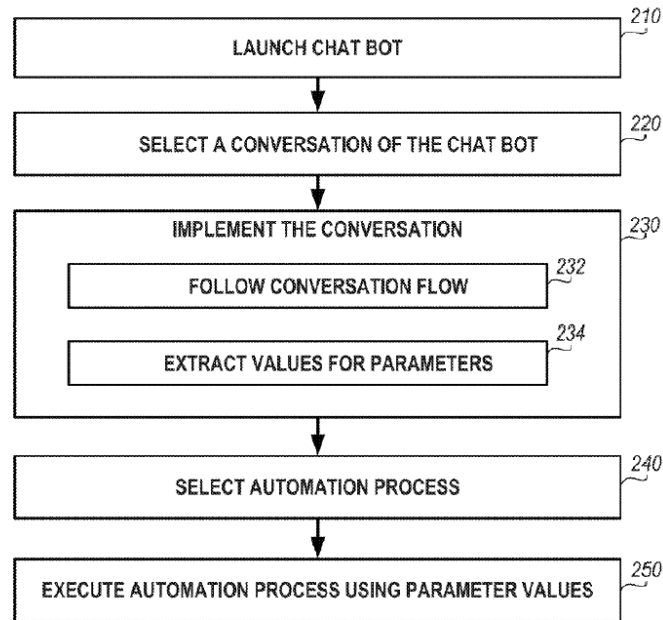


FIG. 2A

Figure 2A, above, shows step 210 (Launch Chat Bot), step 220 (Select a Conversation of the Chat Bot), Step 230 (Implement the Conversation), which further includes Step 232 (Follow Conversation Flow) and Step 234 (Extract Values for Parameters), Step 240 (Select Automation Process), and Step 250 (Execute Automation Process Using Parameter Values). After the chat bot is launched (step 210), the user may interact with the chat bot using natural language processing techniques and the appropriate conversation may be selected (step 220). Ex. 1001, 13:33–43. The user may, for example, “converse with the chat bot using natural language, such as using written text in a messenger-like [user interface (UI)], [or] using oral conversation such as by providing oral instructions that may be translated to text using speech-to-text methods.” *Id.* at 12:6–11. At step 230, the conversation may be implemented, and the chat bot may execute the conversation flow by following the flow defined for that conversation. *Id.* at

13:44–46. At step 240, an automation process may be selected based on the flow of the conversation. *Id.* at 14:4–6. “The automation may be a flow that comprises steps in a predefined order.” *Id.* at 14:32–33. At step 250, the automation process may be executed. *Id.* at 14:13. Certain actions can be defined to cause the corresponding steps to occur in an automation. *Id.* at 14:37–39. For example, the automation process may interact with an element-of-interest on the GUI, such as a clickable object or a button, and simulate a click thereon. *Id.* at 14:56–59; *see also id.* at 14:60–15:29 (describing additional elements-of-interest and how the automation process interacts with them). In some embodiments, the user may be provided with a link during the chat bot session, and the automation process may be executed after the user clicks on the link. *See, e.g., id.* at 16:24–31, Fig. 2B.

The ’664 patent also discloses various schematic illustrations of a user interface by which a user can edit and define a bot (Figures 4A and 4B), edit and define a conversation (Figures 5A and 5B), edit and define an action step (Figure 5C), edit and define a question step (Figure 5D), edit and define a condition step (Figure 5E), and edit and define an automation process (Figure 6). Ex. 1001, 17:31–22:28. One example described in the foregoing figures is to “Add New Employee.” *Id.*

Figure 7A, reproduced below, shows a schematic illustration of a user interface of the user with a chat bot.

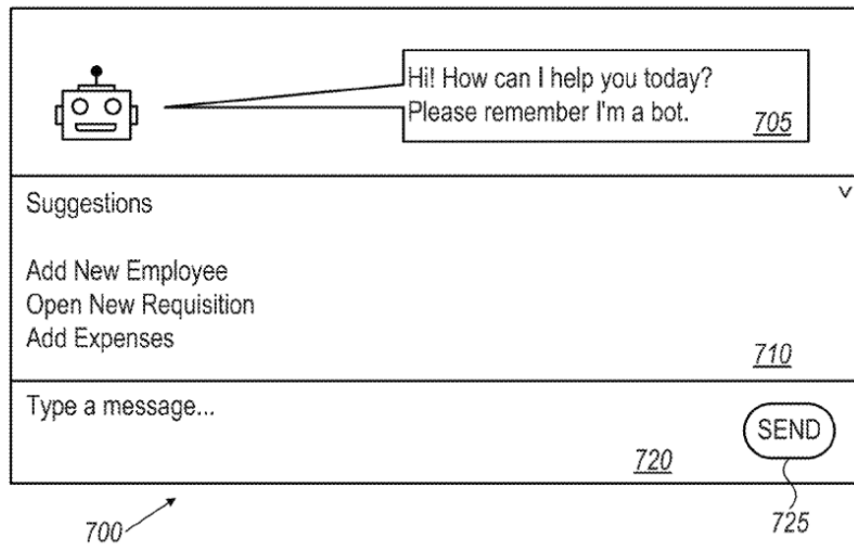


Fig. 7A

Figure 7A, above, shows a user interface of a user conversing with a chat bot after the chat bot has been launched. Ex. 1001, 22:32–34. The chat bot has provided a greeting “Hi! How can I help you today? Please remember I’m a bot.” (message 705), which may be based on the definition of the chat bot. *Id.* at 22:35–38. The chat bot has indicated suggested conversations 710 of “Add New Employee,” “Open New Requisition,” and “Add Expenses.” *Id.* at 22:47–50; *see id.* at 17:64–67. The user may converse with the chat bot by entering a message in text field 720, or speech to text may be used to analyze speech of the user and generate a text string. *Id.* at 22:39–46.

Figure 7B, reproduced below, further shows a schematic illustration of a user interface of the user with a chat bot.

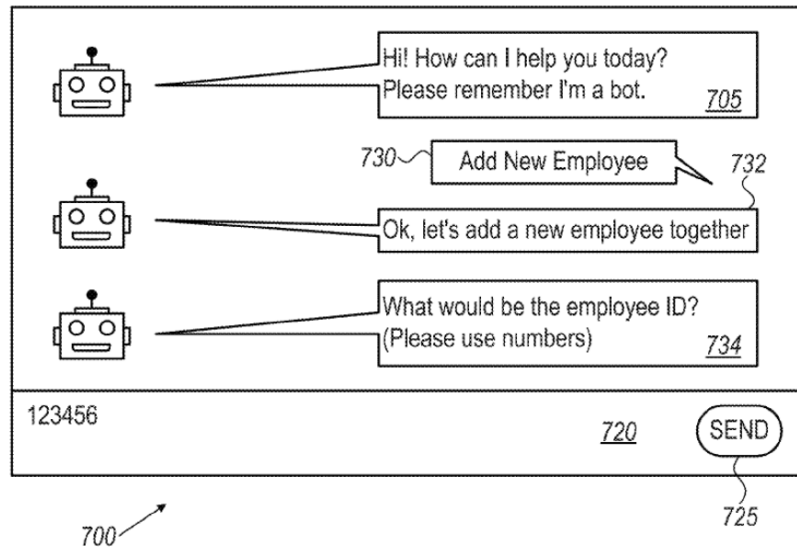


Fig. 7B

In Figure 7B, above, the user has indicated in message 730 that they would like to “Add New Employee.” The chat bot has started to implement the conversation flow of this selected conversation, and responds “Ok, let’s add a new employee together” (message 732) and “What would be the employee ID? (Please use numbers)” (message 734). Ex. 1001, 22:52–58. The user has replied in text field 720 with “123456.” *Id.* at 22:58–59.

D. Illustrative Claim

Among the challenged claims, claims 1, 19, and 29 are independent. Independent claim 1, reproduced below with brackets noting Petitioner’s identifiers, is illustrative of the claimed subject matter:

1. A method comprising:

[a] using a natural language interface, receiving input from a user as part of a natural language conversation between the natural language interface and the user, [b] wherein the natural language conversation comprises a first natural language input from the user, a natural language feedback on the first natural language input from the

natural language interface, and a second natural language input from the user in response to the natural language feedback:

[c] determining, based on the first and second natural language inputs from the user, an automation process configured to perform an automation of a sequence of interactions with a displayed user interface of a computer program and to simulate user interactions with the displayed user interface of the computer program,

[d] wherein the user interface of the computer program is configured to be displayed on a screen,

[e] wherein each interaction of the sequence of interactions comprises an action selected from a group consisting of inputting data to the displayed user interface and executing a functionality of the displayed user interface; and

[f] executing the automation process, wherein said executing comprises utilizing the displayed user interface of the computer program to perform the sequence of interactions.

Ex. 1001, 25:14–39. Claims 2–9, 12–16, and 18 depend from claim 1. *Id.* at 25:40–27:4. Independent claim 19 has substantially the same limitations as claim 1, but is directed to a non-transitory computer readable medium retaining program instructions. *Id.* at 27:5–32. Claims 20–23, 25, 26, and 28 depend from claim 19. *Id.* at 27:33–28:17. Independent claim 29 has substantially the same limitations as claim 1, but is directed to a system. *Id.* at 28:18–44. Claims 30, 31, and 33 depend from claim 29. *Id.* at 28:45–60.

E. *Prior Art and Asserted Challenges to Patentability*

Petitioner asserts that claims 1–9, 12–16, 18–23, 25, 26, 28–31, and 33 are unpatentable on the following challenges (Pet. 7):

Claims Challenged	35 U.S.C. § ¹	Basis/References
1–8, 12, 13, 16, 19–23, 26, 29, 31	103	Symons (Article ² and Video ³), Williams ⁴
1–8, 12–16, 18–23, 25, 26, 28–31, 33	103	Allen ⁵

¹ Because the '664 patent issued from a patent application that was filed after March 16, 2013, patentability is governed by the version of 35 U.S.C. § 103 as amended by the Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112–29, 125 Stat. 284 (2011).

² Senne Symons, *When Chatbots meet RPA bots* (October 19, 2017), <https://medium.com/roborana/when-chatbots-meet-rpa-bots-c8b22579f49a> (Ex. 1004). Petitioner contends that Symons is prior art to the '664 patent at least under 35 U.S.C. § 102(a)(1) as a printed publication or as being otherwise available to the public. Pet. 9.

³ Screenshots from Senne Symons, “RPA meets chatbot: Automatically generate e-mail signature,” Vimeo (October 19, 2017), <https://vimeo.com/238927879> (Ex. 1005 (original); Ex. 1006 (English translation)). Petitioner contends that the Symons Video is prior art to the '664 patent at least under 35 U.S.C. § 102(a)(1) as a printed publication or as being otherwise available to the public. Pet. 9.

⁴ Douglas D. Williams and Ira L. Allen, *IBM Global Business Services White Paper: Using artificial intelligence to optimize the value of robotic process automation*, (IBM 2017) (“Williams”) (Ex. 1011). Petitioner contends that Williams is prior art to the '664 patent at least under 35 U.S.C. § 102(a)(1) as a printed publication or as being otherwise available to the public. Pet. 12–13.

⁵ Allen et al., US 7,983,997 B2, issued July 19, 2011 (“Allen”) (Ex. 1014). Petitioner contends that Allen is prior art to the '664 patent at least under 35 U.S.C. § 102(a)(1). Pet. 35.

Claims Challenged	35 U.S.C. § ¹	Basis/References
9	103	Allen, Dayanandan ⁶
1–8, 12–14, 16, 18–23, 26, 28, 29, 31, 33	103	Krishnan, ⁷ Radhakrishnan ⁸

In support of its proposed challenges, Petitioner relies on the Declarations of Dr. Homayoon Beigi (Exs. 1003, 1042), Declaration of Mathijs Mekes (Ex. 1007), Declaration of Senne Symons (Ex. 1008), Declaration of Wouter Baetens (Ex. 1010), Declaration of Ira Allen (Ex. 1012), and Declaration of Nathaniel Frank-White (Ex. 1027). In opposition, Patent Owner relies on the Declarations of Ivan Zatkovich (Ex. 2001, 2014). Deposition transcripts for Mr. Zatkovich (Exs. 1036, 1037) and Dr. Beigi (Exs. 2003, 2004, 2020, 2021) have also been submitted to the record.

⁶ Dayanandan, US 10,838,699 B2, filed Nov. 2, 2017, published July 19, 2018 (“Dayanandan”) (Ex. 1015). Petitioner contends that Dayanandan is prior art to the ’664 patent at least under 35 U.S.C. § 102(a)(2). Pet. 58.

⁷ Krishnan et al., US 10,839,798 B2, filed Jan. 30, 2018 (“Krishnan”) (Ex. 1016). Petitioner contends that Krishnan claims priority to a provisional application filed on Nov. 3, 2017, and published on May 9, 2019, and is prior art to the ’664 patent at least under 35 U.S.C. § 102(a)(2). Pet. 62. Patent Owner does not dispute Krishnan’s status as prior art. *See generally* PO Resp.

⁸ Radhakrishnan et al., US 10,503,627 B2, filed Oct. 30, 2017, published May 2, 2019 (“Radhakrishnan”) (Ex. 1018). Petitioner contends that Radhakrishnan is prior art to the ’664 patent at least under 35 U.S.C. § 102(a)(2). Pet. 63.

III. ANALYSIS

A. *Legal Standards*

A claim is unpatentable under 35 U.S.C. § 103 if “the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which said subject matter pertains.” 35 U.S.C. § 103. The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art; and (4) when in evidence, objective evidence of nonobviousness, i.e., secondary considerations. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966).

A patent claim “is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art.” *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). An obviousness determination based on a combination of references requires finding “both ‘that a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success in doing so.’” *Intelligent Bio-Sys., Inc. v. Illumina Cambridge Ltd.*, 821 F.3d 1359, 1367–68 (Fed. Cir. 2016) (citation omitted); *see KSR*, 550 U.S. at 418. Further, an assertion of obviousness “cannot be sustained by mere conclusory statements; instead, there must be some articulated reasoning with some rational underpinning to support the legal conclusion of

obviousness.” *KSR*, 550 U.S. at 418; *In re NuVasive, Inc.*, 842 F.3d 1376, 1383 (Fed. Cir. 2016) (a finding of a motivation to combine “must be supported by a ‘reasoned explanation’” (citation omitted)).

In an *inter partes* review, a petitioner bears the burden of persuasion to prove “unpatentability by a preponderance of the evidence.” *Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (quoting 35 U.S.C. § 316(e)). This burden never shifts to Patent Owner. *Dynamic Drinkware*, 800 F.3d at 1378 (citing *Tech. Licensing Corp. v. Videotek, Inc.*, 545 F.3d 1316, 1326–1327 (Fed. Cir. 2008)). Petitioner must explain with particularity how the prior art would have rendered the challenged claims unpatentable. 35 U.S.C. § 312(a)(3); 37 C.F.R. § 42.104(b)(4) (2024) (“The petition must specify where each element of the claim is found in the prior art patents or printed publications relied upon.”).

B. *Level of Ordinary Skill in the Art*

Determining whether an invention would have been obvious under 35 U.S.C. § 103 requires resolving the level of ordinary skill in the pertinent art at the time of the effective filing date of the claimed invention. *Graham*, 383 U.S. at 17. The person of ordinary skill in the art is a hypothetical person who knows the relevant art. *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). Factors that may be considered in determining level of ordinary skill in the art include (1) the educational level of the inventor; (2) the types of problems encountered in the art; (3) prior art solutions to those problems; (4) the rapidity with which innovations are made; (5) the sophistication of the technology; and (6) the educational level of active

workers in the field. *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007).

