

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WHATFIX INC.,
Petitioner,

v.

WALKME LTD.,
Patent Owner.

IPR2023-01379
Patent 11,258,732 B2

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

BOUDREAU, *Administrative Patent Judge*.

JUDGMENT
Final Written Decision
Determining No Challenged Claims Unpatentable
35 U.S.C. § 318(a)

I. INTRODUCTION

Whatfix Inc. (“Petitioner”) filed a Petition requesting *inter partes* review of claims 1–6, 9–16, and 18–21 (the “challenged claims”) of U.S. Patent No. 11,258,732 B2 (Ex. 1001, “the ’732 patent”). Paper 2 (“Pet.”). Petitioner filed a Declaration of Dr. Homayoon Beigi (Ex. 1003) in support of the Petition. We instituted an *inter partes* review of the challenged claims on March 20, 2024. Paper 10 (“Decision on Institution” or “Dec.”).

After institution, Patent Owner filed a Response (Paper 17, “PO Resp.”), supported by a Declaration of Ivan Zatkovich (Ex. 2001); Petitioner filed a Reply to the Patent Owner Response (Paper 25, “Reply”), supported by a Reply Declaration of Dr. Beigi (Ex. 1042); and Patent Owner filed a Sur-reply (Paper 30, “Sur-reply”).

We held a combined oral hearing in this proceeding, IPR2023-01368, and IPR2024-00065 on December 18, 2024, and the transcript is entered into the record. Paper 35 (“Tr.”).

This is a final written decision under 35 U.S.C. § 318(a) as to whether the claims challenged in the *inter partes* review are unpatentable. For the reasons discussed below, we conclude that Petitioner has not established by a preponderance of the evidence that any of the challenged claims are unpatentable.

II. BACKGROUND

A. *Real Parties in Interest*

Whatfix Inc. identifies itself and Whatfix Private Limited as real parties in interest for Petitioner. Pet. 85. WalkMe Ltd. identifies itself as the real party in interest for Patent Owner. Paper 13, 2 (Patent Owner’s Updated Mandatory Notices).

B. Related Matters

The parties indicate that the '732 patent is involved in *WalkMe Ltd. v. Whatfix Inc.*, No. 1:23-cv-00227-MN (D. Del.). Paper 6, 2 (Petitioner's Updated Mandatory Notices); Paper 13, 2.

The parties also identify as related matters IPR2023-01368, IPR2023-01443, and IPR2024-00065, involving patents related to the '732 patent that are also involved in the above-referenced district court litigation. Paper 6, 2; Paper 13, 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 13, 2.

C. The '732 Patent

The '732 patent, titled "Automation Process Definition for a Natural Language Interface," issued February 22, 2022, from U.S. Patent Application No. 17/026,305, filed September 21, 2020, as a continuation of U.S. Patent Application No. 16/358,467, filed March 19, 2019 (now U.S. Patent No. 10,819,664 ("the '664 patent")), which was in turn a continuation of application No. PCT/IL2018/051168, filed November 4, 2018. Ex. 1001, codes (21), (22), (45), (54), (63). The '732 patent also claims priority from U.S. Provisional Application No. 62/581,714, filed November 5, 2017. *Id.* at code (60).

The '732 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." *Id.* at 5:62–6:1.

The '732 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 8:46–49. 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 8:49–55. The automation process may also be defined by a user. *Id.* at 11:27–28.

Figure 3 of the '732 patent, reproduced below, “shows a flowchart of a method, in accordance with some exemplary embodiments of the disclosed subject matter.” Ex. 1001, 4:45–47, 13:65–67.

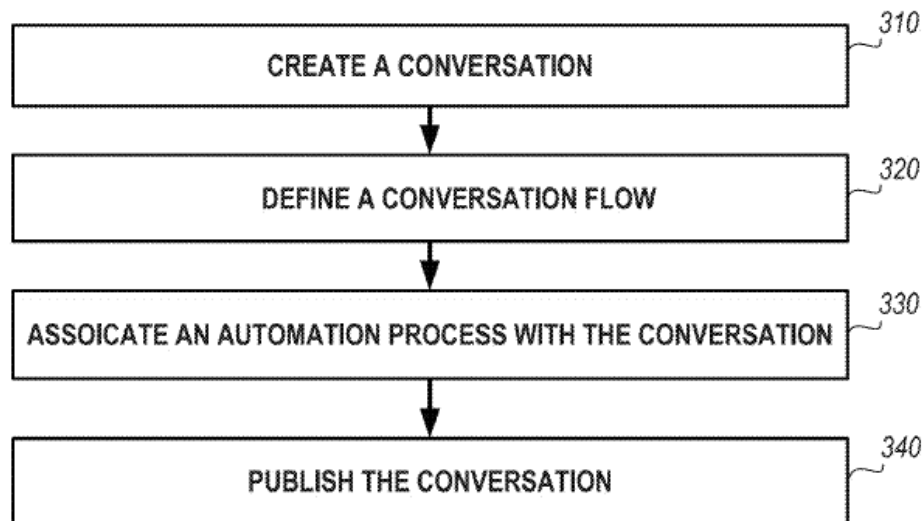


FIG. 3

The flowchart depicted in Figure 3 includes four steps, labeled as 310, 320, 330, and 340. In step 310, according to the '732 patent, a new conversation is created, defined by an “administrator user.” *Id.* at 14:1–2. “Additionally

or alternatively, the conversation may be an existing conversation that is being updated,” and “[i]n some exemplary embodiments, the conversation may have a name, keywords useful for matching user's response to the conversation, or the like.” *Id.* at 14:3–7. At step 320, a “conversation flow” may be defined. *Id.* at 14:8. The ’732 patent explains that the conversation flow, in turn, “may define the announcements of the chat bot, the questions the chat bot asks, the parameters that the chat bot asks for and attempts to retrieve from the user's responses, which may be provided in natural language, the control flow conditions on the conversation flow and the like.” *Id.* at 14:8–14. At step 330, “one or more automation processes may be associated with the conversation.” *Id.* at 14:15–16. More particularly, the ’732 patent explains, “[t]he user may define, for example, using a click-and-point GUI, which automation process would be invoked and when, with respect to the conversation flow.” *Id.* at 14:16–19. Finally, at step 340, “the conversation may be published and made available to be implemented by a chat bot service.” *Id.* at 14:25–26.

The ’732 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, 14:31–19:28. One example described in the foregoing figures is to “Add New Employee.” *Id.* For example, Figure 5B, reproduced below, shows a schematic illustration of a user interface of Conversation Details Editor 540.

405 505

>Bots
 >Conversations
 >Connections

← Conversations
 Add New Employee

540

599

544

* Name 542 * Display Name * Keyword To Search By (Intent)

Add New Employee Add New Employee new x employee x new employee x 546

546a 546b 546c

ADD MESSAGE 552 ADD QUESTION 554 ADD CONDITION 556 ADD ACTION 558

Type	ID	Name	Next step	Actions
...	10497	Start	Employee ID	550a
?	10498	Employee ID	First Name	550b
?	10500	First Name	Last Name	550c
?	10501	Last Name	Email	550d
?	10512	Email	Business Unit	550e
?	10513	Business Unit	Business Unit = Grand Avenue ?	550f
?	10548	Business Unit = Grand Avenue ?		550g
550m			Success step: Add new Employee - Grand Avenue	
			Fail step: Add New Employee - Orange Blossom	
	10520	Add New Employee - Orange Blossom		550h
	10547	Add new Employee - Grand Avenue		550i

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Fig. 5B

Ex. 1001, 15:37–40. Figure 5B depicts, among other things, the details of the “Add New Employee” conversation, which allows the user to define the conversation flow, including buttons 552 (Add Message), 554 (Add Question), 556 (Add Condition), and 558 (Add Action), which allow the user to add new steps to the conversation. *Id.* at 15:52–16:9. For example,

“Add Message Button 552 may be configured to add a message step, in which a message to be provided by the chat bot to the user is defined” and “Add Action Button 558 may be configured to add an action step, in which an automation process is executed.” *Id.* at 15:56–58, 16:4–6.

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

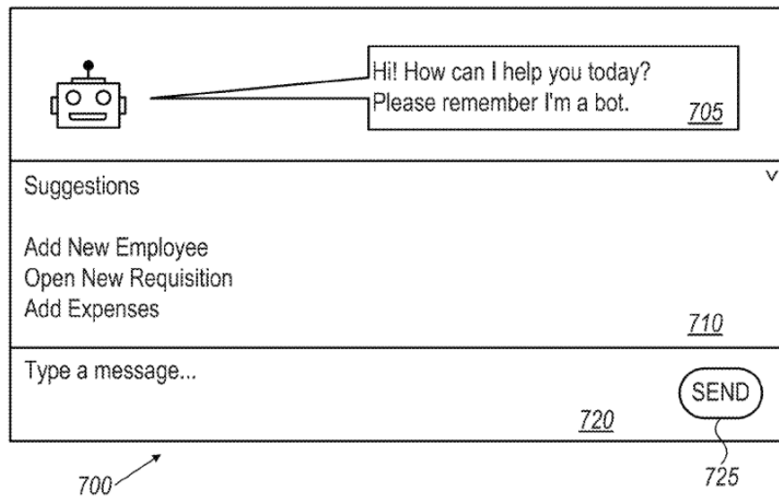


Fig. 7A

Figure 7A, above, shows a user interface of a user conversing with a chat bot after the chat bot has been launched. Ex. 1001, 19:32–35. 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 19:35–38. The chat bot has indicated suggested conversations 710 of “Add New Employee,” “Open New Requisition,” and “Add Expenses.” *Id.* at 19:47–50; *see id.* at 14:64–67. 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 19:39–46.

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

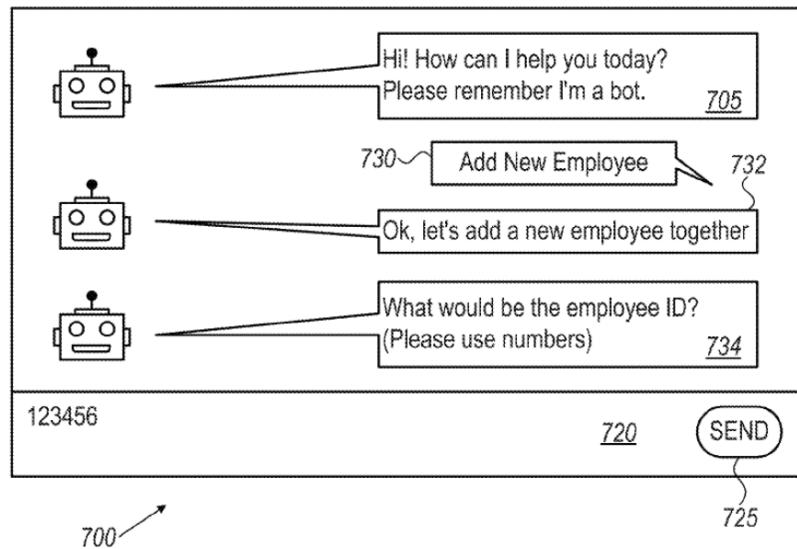


Fig. 7B

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, 19:52–58. The user has replied in text field 720 with “123456.” *Id.* at 19:58–59.