Petitioner proposes that a person of ordinary skill in the art (“POSITA”) “would have a bachelor’s degree in engineering or computer science and two years of experience working on NLP [natural language processing] and automation processes. Alternatively, a POSITA would have five to six years of experience working on NLP and automation processes.” Pet. 5–6 (citing Ex. 1003 ¶¶ 50–52). We adopted Petitioner’s proposal for purposes of the Decision on Institution, explaining that it appeared to be consistent with the evidence of record, including the asserted prior art and the ’664 patent. Dec. 12.

Patent Owner disagrees with Petitioner’s proposal, contending that it is inconsistent with the asserted Symons prior art and with factors (4)–(6) set forth in *Daiichi Sankyo*. PO Resp. 24 (citing Ex. 2001 ¶¶ 40–45). According to Patent Owner, the technology of the ’664 patent was “evolving rapidly” and the level of sophistication in the technology was “relatively low in November 2017.” *Id.* (citing Ex. 1004, 1–2; Ex. 1009, 2; Ex. 2001 ¶¶ 41–42; Ex. 2003, 141:2–9, 191:18–197:5; Ex. 2007; Ex. 2008). Further, Patent Owner contends, “[a]ctive work[ers] in the field, like Symons,^[9] had less experience than [Dr. Beigi] proposed.” *Id.* at 25 (citing Ex. 2001 ¶ 43; Ex. 2003, 112:12–24).

⁹ We understand “Symons” to refer to Senne Symons, the author of the Symons Article (Ex. 1004) and Symons Video (Exs. 1005, 1006) cited in Petitioner’s first two asserted grounds of unpatentability. *See* Ex. 1008 ¶¶ 5, 7 (Declaration of Senne Symons).

Accordingly, Patent Owner argues that a POSITA “would be a worker who had some education, formal or informal, in computer science and 1–2 years’ work experience with chatbots using NLP and/or automation processes.” PO Resp. 25 (emphasis omitted; citing Ex. 2001 ¶ 44; Pet. 5–6; Ex. 1003 ¶ 46). “Under Patent Owner’s more appropriate level,” Patent Owner contends, “Dr. Beigi’s interpretation of what a POSITA would understand are [materially] overstated,” as “[h]e expects a POSITA to have ‘more experience’ (like himself) and apply a more ‘technically correct’ (in his view) understanding of the prior art than less skilled authors and artisans would have understood.” *Id.* (citing Ex. 2003, 141:2–142:9, 191:18–197:5). Nonetheless, Patent Owner argues, “[s]hould the Board continue to apply Petitioner’s proposed level, Mr. Zatkovich confirms his analysis would still remain accurate.” *Id.* (citing Ex. 2001 ¶ 45).

In the Reply, Petitioner stands by its proposal, arguing that “[t]he record shows that the key aspects of the art—chatbots, RPAs and their combinations—were well known by 2017, and thus point to [Petitioner’s] higher POSITA level.” Reply 28. In support, Petitioner points, for example, to descriptions of chatbots from 1994/1995 that used natural language processing and descriptions of chatbot/RPA combinations from as early as 2007. *Id.* (citing Ex. 1014; Ex. 1028, 4; Ex. 1031, 4, 12–13; Ex. 1032, 3; Ex. 1042 ¶¶ 128–130). Further, according to Petitioner, Patent Owner mischaracterizes the asserted prior art and evidence insofar as it reflects that the general technology landscape, rather than the chatbot/RPA combination specifically, was “evolving rapidly” at the time of the alleged invention. *Id.* at 28–29 (citing PO Resp. 24; Ex. 1004, 1; Ex. 1009, 2; Ex. 1042 ¶¶ 131–

132). As for Symons’ experience, Petitioner argues, Patent Owner “improperly assumes (unlike its expert) that Symons’ experience before his job at RoboRana^[10] does not count.” *Id.* at 29 (citing PO Resp. 25; Ex. 1036, 16:7–25; Ex. 1042 ¶ 133). Still further, Petitioner contends, “it is unclear what ‘some education, formal or informal’ or ‘some’ work experience means.” *Id.* (citing PO Resp. 25; Ex. 2001 ¶ 44; Ex. 1042 ¶ 134). In any event, Petitioner argues, “the parties do not dispute that the outcome would be the same regardless of which POSITA level the Board adopts.” *Id.* (citing PO Resp. 25; Ex. 1042 ¶ 135).

Having considered the parties’ respective arguments and the evidence of record, we adopt a modified version of Patent Owner’s proposal and determine for purposes of this Decision that a person of ordinary skill in the art as of November 5, 2017, would have had a bachelor’s degree in computer science and 1–2 years’ work experience with chatbots using NLP or automation processes. We agree with Petitioner that Patent Owner’s original proposal introduces unnecessary ambiguity through its inclusion of the phrase “some education, formal or informal,” but we find that proposal otherwise consistent with the record evidence. Nonetheless, we agree with Petitioner that the outcome would be the same if we were instead to adopt the proposal set forth in the Petition.

¹⁰ We understand “RoboRana” to refer to Mr. Symons’s employer at the time the Symons Article and Symons Video were published. *See* Ex. 1008 ¶ 2.

C. *Claim Construction*

Petitioner “does not believe any terms require a formal construction.”
Pet. 6. Patent Owner provides constructions for the terms “computer program” and “displayed user interface of the computer program.” PO Resp. 27.

Patent Owner argues that “[t]he ’664 Patent adopted a special meaning of ‘computer program’ to refer to a ‘target system’, which has a functionality that is invoked through its displayed user interface.” PO Resp. 27 (citing Ex. 1001, 8:9–16) (emphasis omitted); *see also* Sur-reply 2 (arguing that the Patentee acted as his own lexicographer). In support of that contention, Patent Owner quotes the ’664 patent as follows:

The target system, generally referred to as the computer program, may be a website, a web-based system, a native mobile application (e.g., executed in a protected sandbox), a desktop application (e.g., executed in a process of a non-sandbox-based operating system), or the like. The target system may have a user interface, such as a Graphical User Interface (GUI), that the user may utilize in order to activate the functionalities of the target system.

Ex. 1001, 8:9–16 (quoted at PO Resp. 27). Patent Owner contends that a person of ordinary skill in the art would understand that a “computer program . . . refers to a target system whose functionality is invoked through by the automation process using its displayed user interface, such as a graphical user interface.” PO Resp. 28 (citing Ex. 2001 ¶¶ 93–95); Sur-reply 4–5. Patent Owner disputes that the “target system” is merely an example of a “computer program.” Sur-reply 2–3. According to Patent Owner, “[t]he invention is the automation process interacting with the GUI of the ‘target system’/‘computer program’, not the ‘target system’/‘computer

system’, itself.” *Id.* at 4. Similarly, Patent Owner argues that the “displayed user interface of the computer program” means “the user interface of the target system that the user may utilize to activate the functionalities of the target system.” PO Resp. 28 (emphasis omitted).

Petitioner replies that “computer program” should be given its plain and ordinary meaning as supported by the specification of the ’664 patent, as well as extrinsic evidence. Reply 1–2. According to Petitioner, the ’664 patent confirms that a “computer program” is “instructions carried out by computer(s),” which is also confirmed by extrinsic evidence, such as dictionary definitions. *Id.* at 1–2 (citing Ex. 1001, 2:34–36, 8:37–51, 13:11–17, 22:61–65, 24:24–32; Ex. 1036, 110:10–24; Ex. 1042 ¶¶ 7–11; Ex. 1038; Ex. 1039). Petitioner argues that Patent Owner has failed to show that the Board should rewrite “computer program” because Patent Owner “does not identify any ‘clear’ expressions of intent required to redefine ‘computer program,’” and Patent Owner’s citation describes a “target system,” not a “computer program.” *Id.* at 2.

We interpret claims using the same claim construction standard that would be used to construe the claims in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b). Under that standard, words of a claim are generally given their ordinary and customary meaning as understood by a person of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc). However, “the specification may reveal a special definition given to a claim term by the patentee that differs from the meaning it would otherwise possess, and “[i]n such cases, the inventor’s lexicography governs.” *Id.* at 1316. A patentee

may “choose to be his or her own lexicographer by clearly setting forth an explicit definition for a claim term that could differ in scope from that which would be afforded by its ordinary meaning.” *Rexnord Corp. v. Laitram Corp.*, 274 F.3d 1336, 1342 (Fed. Cir. 2001). We only need to construe the claims to the extent necessary to resolve the parties’ disputes. *See Realtime Data, LLC. v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019).

Having considered the parties’ respective arguments, we are not persuaded that we should depart from the plain and ordinary meaning of the term “computer program.” The pertinent portions of claim 1 recite:

[c] determining . . . an automation process configured to perform an automation of a sequence of interactions *with a displayed user interface of a computer program* and *to simulate user interactions with the displayed user interface of the computer program*,

[d] wherein *the user interface of the computer program is configured to be displayed on a screen*,

[e] wherein each interaction of the sequence of interactions comprises an action selected from a group consisting of inputting data *to the displayed user interface* and *executing a functionality of the displayed user interface*; and

[f] executing the automation process, wherein said *executing comprises utilizing the displayed user interface of the computer program* to perform the sequence of interactions.

Ex. 1001, 25:24–39 (emphasis added). Patent Owner essentially requests that we replace the term “computer program” with the term “target system.” *See* PO Resp. 28 (citing Ex. 2001 ¶¶ 93–95) (stating that a “computer program . . . refers to a target system whose functionality is invoked through

by the automation process using its displayed user interface, such as a graphical user interface.”); Sur-reply 4–5 (stating that a “computer program” is “a target system which has functionality that is invoked through its displayed user interface.”). We decline to do so.

We disagree with Patent Owner’s premise that the ’664 patent’s statement at column 8, lines 9 to 16 is a definitional statement limiting the claim term “computer program.” *See* PO Resp. 27–28; Sur-reply 2. We agree with Petitioner that, at most, this portion of the Specification defines a “target system,” not a “computer program.” Reply 2; *see Hill-Rom Servs., Inc. v. Stryker Corp.*, 755 F.3d 1367, 1371 (Fed. Cir. 2014) (“To act as its own lexicographer, a patentee must clearly set forth a definition *of the disputed claim term* other than its plain and ordinary meaning and must clearly express an intent to redefine the term”) (emphasis added, internal quotation marks omitted). That a target system may be “generally referred to as the computer program” does not necessarily lead to the opposite conclusion, i.e., that a “computer program” must be a “target system.” Further, we note that the patentee chose to use the term “computer program” in the claims, rather than the term “target system.”¹¹ We find no clear expression of lexicographical intent expressed in the cited passage or elsewhere in the ’664 patent. Accordingly, we disagree with Patent Owner’s contention that “[t]he ’664 Patent adopted a special meaning of ‘computer program’ to refer to a ‘target system’” (PO Resp. 27, emphasis omitted), and

¹¹ We note that in related U.S. Patent No. 11,558,317 B2, which is a continuation of the ’664 patent and is the subject of IPR2024-00065, the patentee used the term “target system” in the claims. *See, e.g.*, IPR2024-00065, Exhibit 1001, 25:24–50 (reciting a “web-based target system”).

we find no reason to deviate from the plain and ordinary meaning of the term.

We find that Petitioner’s exposition of the plain and ordinary meaning of “computer program” as “instructions carried out by [a] computer” is consistent with disclosure in the ’664 patent, cited by Petitioner, that “[t]he computer program product may . . . hav[e] . . . instructions thereon for causing a processor to carry out aspects of the present invention,” as well as with the dictionary definitions also cited by Petitioner. *See* Reply 1–2 (emphasis omitted) (quoting Ex. 1001, 22:61–65) (citing Ex. 1001, 2:34–36, 8:37–51, 13:11–17, 24:24–32; Ex. 1038; Ex. 1039). Although we agree with Patent Owner that a “computer program *product*” may include more than just the “computer program” itself, (*see* PO Sur-reply 3), we understand the reference to “instructions . . . for causing a processor to carry out aspects of the present invention” to relate to the computer program aspect of the product, rather than, for example, its packaging.

With respect to Patent Owner’s contention that “the” displayed user interface of “the” computer program utilized by the automation process executed in 1[f] is the same “displayed user interface” of the same “computer program,” referenced earlier in limitations 1[b], 1[c], and 1[e],¹² based on antecedent basis (PO Resp. 39), we agree. Element 1[c] recites, in part, that “an automation process configured to perform an automation of a sequence of interactions with a displayed user interface of a computer

¹² Although Patent Owner refers to limitations [b], [e], and [f], we believe Patent Owner intended to refer to limitations [b], [c], and [e], because Patent Owner’s argument as to limitation [f] refers to “earlier in the claim.” PO Resp. 39.

program,” and thereafter recites simulating user interactions with “the displayed user interface of the computer program” and executing a functionality of “the computer program.” The use of the definite article “the” in the subsequent recitations of “displayed user interface” and “computer program” indicates that they refer to the same displayed user interface and computer program as in the initial antecedent recitation.

D. Alleged Obviousness Over Symons and Williams

Petitioner contends claims 1–8, 12, 13, 16, 19–23, 26, 29, and 31 would have been obvious over the combination of Symons and Williams. Pet. 8–35. Patent Owner disputes Petitioner’s contentions. PO Resp. 29–44. We first provide an overview of Symons and Williams and then address the obviousness challenge.

1. Symons Article (Ex. 1004) and Symons Video (Exs. 1005, 1006)

The Symons Article, titled “When Chatbots meet RPA bots,” is an online publication that describes a “join[der of] forces” between Symons’ employer, RoboRana, described as “[a] part of the iBizz cluster within the Cronos Group, . . . focus[ed] on delivering RPA technology to a wide spectrum of clients across different sectors,” and Arinti, another member of the Cronos Group, “specialized in chatbot and AI technologies,” “to explore the possibilities to combine RPA bots with chatbots.” Ex. 1004, 1; *see also* Ex. 1008¹³ ¶¶ 4–6 (identifying the Symons Article as a blog post published and made available online). According to the Symons Article, “[b]oth technologies have their specific advantages and combining them to automate processes can tremendously boost productivity in multiple organizations.”

¹³ Declaration of Senne Symons.

Ex. 1004, 1–2. By way of background, the Symons Article explains, “**Chatbots** enable organizations to offer a more intuitive, natural way to interact with their customers,” and “[b]y handling and structuring problems and questions quicker, it greatly reduces waiting times and improves customer satisfaction.” *Id.* at 2. Eventually, according to the Symons Article, “a chatbot powered by AI will become indistinguishable from a human, leading to reduced costs and higher productivity.” *Id.* On the other hand, the Symons Article continues, “**Robotics Process Automation (RPA)** allows organizations to execute manual processes much faster, more accurate and reliable,” as an “RPA bot can mimic the users['] actions and thus enables organizations to automate repetitive tasks and ensures that those tasks are always executed with the same consistency and precision.” *Id.*

The Symons Article states that “[t]he goal of the showcase is to automate the process of creating an email signature.” Ex. 1004, 2. First, “the chatbot collects all the necessary information in a friendly, interactive manner.” *Id.* Next, “[t]his information gets passed on the RPA robot, which will then automatically generate the signature, save it, and email it back to the requester.” *Id.* According to the Symons Article, the automated process is shown in the Symons Video, titled “RPA meets chatbot: Automatically generate e-mail signature,” linked therein. *Id.* at 3; *see also* Ex. 1008 ¶¶ 7–8 (stating that the Symons Video was described and included in the Symons Article, as well as being published and made available on the Vimeo online video sharing platform). The Symons Video shows a chatbot interacting with a user to collect information necessary to create an email signature. Ex. 1006, 2–9. Following collection of the necessary information, a RPA

bot is triggered, automatically opening a Cronos email signature generator program in a browser and entering the details previously provided by the user. *Id.* at 11–13. The RPA bot then automatically copies the signature generator program’s output to a clipboard and then to a Word file. *Id.* at 14–15. Finally, the RPA bot emails the Word file with the signature to the user. *Id.* at 16–22.