D. Illustrative Claim

Of the challenged claims, claims 1, 11, and 18 are independent.
Claim 1, reproduced below with bracketed alphanumeric reference identifiers used by Petitioner, is illustrative of the claimed subject matter.

1. A method for defining an automation process, wherein the automation process is configured to be invoked in response to a conversation of a user with a natural language interface, the method comprising:

- [a] defining a conversation to be implemented by a natural language interface, wherein the conversation is configured to obtain from the user one or more values to one or more parameters associated with the automation process;
- [b] associating the conversation with the automation process,
- [c] wherein the automation process is configured to utilize a displayed user interface of a computer program to simulate sequence of interactions with the displayed user interface of the computer program and execute a functionality of the computer program, wherein the automation process is a parameterized automation process depending on the one or more parameters; and
- [d] publishing the conversation to be accessible to a user via the natural language interface, wherein the user is enabled to interact with the natural language interface in accordance with the conversation, [e] whereby the parameterized automation process is invoked automatically by the natural language interface and using one or more values provided by the user to the natural language interface for the one or more parameters.

Ex. 1001, 22:15–39.

E. Grounds of Unpatentability

Petitioner asserted, and we instituted *inter partes* review on, the following grounds of unpatentability:

Claim(s) Challenged	35 U.S.C. § ¹	Reference(s)/Basis
1–4, 9–14, 18, 19	103	Symons (Article ² and Video ³), Williams ⁴
6, 16, 21	103	Symons (Article and Video), Williams, Ben-Itzhak ⁵

¹ The Leahy-Smith America Invents Act, Pub. L. No. 112-29, 125 Stat. 284 (2011) (“AIA”), amended 35 U.S.C. §§ 102 and 103, effective March 16, 2013. Because the earliest filing date claimed by the ’732 patent is after that date, we refer to the AIA versions of §§ 102 and 103.

² Senne Symons, *When Chatbots meet RPA bots* (Oct. 19, 2017), <https://medium.com/roborana/when-chatbots-meet-rpa-bots-c8b22579f49a> (October 19, 2017) (Ex. 1004). Petitioner contends that the Symons Article is prior art to the ’732 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 (Oct. 19, 2017), <https://vimeo.com/238927879> (Ex. 1005 (original); Ex. 1006 (English translation)). Petitioner contends that the Symons Video is prior art to the ’732 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) (Ex. 1011). Petitioner contends that Williams is prior art to the ’732 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.

⁵ Ben-Itzhak, US 2017/0250930 A1, published Aug. 31, 2017 (Ex. 1034). Petitioner contends that Ben-Itzhak is prior art to the ’732 patent under at least 35 U.S.C. 102(a)(1). Pet. 33.

Claim(s) Challenged	35 U.S.C. § ¹	Reference(s)/Basis
1–5, 9–15, 18–20	103	Allen ⁶
6, 16, 21	103	Allen, Ben-Itzhak
1–5, 9–15, 18–20	103	Krishnan, ⁷ Radhakrishnan ⁸

Pet. 6–84.

III. ANALYSIS

A. Legal Standards

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) (“The petition must specify where each element of the claim is found in the prior art patents or printed publications relied upon.”).

A patent claim is unpatentable under 35 U.S.C. § 103 if “the differences between the claimed invention and the prior art are such that the

⁶ Allen et al., US 7,983,997 B2, issued July 19, 2011 (Ex. 1014). Petitioner contends that Allen is prior art to the ’732 patent at least under 35 U.S.C. § 102(a)(1). Pet. 35.

⁷ Krishnan et al., US 10,839,798 B2, filed Jan. 30, 2018 (Ex. 1016). Petitioner contends that Krishnan is prior art to the ’732 patent at least under 35 U.S.C. § 102(a)(2), citing Krishnan’s claim of priority from a provisional application filed on Nov. 3, 2017, and publication on May 9, 2019. Pet. 57.

⁸ Radhakrishnan et al., US 10,503,627 B2, filed Oct. 30, 2017, published May 2, 2019 (Ex. 1018). Petitioner contends that Radhakrishnan is prior art to the ’732 patent at least under 35 U.S.C. § 102(a)(2). Pet. 58.

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 the claimed invention pertains.” The question of obviousness is resolved based on 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 ordinary skill in the art; and (4) when presented, objective evidence of obviousness or nonobviousness, i.e., secondary considerations. *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 some instances, “inherency may supply a missing claim limitation in an obviousness analysis.” *PAR Pharm., Inc. v. TWI Pharms., Inc.*, 773 F.3d 1186, 1194–95 (Fed. Cir. 2014). However a party must “meet a high

standard in order to rely on inherency to establish the existence of a claim limitation in the prior art in an obviousness analysis—the limitation at issue necessarily must be present, or the natural result of the combination of elements explicitly disclosed by the prior art.” *Id.* at 1196. In other words, “the mere fact that a certain thing may result from a given set of circumstances is not sufficient” to find a limitation as inherent. *In re Oelrich*, 666 F.2d 578, 581 (C.C.P.A. 1981).

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) in the field of the ’732 patent in 2017 would have [had a] bachelor’s degree in engineering or computer science and two years of experience working on NLP [natural language processing] or automation processes” or “[a]lternatively . . . would have [had] five to six years of experience working on NLP or automation processes.” Pet. 5–6 (citing Ex. 1003 ¶¶ 45–47). 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 '732 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. 21 (citing Ex. 2001 ¶¶ 38–42).

According to Patent Owner, the technology of the '732 patent was “evolving rapidly” and the level of sophistication in the technology was “relatively low” in November 2017. *Id.* at 22 (citing Ex. 1004, 1–2; Ex. 1009, 2; Ex. 2001 ¶ 40; Ex. 2003 (transcript of June 26, 2024, deposition of Dr. Beigi), 141:2–9, 191:18–197:5; Ex. 2007; Ex. 2008). Further, Patent Owner contends, “[a]ctive workers in the field, like Symons,^[9] had less experience than [Dr. Beigi] proposed.” *Id.* (citing Ex. 2001 ¶ 41; Ex. 2003, 112:12–24). Accordingly, Patent Owner argues, “[t]he record demonstrates a more appropriate level of skill 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.” *Id.* (citing Ex. 1003 ¶ 46; Ex. 2001 ¶ 42; Pet. 5–6). “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.* at 22–23

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

(citing Ex. 2003, 141:2–9, 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.* at 23 (citing Ex. 2001 ¶ 43).

In the Reply, Petitioner stands by its proposal, arguing that “[t]he record shows that the key aspects of the art—chatbots, RPAs [robotic process automations] 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 ¶¶ 178–179). 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. 21; Ex. 1004, 1; Ex. 1009, 2; Ex. 1042 ¶¶ 180–181). 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. 21; Ex. 1036 (transcript of Oct. 7, 2024, deposition of Mr. Zatkovich), 16:7–25; Ex. 1042 ¶ 182). Still further, Petitioner contends, “it is unclear what ‘some education, formal or informal’ or ‘some’ work experience means.” *Id.* (citing PO Resp. 22; Ex. 2001 ¶ 43;

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.

Ex. 1042 ¶¶ 183–184). 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. 23; Ex. 1042 ¶ 184).

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.

C. Claim Construction

In an *inter partes* review proceeding, we apply the same claim construction standard as would be used by a district court to construe a claim in a civil action involving the validity or infringement of a patent. 37 C.F.R. § 42.100(b). Under that standard, claim terms are generally given their ordinary and customary meaning as would have been understood by one with ordinary skill in the art in the context of intrinsic record including the specification, the prosecution history, and other claims, and extrinsic evidence including expert and inventor testimony, dictionaries, and learned treatises. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–17 (Fed. Cir. 2005) (en banc). Only those claim terms that are in controversy need to be construed, and only to the extent necessary to resolve the controversy. *Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The

Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

The following guidance from *Phillips* is instructive:

It is a “bedrock principle” of patent law that “the claims of a patent define the invention to which the patentee is entitled the right to exclude.” *Innova[/Pure Water, Inc. v. Safari Water Filtration Sys., Inc.]*, 381 F.3d [1111,] 1115 [(Fed. Cir. 2004)]; *see also Vitronics [Corp. v. Conceptronic, Inc.]*, 90 F.3d [1576,] 1582 [(Fed. Cir. 1996)] (“we look to the words of the claims themselves . . . to define the scope of the patented invention”); *Markman [v. Westview Instruments, Inc.]*, 52 F.3d [967,] 980 [(Fed. Cir. 1995)] (“The written description part of the specification itself does not delimit the right to exclude. That is the function and purpose of claims.”). That principle has been recognized since at least 1836, when Congress first required that the specification include a portion in which the inventor “shall particularly specify and point out the part, improvement, or combination, which he claims as his own invention or discovery.” Act of July 4, 1836, ch. 357, § 6, 5 Stat. 117, 119. In the following years, the Supreme Court made clear that the claims are “of primary importance, in the effort to ascertain precisely what it is that is patented.” *Merrill v. Yeomans*, 94 U.S. 568, 570, 24 L.Ed. 235 (1876). Because the patentee is required to “define precisely what his invention is,” the Court explained, it is “unjust to the public, as well as an evasion of the law, to construe it in a manner different from the plain import of its terms.” *White v. Dunbar*, 119 U.S. 47, 52, 7 S.Ct. 72, 30 L.Ed. 303 (1886); *see also Cont’l Paper Bag Co. v. E. Paper Bag Co.*, 210 U.S. 405, 419, 28 S.Ct. 748, 52 L.Ed. 1122 (1908) (“the claims measure the invention”); *McCarty v. Lehigh Valley R.R. Co.*, 160 U.S. 110, 116, 16 S.Ct. 240, 40 L.Ed. 358 (1895) (“if we once begin to include elements not mentioned in the claim, in order to limit such claim . . ., we should never know where to stop”); *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365

U.S. 336, 339, 81 S.Ct. 599, 5 L.Ed.2d 592 (1961) (“the claims made in the patent are the sole measure of the grant”).
Phillips, 415 F.3d at 1312.

The Federal Circuit has made clear that “the name of the game is the claim.” *In re Hiniker Co.*, 150 F.3d 1362, 1369 (Fed. Cir. 1998).