2. *Williams (Ex. 1011)*

Williams, titled “IBM Global Business Services White Paper: Using artificial intelligence to optimize the value of robotic process automation,” discusses the use of “cognitive computing” to address challenges of RPA and provides “examples of complex process automation and intelligent automation using IBM Watson® in business process services.” Ex. 1011, 1–2. According to Williams, “[a]lthough robots can be configured to interface directly with applications through pre-existing application programming interfaces (APIs), these platforms are equally able to work through systems’ graphical interfaces, including web browsers and Citrix terminal sessions,” “mean[ing] that robotic automation can be deployed in a relatively short period of time measured in days and weeks, instead of more heavy, traditional IT programming efforts that can take months and require a much larger upfront investment.” *Id.* at 2. Further, according to Williams,

Cognitive computing provides a new way of interacting with non-digital, upstream processes to collect and transcribe information in a manner that can then be leveraged downstream in the process by robots. For example, chatbots or digital assistants are deployed within helpdesk functions to interact with an end user, replacing the human agent in a traditional call center.

These chatbots can engage in natural language dialog with the caller and discern, through a series of interactions, the nature of the call and then capture information required to further handle the request. The chatbot will then trigger a robot, passing the required information to the robot to complete the request.

. . . Using chatbots, we have replaced the call center agent and now use a virtual agent to interact directly with the supplier. Through several scripted questions, the virtual agent can surmise that the supplier is asking for status on their payment and, thus, trigger an RPA robot to access the appropriate enterprise resource planning (ERP) backend system, validate the caller's details, retrieve necessary information, and provide status back in real-time to the supplier. The chatbot then closes the call and updates the ticket management system used to track call center activities.

Id. at 3. Williams also states that chatbots “can be used in a variety of other process and across industries . . . to help reinvent call center operations.” *Id.*

Williams describes the “Watson Policy Management Library (WPML), which allows business process owners to draft, create and amend rules and policy changes outside of the RPA product using normal conversational text. The robot then interacts with WPML to look up and apply rules related to automated processes.” Ex. 1011, 4.

Williams shows an example of an intelligent automation continuum in Figure 1, reproduced below.

Intelligent automation continuum

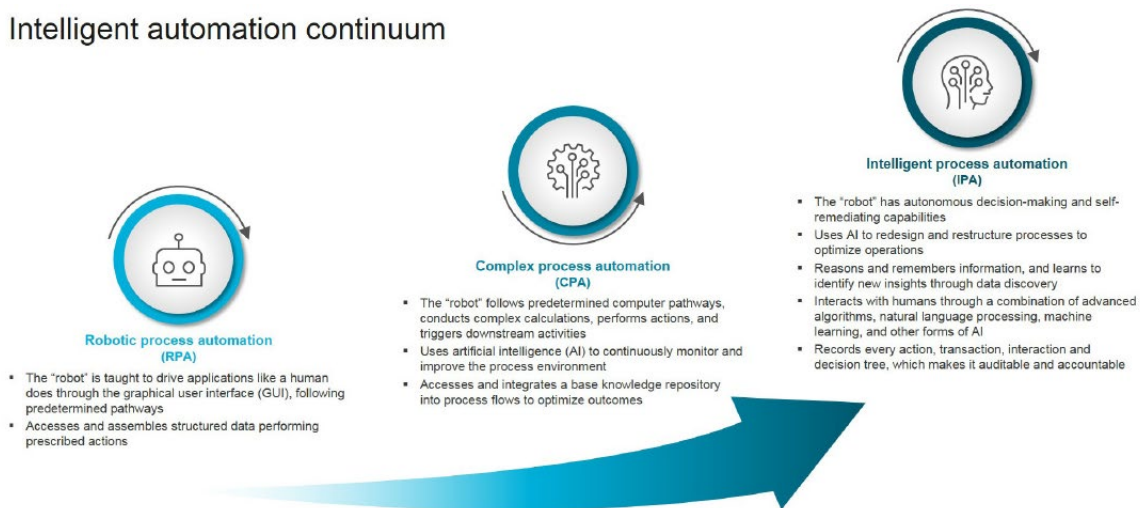


Figure 1, above, is a “diagram show[ing] IBM’s intelligent automation continuum,” ranging from “Robotic process automation (RPA),” to “Complex process automation (CPA),” and then to “Intelligent process automation (IPA).” Ex. 1011, 4. At the RPA stage, a “‘robot’ is taught to drive applications like a human does through [a] graphical user interface (GUI), following predetermined pathways” and then “[a]ccesses and assembles structured data performing prescribed actions.” *Id.* In the CPA stage, “[t]he ‘robot’ follows predetermined computer pathways, conducts complex calculations, performs actions, and triggers downstream activities,” “[u]ses artificial intelligence (AI) to continuously monitor and improve the process environment,” and “[a]ccesses and integrates a base knowledge repository into process flows to optimize outcomes.” *Id.* Finally, at the IPA stage, “[t]he ‘robot’ has autonomous decision-making and self-remediating capabilities” and can, *inter alia*, “[i]nteract with humans through a combination of advanced algorithms, natural language processing, machine learning, and other forms of AI.” *Id.*

3. *Petitioner's Request to Expunge Exhibits 2014–2018*

On December 3, 2024, Petitioner requested to expunge Exhibit 2014 (Supplemental Declaration of Mr. Zatkovich) and accompanying Exhibits 2015–2018. Ex. 3001. According to Petitioner, Patent Owner improperly filed these exhibits in response to Petitioner's Objection to Evidence Submitted with Patent Owner's Response (Paper 20). *Id.* Petitioner states that the parties reached an agreement to expunge Exhibit 2018, but could not reach an agreement on Exhibits 2014–2017. *Id.* Patent Owner opposes because Dr. Beigi expressly relied upon these Exhibits in his Reply Declaration. *Id.* The Board requested the parties to address these issues at the hearing on December 18, 2024. *Id.*

Exhibits 2015–2017 are three comments made on the Internet in association with the Symons Article. These comments are also shown in Exhibit 2005. According to our rules, “[s]upplemental evidence is not filed at the time of the objection, but simply served, and is filed only in support of an opposition to a motion to exclude.” CTPG¹⁴ 79 (citing 37 C.F.R. §§ 42.64(a), 42.64(b)(2)). Because no motion to exclude was filed by Petitioner, we agree with Petitioner that Patent Owner improperly filed Exhibits 2014–2017.

However, as described above, the comments in Exhibit 2015–2017 are already part of the record in Exhibit 2005, and Petitioner has not filed a motion to expunge Exhibit 2005. Therefore, we are not aware of any harm to Petitioner by leaving these Exhibits in the record, as the information is

¹⁴ PTAB Consolidated Trial Practice Guide, November 2019 (the “CTPG”), available at: <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf>.

already there. *See* Tr. 100:8–14. Moreover, retaining these Exhibits in the record will avoid confusion in the record and serve the public interest in a full and complete record. Accordingly, we will expunge only Exhibit 2018, as agreed by the parties, and waive the requirements of 37 C.F.R.

§ 42.64(b)(2) to the extent necessary to retain entry of Exhibits 2014–2017.

4. Analysis of Independent Claim 1

Petitioner contends that the combination of Symons and Williams teaches the limitations of independent claim 1. Pet. 36–42. Petitioner’s contentions, Patent Owner’s arguments in opposition, and our analysis are set forth below. After reviewing the record developed at trial, we determine that Petitioner has shown by a preponderance of the evidence that claim 1 would have been obvious over the combination of Symons and Williams.

a) Preamble

Petitioner contends that Symons discloses a method that “automate[s] the process of creating an email signature” and thus teaches the preamble. Pet. 14 (citing Ex. 1004, 2; Ex. 1003 ¶ 78).

Patent Owner does not respond to these arguments. *See generally* PO Resp. After considering the evidence and arguments of the complete record, we determine that Petitioner has shown, by a preponderance of the evidence, that Symons teaches the preamble.¹⁵

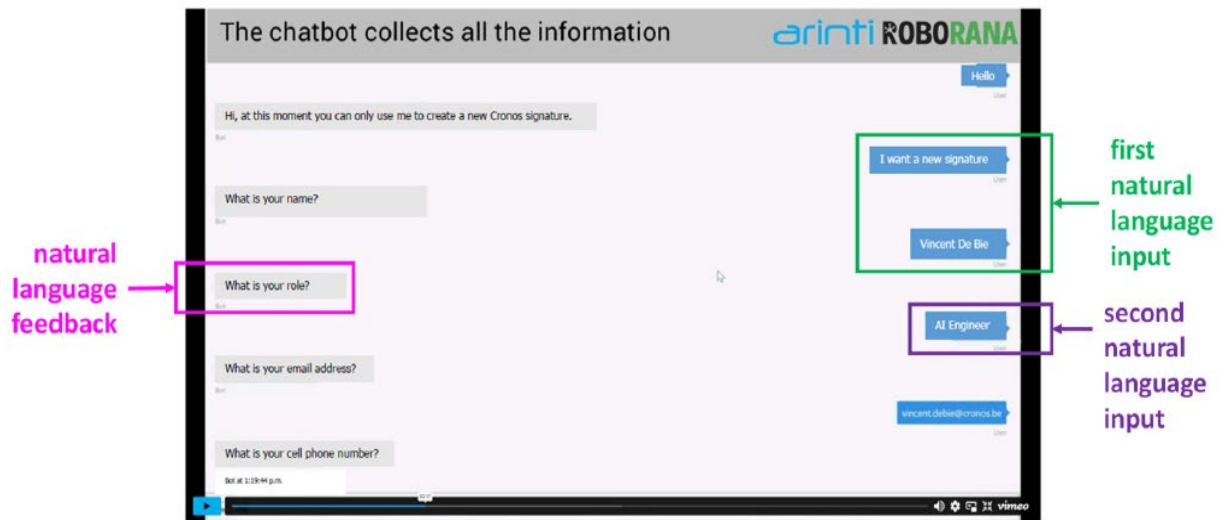
b) Limitations 1[a] and 1[b]

Petitioner contends that Symons discloses limitations 1[a] and 1[b]. Specifically, Petitioner contends that Symons’s chatbot’s questions and the

¹⁵ Petitioner does not argue that the preamble limits claim 1. We make no determination whether the preamble of claim 1 is limiting.

user's responses are displayed on a GUI, resemble language spoken by a human, and are therefore part of a natural language conversation between the natural language interface and the user. Pet. 14–16. Petitioner identifies user responses as the first and second natural language input, and the chatbot questions as the natural language feedback. *Id.* at 16–17.

Petitioner provides an annotated version of the screenshot from page 5 of the Symons Video titled “The chatbot collects all the information,” illustrating this mapping, as set forth below.



Petitioner's annotations show user text “I want a new signature” (written in response to chatbot text “Hi, at the moment you can only use me to create a new Cronos signature”) and user text “Vincent De Bie” (written in response to chatbot text “What is your name?”) labelled as “first natural language input.” Further, chatbot text “What is your role?” is labelled “natural language feedback,” and user text “AI Engineer” is labelled as “second natural language input.”

Patent Owner contends that Symons does not use a “natural language interface” relying upon natural language processing (NLP) technology to generate a “natural language conversation,” as required by the claim. PO Resp. 34 (citing, e.g., Ex. 2001 ¶¶ 128–150; Ex. 1009, 2; Ex. 2005). According to Patent Owner, a person of ordinary skill in the art in October 2017 would not understand a “chatbot” to use “natural language.” *Id.* at 35–36 (citing Ex. 2001 ¶¶ 137–143). That is, Patent Owner contends that in 2017, a “chatbot” included interfaces which did not use “natural language.” *Id.* at 35–36 (citing Ex. 2001 ¶¶ 137–143).

We are not persuaded that Symons does not teach a “natural language interface,” as recited in claim 1. Patent Owner’s arguments rest on the assumption that a “natural language interface” also requires “natural language *processing*.”¹⁶ However, as Petitioner points out, the claims do not recite natural language processing. *See* Reply 4. Nor does Patent Owner provide any support from the ’664 patent or the claim language itself to support these arguments.

The ’664 patent does not indicate that natural language processing is required. *See, e.g.,* Ex. 1001, 1:21–29 (stating in the Background that “[a] Chat bot is a computer program implementing natural language interface to conduct a conversation” and “[s]ome chatterbots use sophisticated natural language processing systems, but many simpler systems scan for keywords within the input, then pull a reply with the most matching keywords, or the

¹⁶ Patent Owner argues that natural language processing requires the machine to understand and react to a conversation. PO Resp. 35; Ex. 2001 ¶ 133.

most similar wording pattern, from a database”), 13:38–40 (emphasis added) (“[b]ased on the processing of the user’s interaction with the chat bot, *such as using* Natural Language Processing (NLP) techniques . . .”). We, therefore, decline to import into the claims a requirement for natural language processing. *See, e.g., Hill-Rom*, 755 F.3d at 1372–1373 (in declining to import limitations from the specification into the claims, stating that “[t]he patents-in-suit do not describe the invention as limited to a wired datalink . . . [n]or is there language of limitation or restriction of the datalink” and “[n]othing in the specification or prosecution history makes clear that the invention is limited to use of a cable as a datalink”); *Amgen Inc. v. Hoechst Marion Roussel, Inc.*, 314 F.3d 1313, 1325 (Fed. Cir. 2003) (stating that “[t]he danger of improperly importing a limitation is even greater when the purported limitation is based upon a term not appearing in the claim”).

As cited by Petitioner, Symons’ chatbot “offers a more intuitive natural way to interact with their customers” and “collects all the necessary information in a friendly, interactive manner.” Ex. 1004, 2; Ex. 1042 ¶ 14; Pet. 14. This disclosure is consistent with how the ’664 patent describes the “natural language interface.” *See, e.g.,* Ex. 1001, 1:21–23 (stating in the Background that “[a] Chat bot is a computer program implementing natural language interface to conduct a conversation via auditory or textual methods with the user”), 1:55–57 (“Optionally, the natural language interface is a chat bot service operable to converse with the user in natural language.”), 8:6–8 (“The chat bot may implement a natural language interface, such as a text-based conversation, an oral conversation, or the like.”). Further, we

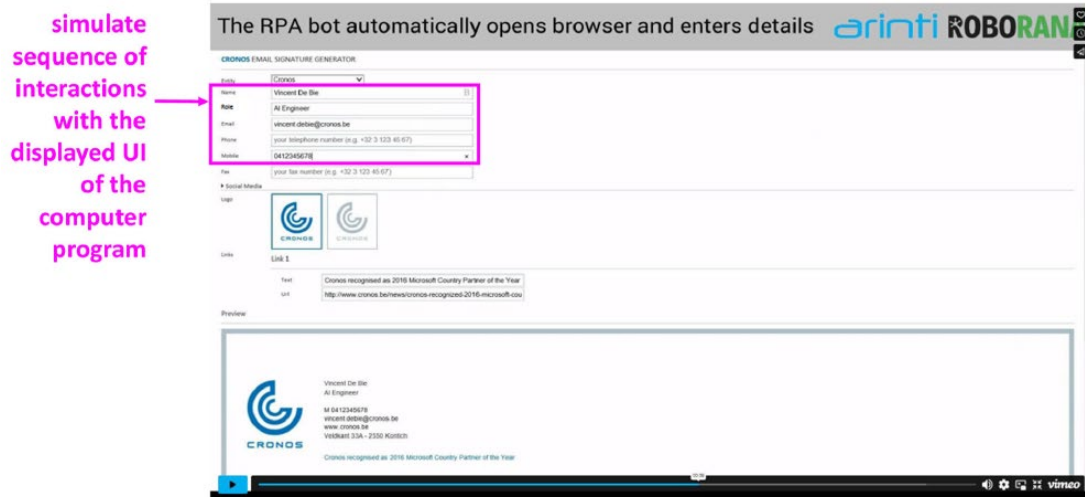
agree with Petitioner that Symons' chatbot collecting the information (shown in Ex. 1006, 5) shows the recited inputs, feedback, and conversation. *See* Pet. 15–17.

Therefore, after considering the evidence and arguments of the complete record, we determine that Petitioner has shown, by a preponderance of the evidence, that Symons teaches limitations 1[a] and 1[b].

c) Limitation 1[c]

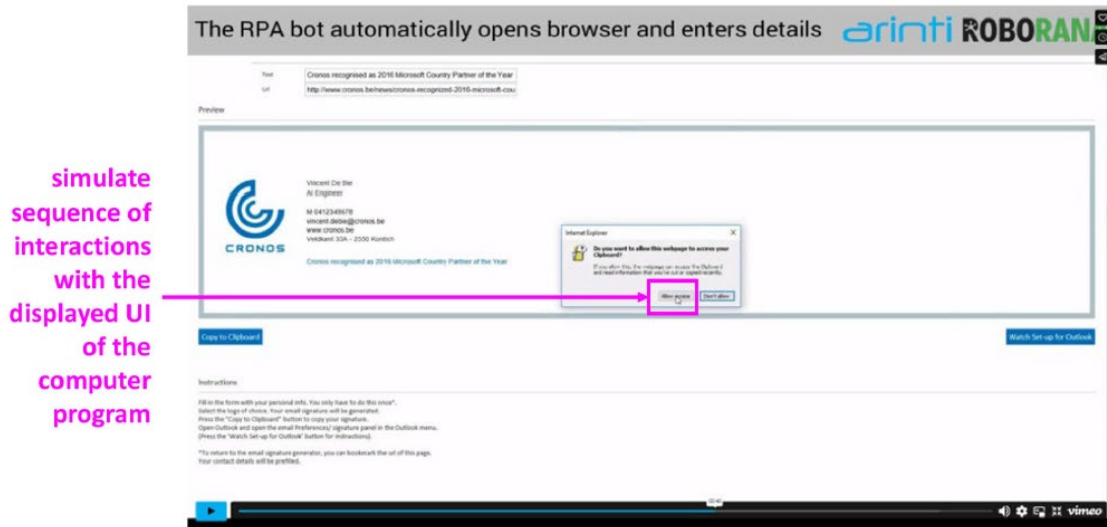
Petitioner contends that, based on the welcome-message response, name, and job role (the first and second natural language inputs from the user), “Symons *determines* an automation process that ‘*automate[s] the process* of creating an email signature.’” Pet. 17 (quoting Ex. 1004, 2 (emphasis added)) (citing Ex. 1003 ¶ 90). According to Petitioner, “[i]t would have been obvious for Symons to determine an automation process that waits for the user to respond, or an automation process that receives collected information from the chatbot.” *Id.* at 17-18 (citing Ex. 1004, 2; Ex. 1003 ¶¶ 91–92).

Symons' chatbot triggers the RPA bot, which Petitioner contends “performs an automation of a sequence of interactions with a displayed UI of a computer program . . . ‘mimic[ing] the users actions.’” Pet. 18 (citing Ex. 1004, 2; Ex. 1003 ¶ 93). Petitioner argues that “[t]he RPA bot automatically opens browser and enters details,” entering “Vincent De Bie” and “Engineer” in the name and job role input fields (Pet. 18), as shown below in Petitioner's annotation of the screenshot from page 12 of the Symons Video.



Pet. 18. Petitioner’s annotation of the screenshot from page 12 of the Symons Video shows a pink box labelled “simulate sequence of interactions with the displayed UI of the computer program” around the Name, Role, Email, Phone, and Mobile text entry fields of the Cronos email signature generator.

Petitioner further contends that “[t]he RPA bot also simulates user interactions via GUI button clicks.” Pet. 18 (citing Ex. 1006, 13; Ex. 1003 ¶ 94). This is identified in Petitioner’s annotation of the screenshot from page 13 of the Symons Video, reproduced below.



Petitioner’s annotation of the screenshot from page 13 of the Symons Video shows a pink box labelled “simulate sequence of interactions with the displayed UI of the computer program” around the “Allow access” button on the Internet Explorer pop-up window which asks “Do you want to allow this webpage to access your Clipboard?”

Alternatively, Petitioner contends that to the extent that Symons does not *determine* an automation process, it would have been obvious in view of Williams. Pet. 19. Petitioner contends that

Williams discloses a method comprising “chatbots [that] engage[s] in natural language dialog with the caller and discern, through a series of interactions, the nature of the call and then capture information required to further handle the request. The chatbot will then trigger a robot, passing the required information to the robot to complete the request.”

Id. (citing Ex. 1011, 3) (emphasis omitted). Petitioner contends that “RPA robots are designed to execute multiple different types of automation processes, so combining Symons and Williams, both of which disclose chatbots-RPA bot systems, is a natural extension of exploiting the full

capabilities of RPA.” *Id.* at 19 (citing Ex. 1003 ¶¶ 97–99). Petitioner also contends that a person of ordinary skill in the art would be motivated to “have a chatbot that discerns the user’s intent (the nature of the call) so that the RPA can handle multiple requests, improving the costs, time, and capabilities.” *Id.* at 19 (citing Ex. 1003 ¶¶ 95–96).

Patent Owner argues that Symons was a “single purpose demo ‘to automate the process of creating an email signature,’” that “was only programmed to implement a single RPA, a single conversation thread, and did not offer the user the choice of selecting from a plurality of RPAs or ‘automation processes.’” PO Resp. 37–38 (citing Ex. 1004, 2–3; Ex. 1009, 2; Ex. 1008 ¶ 9; Ex. 1010 ¶ 8; Ex. 1006, 1; Ex. 1003 ¶ 68; Ex. 2001 ¶¶ 151–166). Regarding the combination with Williams, Patent Owner argues that “[n]either Symons nor Williams suggest using a single chatbot-RPA to handle multiple requests at once in the same conversation thread.” *Id.* at 38 (citing Ex. 2001 ¶ 165).

We need not determine whether Symons alone teaches this limitation, because we are persuaded that Petitioner has sufficiently shown that the combination of Symons and Williams teaches this limitation. We agree with Petitioner that, by disclosing that “chatbots can engage in natural language dialog with the caller *and discern, through a series of interactions, the nature of the call[,] . . . capture information required to further handle the request . . . [and] then trigger a robot, passing the required information to the robot to complete the request,*” Williams teaches “determining . . . an automation process,” as recited in limitation 1[c]. *See* Pet. 19 (citing Ex. 1011, 3) (some emphasis omitted); *see* Ex. 1003 ¶ 95.

We disagree with Patent Owner’s arguments that the combination is “ill-defined.” Sur-reply 8–9. Petitioner argues that the combination of Symons and Williams “results in a chatbot-RPA bot system capable of handling a user request for automated email signature generation along with other requests, such as automated generation of an electronic letterhead or an electronic invoice.” Pet. 20 (citing Ex. 1003 ¶ 98). In other words, in addition to the capability of handling the automated email signature generation (as taught in Symons), the combined chatbot-RPA bot system can handle other requests as well (as taught in Williams). Further, we agree with Petitioner that “[t]he ability to handle multiple requests would expand the capabilities and flexibilities of the chatbot-RPA bot” as well as “improv[e] costs, time, and capabilities.” *Id.* at 19–20 (citing Ex. 1003 ¶¶ 95, 96, 99). Both Symons and Williams support this argument. Ex. 1011, 2 (stating that RPA “support[s] repetitive, labor-intensive and transactional business processes,” that “software robots [are] an attractive way to drive operational cost reduction,” and that “[a]utomation through RPA can offer a return on investment (ROI) often ranging between 30 and 50 percent”); *id.* at 5 (stating that “[d]eployment of these cognitive tools promises new levels of productivity and innovation—freeing human workers to focus on higher-value activities and bringing industrial-level quality, consistency and auditability to business processes”); Ex. 1004, 2 (stating that “combining [RPA bots and chatbots] to automate processes can tremendously boost productivity in multiple organizations” and that “[RPA bots] reduce[] costs and human efforts”).

Patent Owner’s argument that “[n]either Symons nor Williams suggest using a single chatbot-RPA to handle multiple requests at once in the same conversation thread” (PO Resp. 38) is not commensurate with the claim language, which does not require a single automation process (e.g., chatbot-RPA) to handle multiple inputs (e.g., multiple requests in the same conversation thread). *See* Reply 9–10. Regardless, however, we are not persuaded that Williams does not suggest using a single chatbot-RPA to handle multiple requests, as argued by Patent Owner. Sur-reply 9; *see* Ex. 1011, 2 (stating, for example, that “[t]he most common processes enabled by RPA today include back-office administrative processes and workflow within IT, finance, procurement, and human resources functions” and that “RPA enlists software robots to perform complex, nested routines that cut across multiple applications and interact with these systems”); *id.* at 3 (“Through several scripted questions, the virtual agent can surmise that the supplier is asking for status on their payment and, thus, trigger an RPA robot to access the appropriate enterprise resource planning (ERP) backend system, validate the caller’s details, retrieve necessary information, and provide status back in real-time to the supplier.”).

Therefore, after considering the evidence and arguments of the complete record, we determine that Petitioner has shown, by a preponderance of the evidence, that the combination of Symons and Williams teaches limitation 1[c].

d) Limitations 1[d], 1[e], and 1[f]

With respect to limitation 1[d], Petitioner contends that Symons’ UI of the computer program is displayed on a computer screen. Pet. 20 (citing

Ex. 1003 ¶ 100). Dr. Beigi identifies the screenshot from the Symons Video at page 13, which is reproduced above. Ex. 1003 ¶ 100.

With respect to limitation 1[e], Petitioner contends that Symons' RPA bot "automatically opens browser and enters details," which teaches inputting data to the displayed user interface, and further includes "executing a functionality of the displayed UI" by "copying the email signature onto the clipboard by simulating GUI button clicks." Pet. 20–21 (citing Ex. 1006, 12–13; Ex. 1003 ¶¶ 101–102). Petitioner again provides annotations of the screenshots from the Symons Video at pages 12 and 13 (reproduced above), with the annotations changed to "inputting data to the displayed UI" (page 12) and "executing functionality of the displayed UI" (page 13), respectively. Pet. 21.

With respect to limitation 1[f], Petitioner contends that Symons' "chatbot triggers the RPA bot," which executes an "automate[d] [] process of creating an email signature." Pet. 22 (citing Ex. 1006, 10, 12; Ex. 1003 ¶ 103). Petitioner contends that this comprises "inputting data in data fields and clicking on GUI buttons, utilizing the displayed UI of the computer program to perform the sequence of interactions." *Id.* at 22–23 (citing Ex. 1003 ¶ 103).

Patent Owner argues that Symons does not teach "executing the automation process, wherein said executing comprises utilizing the displayed user interface of the computer program to perform the sequence of interactions," as recited in limitation 1[f], because "the sequence of interaction [in Symons] are utilizing **multiple** user interfaces of **multiple** computer programs – Cronos email signature generator, Internet Explorer,

[Microsoft] Word and email client.” PO Resp. 38–39 (citing Ex. 2001 ¶ 171); *see also id.* at 40–41 (citing Ex. 1003 ¶ 92, 103, 113; Ex. 2001 ¶¶ 109–110, 118, 171; Ex. 2003, 218:9–13, 217:16–218:2). According to Patent Owner, “under the law of antecedent basis,” the displayed user interface of the computer program utilized by the automation process executed in limitation [f] is the same displayed user interface of the same computer program “referenced earlier in the claim” in limitations [b], [e], and [f].¹⁷ *Id.* at 39. Therefore, Patent Owner argues, Symons’ RPA process does not use a “single” computer program or a “single” user interface of a computer program, as required by claim 1. *Id.*

In reply, Petitioner argues that the claims “do not require utilizing the displayed UI of **only** a single computer program.” Reply 11 (citing Ex. 1042 ¶ 38); *see also id.* at 3. However, Petitioner contends that this interpretation is not supported by the ’664 specification and excludes embodiments that encompass multiple applications or access other UI. *Id.* (citing Ex. 1001, 8:37–44 (multiple applications), 13:11–17 (accessing other UI)). Petitioner further argues that “Symons teaches a single RPA software (desktop application) that is a separate computer program with its own UI (GUI of Symons’ RPA (EX1006)) operated on a single device (Symons’ computer).” Reply 11–12 (citing Ex. 1042 ¶¶ 39–40).

We find Patent Owner’s arguments insufficient to overcome Petitioner’s persuasive showing. *See* PO Resp. 38–41. As explained in our

¹⁷ Although Patent Owner refers to limitations [b], [e], and [f], we believe Patent Owner intended to refer to limitations [b], [c], and [e], because Patent Owner’s argument as to limitation [f] refers to “earlier in the claim.”

claim construction discussion above, we agree with Patent Owner that the recitation in limitation 1[c] of “a computer program” followed by repeated recitations of “the computer program” indicates that each refers to the same computer program, as well as that each recitation of a “displayed user interface” in the claim refers to the same displayed user interface. *See supra* Section III.C. Nonetheless, we find nothing in claim 1 that precludes the recited “automation process” from *additionally* interacting with other computer programs. *See, e.g.*, Ex. 1001, 13:11–17 (stating that “Automation Execution Module 140 may execute automation process on a desktop application . . . [a]n agent may be installed on the user device . . . [and] [t]he agent may access other applications, including their UI elements, manipulate such elements and create new elements”); *see* Ex. 2001 ¶ 90 (citing Ex. 1001, 13:11–17 in describing executing the “sequence of interactions”).

Although page 13 of the Symons Video shows an Internet Explorer pop-up menu window that asks whether the user wants to allow the Cronos email signature generator webpage access to the user’s clipboard, we do not find that interaction to be necessary to meet the recitations of limitations 1[c], 1[d], 1[e], and 1[f]. Rather, we find that Symons’s automation process is configured to utilize a displayed user interface *of the Cronos email signature generator*, to simulate a sequence of interactions with the displayed user interface *of the Cronos email signature generator*, and execute a functionality *of the Cronos email signature generator*. However, even if the functionality shown at page 13 of the Symons Video is necessary, the Symons Video describes the screenshots at pages 12 and 13 identically, as “[t]he RPA bot automatically opens browser and enters details.” As

argued by Petitioner, this suffices to teach “a single RPA software (desktop application) that is a separate computer program with its own UI (GUI of Symons’ RPA (EX1006)) operated on a single device (Symons’ computer).” Reply 11–12.

Therefore, after considering the evidence and arguments of the complete record, we determine that Petitioner has shown, by a preponderance of the evidence, that the combination of Symons and Williams teaches limitations 1[d], 1[e], and 1[f], as well as 1[c].

e) Conclusion for Independent Claim 1

Therefore, we determine that, on this record, Petitioner has shown by a preponderance of the evidence that independent claim 1 would have been obvious over the combination of Symons and Williams.

5. Claim 2

Claim 2 depends from claim 1 and recites “wherein the natural language interface is a chat bot service operable to converse with the user in natural language.” Ex. 1001, 25:40–42.

Petitioner argues that “Symons’ natural language interface . . . is a chatbot service operable to converse with the user in natural language.” Pet. 23 (citing Ex. 1006, 5; Ex. 1003 ¶¶ 104–105).

Patent Owner contends that a “chatbot service . . . includes third party services,” and Petitioner has not explained “how this element is met.” PO Resp. 41–42 (citing Ex. 2001 ¶¶ 172–173). Relying on the ’664 patent’s disclosure, Mr. Zatkovich testifies that “a chat bot service is a third party service such as FACEBOOK MESSENGERTM, and SLACKTM, and

TELEGRAMTM, and other similar third party messaging services.”

Ex. 2001 ¶ 172 (citing Ex. 1001, 7:64–8:3, 8:24–8:27).

Petitioner replies that, according to the ’664 patent, a chat bot may be a service, but when it is a third-party service, the term “third-party” is used. Reply 13–14 (citing Ex. 1001, 8:4–6, 8:24). However, Petitioner argues that, regardless, “Arinti is a third party to, *e.g.*, RoboRana,” as acknowledged by Mr. Zatkovich. *Id.* at 14 (citing Ex. 2001 ¶ 173; Ex. 1042 ¶¶ 57–62). Patent Owner does not respond to these arguments. *See generally* Sur-reply.