Accordingly, “[a]lthough ‘it is entirely proper to use the specification to interpret what the patentee meant by a word or phrase in the claim,’” it is improper to add extraneous limitations from the specification into the claim. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994) (quoting *E.I. du Pont de Nemours Co. v. Phillips Petroleum Co.*, 849 F.2d 1430, 1433 (Fed. Cir. 1988)). As the Federal Circuit has further explained,

Though understanding the claim language may be aided by the explanations contained in the written description, it is important not to import into a claim limitations that are not a part of the claim. For example, a particular embodiment appearing in the written description may not be read into a claim when the claim language is broader than the embodiment.
Superguide Corp. v. DirecTV Enters., 358 F.3d 870, 875 (Fed. Cir. 2004);
see also Hill-Rom Servs., Inc. v. Stryker Corp., 755 F.3d 1367, 1371 (Fed. Cir. 2014) (“While we read claims in view of the specification, of which they are a part, we do not read limitations from the embodiments in the specification into the claims.”).

The specification may reveal a special definition given to a claim term by the patentee, or the specification or prosecution history may reveal an intentional disclaimer or disavowal of claim scope by the inventor. *Phillips*, 415 F.3d at 1316. Nonetheless, it is inappropriate to construe claim terms as limited to preferred embodiments without a clear intent to redefine the term or a clear disavowal of claim scope. *See, e.g., Thorner v. Sony Comput. Entm’t Am. LLC*, 669 F.3d 1362, 1365 (Fed. Cir. 2012). If an inventor acts

as his or her own lexicographer, the definition must be set forth in the specification with reasonable clarity, deliberateness, and precision.

Renishaw PLC v. Marposs Societa' per Azioni, 158 F.3d 1243, 1249 (Fed. Cir. 1998); *see also Paulsen*, 30 F.3d at 1480 (“Where an inventor chooses to be his own lexicographer and to give terms uncommon meanings, he must set out his uncommon definition in some manner within the patent disclosure’ so as to give one of ordinary skill in the art notice of the change.” (quoting *Intellicall, Inc., v. Phonometrics, Inc.*, 952 F.2d 1384, 1387–88 (Fed. Cir. 1992)). Similarly, in order for prosecution disclaimer or disavowal to attach, such disclaimer or disavowal must be both “clear and unmistakable.” *3M Innovative Props. Co. v. Tredegar Corp.*, 725 F.3d 1315, 1325 (Fed. Cir. 2013); *Lazare Kaplan Int’l, Inc. v. Photoscribe Techs., Inc.*, 628 F.3d 1359, 1370 (Fed. Cir. 2010); *Omega Eng’g, Inc. v. Raytek Corp.*, 334 F.3d 1314, 1325–26 (Fed. Cir. 2003).

For purposes of the Petition, Petitioner argued that no terms required a formal construction. Pet. 6. In our Decision on Institution, in the absence of any counterargument from Patent Owner and after reviewing Petitioner’s arguments and evidence, we determined that we did not need to expressly construe any term to resolve any controversy at the institution stage of this proceeding. Dec. 13.

In its Response, Patent Owner argues that the terms of the ’732 patent “should have their ‘ordinary and customary meanings’ as understood by a POSITA as of November 5, 2017,” with three “notable exceptions.” PO Resp. 24 (citing Ex. 2001 ¶¶ 98–100). We discuss those “exceptions” in turn below.

1. *“computer program” / “displayed user interface of the computer program”*

Patent Owner contends, “[t]he ’732 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. 24 (emphasis omitted). In support of that contention, Patent Owner quotes the ’732 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, 5:6–13 (quoted at PO Resp. 24–25). According to Patent Owner, a person of ordinary skill in the art “would understand, based on this passage [that] a ‘computer program’ in Claim 1/9-11/18 refers to ‘a target system whose functionality is invoked through by [sic] the automation process using its displayed user interface, such as a graphical user interface’” and that “the ‘displayed user interface of [a]/[the] computer program’ in Claims 1/10-11/18, means ‘the displayed user interface of **the target system** that the user may utilize in order to activate the functionalities of the target system.’” PO Resp. 25 (citing Ex. 2001 ¶ 100). Further, Patent Owner contends, claim element 1[c] “uses the term ‘displayed user interface of [a]/[the] computer program’ multiple times,” and “[a]s Mr. Zatkovich confirms, a POSITA would understand that each instance of ‘computer program’ refers to the **same** ‘computer program’ and each instance of ‘displayed user interface’

refers to the **same** ‘displayed user interface.’” *Id.* at 25–26 (citing Ex. 2001 ¶ 226).

Petitioner replies that “the ’732 specification confirms that ‘computer program’ is nothing more than ‘instructions carried out by computer(s),’” citing disclosure in the ’732 patent that “[t]he *computer program* product may . . . hav[e] . . . *instructions* thereon for causing *a processor to carry out aspects of the present invention.*” Reply 1 (quoting Ex. 1001, 19:61–65 (emphasis added)) (citing Ex. 1036, 110:10–24; Ex. 1042 ¶ 15). Petitioner argues that the specification’s use of “computer program” reflects the ordinary and customary meaning of the term, as further reflected by dictionary definitions thereof. *Id.* at 1–2 (citing Ex. 1001, 5:37–51, 10:11–17, 21:24–32; Ex. 1038 (excerpt from Cambridge Business English Dictionary defining “computer program” as “a set of instructions that makes a computer do a particular thing”); Ex. 1039 (excerpt from Collins English Dictionary defining “computer program” as “a set of instructions for a computer to perform some task”); Ex. 1042 ¶¶ 12–14). Further, Petitioner contends, Patent Owner “does not identify any clear expressions of intent required to redefine ‘computer program’ as it urges.” *Id.* at 2 (citing PO Resp. 24). Indeed, Petitioner points out, the portion of the ’732 patent that Patent Owner cites “does not even define ‘computer program’ but rather describes a ‘target system,’” and even then, it states “only that ‘target system’ is ‘*generally* referred to’ as a ‘computer program.’” *Id.* at 2–3 (citing PO Resp. 24–27; Ex. 1001, 5:6–13; Ex. 1042 ¶¶ 16–17). Finally, Petitioner argues, “nothing supports a ‘separate’/‘single’ computer program with ‘its own’ UI on a single computer device as additional limitations,” “[a]nd such freighting would improperly exclude ’732 embodiments.” *Id.* at 3 (citing PO Resp. 18, 35; Ex. 1001, 5:37–51, 10:11–17; Ex. 1042 ¶ 18;

IPR2023-01368; Ex. 2001 ¶¶ 66, 90 (acknowledging that “computer program” includes embodiments about multiple applications and accessing other UI elements); *Oatey Co. v. IPS Corp.*, 514 F.3d 1271, 1277 (Fed. Cir. 2008)).

In its Sur-reply, Patent Owner argues that “[t]he intrinsic evidence is clear” that “the specification expressly equates the term ‘computer program’ to ‘target systems’” and suggests that the patentee of the ’732 patent “act[ed] as his own lexicographer.” Sur-reply 2–3 (citing Ex. 1001, 5:6–7; *Thorner*, 669 F.3d at 1365). Moreover, according to Patent Owner, “[t]he 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,” and “Dr. Beigi admitted that ‘the graphical user interface of the target system is referring to the user interface in a computer program in the claim.’” *Id.* at 3 (citing Ex. 1001, 5:10–13; Ex. 2020 (transcript of Nov. 11, 2024, deposition of Dr. Beigi), 261:19–23). Patent Owner further argues that Petitioner “mischaracterizes the specification discussing ‘computer program product,’” which, Patent Owner contends, Mr. Zatkovich explained “describe[es] how you might package this particular invention” and Dr. Beigi agreed “seems to be a packaging term.” *Id.* at 4 (citing Ex. 1036, 110:1–24; Ex. 2021 (transcript of Nov. 12, 2024, deposition of Dr. Beigi), 432:8–17). Still further, according to Patent Owner, “[t]he invention is the automation process interacting with the GUI of ‘target system’/‘computer program’, not the ‘target system’/‘computer program’, itself.” *Id.* at 4–5 (footnote omitted).

We disagree with Patent Owner’s premise that the ’732 patent’s statement at column 5, lines 6 to 10 is a definitional statement limiting the claim term “computer program.” See PO Resp. 24–25; Sur-reply 2–3. As

explained in *Thorner*, cited by Patent Owner, the Federal Circuit has explained that, “[t]o 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.” 669 F.3d at 1365 (quoting *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)). “It is not enough for a patentee to simply disclose a single embodiment or use a word in the same manner in all embodiments, the patentee must ‘clearly express an intent’ to redefine the term.” *Id.* (quoting *Helmsderfer v. Bobrick Washroom Equip., Inc.*, 527 F.3d 1379, 1381 (Fed. Cir. 2008)); *cf. AstraZeneca AB v. Mutual Pharm. Co.*, 384 F.3d 1333, 1339 (Fed. Cir. 2004) (limiting patentee to particular examples of solubilizers when it stated in the specification that “[t]he solubilizers suitable according to the invention *are defined below*.”); *3M Innovative Properties Co. v. Avery Dennison Corp.*, 350 F.3d 1365, 1369, 1371 (Fed. Cir. 2004) (holding that the patentee acted as its own lexicographer when the specification stated that “[m]ultiple embossed” means two or more embossing patterns are superimposed”). We find no such clear expression of lexicographical intent expressed in the cited passage or elsewhere in the ’732 patent. 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 Accordingly, we disagree with Patent Owner’s contention that “[t]he ’732 Patent adopted

¹¹ We note that in related U.S. Patent No. 11,558,317 B2, which is a continuation of the ’732 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”).

a special meaning of ‘computer program’ to refer to a ‘target system’” (PO Resp. 24), and 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 ’732 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, 19:61–65) (citing Ex. 1001, 5:37–51, 10:11–17, 21:24–32; Ex. 1038; Ex. 1039). Although we agree with Patent Owner that a “computer program *product*” may include more than just the “computer program” itself, 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. *See* Sur-reply 4.

With respect to Patent Owner’s contention that a person of ordinary skill in the art “would understand that each instance of ‘computer program’ [in claim element 1[c]] refers to the **same** ‘computer program’ and each instance of ‘displayed user interface’ refers to the **same** ‘displayed user interface’” (PO Resp. 25–26), we agree. Element 1[c] recites, in part, that “the automation process is configure to utilize a displayed user interface of a computer program,” and thereafter recites simulating a sequence of 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.

2. *“defining” terms*

Patent Owner contends that “the pertinent technical problems and solutions presented in the ’732 Patent revolve around making the ‘defining’ processes for ‘automation processes’ and ‘conversations’ ‘user-friendly’ and capable of being performed by ‘nonprogrammers’, ‘without the need of using dedicated APIs, programming languages, or the like,’” citing disclosure in the patent that “[a] novice user may define in simple manner the parameters of the conversation that the chat bot implements and the automation process that would be executed based thereon,” and that, “for example, a ‘point and click editor, or other user interface that can be used by any non-programmer users’ to define ‘[t]he parameters of the conversation, as well as the automation flow process.’” PO Resp. 27 (quoting Ex. 1001, 4:59–61, 5:29–33, 6:1–2, 6:7–10, 6:20–25). Thus, according to Patent Owner, a person of ordinary skill in the art “as of November 5, 2017 would understand that the ’732 Patent uses ‘defining’ in Claims 1/2/9/11/12/18/19 as ‘the process of allowing non-programmers and novice users to create automation processes and conversations without relying on programming skills,” which Patent Owner contends is “more narrow[] than the term might otherwise be understood in a vacuum.” *Id.* at 26–28 (citing Ex. 2001 ¶ 100). More particularly, Patent Owner argues, a person of ordinary skill in the art would understand “defining an automation process” in the preambles of claims 1, 11, and 18 to mean “generating by a non-programming user via a user interface an automation process flow including a sequence of interactions in a manner practicable by novices and non-programmers

without needing to use dedicated APIs, programming languages or the like.”

Id. at 28 (citing Ex. 2001 ¶ 100). Similarly, Patent Owner further argues,

for [a] and Claims 2/12/19 (and 2/9/11/19) a POSITA, as of November 5, 2017, would understand that the ’732 Patent used the term “defining a conversation” to mean “generating a conversation flow and its associated parameters (to be implemented by a natural language interface) by a user via software operating on the user device in a manner practicable by novices and non-programmers without needing to use dedicated APIs, programming languages or the like.”

Id. at 29 (citing Ex. 2001 ¶ 100).

In reply to Patent Owner’s arguments, Petitioner argues that none of the phrases “by [a] novice[]” or “non-programming user[],” “via a user interface,” and “without needing to use dedicated APIs, programming languages or the like” that Patent Owner proposes to include in the constructions of the “defining” terms are reflected in the claim language, and “[t]o so import them would . . . improperly exclude embodiments in the ’732 specification.” Reply 3. According to Petitioner, “[t]he specification’s disclosures show that ‘defining’ broadly means ‘configuring.’” *Id.* at 3–4 (citing Ex. 1001, 9:4–5 (describing that “Chat Bot Front-End Module 130 may be configured to enable a User 190 to interact with a chat bot”), 9:27–29 (describing that “Automation Execution Module 140 may be configured to execute . . . the automation process”)). Moreover, Petitioner argues, Patent Owner’s proposed construction “conflicts with and would improperly exclude” an embodiment described in the specification in which “defining” “involve[es] ‘non-trivial’ tasks . . . encompass[ed] by a programming user and by non-UI methods.” *Id.* (citing Ex. 1001, 5:49–61; Ex. 1042 ¶¶ 19–27).

Patent Owner responds that “[c]onstruing ‘defining’ as merely meaning ‘configuring’ ignores the term ‘configured’ already in the claims,” contravening the “presumption [that] ‘the use of these different terms in the claims connotes different meanings.’” Sur-reply 7 (quoting *CAE Screenplates, Inc. v. Heinrich Fiedler*, 224 F.3d 1308, 1317 (Fed. Cir. 2000)) (citing Reply 3). Patent Owner further contends that Petitioner’s arguments that Patent Owner’s construction would improperly exclude embodiments in the specification of the ’732 patent are misplaced because the cited embodiments do not “use the term ‘defining’, much less discuss ‘defining an automation process’ []or ‘defining a conversation.’” *Id.* at 8 (citing Reply 3; Ex. 1001, 9:4–5, 9:27–29).

Having considered the parties’ arguments and cited evidence, we are not persuaded that the term “defining” should be limited, as Patent Owner contends, to “process[es] of allowing non-programmers and novice users to create automation processes and conversations without relying on programming skills.” PO Resp. 27–28. While we appreciate Patent Owner’s arguments that the ’732 patent includes several references to “non-programmers” and “novice users,” Patent Owner does not direct us to any evidence in the challenged claims, the patent specification, or the prosecution history that the patentee thereby intended that the claims be *limited* to those embodiments or other “user-friendly” processes, “practicable by novices and non-programmers” “without needing to use dedicated APIs, programming languages or the like.” *Id.* Indeed, each of the passages from the ’732 patent cited by Patent Owner in reference to this argument uses optional or permissive, rather than mandatory, language. *See, e.g.*, Ex. 1001, 5:29–33 (stating that it “*may* be desired that non-programmers may be able to define the automations” (emphasis added)),

6:1–2 (definition of the automation process “may” be defined by non-programmers), 6:7–10 (parameters and automation process flow “may” be defined using a UI that can be used by non-programmer users), 6:20–25 (novice user “may” define parameters and automation process); *see also id.* at 4:59–61 (identifying “provid[ing] for a user-friendly manner of defining functionality of chat bots” as “one” of several technical problems described in columns 4–8 as being addressed by the disclosed subject matter). As stated above, our reviewing court has cautioned against incorporating language appearing in the specification into the claims in the absence of a clear intent to redefine a claim term or a clear disavowal of claim scope. *See, e.g., Thorner*, 669 F.3d at 1365.

On the other hand, we disagree with Petitioner that the term “defining” should be construed simply as “configuring.” Reply 3. As Patent Owner points out in its Sur-reply, the claims already recite the term “configured” multiple times, and Petitioner has not adduced sufficiently persuasive evidence to rebut the presumption that different claim terms should have different meanings. *See* Sur-reply 7–8. To be sure, the structure of the claims suggests that “configuring” may be *part of* the recited “defining” processes, but it does not support construing the terms to be synonymous with one another. For example, claim 1 recites “*defining* an automation process, wherein the automation process is *configured* to be invoked in response to a conversation of a user with a natural language interface” and “to utilize a displayed user interface of a computer program to simulate sequence of interactions with the displayed user interface of the computer program and execute a functionality of the computer program”; and “*defining* a conversation . . . , wherein the conversation is *configured* to

obtain from the user one or more values to one or more parameters associated with the automation process.”

In conclusion, we are not persuaded that the term “defining” should be given anything other than its plain and ordinary meaning, consistent with Petitioner’s initial position in the Petition that no express claim construction is required. *See* Pet. 6.

3. *Order of Steps [a], [b], and [d] of Independent Claims 1, 11, and 18*

Patent Owner contends that “[s]teps [a]/[b]/[d]/ of Claims 1/11/19^[12] need to be performed in the claimed order.” PO Resp. 29. In particular, Patent Owner argues, “[a] sets out the antecedent basis for a ‘conversation’ used throughout the remainder of the claims”; [b] grammatically then uses the ‘conversation’ already defined in [a] in the next step: ‘associating the conversation with the automation process’; and “[d] grammatically utilizes both ‘the’ conversation (already defined in step [a] and associated in step [b]) when it publishes ‘the’ conversation in accordance with [the] claim.” *Id.* at 29–30 (emphasis omitted). According to Patent Owner, “[b]ased on logic, grammar, uses of antecedent basis, and the ’732 disclosure setting forth the order of these steps in the context of FIG. 3,” a person of ordinary skill in the art would understand that the claims require that the “defining” step be performed before the “associating” step and that both are required to be performed prior to the “publishing step.” *Id.* at 31 (citing Ex. 2001 ¶ 100; *TALtech Ltd. v. Esquel Apparel, Inc.*, 279 Fed. Appx. 974, 978 (Fed. Cir. 2008)).

¹² We understand Patent Owner’s reference to claim 19 to be a typographical error and that it should instead refer to independent claim 18.

In response to Patent Owner’s arguments, Petitioner contends that “antecedent basis is used to introduce and refer to the same element—not impose an order.” Reply 4. Further, Petitioner contends, unlike in the *TALtech* case, in which certain subsequent steps could not be performed unless a first step was performed, “[h]ere, the conversation can be associated with the automation process, whether defined before or after.” *Id.* at 4–5 (citing *TALtech*, 279 Fed. Appx. At 978; Ex. 1042 ¶ 28). Finally, Petitioner contends, “corresponding ’732 descriptions of Figure 3 (cited by Mr. Zatkovich) confirm that there is no basis to limit the order of the claim elements.” *Id.* at 5 (citing Ex. 1001, 21:41–46; Ex. 1042 ¶¶ 29–31).

We agree with Patent Owner that the recited “defining” step must occur prior to the “assigning” or “publishing” steps, insofar as the latter steps refer to “the” conversation that is defined in the first step. Even apart from the fact that the recitation of “a conversation” in the defining step provides antecedent basis for the recitations of “the conversation” in the associating and publishing steps, Petitioner does not persuasively explain how a conversation could be “associate[ed] . . . with [an] automation process” or “publish[ed] . . . to be accessible to a user” before the conversation has been defined.¹³ Moreover, although the portion of the ’732 patent cited by Petitioner states generally that the functions shown in blocks of the block diagrams and flowcharts of the patent’s figures may, “[i]n some

¹³ When questioned about this at oral hearing, Petitioner’s counsel focused on whether the *values* of the parameters that the conversation is configured to obtain *from the user* would need to be known prior to associating the conversation with an automation process or publishing the conversation. *See* Tr. 17:9–20:7. We agree that they would not, but we view that as a different question than whether the underlying conversation would first need to be defined (e.g., by an “administrator user”; *see* Ex. 1001, 14:1–2).

alternative implementations, . . . occur out of the order noted in the figures” or “be executed substantially concurrently, or . . . in the reverse order, depending upon the functionality involved,” that description is not specific to Figure 3, and we do not understand it to supplant the grammar and logical structure of the claims. *See* Ex. 1001, 21:33–46. In contrast, the description specifically regarding Figure 3 describes steps 330 and 340 (corresponding to the associating and publishing steps, respectively, of claims 1, 11, and 18) utilizing the conversation created in step 310 (corresponding to the claims’ defining steps). *See id.* at 13:65–14:30. Regardless, we need only construe claim terms to the extent necessary to resolve the controversy (*see Realtime Data*, 912 F.3d at 1375), and we determine that it is unnecessary to make an express determination with respect to the order of steps to decide the patentability of the claims before us.

4. “*at least one of*”

Challenged claims 3 and 13 depend from claims 2 and 12, which in turn depend from claims 1 and 11, respectively, and each recite the limitation “wherein the conversation elements comprise at least one of: a message element and a condition element.” Ex. 1001, 22:46–48 (claim 3), 23:57–59 (claim 13). The parties dispute whether the recited limitation is conjunctive or disjunctive – i.e., whether it requires at least one “message element” *and* at least one “condition element” or whether it requires only at least one “message element” *or* at least one “condition element.” *See* Pet. 24–25; PO Resp. 55; Reply 5–6; Sur-reply 10–11. Because we conclude below that Petitioner has not shown by a preponderance of the evidence that claims 1 and 11, from which claims 3 and 13 respectively ultimately depend, are unpatentable, we need not resolve this issue here. *See Realtime Data*, 912 F.3d at 1375.