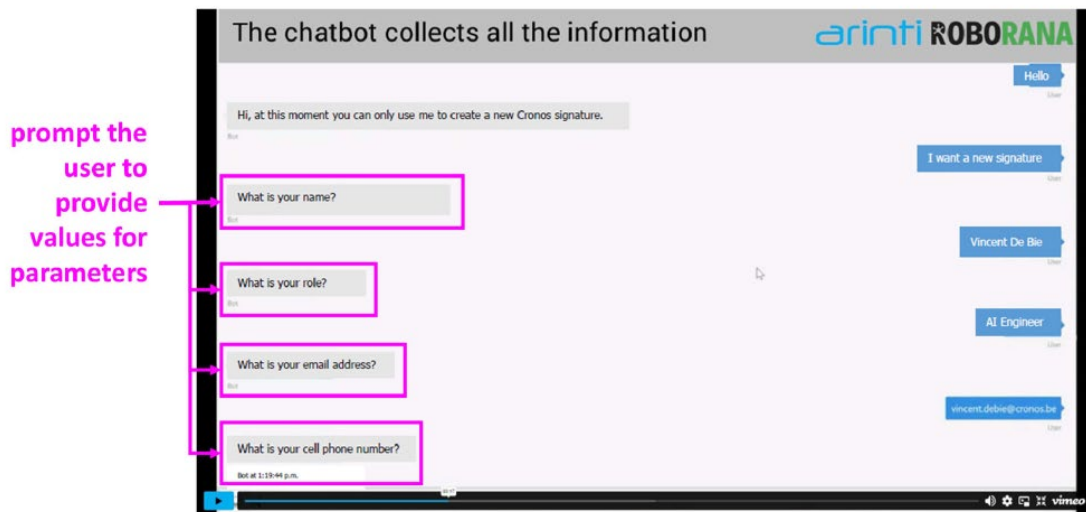
We are persuaded that Petitioner has shown, by a preponderance of the evidence, that Symons teaches the limitations in claim 2, including the “chat bot service.” We need not determine whether a chat bot service is required to be “third party,” as Patent Owner argues, because Arinti, which “specialized in chatbot and AI technologies” is a third party chat bot service to RoboRana. Ex. 1004, 1.

Therefore, we determine that, on this record, Petitioner has shown by a preponderance of the evidence that dependent claim 2 would have been obvious over the combination of Symons and Williams.

6. *Claims 3 and 20*

Claim 3 depends from claim 2 and recites “wherein the automation process is a parameterized automation process having a parameter, wherein the chat bot service is configured to prompt the user to provide a value for the parameter, wherein said executing comprises utilizing the value of the parameter.” Ex. 1001, 25:43–47. Claim 20 depends from claim 19 and recites similar limitations. *Id.* at 27:33–38.

Petitioner relies on Symons to teach the limitations in claims 3 and 20. Pet. 24–25, 34. Petitioner argues that “Symons’ ‘chatbot collects all the information,’ prompting the user with questions to provide values for parameters (annotated below): name, job role, email address, phone number.” *Id.* at 24 (citing Ex. 1006, 5; Ex. 1003 ¶ 106). Petitioner provides an annotated version of the screenshot from page 5 of the Symons Video titled “The chatbot collects all the information,” illustrating this mapping, as set forth below.



Id. at 25. Petitioner’s annotations show chatbot text “What is your name?”, “What is your role?”, “What is your email address?”, and “What is your cellphone number?” labelled as “prompt the user to provide values for parameters.” Petitioner argues that “[t]he collected values for the parameters are utilized in the automation process of creating an email signature” and “Symons’ automation process is a parameterized automation process having a parameter.” *Id.* (citing Ex. 1003 ¶ 107; limitation 1[c]).

Patent Owner presents the same arguments as with claim 2, that Petitioner hasn't shown that Symons teaches a "chatbot service." PO Resp. 60.

For the same reasons as for claim 2, as well as the reasons set forth by Petitioner, we are persuaded that Petitioner has shown, by a preponderance of the evidence, that Symons teaches the limitations in claims 3 and 20, including the "chat bot service." Therefore, we determine that, on this record, Petitioner has shown by a preponderance of the evidence that dependent claims 3 and 20 would have been obvious over the combination of Symons and Williams.

7. Claim 8

Claim 8 depends from claim 1 and recites "wherein said determining comprises selecting the automation process from a database retaining a plurality of user-defined automation processes; wherein the database is updatable by one or more users via a Graphical User Interface (GUI) capable of defining new automation processes and updating existing automation processes retained there." Ex. 1001, 26:6–12.

Petitioner relies on Williams to teach the limitations in claim 8. Pet. 29–31. Petitioner argues that in Williams, "[t]he business process owner's ability to draft, create, and amend rules and policy changes means the automation process is a user-defined automated process" and "[t]he robot looking up rules means there is a database retaining a plurality of user-defined automation process." Pet. 29–30 (citing Ex. 1003 ¶¶ 117–118; Ex. 1011, 4). Further, Petitioner contends that Williams' "database is updateable to add new automation processes and update existing automation

processes retained therein.” *Id.* at 30 (citing Ex. 1011, 3–4; Ex. 1003 ¶ 120). Petitioner also relies on the disclosure in Figure 1 of Williams stating “[t]he ‘robot’ is taught to drive applications like a human does through the graphical user interface (GUI), following predetermined pathways.” *Id.* at 30–31.

Patent Owner argues that, in Williams, “WPML stores the RPA processes themselves, not ‘rules and policy changes outside of RPA product[s].” PO Resp. 42–43. Patent Owner also argues that Williams “does not disclose updating WPML via a GUI.” *Id.* at 43 (citing Ex. 1011, 4; Ex. 2001 ¶¶ 181–182).

We are persuaded that Petitioner has shown that Williams teaches the limitations in claim 8. Williams states that “[b]usiness processes typically contain rules and policies that must be followed during transaction processing.” Ex. 1011, 4. Williams teaches that the WPML “allows business process owners to draft, create and amend rules and policy changes outside of the RPA product using normal conversational text. The robot then interacts with WPML to look up and apply rules related to the automated processes.” *Id.* Williams describes an example of changing text for a policy by “simply logging into WPML as an administrator and editing the field with the new information.” *Id.* We are persuaded by Petitioner’s argument, which is un rebutted by Patent Owner, that “[i]n order to look up and apply the amended rules, the database must have stored them (*i.e.*, the database is updatable).” Reply 14. Moreover, we are also persuaded by Petitioner’s argument, which again is un rebutted by Patent Owner, that to

edit a field with new information teaches actions that involve a GUI. *See* Reply 14–15; Ex. 1042 ¶¶ 64–65.

Therefore, we determine that, on this record, Petitioner has shown by a preponderance of the evidence that dependent claim 8 would have been obvious over the combination of Symons and Williams.

8. *Claim 12*

Claim 12 depends from claim 1 and recites “wherein said executing is performed on a client device of the user.” Ex. 1001, 26:43–44.

Petitioner relies on Symons to teach the limitation in claim 12. Pet. 31. Petitioner contends that Symons “executes the automated process of creating an email signature on a personal computer,” and “[a] personal computer is a client device of the user. *Id.* at 31–32 (citing Ex. 1006, 11; Ex. 1003 ¶ 123).

Patent Owner argues that the device in Symons “would be the device of Vincent De Bie, the user of the chatbot shown in Symons,” but the “Symons Video shows the RPA running on a different device (apparently Symons’ computer).” PO Resp. 43 (Ex. 2001 ¶¶ 110–111, 187–190; Ex. 2003, 217–220).

We are persuaded that Petitioner has shown that Williams teaches the limitations in claim 12. Claim 12 requires that the “executing is performed on a client device of the user.” Patent Owner’s arguments that two different devices are used in the Symons Video are not only speculative, but are not commensurate with the language in the claim. Moreover, Symons provided testimony that “I created the video from my laptop computer.” Ex. 1008 ¶ 7. Both parties appear to agree that the “executing” is occurring on a computer

(PO Resp. 43 (“Symons’ computer”), Pet 31–32 (“a personal computer”)).
See Ex. 1042 ¶¶ 42–43. This suffices to teach “a client device of the user.”

Therefore, we determine that, on this record, Petitioner has shown by a preponderance of the evidence that dependent claim 12 would have been obvious over the combination of Symons and Williams.

9. *Claim 13*

Claim 13 depends from claim 1 and recites “wherein the natural language interface is a voice-based service, wherein the voice-based service is configured to receive vocal commands from a human user.” Ex. 1001, 26:45–48.

Petitioner relies on Symons and Williams to teach the limitation in claim 13. Pet. 32. Petitioner asserts that “Symons’ system is executed on a personal computer” and “[i]n 2017, personal computers typically had microphones and received vocal commands.” *Id.* (citing Ex. 1003 ¶ 124). Petitioner argues that “[i]t would have been obvious to receive the user’s inputs using vocal commands, as Williams teaches (EX1011, 3), because it is a convenient way for the user to converse with the natural language interface.” *Id.*

Patent Owner argues that Symons does not use a voice-based service, and a person of ordinary skill in the art would not have been motivated to use a voice-based service because “such services were ‘notoriously poorly suited’ to the information sought in Symons and would only add ‘significant complexity’ and lead to ‘significant errors’ during operation.” PO Resp. 43–44 (Ex. 2001 ¶¶ 194–199).

We are persuaded that Petitioner has shown that the combination of Symons and Williams teaches the limitations in claim 13. An obviousness showing “does not require that a particular combination must be the preferred, or the most desirable, combination described in the prior art in order to provide motivation for the current invention.” *Novartis Pharms. Corp. v. West-Ward Pharms. Int’l Ltd.*, 923 F.3d 1051, 1059 (Fed. Cir. 2019) (quoting *In re Fulton*, 391 F.3d 1195, 1200 (Fed. Cir. 2004)). Petitioner must show only that “‘there is something in the prior art as a whole to suggest the desirability ... of making the combination,’ not whether there is something in the prior art as a whole to suggest that the combination is the most desirable combination available.” *Fulton*, 391 F.3d at 1200 (quoting *In re Beattie*, 974 F.2d 1309, 1311 (Fed. Cir. 1992)). As cited by Petitioner, Williams teaches that “chatbots can engage in natural language dialog with the caller.” Ex. 1011, 3. Petitioner has provided sufficient reasoning to use a voice-based service in Symons. See Pet. 32 (“[I]t is a convenient way for the user to converse with the natural language interface.”). Moreover, as Petitioner argues, “in some instances (e.g., no convenient access to a keyboard, user not proficient with typing), the benefits of a voice-based service outweigh the small costs.” Reply 15 (citing Ex. 1042 ¶¶ 67–68).

Therefore, we determine that, on this record, Petitioner has shown by a preponderance of the evidence that dependent claim 13 would have been obvious over the combination of Symons and Williams.

10. Claims 4–7, 16, 19, 21–23, 26, 29, and 31

Petitioner asserts that claims 4–7, 16, 19, 21–23, 26, 29, and 31 are obvious over Symons and Williams. Pet. 14–35. Petitioner relies on

essentially the same arguments as set forth for independent claim 1 for arguing independent claims 19 and 29 are obvious over Symons and Williams. Pet. 33–35. Patent Owner does not separately challenge Petitioner’s arguments regarding claims 19 and 29, other than as set forth above for claim 1. *See generally* PO Resp. Therefore, for the same reasons as for claim 1, Petitioner has established by a preponderance of the evidence that claims 19 and 29 are obvious over Symons and Williams.

Regarding dependent claims 4–7, 16, 21–23, 26, and 31, Petitioner identifies certain passages and figures in the references and explains their significance with respect to the corresponding claim limitations. Pet. 25–28, 33–35. Patent Owner does not separately address these challenges. *See generally* PO Resp. After reviewing the record developed at trial, we determine that Petitioner has shown by a preponderance of the evidence that claims 4–7, 16, 21–23, 26, and 31 would have been obvious over Symons and Williams, for the reasons explained by Petitioner.

E. Alleged Obviousness Over Allen

Petitioner contends claims 1–8, 12–16, 18–23, 25, 26, 28–31, and 33 would have been obvious over Allen. Pet. 35–58. Patent Owner disputes Petitioner’s contentions. PO Resp. 44–62. We first provide an overview of Allen and then address the obviousness challenge to claim 1.

1. Allen (Ex. 1014)

Allen is titled “Interactive Complex Task Teaching System That Allows for Natural Language Input, Recognizes a User’s Intent, and Automatically Performs Tasks in Document Object Model (DOM) Nodes” and is generally directed to a “system which allows a user to teach a

computational device how to perform complex, repetitive tasks that the user usually would perform using the device's graphical user interface (GUI).” Ex. 1014, codes (54), (57). Allen explains that “[t]he user ‘teaches’ task steps by inputting natural language and demonstrating actions with the GUI.” *Id.* at code (57). “After a complete task has been taught, the system is able to automatically execute the task in new situations.” *Id.*

Figures 2 and 3 show how the system (called “Procedural Learning on the Web,” or “PLOW”) can learn to order a book. Ex. 1014, 4:64–66, 5:23–24. Figure 2, reproduced below, shows a graphical user interface. *Id.* at 4:1–2.

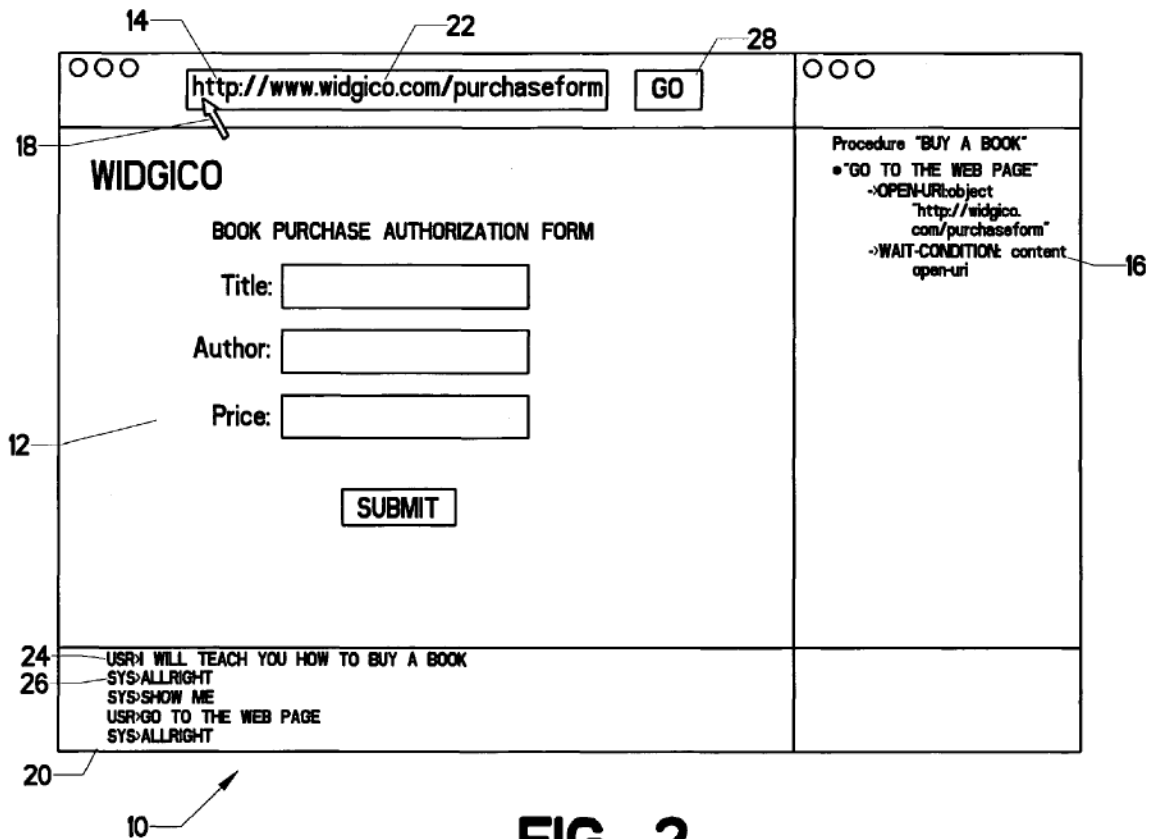


Figure 2 shows, among other things, browser display 12, speech interface display 20, and task log 16. Speech interface display 20 allows the user to monitor his interaction with PLOW, and task log 16 shows the task that have been learned so far in the learning session. *Id.* at 5:14–20. The user may type words using a keyboard into speech interface display 20, or speak words that will be deciphered with a language recognition software module and will be displayed as user speech 24 in speech interface display 20. *Id.* at 5:24–31.