D. Asserted Prior Art

1. Symons (Article and Video)

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. 1008 ¶¶ 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.” 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 11–12. The RPA bot then automatically copies the signature generator program’s output to a clipboard and then to a Word file. *Id.* at 13–15. Finally, the RPA bot emails the Word file with the signature to the user. *Id.* at 17–22.

2. *Williams*

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.

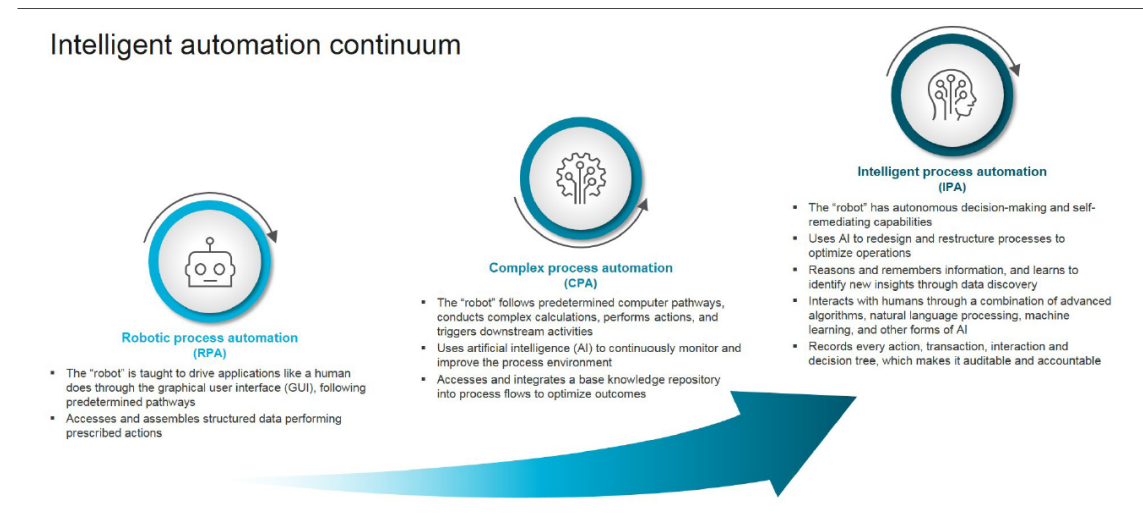


Figure 1. This diagram shows IBM's intelligent automation continuum.

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. *Ben-Itzhak*

Ben-Itzhak, titled “Interactive Content Recommendation Personalization Assistant,” discloses an “interactive communication-based personalized content recommendation provisioning method and system” that includes a “conversation agent” that engages in an interactive conversation with a user and provides the user with “personalized content recommendations . . . via a message as part of the conversation.” Ex. 1034, codes (54), (57). The interactive conversation can be, for example, a text-based exchange, a voice-based exchange, a video-based exchange, or a gesture-based exchange. *Id.* at code (57). The conversation agent provides the user with a Uniform Resource Locator (URL) link, and the user accesses and consumes the recommended content by interacting with the URL link. *Id.*

4. *Allen*

Allen, 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,” 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.

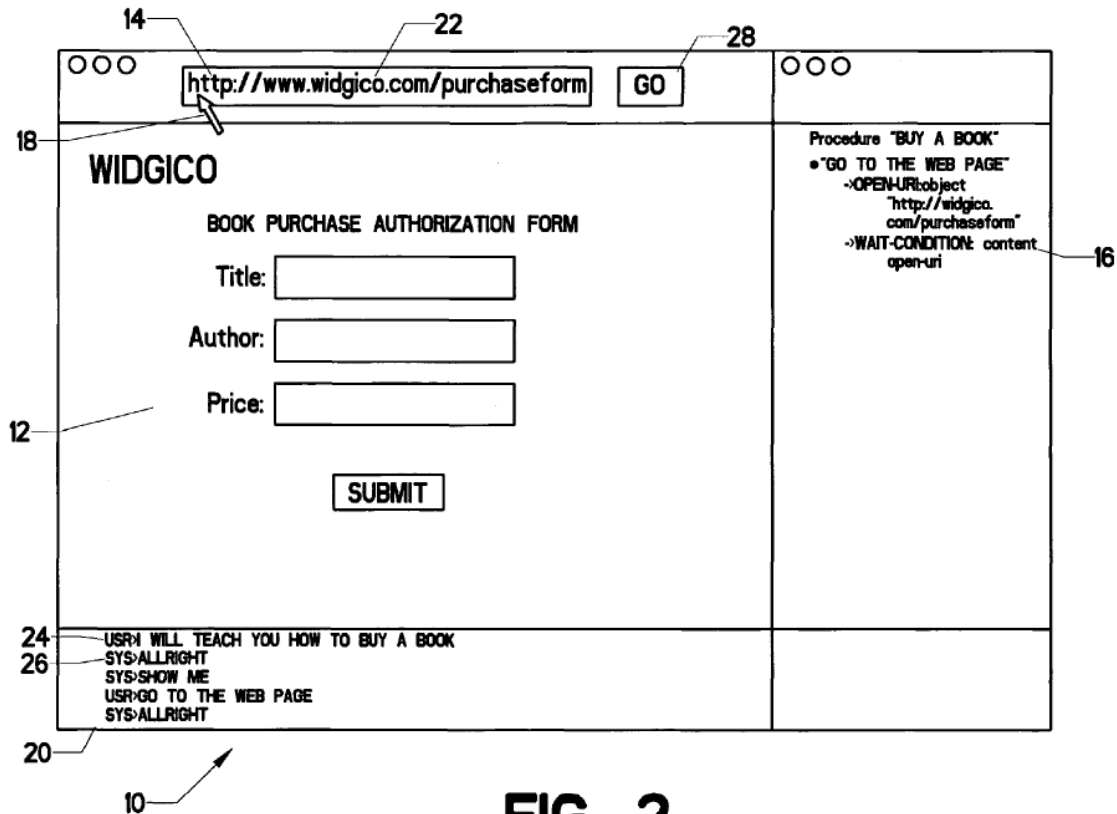


FIG. 2

Figure 2 shows, among other things, browser display 12, speech interface display 20, and task log 16. The user may type words using a keyboard, or speak the words that will be deciphered with a language recognition software module that 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.

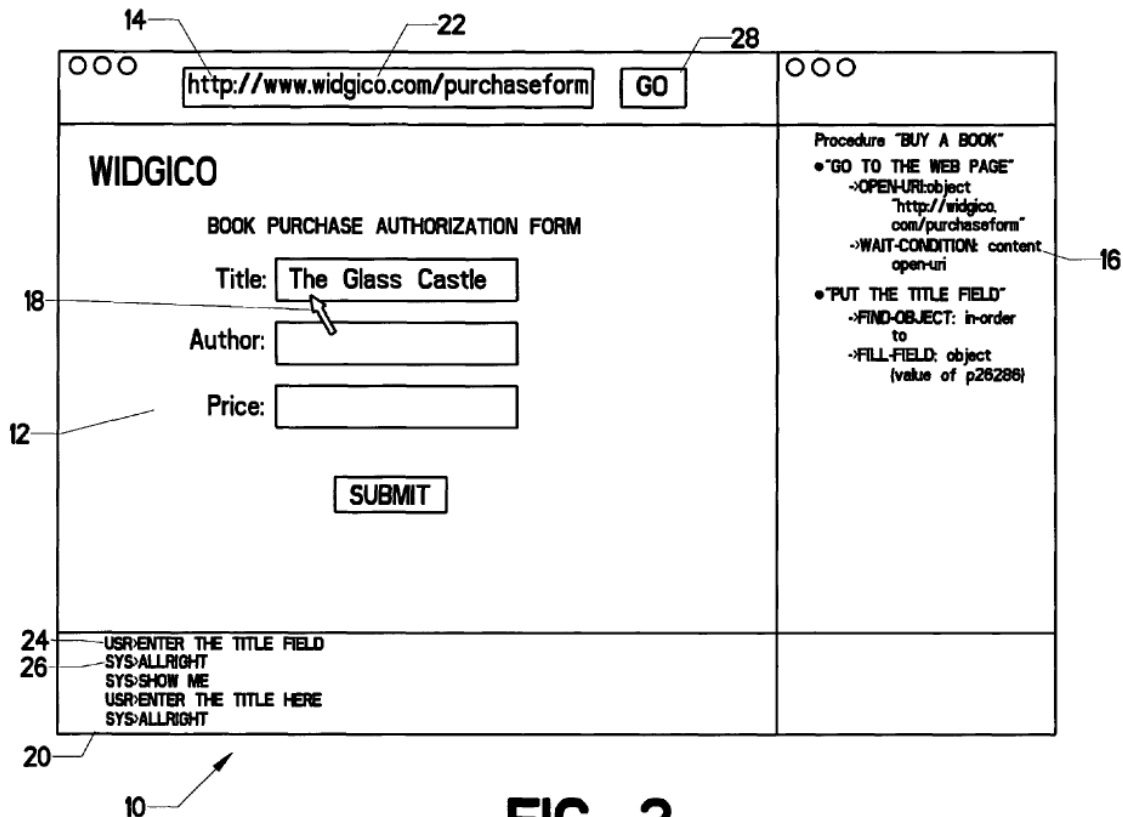


FIG. 3

Figure 3, above, 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”).

5. *Krishnan*

Krishnan, titled “Intent Interpreter for a Visual Bot Builder,” explains that designing chatbots often involves using text editors, which makes the configuration and design process burdensome for the developer. Ex. 1016, code (54), 1:19–21. Thus, according to Krishnan, improved interfaces for the design, configuration, and testing of chatbots are desired. *Id.* at 1:21–23. Krishnan describes a visual chatbot builder that operates, in one embodiment, by “receiving a selected dialog including . . . interactions between a chat bot and a recipient” and receiving a plurality of “phrases corresponding to triggering an execution of the selected dialog.” *Id.* at code (57). The selected dialog is configured such that upon receipt of one or more of the plurality of phrases, the chat bot executes the selected dialog responsive to the received phrase or phrases. *Id.* For example, the chat bot may be configured to interact and serve as an interface between a customer and one or more backend databases or other information processing systems and also may be used in conjunction with a live person, to whom the customer may be transferred if the chatbot is unable to fulfill the customer’s request. *Id.* at 2:27–39. Further, the chatbot may respond to customer input by retrieving and providing requested information, requesting additional input or information from the user, or performing an action and providing the user with status updates about the progress of the action. *Id.* at 2:40–44. “An interaction with a bot may begin with the bot executing a welcome dialog that includes a basic greeting from the bot such as ‘Hello, how may I

help you today?”” *Id.* at 2:56–58. “From there, depending 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 2:58–61.

Figure 1 of Krishnan, reproduced below, shows an example interface and conversation between the chatbot and a customer.

100

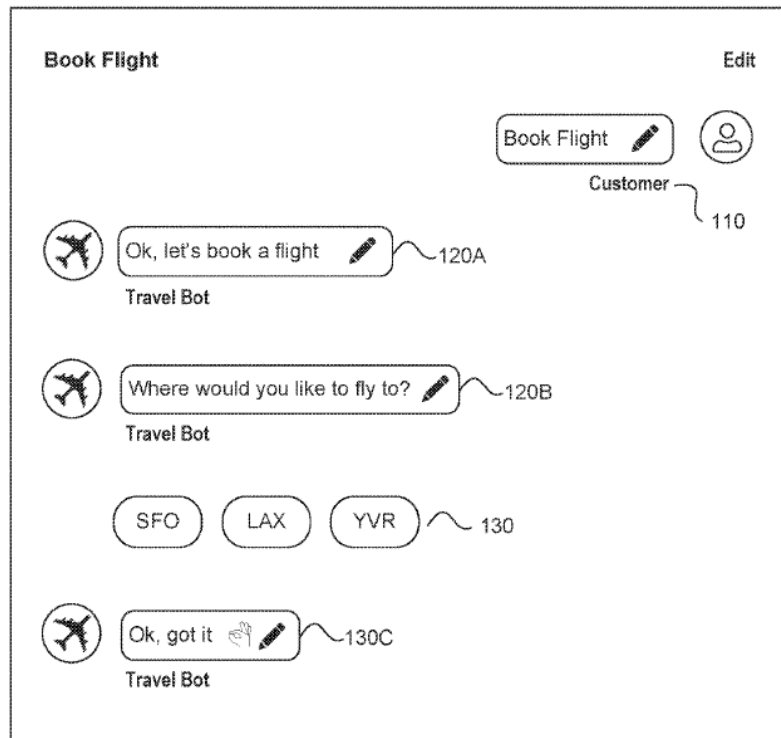


FIG. 1

Figure 1 “illustrates an example conversation 100 of an execution of a book flight dialog between a chat bot and a user, according to an embodiment” of Krishnan’s invention. Ex. 1016, 2:51–53. More particularly, “[i]n conversation 100, a user or customer [110] is requesting to book a flight via a chat bot.” *Id.* at 2:53–55. Upon receiving a book flight command, the chatbot may execute a book flight dialog. *Id.* at 2:62–63. “In its execution, the chat bot may respond by acknowledging the customer’s request to book a flight 120A, and may begin requesting additional information 120B.” *Id.*

at 2:63–66. “The book flight dialog may cause the chat bot to request information necessary to book the flight, such as locations, dates of travel, seat preferences, and credit card information, and then processes the request to book the flight.” *Id.* at 2:66–3:3. In response to the chatbot’s inquiry, “the user may select one of the provided options for a destination 130 (e.g., by clicking on a button), and the chat bot may confirm the selection 130C.” *Id.* at 3:4–7. The chatbot may then continue executing the book flight dialog until the user books a flight or cancels the request. *Id.* at 3:7–9.

6. *Radhakrishnan*

Radhakrishnan, titled “Robotic Process Automation Enabled File Dissection for Error Diagnosis and Correction,” describes an RPA module that interacts with a user interface of an application to simulate user operations with a user device to generate an operation record for automatically generating and transmitting a diagnosis and correction request to a workstation. Ex. 1018, codes (54), (57). In some embodiments, the simulated user operations may be executed 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.* at code (57), 1:56–2:3. According to Radhakrishnan, the invention leverages RPA technology to diagnose and rectify errors experienced during typical operation of a system or user device and reduces the amount of computing resources required to execute tasks when compared with executing the same tasks using a traditional API. *Id.* at 6:17–25.

Figure 2 of Radhakrishnan, reproduced below, provides a high-level process flow for automated error diagnosis and correction, in accordance with embodiments of the invention. Ex. 1018, 9:57–59.

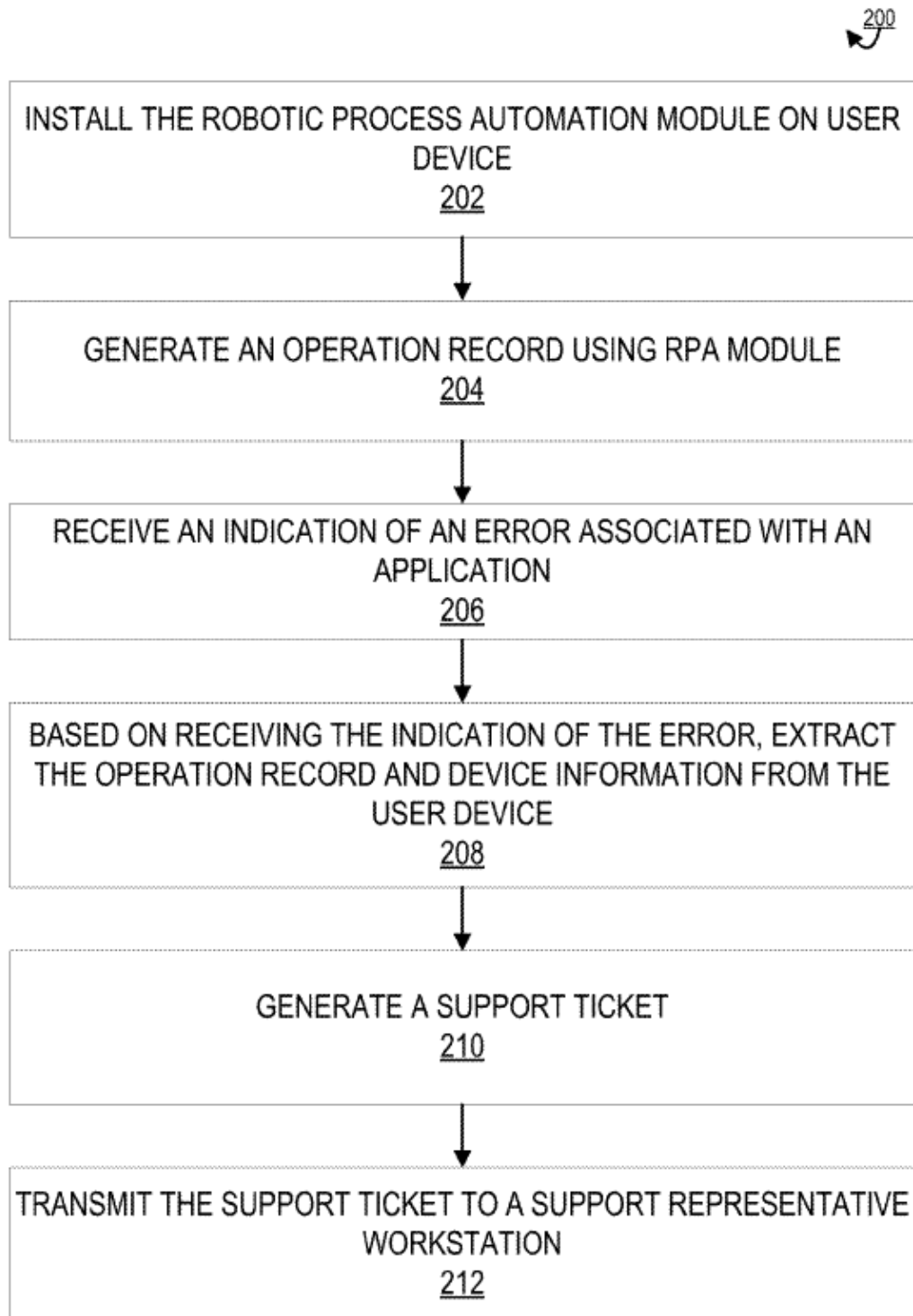


FIG. 2

With reference to Figure 2, above, the system first installs an RPA module on a user device (step 202), where “[t]he RPA module may be configured, programmed, or ‘taught’ to execute one or more operations such as reproduce user input into the user device,” either before installation, subsequently, or in real time while monitoring the user’s input operations on the user device. *Id.* at 9:59–10:6. In step 204, the system generates an operation record by “monitor[ing] for one or more operations of the user device and/or an application executed on the user device,” where the operation record may include, for example, user information, device information, or the like, in addition to the record of operations. *Id.* at 10:51–62. In step 206, the system receives an indication of an error associated with the application, which may be “any interruption of normal operation of the application of a file associated with the application,” including “application process failures, crashes, bugs, glitches, corrupt files, missing files, or the like.” *Id.* at 11:61–67. In step 208, the system extracts the operation record and device information from the user device, based on receiving the indication of the error, and may generate an error log in addition to or as part of the operation record. *Id.* at 12:24–29. Finally, in steps 210 and 212, respectively, the system generates a support ticket and transmits the support ticket to a support representative workstation. *Id.* at 12:37–39.

E. Ground 1: Obviousness over Symons and Williams

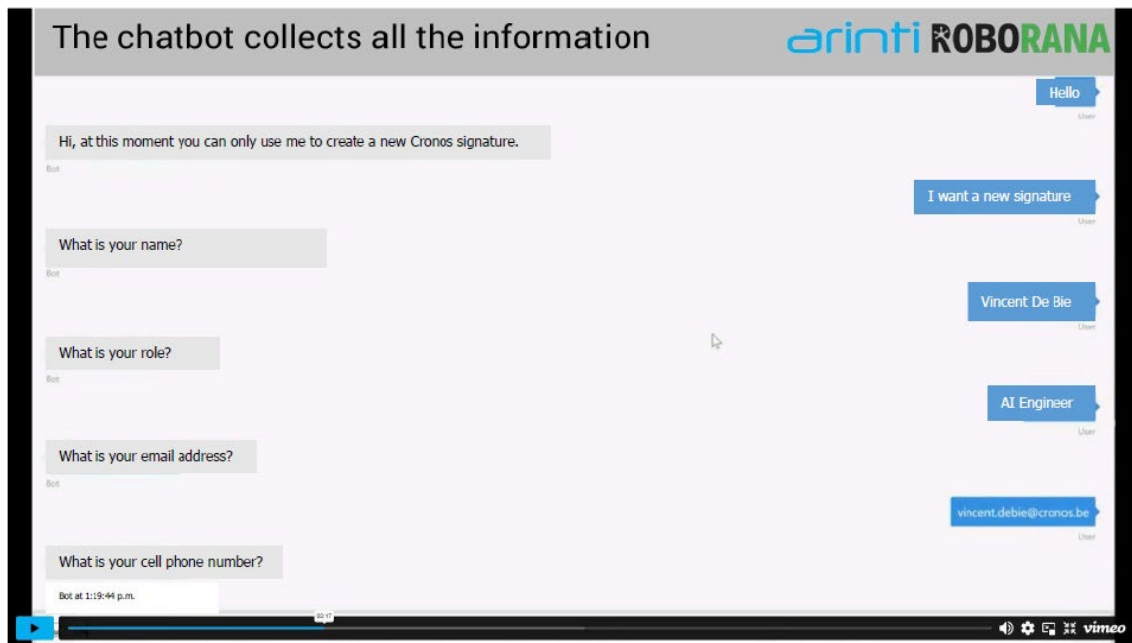
Petitioner contends claims 1–4, 9–14, 18, and 19 are unpatentable under 35 U.S.C. § 103 over the Symons Article and Symons Video (collectively, “Symons”) in combination with Williams. Pet. 13–32; Reply 6–18. Patent Owner opposes. PO Resp. 32–58; Sur-reply 11–18.