In this example, the system displays “USR>I WILL TEACH YOU HOW TO BUY A BOOK” in speech interface display 20, where “USR” indicates that the speech was uttered by the user. *Id.* at 5:36–40. The system provides responsive statements back to the user that are displayed as system speech 26 in speech interface display 20, shown in this example as “SYS>ALLRIGHT SYS>SHOW ME,” where “SYS” indicates that the speech was uttered by the computer. *Id.* at 5:41–49. The system’s language understanding module can ultimately determine the user’s intent. *Id.* at 5:52–55. After receiving the statement from the user, the system creates a title for the new process it is about to learn (here, “BUY A BOOK”), and displays the title in task log 16. *Id.* at 5:56–60.

The user further speaks the phrase “Go to this web page,” which is displayed as “USR>GO TO THE WEB PAGE” in speech interface display 20. Ex. 1014, 5:63–65. The system responds “ALLRIGHT,” as shown in speech interface display 20. *Id.* at 5:65–6:3. The user then demonstrates the action rather than speaking. *Id.* at 6:4.

Figure 3, reproduced below, shows a graphical user interface demonstrating the user's actions.

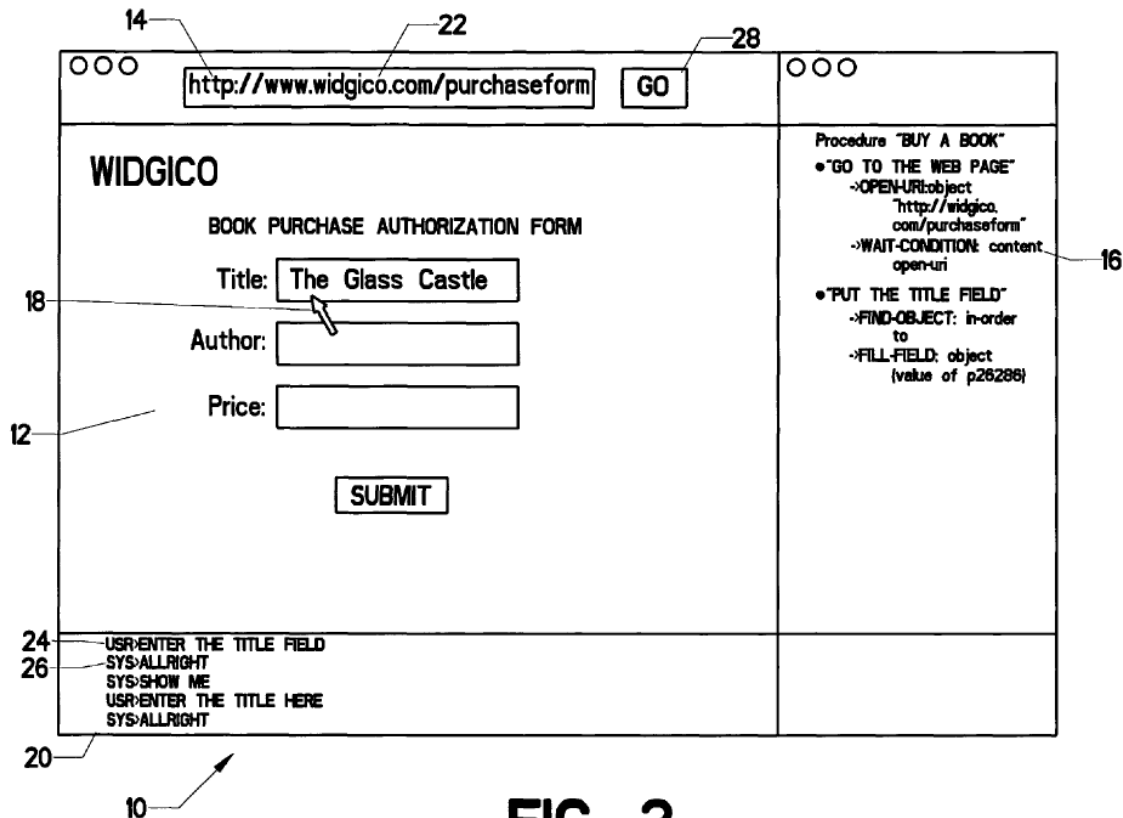


FIG. 3

Figure 3 shows, among other things, a graphical user interface with moveable cursor 18 and Uniform Resource Identifier (URI) entry box 14. The user moves moveable cursor 18 to URI entry box 14, types input 22 using a keyboard to identify the URI for the desired website (here, www.widgico.com/purchaseform), and presses GO button 28, which causes the web browser to “navigate” to the URI. Ex. 1014, 6:4–11. The system monitors the user actions and stores them, understanding that the typed URI identifies the appropriate website. *Id.* at 6:12–14. Each of the steps is represented in task log 16. *Id.* at 6:14. “The step is stored by PLOW as a series of actions, so that when it is later asked to carry out the process on its

own, the system will execute the same actions.” *Id.* at 6:16–18. The process continues:

The user utters the statement “Enter the title field, ” which appears as deciphered text in speech interface display 20. PLOW then responds by issuing the voice-synthesized statement “All right. Show me.” The user moves movable cursor 18 to title entry box 30, while uttering the instruction “Enter the title here.” The system responds by saying “All right.” This indicates that PLOW has understood the last instruction and has recorded the necessary steps. The user then types the desired book title (“The Glass Castle”) into title entry box 30. Task log 16 is updated with a new step and the procedures defining the step.

Id. at 6:30–40. The system, thus, observes the user’s demonstration.

Id. at 6:47–48. The teaching process continues forward, with the user teaching the PLOW system how to finish ordering the book. *Id.* at 6:49–53.

Allen further states that:

Once the complete task is learned, the user can employ PLOW’s task database the next time he or she wishes to order a book. The user would only need to say something like “I want to buy a book.” The system would then ask, “What is the title of the book?” Once that information is provided, PLOW would then perform the steps it was previously taught and complete the transaction.

Ex. 1014, 12:62–13:1 (**hereafter “the performing process” or “the execution process”**).

2. Analysis of Independent Claim 1

Petitioner contends that Allen teaches the limitations of independent claim 1. Pet. 36–42. Petitioner’s contentions and Patent Owner’s arguments

in opposition are set forth below. After reviewing the record developed at trial, we determine that Petitioner has not shown by a preponderance of the evidence that claims 1–8, 12–16, 18–23, 25, 26, 28–31, and 33 would have been obvious over Allen.

a) Petitioner's Contentions

Petitioner argues that Allen discloses “an interactive method for learning and executing executable tasks using [natural] language and demonstration inputs from a user.” Pet. 36–37 (citing Ex. 1014, 18:38–40; Ex. 1003 ¶ 153).

With regard to limitation 1[a], Petitioner argues that Allen’s PLOW “software includes a natural dialog-based interface whereby said user can communicate with said software using natural dialog-based language.” Pet. 37 (quoting Ex. 1014, 18:47–49 (claim 1); citing Ex. 1003 ¶ 154). Petitioner further identifies interface display 20, user speech 24, and system speech 26 in Allen’s Figure 3 as teaching limitation 1[a]. *Id.*

With regard to limitation 1[b], Petitioner argues that once a task has been successfully taught to the PLOW system, a user can ask the system to perform the task, and the system will execute the steps it previously learned. Pet. 38 (citing Ex. 1014, 3:44–46). Petitioner points to the performing process in Allen, where the user says “I want to buy a book” (i.e., the first natural language input from the user), the system asks “What is the title of the book?” (i.e., a natural language feedback on the first natural language input from the natural language interface), and the user provides the title of the book (i.e., the second natural language input from the user in response to

the natural language feedback). *Id.* (citing Ex. 1014, 12:64–66; Ex. 1003 ¶ 155).

For limitation 1[c], Petitioner argues that in the performing process, the user requests to buy a book and provides its title (i.e., the first and second natural language inputs from the user, see limitation 1[b] above), and the system “then perform[s] the steps it was previously taught and complete[s] the transaction.” Pet. 38–39 (quoting Ex. 1014, 12:66–13:1) (citing Ex. 1003 ¶¶ 156–157). Petitioner argues that “[t]he system learns how to execute the steps of the book buying automation process by observing a sequence of user interactions with a displayed UI of a computer program, such as inputting the title in the title entry box 30, navigating to an online vendor site, pulling down and selecting the ‘Books’ category, picking and inputting data in the text entry box 58, actuating the ‘GO’ button, opening a specific book page, identifying the book price, and entering the book price on the purchase form.” *Id.* at 39 (citing Ex. 1014, 12:11–61; Ex. 1003 ¶¶ 160–161). According to Petitioner, “[i]f the user instead requests a search for hotels, the system would perform a different automat[i]on process.” *Id.* (citing Ex. 1014, 16:33–40; Ex. 1003 ¶ 158).

Petitioner contends that Allen performs an “automation of a sequence of interactions,” i.e., “[t]he system then learns to automatically execute steps by observing the user’s actions and analyzing the verbal instructions the user provides.” Pet. 39 (citing Ex. 1003 ¶ 159; Ex. 1014, 6:61–65). Petitioner contends that these steps are learned by observing the user’s interactions with a displayed user interface of a computer program, and performing the steps it was previously taught means that the system

simulates user interactions with the displayed user interface. *Id.* (citing Ex. 1014, 12:11–61; Ex. 1003 ¶¶ 160–163). However, Petitioner contends, to the extent that Allen does not disclose performing an automation of a sequence of interactions with a displayed user interface and simulating user interactions with the displayed user interface, it would have been obvious “that in order for the user to easily monitor the system’s actions, the system’s actions would have to be displayed.” *Id.* at 39–40 (citing Ex. 1014, 4:66–5:1; Ex. 1003 ¶ 164).

For limitation 1[d], Petitioner contends that “Allen’s system ‘use[s] the device’s graphical user interface’ to both teach and execute tasks.” Pet. 40 (quoting Ex. 1014, code (57)) (citing Ex. 1003 ¶ 165). Petitioner relies on Allen’s Figure 1, which shows GUI 10 comprising a web browser display 12, web page URI entry box 14, system task log 16, and speech interface display 20. *Id.* at 40–41 (citing Ex. 1014, 5:6–20); *see also id.* at 40 (citing Ex. 1014, 4:64).

For limitation 1[e], Petitioner contends that “Allen’s system is taught how to execute actions with a GUI, including clicking a GUI button using a mouse, moving a mouse cursor, pulling down a drop-down box, typing into an input field, and waiting for a web page to load.” Pet. 41 (citing Ex. 1014, code (57), 6:5–7, 6:10–11, 6:20–22, 7:43–45, 12:38–41, 12:45–46; Ex. 1003 ¶ 166). According to Petitioner, “[e]ach interaction comprises inputting data to the displayed UI or executing a functionality of the displayed UI.” *Id.* (citing Ex. 1003 ¶ 166).

For limitation 1[f], Petitioner contends that, “[s]ince the system is taught to perform actions with the GUI for executing a task, its automatic

execution of the task must comprise utilizing the displayed UI of the computer program to perform the sequence of interactions.” Pet. 42 (quoting Ex. 1014, code (57)) (citing Ex. 1003 ¶ 167).

b) Patent Owner’s Contentions

Patent Owner argues, *inter alia*,¹⁸ that Petitioner has not identified “a natural language conversation” in a “natural language interface” as recited in limitations 1[a] and 1[b]. PO Resp. 52. Specifically, Patent Owner argues that for limitation 1[a], Petitioner identifies the training conversation shown in Figure 3, which is “used to **train** the PLOW system, not to conduct a natural language conversation which seeks to invoke performing a task.” *Id.* at 53 (citing Ex. 2001 ¶ 229). However, Patent Owner argues, for limitation 1[b], Petitioner relies upon the performing process described in Allen at column 12:62–13:1. *Id.* at 54; *see supra* Section III.E.1. Here, Patent Owner argues, Dr. Beigi does not contend that the natural language interface is used to provide the first natural language feedback or obtain the second natural language input as part of the *same* conversation. PO Resp. 54 (referring to Ex. 1003 ¶¶ 154–155); *see also* PO Resp. 49, 53 (arguing that the conversation in Figure 3 is the “wrong conversation” and “relates to **training** PLOW how to buy a book from WIDGICO, **not implementing** the process of buying the book”); Ex. 2001 ¶¶ 219, 229; Ex. 1014, 6:24–31, 6:34–37.

¹⁸ Because our determination that Petitioner has not met its burden of establishing obviousness over Allen is dispositive, we do not address Patent Owner’s remaining arguments.

c) Analysis

We determine that Petitioner has not established by a preponderance of the evidence that claim 1 is obvious over Allen. Specifically, Allen’s disclosure does not support Petitioner’s contentions and testimonial evidence. As set forth above, Petitioner largely relies on Figures 1–3 of Allen and their associated descriptions, as well as the performing process described at 12:62–13:1, to teach the limitations in claim 1. We agree with Patent Owner that “Allen’s disclosure is primarily directed to explaining how PLOW is trained to perform an automated process using GUI 10 of FIG. 1.” PO Resp. 47; *see also* Ex. 2001 ¶¶ 210–219. For example, Figures 1–3 all relate to Allen’s training process.¹⁹ Allen describes that “[a] graphical user interface (‘GUI’) is preferably provided so that the user can

¹⁹ The parties dispute whether Figure 6 of Allen relates to the learning process or the execution process. Petitioner contends that it relates to the learning process and is different from the performing process, whereas Patent Owner contends that Figure 6 relates to the performing process. *See* Reply 16–17; PO Resp. 55–56. Petitioner states in the Reply that it is not relying on Figure 6 because it relates to training; however, this argument is difficult to reconcile with Petitioner’s clear reliance on Figures 1–3, which also relate to training. Reply 17; *see* Sur-reply 18–19. We tend to agree with Petitioner that Figure 6 relates to the training process, given the context of the discussion of Figure 6 in Allen. *See* Ex. 1014, 10:13–64 (generally describing Figure 6 as the system observing the user’s actions in teaching the step, generalizing knowledge obtained by the user, and storing it as learned knowledge in the task database). Moreover, it is undisputed that Figure 6 shows a different question (“What is the name of the book you are looking for?”) than the conversation described in the performing process at 12:62–13:1 of Allen (“What is the title of the book?”). Reply 16–17; PO Resp. 55–56. In any event, because Petitioner is not relying on Figure 6, and because we determine Petitioner’s contentions are insufficient for other reasons, we need not resolve this issue.

easily monitor PLOW's actions . . . FIG. 1 shows a representative graphical user interface 10." Ex. 1014, 4:66–5:6. Further description of Figure 1 confirms that it is the GUI for the training or learning session.²⁰ For example, Figure 1 shows task log 16, "on the right side of the display," which is described as "show[ing] the tasks that have been learned so far in the learning session." Ex. 1014, 5:14–16. Figures 2 and 3, which "illustrate how PLOW can learn to order a book," likewise show graphical user interface 10 and task log 16. *Id.* at 5:23–24; *see also id.* at 12:10–12 ("[t]he reader will recall that [in Figures 2 and 3] the user is teaching the system how to buy a book").