1. Independent Claim 1

a. Petitioner's Contentions

- i. Preamble: “A method for defining an automation process, wherein the automation process is configured to be invoked in response to a conversation of a user with a natural language interface, the method comprising”

Petitioner contends that, to the extent the preamble of claim 1 is limiting, it is disclosed by Symons. Pet. 13–15. In particular, Petitioner argues “Symons discloses a method that ‘automate[s] the process of creating an email signature,’” in which a chatbot first “collects all the necessary information in a *friendly, interactive manner*,” then “engages in a conversation, where ‘[t]he chatbot collects all the information.’” *Id.* at 13 (quoting Ex. 1004, 2 (emphasis added); Ex. 1006, 5) (citing Ex. 1003 ¶¶ 72–75). Petitioner refers to the screenshot reproduced below:



Ex. 1006, 5; Pet. 14. The above screenshot from the Symons Video is captioned, “The chatbot collects all the information.” Petitioner argues that

the screenshot “shows the conversation of the user with a natural language interface” and that “[t]he questions from the chatbot (‘What is your name?,’ ‘What is your role?,’ ‘What is your email address?’) and responses from the user (‘Vincent De Bie,’ ‘Engineer,’ ‘vincent.debie@cronos.be’) resemble language spoken by a human.” Pet. 13–14 (citing Ex. 1006, 5; Ex. 1003 ¶ 76). Quoting Symons’s disclosure that “[t]his information gets passed on to the RPA robot, which will then *automatically generate* the signature, save it, and email it back to the requester,” Petitioner contends that, “[i]n order for Symons’ RPA bot to be able to automatically generate an email signature, the automation process and its functionality must have been defined.” *Id.* at 14 (quoting Ex. 1004, 2 (emphasis added)) (citing Ex. 1003 ¶¶ 77–78).

Further, Petitioner contends, to the extent that Symons does not disclose defining an automation process, it would have been obvious in view of Williams’s disclosure of a system that combines artificial intelligence and RPA and “allows business process owners to draft, create and amend rules and policy changes outside of the RPA product using normal conversations text,” where “[t]he robot then interacts with WPML to look up and apply rules related to automated process.” Pet. 15 (quoting Ex. 1011, 4) (citing Ex. 1011, 2; Ex. 1003 ¶ 79). Petitioner alleges “[i]t would have been obvious to combine Symons and Williams,” contending that “RPA robots are designed to execute multiple 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.* (citing Ex. 1003 ¶ 80). According to Petitioner, “[t]he Symons-William[s] combination results in a chatbot-RPA bot system capable of handling a user request for automated generation of an email signature along with other

requests, such as automated generation of an electronic letterhead or an electronic invoice.” *Id.* (citing Ex. 1003 ¶ 81).

- ii. *[a] “defining a conversation to be implemented by a natural language interface, wherein the conversation is configured to obtain from the user one or more values to one or more parameters associated with the automation process;”*

Petitioner argues that Symons teaches limitation 1[a]. Pet. 16–18. First, relying on the same screenshot from the Symons Video as for the preamble recitation, Petitioner contends, “[t]he conversation between Symon[s]’s chatbot and the user is implemented by a natural language interface.” *Id.* at 16 (citing Ex. 1003 ¶ 82). According to Petitioner, “[t]he conversation comprises the chatbot asking questions and then obtaining from the user values,” as illustrated in the screenshot. *Id.* (citing Ex. 1003 ¶ 83; Ex. 1006, 5). The chatbot then continues with other questions to which the user then inputs values. *Id.*

Further, Petitioner argues, “[t]he values [input by the user] are to parameters.” Pet. 16 (citing Ex. 1003 ¶ 84). For example, again with reference to the screenshot at Ex. 1006, 5, the user’s responses “Vincent De Bie,” “Engineer,” and “vincent.debie@cronos.be” are values for “name,” “job role,” and “email” parameters, respectively. *Id.* at 16–17 (citing Ex. 1003 ¶ 84). Petitioner argues that the values are used in (“associated with,” in the parlance of limitation 1[a]) the automation process, citing Symons’s disclosure that the chatbot “first . . . collects all the necessary information in a friendly, interactive manner” and that the information then “gets passed on to the RPA robot, which will then automatically generate the signature, save it, and email it back to the requester.” *Id.* at 17 (citing

Ex. 1004, 2). More particularly, Petitioner contends, the chatbot triggers the RPA bot, which then automatically opens the browser and enters the name, job role, and email values previously input by the user into the corresponding fields in the email signature generation program in the browser. *Id.* (citing Ex. 1003 ¶¶ 85–86; Ex. 1006, 10). Finally, Petitioner contends, “[i]n order for Symons’ chatbot to be able to engage in a conversation with the user, the chatbot and its functionality (the conversation it engages in) must have been defined.” *Id.* at 18 (citing Ex. 1003 ¶ 87¹⁴). “To the extent that Symons does not disclose defining a conversation, it would have been obvious,” according to Petitioner, citing Dr. Beigi, “because . . . a chatbot would interact better with the user when the conversation (e.g., which questions to ask) is defined.” Pet. 18 (citing Ex. 1003 ¶ 88).

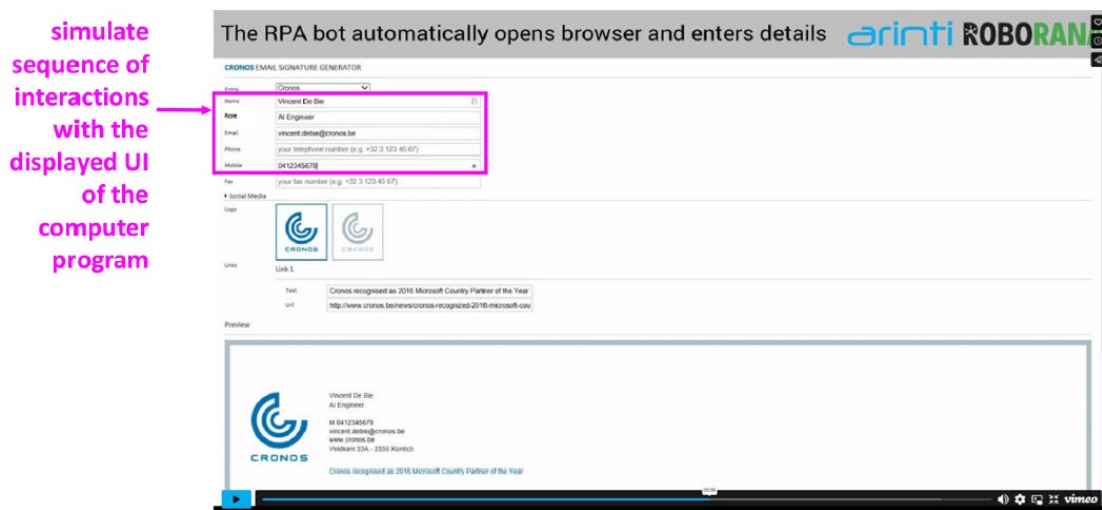
iii. *[b] “associating the conversation with the automation process,”*

Petitioner contends that Symons teaches limitation 1[b]. Pet. 18. In particular, Petitioner alleges, “[t]he values obtained from the user during the conversation implemented by the natural language interface are used in the automation process, so Symons discloses associating the conversation with the automation process.” *Id.* (citing Ex. 1003 ¶ 89).

¹⁴ Beginning with this citation, all of Petitioner’s paragraph citations to Dr. Beigi’s declaration with respect to this ground appear to be off by one number. Here, for example, Petitioner appears to have intended to cite to paragraph 88.

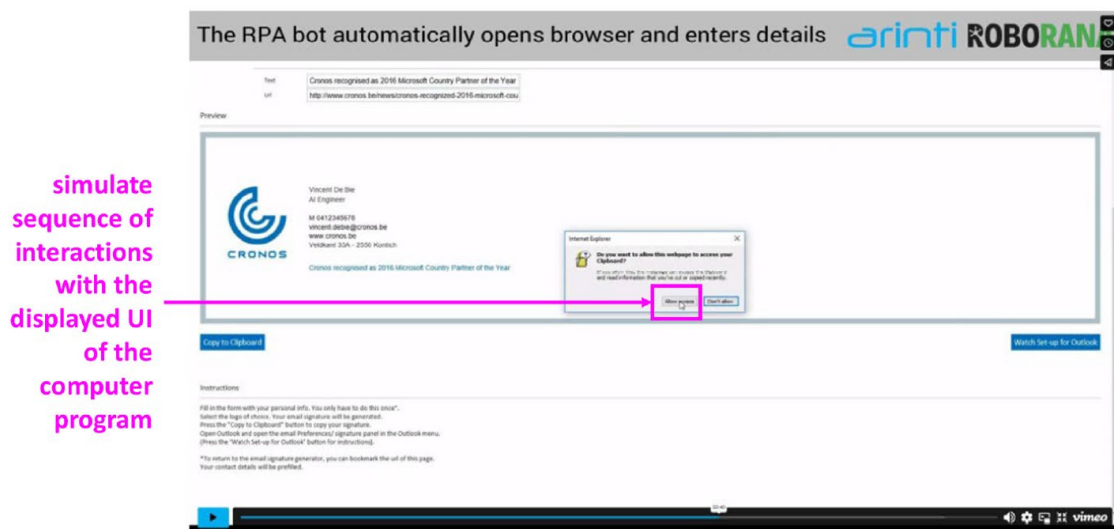
- iv. [c] “wherein the automation process is configured to utilize a displayed user interface of a computer program to simulate sequence of interactions with the displayed user interface of the computer program and execute a functionality of the computer program, wherein the automation process is a parameterized automation process depending on the one or more parameters; and”