Petitioner and Dr. Beigi shift back and forth between reliance on Allen's training process and Allen's performing process. *See* PO Resp. 53–54. For example, for limitation 1[a], Petitioner relies on Figure 3, which describes the training process. However, for limitation 1[b], which further describes ("wherein") the "natural language conversation" and "input" recited in limitation 1[a], Petitioner relies on Allen's performing process. In other words, Petitioner has not identified the same conversation across the two limitations. *See* PO Resp. 54. Petitioner likewise relies on the performing process for limitations 1[c], the learning process for limitations 1[d] and 1[e], and a combination of the two processes for limitation 1[f]. Petitioner's shifting back and forth between the training and performing process across the different claim limitations, along with the lack of specificity in Allen's description of the performing process, does not persuade us that claim 1 is obvious over Allen.

²⁰ Allen refers to training, learning, and teaching sessions interchangeably.

Petitioner asserts that Allen’s displays are used for both training and execution. Pet. 40 (quoting Ex. 1014, code (57)) (citing Ex. 1003 ¶ 165); Reply 15–16 (citing Ex. 1014, 18:38–49 (claim 1), code (57), 1:50–52, 15:24–40); Ex. 1042 ¶¶ 70–74). However, we are not persuaded that the cited portions of Allen provide sufficient support for Petitioner’s reliance on Allen’s performing process for limitations 1[b], 1[c], and 1[f]. *See* Sur-reply 19–20. For example, the full text of the quoted portion of Allen’s Abstract states “[a] system *which allows a user to teach* a computational device how to perform complex, repetitive tasks that the user usually would perform *using the device’s graphical user interface.*” Ex. 1014, code (57). The Abstract goes on to state that “[a]fter a complete task has been taught, the system is able to automatically execute the task in new situations,” but says nothing more about how this process works or what it looks like. The statement “[t]he present invention can be configured to apply to virtually any computational device employing a graphical user interface,” is generic and again says nothing specific about execution. *Id.* at 1:50–52. And Petitioner has not shown that the citation to 15:24–40 of Allen relates to execution. *See id.* at 15:40–45 (“The GUI allows the user to select a particular entry in the columns and then utter a statement such as ‘This is incorrect.’ PLOW responds by saying something like ‘All right. Show me the correct response.’ The user then goes into the DOM node in which the mistake was made and correctly highlights the title”), 15:51–53 (“The user can continue applying teaching actions until the parsing is all correct”).

Dr. Beigi relies on additional citations to Allen that likewise do not support Petitioner’s arguments regarding the performing process. *See*

Ex. 1042 ¶¶ 71–73. For example, Dr. Beigi’s reliance on 5:17–20 of Allen is not persuasive because it relates to Figure 1, the learning process.

Ex. 1042 ¶ 71. And his reliance on 6:60–65 of Allen is also not persuasive, because again, it provides scant description of the performing process.

Ex. 1042 ¶ 71. Dr. Beigi also relies on Figures 9 and 10, but these, too, appear to relate to the learning process, rather than the performing process. *See* Ex. 1014, 13:6–17 (describing Figure 9, and stating “[t]he user at this point says ‘Here is the list of results.’ . . . The task learning module creates a subtask within the steps following the recognition of iteration until such time as the user defines the end of iteration”), 14:10–16 (describing Figure 10, and stating “[t]hereafter, when a user demonstrates a task to be applied to one cell, the system will automatically apply that task to all cells . . . if the user says ‘This is the title’ while demonstrating the title in the first cell, the system will analyze all the cells and attempt to identify the title”).

Allen describes the performing process as follows:

Once the complete task is learned, the user can employ PLOW’s task database the next time he or she wishes to order a book. The user would only need to say something like “I want to buy a book.” The system would then ask, “What is the title of the book?” Once that information is provided, PLOW would then perform the steps it was previously taught and complete the transaction.

Ex. 1014, 12:62–13:1; *see also id.* at code (57) (“After a complete task has been taught, the system is able to automatically execute the task in new situations”), 6:53–55 (“[t]he system then learns to automatically execute steps by observing the user’s actions and analyzing the verbal instructions the user provides”). Petitioner relies on this disclosure repeatedly. Pet. 38–

39 (limitations 1[b], 1[c]), 42 (limitation 1[f]). Petitioner further argues, with supporting testimony from Dr. Beigi, that this disclosure describes “a single conversation involving a ‘natural dialog-based interface’ that ‘us[es] natural dialog-based language.’” Reply 16 (citing Ex. 1014, 18:47–49; Ex. 1003 ¶ 155; Ex. 1042 ¶ 75). However, as discussed above, Allen does not describe it this way, or provide sufficient indication of what this process looks like. Aside from this generic description, Allen does not provide any detail about the performing process. *See* Sur-reply 19–20.

Dr. Beigi provides testimony that “the system performing the steps it was previously taught means it simulates user interactions with the displayed UI of the computer program.” Ex. 1003 ¶ 162 (citing Ex. 1014, 5:7–8, 6:61–65, Fig. 1); *see also id.* ¶ 167. He further testifies that if Allen does not disclose the foregoing, “[i]t would have been obvious that in order for the user to easily monitor the system’s actions, the system’s actions would have to be displayed.” *Id.* ¶ 164 (citing Ex. 1014, 5:15–20, 4:66–5:1); *see also* Pet. 39–40. However, all of the citations Dr. Beigi relies upon in support of this testimony refer to Figure 1, which, as set forth above, describes the learning process for PLOW and the user monitoring the system’s actions during that learning process, *not* during the performing process. *See* Ex. 2001 ¶¶ 215, 217. For example, the cited portion of Allen at 5:15–60 describes Figure 1, and states:

Task log 16 is presented on the right side of the display area. *The task log shows the tasks that have been learned so far in this learning session. Speech interface display 20 is presented across the bottom of the display area. These displays allow the user to monitor his or her interaction with PLOW, as will be explained momentarily.*

Ex. 1014, 5:15–20 (emphasis added). Dr. Beigi may be correct that the displayed actions allow the user to monitor the system’s actions during learning (e.g., Ex. 1014, 5:15–20, 5:35–40, 5:41–43, 5:51), but this does not inform whether it would have been obvious for the system to “perform an automation of a sequence of interactions with a displayed user interface of a computer program and to simulate user actions with the displayed user interface of the computer program” and “executing the automation process . . . [by] utilizing the displayed user interface of the computer program to perform the sequence of interactions,” as recited in limitations 1[c] and 1[f].

Moreover, as explained in our Consolidated Trial Practice Guide²¹ (Nov. 2019) at 36:

Expert testimony, however, cannot take the place of a disclosure in a prior art reference, when that disclosure is required as part of the unpatentability analysis Furthermore, because an *inter partes* review may only be requested “on the basis of prior art consisting of patents or printed publications,” 35 U.S.C. § 311(b), expert testimony cannot take the place of disclosure from patents or printed publications. In other words, expert testimony may explain “patents and printed publications,” but is not a substitute for disclosure in a prior art reference itself.

Petitioner improperly relies on Dr. Beigi to fill in the gaps in Allen’s disclosure. Given that the claim limitations are directed to what the method looks like – i.e., a natural language interface, a natural language conversation with inputs, simulation of user interactions with the displayed

²¹ Available at <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf>.

user interface of the computer program, and using a displayed user interface to perform a series of actions – we find the lack of specificity as to Allen’s performing process, as well as Petitioner’s shifting between reliance on Allen’s learning process and performing process, problematic to Petitioner’s contentions. This is compounded by Petitioner’s heavy reliance on Allen’s performing process. We agree with Patent Owner that “while Allen teaches that the system can ‘perform the steps it was previously taught,’ it provides little detail on how the system executes such steps.” PO Resp. 51 (citing Ex. 1014, 12:66–13:1); *see also* Ex. 2001 ¶ 222. We, therefore, do not find sufficient support in Allen, or from Dr. Beigi’s testimony regarding Allen’s disclosure, that a person of ordinary skill in the art would have understood Allen’s performing process to teach limitations 1[b], 1[c], and 1[f].

Accordingly, we are not persuaded that Petitioner has shown by a preponderance of the evidence that claim 1 is obvious over Allen.

3. *Claims 2–8, 12–16, 18–23, 25, 26, 28–31, 33*

Petitioner asserts that claims 2–8, 12–16, 18–23, 25, 26, 28–31, and 33 are obvious over Allen. Pet. 42–58. Petitioner relies on the same arguments as set forth for independent claim 1 in arguing that independent claims 19 and 29 are obvious over Allen. *Id.* at 55–57. Therefore, for the same reasons as for claim 1, Petitioner has failed to establish by a preponderance of the evidence that claims 19 and 29 are obvious over Allen. All dependent claims recite, or incorporate by dependency, the limitations of claims 1, 19, and 29. Therefore, because Petitioner has failed to establish by a preponderance of the evidence that claims 1, 19, and 29 are obvious over

Allen, the unpatentability challenges to dependent claims 2–8, 12–16, 18, 20–23, 25, 26, 28, 30, 31, and 33 also fail.

F. Alleged Obviousness Over Allen and Dayanandan

Petitioner contends that claim 9, which depends from claim 1, is obvious over Allen and Dayanandan. Pet. 58–62; Ex. 1001, 26:13–26. For the same reasons as set forth for claim 1, we are not persuaded that Petitioner has shown by a preponderance of the evidence that claim 9 is obvious over Allen and Dayanandan.

G. Alleged Obviousness Over Krishnan and Radhakrishnan

Petitioner contends claims 1–8, 12–14, 16, 18–23, 26, 28, 29, 31, and 33 would have been obvious over the combination of Krishnan and Radhakrishnan. Pet. 62–85. Patent Owner disputes Petitioner’s contentions. PO Resp. 65–76. We first provide an overview of Krishnan and Radhakrishnan and then address the obviousness challenge to claim 1.

1. Krishnan

Krishnan is titled “Intent Interpreter for a Visual Bot Builder” and generally describes configuration of a chat bot to execute dialogs in response to user input and user requests. Ex. 1016, code (57), 2:16–17. The user requests may include service requests, such as making purchases, requesting status updates, processing refunds, or modifying information. *Id.* at 2:20–26. Krishnan’s interface “provides a visual approach to configuring bots, enabling dialog reuse, and interpreting user input and other commands.” *Id.* at 2:48–50.

Figure 1, reproduced below illustrates an example conversation (i.e., a back-and-forth interaction between a user and chatbot). Ex. 1016, 2:44–46, 51.

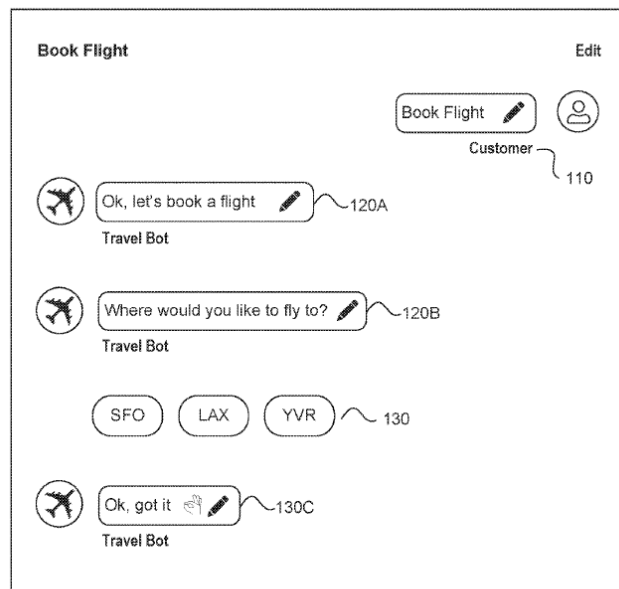


FIG. 1

Figure 1 shows a user or customer requesting to book a flight via a chatbot. Ex. 1016, 2:54–55. The interaction shows the Customer requesting to “Book flight,” the Travel Bot responding “Ok, let’s book a flight” and “Where would you like to fly to?” with buttons labelled “SFO,” “LAX,” and “YVR.” “[D]epending on how the user answers, different dialogs, programs, or other sub-routines may be called by the bot to interact with the user.” *Id.* at 2:59–61. “Through executing dialogs, a chat bot can provide the user with information retrieved from another system, request information from the user, and perform actions to fulfill user requests (such as account transfers, refunds, processing payments, booking tickets, etc.).” *Id.* at 3:46–50. The dialog may be configured to select which functions the bot should execute as part of the dialog, for example, presenting texting text or

information to the user, or asking a question to request information from a user. *Id.* at 5:55–65. Additionally, “[a]sking a question may include displaying a text box, radio-button, or drop-down selection area which the user may use to respond to a question.” *Id.* at 5:65–67.

2. *Radhakrishnan*

Radhakrishnan is titled “Robotic Process Automation Enabled File Dissection for Error Diagnosis and Correction,” and is generally directed to “providing a robotic process automation enabled file diagnosis and correction.” Ex. 1018, codes (54), (57). Further, “[t]he invention leverages the unique interactions of a robotic process automation module with a user interface of an application to simulate user operations with the user device to generate an operation record for automatically generating and transmitting a diagnosis and correction request to a workstation.” *Id.* at code (57). Additionally, “[t]he robotic automation module may execute simulated user operations in parallel with the operations of the user to be able to provide a detailed record of the user’s operational steps should an error occur such as a program crash, file corruption, or the like.” *Id.*

Figure 3, reproduced below, “provides a high-level process flow for robotic process automation module simulation of user operation.” Ex. 1018, 11:10–12.

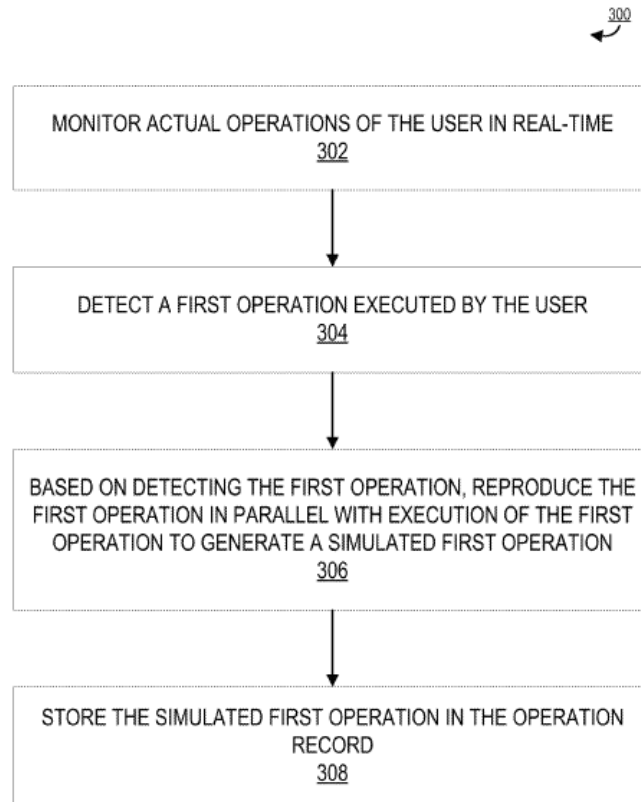


FIG. 3

Figure 3, shows four blocks: (1) block 302, where the system monitors actual operations (e.g., selecting options, completing a field, etc.) of the user in real-time; (2) block 304, where the system (e.g., the RPA module) detects a first operation of the user; (3) block 306, where “the system may reproduce the first operation in parallel with execution of the first operation to generate a simulated first operation,” so that “the simulated operations generated by the RPA module may act as a mirror of the actual user operations and be used as an accurate, complete operation record which details the user

operations in their entirety”; and block 308, where the system stores the simulated first operation in the operation record. *Id.* at 11:10–60.

3. Analysis of Independent Claim 1

Petitioner contends that the combination of Krishnan and Radhakrishnan teaches the limitations of independent claim 1. Pet. 65–73. Petitioner’s contentions and Patent Owner’s arguments in opposition are set forth below. After reviewing the record developed at trial, we determine that Petitioner has not shown by a preponderance of the evidence that claims 1–8, 12–14, 16, 18–23, 26, 28, 29, 31, and 33 would have been obvious over the combination of Krishnan and Radhakrishnan.

Petitioner relies on Krishnan to teach the preamble and limitations 1[a] and 1[b]. Pet. 65–69. Petitioner contends that Krishnan discloses a method of “conduct[ing] a conversation with a user and is designed to simulate a human conversational pattern.” *Id.* at 66–67 (citing Ex. 1016, 1:17–19, 2:40–46; Ex. 1003 ¶ 246). Specifically, Petitioner contends that Krishnan’s chat bot receives input from a user and responds to that input using a natural language interface. *Id.* at 66 (citing Ex. 1016, Fig. 1, 2:56–58, 3:7–9, 5:62–67; Ex. 1003 ¶ 249); *see also* Pet. 68–69. According to Petitioner the “questions from the chatbot and responses from the user resemble language spoken by a human, and hence, are part of a natural language conversation between the natural language interface and the user.” *Id.* at 67 (citing Ex. 1003 ¶ 250).

Regarding limitation 1[c], Petitioner argues that, based upon the first and second natural language inputs from the user, Krishnan performs actions to fulfill user requests (i.e., an automation process). Pet. 69 (citing Ex. 1016,

3:46–50; Ex. 1003 ¶ 254). However, Petitioner states that “Krishnan is silent regarding its automation process performing an automation of a sequence of interactions with a displayed UI,” so Petitioner relies on Radhakrishnan. *Id.* at 69–70. According to Petitioner, Radhakrishnan’s teaching of “[m]irroring user operations with a displayed UI means the automation process simulates user interactions with the displayed UI.” *Id.* at 70 (citing Ex. 1003 ¶ 256).

Petitioner contends that it would have been obvious to combine Krishnan and Radhakrishnan because “[b]oth aim for better user convenience, lower operational costs, and increased user and/or process efficiency.” Pet. 70 (citing Ex. 1016, 2:5–11; Ex. 1018, 6:21–34; Ex. 1003 ¶ 257); *see also* Reply 25–26 (citing, e.g., Ex. 1018, 6:38–42; Ex. 1042 ¶¶ 109–114). Petitioner explains that Krishnan achieves these objectives by using a chatbot as an interface between the user and a back-end system, while Radhakrishnan uses an RPA bot to automatically execute back-end processes at the presentation layer of the computing system. Pet. 70–71 (citing Ex. 1016, 2:33–35; Ex. 1003 ¶ 258; Ex. 1018, 5:21–23, 5:49–51). According to Petitioner:

Krishnan provides one example for its chatbot: “a user may visit or log into a website and have customer service requests fulfilled by a chat bot.” (EX1016, 2:10-12; EX1003, ¶259.) A POSITA would have been motivated to fulfill these customer service requests by an RPA bot, particularly when the customer service request involves more complicated tasks. (EX1018, 5:32-35; EX1003, ¶259.) Diagnosing and rectifying computer software-related errors is a complicated task, requiring a dedicated and specialized IT support staff. (EX1018, 1:9-18; EX1003, ¶259.) The RPA bot automatically and efficiently diagnoses and rectifies program crashes, file corruption, and

operating errors, thereby lowering operational costs, and increasing user and/or process efficiency. (EX1018, 1:9-18; EX1003, ¶259.)

Id. at 71.

Regarding limitation 1[d], Petitioner relies on Radhakrishnan, asserting “[s]ince the user’s operations are displayed on a screen and the RPA module mirrors the user’s operations, then the RPA’s operations are displayed on a screen.” *Id.* at 72 (citing Ex. 1018, 7:12–16; Ex. 1003 ¶ 260).

Regarding limitation 1[e], Petitioner relies on Radhakrishnan, asserting “[s]ince the user’s operations comprise completing a field (inputting data to the displayed UI) and selecting GUI elements (executing a functionality of the displayed UI), and the RPA module mirrors the user’s operations, then the RPA module’s interactions comprise inputting data to the displayed UI and executing a functionality of the displayed UI.” 72–73 (citing Ex. 1018, 7:12–17; Ex. 1003 ¶¶ 263–264).

Regarding limitation 1[f], Petitioner relies on Radhakrishnan’s RPA modules or bots that “automatically execute one or more processes.” Pet. 73 (citing Ex. 1018, 5:21–23, 5:49–56; Ex. 1003 ¶¶ 265–267). That is, the RPA modules or bots “mimic user activity directly with a UI” and “simulate mouse and keyboard inputs to execute commands and perform automated tasks.” *Id.* (citing Ex. 1018, 5:49–56 (emphasis omitted); Ex. 1003 ¶¶ 266–267).

Patent Owner argues, among other things,²² that Petitioner has not demonstrated that a person of ordinary skill in the art would have been motivated to combine Krishnan and Radhakrishnan. PO Resp. 72–76; Sur-reply 24–25. We agree.

Petitioner has the burden to show a motivation to combine and a reasonable expectation of success. *See Redline Detection, LLC v. Star Envirotech, Inc.*, 811 F.3d 435, 449 (Fed. Cir. 2015) (“When asserting that a claimed invention would have been obvious, that party ‘must demonstrate ... that a skilled artisan would have had reason to combine the teachings of the prior art references to achieve the claimed invention, and that the skilled artisan would have had a reasonable expectation of success from doing so.’” (quoting *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1193 (Fed. Cir. 2014))); *see also* 35 U.S.C. § 316(e) (“In an inter partes review instituted under this chapter, the petitioner shall have the burden of proving a proposition of unpatentability by a preponderance of the evidence.”). As discussed below, Petitioner has not carried its burden of establishing a motivation to combine the teachings of Krishnan and Radhakrishnan to achieve the claimed invention.

As described above, Petitioner relies on Krishnan to teach the preamble and limitations 1[a], 1[b], and 1[c] and relies on Radhakrishnan to teach limitations 1[c], 1[d], 1[e], and 1[f]. That is, Krishnan is relied upon to collect user input via a natural language interface and execute an automation

²² Because our determination that Petitioner has not met its burden of establishing a motivation to combine Krishnan and Radhakrishnan is dispositive, we do not address Patent Owner’s remaining arguments.

process, and based on that user input, Radhakrishnan is relied upon to execute an automation process, including simulating user interactions with the displayed user interface. Petitioner asserts that a person of ordinary skill in the art would have been motivated to fulfill Krishnan's customer service requests by an RPA bot (as disclosed in Radhakrishnan) when the customer service request involves more complicated tasks. Pet. 71; *see* Tr. 46:23–47:1 (Petitioner's counsel agreeing that the combination is "using an RPA bot in Krishnan to fulfill the customer service requests from Krishnan on a UI"). Then, Petitioner identifies diagnosing and rectifying computer-software related errors as complicated tasks, and asserts that Radhakrishnan's RPA bot performs these tasks, thereby lowering operational costs and increasing user and/or process efficiency. Pet. 71 (citing Ex. 1003 ¶ 259).

Petitioner's reasoning fails to explain "*how* the combination of the two references was supposed to work." *See Personal Web Techs., LLC v. Apple, Inc.*, 848 F.3d 987, 994 (Fed. Cir. 2017). More specifically, Petitioner fails to explain how or why a person of ordinary skill in the art would be motivated to perform Krishnan's automation process (i.e., fulfilling customer requests) *by performing an "automation of a sequence of interactions with a displayed user interface,"* as purportedly taught by Radhakrishnan. Petitioner's arguments are focused toward using Radhakrishnan's RPA bot to perform Krishnan's customer service requests (i.e., automation process), but fail to explain how Radhakrishnan's RPA bot's mirroring of the user's operations (i.e., the simulation on the displayed user interface) as applied in Krishnan would work or provide sufficient

reasoning to do so. *See Personal Web*, 848 F.3d at 993–994 (“[I]t does not imply a motivation to pick out . . . two references and combine them to arrive at the claimed invention”); *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”).

Krishnan teaches that “[t]he chat bot may serve as an interface between the customer and one or more backend databases or other information processing systems.” Ex. 1016, 2:33–35; *see also id.* at 3:46–50 (“Through executing dialogs, a chat bot can provide the user with information retrieved from another system, request information from the user, and perform actions to fulfill user requests (such as account transfers, refunds, processing payments, booking tickets, etc.”). In Reply, Petitioner argues that “[t]he obviousness combination does not replace Krishnan’s database or access it with a displayed UI . . . It is the automation process that is tied to the displayed UI, and Radhakrishnan teaches the motivation to using RPA and interacting with a displayed UI.” Reply 25–26 (citing Ex. 1018, 6:21–29, 6:38–42, Ex. 1042 ¶¶ 109–114). However, there is a disconnect in Petitioner’s reasoning, because the user interface described in Krishnan is the chat bot, and the motivation referred to (discussed further below) is directed to use of an RPA bot, not to performing an automation process on a user interface. Although Petitioner summarily states that “other information processing systems” in Krishnan can encompass “non-backend databases,” Petitioner does not expand upon this argument. Reply 24; Ex. 1042 ¶ 104. Moreover, the issue is not whether a backend database (or other information processing system) as in Krishnan and a displayed user

interface can be used together (Reply 24), but whether Petitioner has carried their burden to explain why they would be in order to achieve the claimed invention.

Even assuming Radhakrishnan sufficiently teaches performing or executing the automation process by utilizing a displayed user interface as described in limitations 1[c], 1[e], and 1[f], Petitioner provides no persuasive explanation as to why a person of ordinary skill in the art would want such functionality in Krishnan. *See Belden Inc. v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (“[O]bviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention.”); *InTouch Techs., Inc. v. VGO Commc’ns, Inc.*, 751 F.3d 1327, 1352 (Fed. Cir. 2014). Petitioner’s purported reasoning for the combination – “better user convenience, lower operational costs, and increased user and/or process efficiency” does not provide sufficient motivation, and only addresses the advantages of RPA bots. *See* Pet. 70 (citing Ex. 1003 ¶ 257); Reply 25–26 (citing Ex. 1018, 6:21–29, 6:38–42, Ex. 1042 ¶¶ 109–114). That is, Petitioner’s reasoning does not explain why a person of ordinary skill in the art would be motivated to provide functionality in Krishnan where the displayed user interface of the computer program is used to perform the sequence of interactions of the automation process, as described in limitations 1[c], 1[e], and 1[f].

As Petitioner recognizes, and as described above, Krishnan uses a chatbot as an interface between the user and a back-end or information processing system. Pet. 70–71 (citing Ex. 1016, 2:33–35). Mr. Zatkovich

testifies that a person of ordinary skill in the art would understand that “the chatbot is tied to the backend systems; it either calls, or interacts with a program that calls, the information requested directly from the databases without needing to interact using a displayed user interface.” Ex. 2001 ¶ 307. Further, Mr. Zatkovich testifies that “since Krishnan has direct access to backend databases etc., it would make no sense and be less efficient to access such system through a graphical user interface,” and “no reason to use automation processes that involve using the displayed user interface, since data can be manipulated directly in the backend by the chatbot.” *Id.* Additionally, Mr. Zatkovich provides testimony that a person of ordinary skill in the art “would understand that it would be more cost effective, and take fewer computing resources, to simply directly call a database or provide a computer instruction to change a value, rather than simulate a task to be performed on a displayed user interface.” Ex. 2001 ¶ 353. We find Dr. Zatkovich’s testimony persuasive.

Dr. Beigi responds that a person of ordinary skill in the art “would have known about the benefits that RPA has to offer when performing complicated tasks at the presentation layer (displayed user interface)” (Ex. 1042 ¶ 112); however, this does not address *why* a person of ordinary skill in the art would want to perform complicated tasks at the presentation layer. Rather, Dr. Beigi’s testimony, as well as Petitioner’s reasoning for the combination, addresses the advantages of RPA bots in general and does not sufficiently explain why a person of ordinary skill in the art would be motivated to utilize a displayed user interface as described in limitations 1[c], 1[e], and 1[f]. Pet. 70–71.

Accordingly, we are not persuaded that Petitioner has carried its burden of establishing a motivation to combine the teachings of Krishnan and Radhakrishnan to achieve the claimed invention. As such, we are not persuaded that Petitioner has established that independent claim 1 is unpatentable over the combination of Krishnan and Radhakrishnan.

4. Claims 2–8, 12–14, 16, 18–23, 26, 28, 29, 31, and 33

Petitioner asserts that claims 2–8, 12–14, 16, 18–23, 26, 28, 29, 31, and 33 are obvious over the combination of Krishnan and Radhakrishnan. Pet. 73–85. Petitioner relies on the same arguments as set forth for independent claim 1 in arguing that independent claims 19 and 29 are obvious over Krishnan and Radhakrishnan. Pet. 83–85. Therefore, for the same reasons as for claim 1, Petitioner has failed to establish by a preponderance of the evidence that claims 19 and 29 are obvious over Krishnan and Radhakrishnan. All dependent claims recite, or incorporate by dependency, the limitations of claims 1, 19, and 29. Therefore, because Petitioner has failed to establish by a preponderance of the evidence that claims 1, 19, and 29 are obvious over Krishnan and Radhakrishnan, the unpatentability challenge to dependent claims 2–8, 12–14, 16, 18–23, 26, 28, 29, 31, and 33 also fails.

IV. CONCLUSION

For the foregoing reasons, we are persuaded that Petitioner has established by a preponderance of the evidence that claims 1–8, 12, 13, 16, 19–23, 26, 29, and 31 of the '664 patent are unpatentable. We are *not* persuaded that Petitioner has established by a preponderance of the evidence

that claims 9, 14, 15, 18, 25, 28, 30, and 33 of the '664 patent are unpatentable.²³

In summary:

Claims	35 U.S.C. §	Reference/Basis	Claims Shown Unpatentable	Claims Not Shown Unpatentable
1–8, 12, 13, 16, 19–23, 26, 29, 31	103	Symons, Williams	1–8, 12, 13, 16, 19–23, 26, 29, 31	
1–8, 12–16, 18–23, 25, 26, 28–31, 33	103	Allen		1–8, 12–16, 18–23, 25, 26, 28–31, 33
9	103	Allen, Dayanandan		9
1–8, 12–14, 16, 18–23, 26, 28, 29, 31, 33	103	Krishnan, Radhakrishnan		1–8, 12–14, 16, 18–23, 26, 28, 29, 31, 33
Overall Outcome			1–8, 12, 13, 16, 19–23, 26, 29, 31	9, 14, 15, 18, 25, 28, 30, 33

²³ Should Patent Owner wish to pursue amendment of the challenged claims in a reissue or reexamination proceeding subsequent to the issuance of this decision, we draw Patent Owner's attention to the April 2019 *Notice Regarding Options for Amendments by Patent Owner Through Reissue or Reexamination During a Pending AIA Trial Proceeding*. See 84 Fed. Reg. 16,654 (Apr. 22, 2019). If Patent Owner chooses to file a reissue application or a request for reexamination of the challenged patent, we remind Patent Owner of its continuing obligation to notify the Board of any such related matters in updated mandatory notices. See 37 C.F.R. § 42.8(a)(3), (b)(2).

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that claims 1–8, 12, 13, 16, 19–23, 26, 29, and 31 of the '664 patent have been shown to be unpatentable;

ORDER that claims 9, 14, 15, 18, 25, 28, 30, and 33 of the '664 patent have *not* been shown to be unpatentable; and

FURTHER ORDERED that Exhibit 2018 be expunged from the record; and

FURTHER ORDERED that, because this is a final written decision, parties to this proceeding seeking judicial review of our Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

IPR2023-01368
Patent 10,819,664 B2

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