Petitioner contends that Symons teaches limitation 1[c]. Pet. 18–20. First, Petitioner argues, Symons states that “an ‘**RPA bot can mimic [(simulate)] the users actions** and thus enables organizations to automate repetitive tasks.’” *Id.* at 18 (alterations in original) (quoting Ex. 1004, 2 (emphasis added)) (citing Ex. 1003 ¶ 90). Moreover, Petitioner argues, “Symons’ automation process utilizes a displayed UI of a computer program to simulate a sequence of interactions.” *Id.* (citing Ex. 1003 ¶ 90). In support, Petitioner provides the following annotated version of the screenshot from the Symons Video depicted at page 12 of Exhibit 1006:



Id. at 19. The annotated screenshot above depicts a user interface labeled as “Cronos Email Signature Generator,” with the values “Cronos,” “Vincent De Bie,” “AI Engineer,” “vincent.debie@cronos.be,” and “0412345678” in

input fields labeled as “Entity,” “Name,” “Role,” “Email,” and “Mobile,” respectively. Petitioner has annotated the screenshot with (1) a pink box around a grouping of those field labels and the corresponding values; (2) the textual annotation “simulate sequence of interactions with the displayed UI of the computer program”; and (3) a pink arrow pointing from the textual annotation to the pink box. *Id.* With reference to the annotated screenshot above, Petitioner contends that “[t]he RPA bot automatically opens browser and enters details,” including “the user’s name ‘Vincent De Bie’ and ‘Engineer’ in the name and job role input fields of the displayed UI,” and “also simulates user interactions via GUI button clicks.” *Id.* (quoting Ex. 1006, 11) (citing Ex. 1003 ¶¶ 90–91; Ex. 1006, 13). In support of the last point, Petitioner provides the following annotated version of the screenshot from the Symons Video depicted at page 13 of Exhibit 1006:

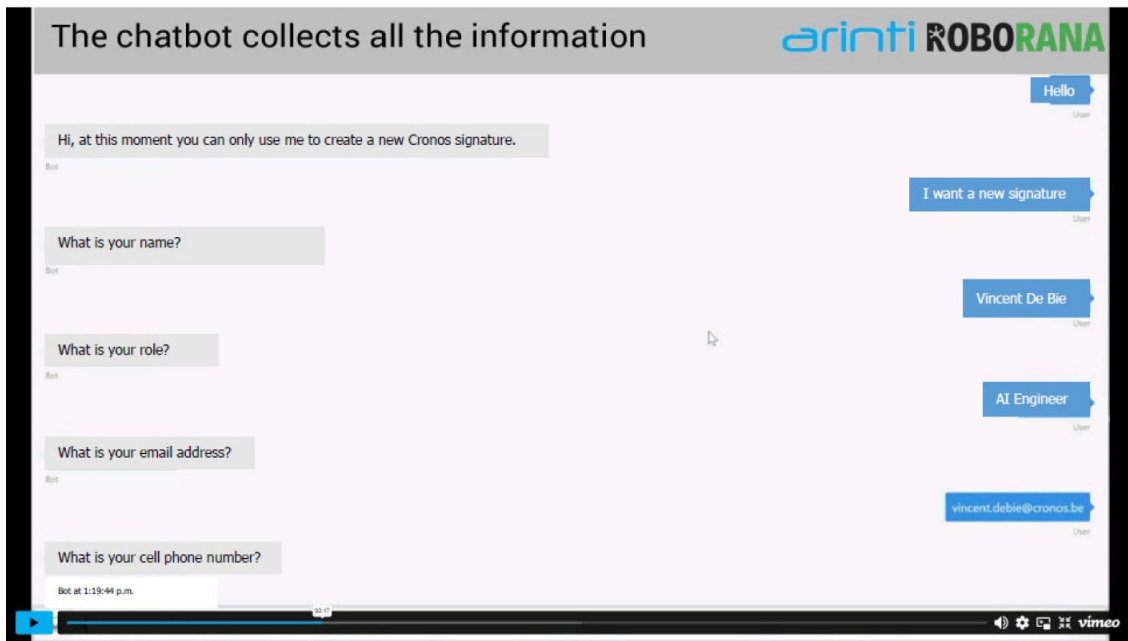


Id. at 20. The annotated screenshot above depicts a preview image of an email message having a Cronos signature block, with an Internet Explorer popup menu asking “Do you want to allow this webpage to access your Clipboard?” and having buttons labeled as “Allow access” and “Don’t allow.” Petitioner has annotated the screenshot with (1) a pink box around

the “Allow access” button; (2) the textual annotation “simulate sequence of interactions with the displayed UI of the computer program”; and (3) a pink arrow pointing from the textual annotation to the pink box. *Id.* With reference to the annotated screenshot above, Petitioner contends that “[t]he GUI button click is used to execute a functionality of the computer program (annotated [above]): copying the email signature onto the clipboard RPA,” and “[a]fter the chatbot collects the values for the parameters, it utilizes the values in the automation process of creating a signature.” *Id.* at 19–20 (citing Ex. 1003 ¶ 92). Thus, Petitioner concludes, “Symon[s]’s automation process is a parameterized automation process depending on the parameter(s).” *Id.* at 20 (citing Ex. 1003 ¶ 92).

- v. [d] “publishing the conversation to be accessible to a user via the natural language interface, wherein the user is enabled to interact with the natural language interface in accordance with the conversation,”

Petitioner contends that Symons teaches limitation 1[d]. Pet. 20–21. In support, Petitioner refers to the following screenshot from the Symons Video depicted at page 5 of Exhibit 1006:



Id. at 21. The screenshot above depicts the following conversation:

User: Hello

Bot: Hi, at this moment you can only use me to create a new Cronos signature.

User: I want a new signature

Bot: What is your name?

User: Vincent De Bie

Bot: What is your role?

User: AI Engineer

Bot: What is your email address?

User: vincent.debie@cronos.be

Bot: What is your cell phone number?

With reference to the above screenshot, Petitioner contends that “Symons’ screen . . . shows that it publishes the conversation, accessible to a user via the natural language interface.” *Id.* at 20 (citing Ex. 1003 ¶ 93). In particular, Petitioner argues, “[t]he chatbot asks questions, and the user responds, enabling the user to interact with the natural language interface in accordance with the conversation.” *Id.* at 21 (citing Ex. 1003 ¶ 94; Ex. 1006, 5).

- vi. *[e] “whereby the parameterized automation process is invoked automatically by the natural language interface and using one or more values provided by the user to the natural language interface for the one or more parameters.”*

Petitioner contends that Symons teaches limitation 1[e]. Pet. 21–22. More specifically, Petitioner argues that “Symons’ ‘chatbot triggers the RPA bot,’ which performs the parameterized automation process.” *Id.* (quoting Ex. 1006, 10) (citing Ex. 1003 ¶ 95). According to Petitioner, the parameterized automation process “is invoked automatically by the natural language interface” and “uses the values (‘Vincent De Bie’; ‘Engineer’; ‘vincent.debie@cronos.be’) provided by the user to the natural language interface for the parameters (name, job role, email address).” *Id.* at 22 (citing Ex. 1003 ¶ 96).

b. Patent Owner’s Contentions

In response to Petitioner’s contentions, Patent Owner argues that “‘Symons’ does not disclose anything about **how** an automation process is defined or **how** the conversation in the Arinti chatbot was generated,” and

“[c]omments on Medium confirmed that those active in the field at the time could not figure out these gaps.” PO Resp. 38–39 (citing Ex. 1004; Ex. 1005; Ex. 1006; Ex. 1007; Ex. 1009; Ex. 1033; Ex. 2001 ¶¶ 147, 152; Ex. 2003, 220:11–222:16; Ex. 2005); *see also id.* at 34 (citing Ex. 2001 ¶ 147; Ex. 2005). Patent Owner further argues that “[t]he Symons Video (Ex1006-Ex1007/1033) likewise provides no detail on how the underlying chatbot and RPA bot are programmed to operate.” *Id.* at 33. According to Patent Owner,

Mr. Zatkovich summarized the shortcomings of Symons as follows:

- the evidence does not clearly establish whether the Chatbot-RPA discussed in Symons Blog and Baetens Blog,^[15] and purportedly demonstrated in Symons Video, was actually built [], rather than simply prepared as what Baetens called a “small demo ... [to] demonstrate[] the value in combining these technologies” (Ex1009, 2);
- the disclosed Chatbot-RPA was a single purpose demo “to automate the process of creating an email signature” (Ex1004, 2; Ex1009, 2);
- [although Symons] purports to use a “chatbot” to “collect all the necessary information in a friendly, interactive manner” (Ex1004, 2; Ex1009, 2), there is no discussion of how the conversation of the chatbot was defined, if it was associated with the automation process before or after the conversation was generated, and if the conversation was published; rather the suggestion was that the conversation was programmed using code, in contrast to the user-friendly definition process as discussed in the ’732 Patent (Ex1001, 4:59-61, 5:29-33);

¹⁵ Wouter Baetens, *When Chatbots meet RPA bots* (Oct. 20, 2017), <https://blog.chatbotslife.com/when-chatbots-meet-rpa-bots-c5f71e462e6> (“Baetens Blog” or “Baetens Article”) (Ex. 1009).

- the “chatbot” 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” as discussed in the ’732 Patent (Ex1001, 5:62-6:1), let alone choose between “automation processes” based on the elements of a natural language conversation in the chatbot;
- the RPA was executed on a different device than the user device on which the chatbot was implemented (Ex2001, ¶153; Ex2003, 219:24-220:5 (Dr. Beigi can’t tell)); and
- the RPA did not interact with a single target software, like WAZE™ (as discussed at Ex1001, 6:26-37), but instead implemented a process invoking at least 3 or 4 different pieces of software. (Ex2001, ¶¶153; Ex2003, 217:16-218:2, 218:9-13).

Id. at 34–36 (citing Ex. 2001 ¶ 153).

Additionally, Patent Owner criticizes Dr. Beigi’s testimony, arguing, “[i]n essence, Dr. Beigi makes an informal inherency obviousness argument, without demonstrating how and why [defining a conversation, associating the conversation with an automation process, and publishing the conversation] were necessarily present in Symons.” *Id.* at 39. According to Patent Owner, “[t]he Petition mirrors, and references, Dr. Beigi’s analysis with minimal explanation,” but “Dr. Beigi’s informal inherency argument fails, since without knowing the ‘internals’, Dr. Beigi does not know: if the ‘conversation’ is a ‘natural language conversation’ using natural language processing as everyone concedes is required by the ’732 Patent,” “if the ‘conversation’ was ‘associat[ed]’ with the email signature generation software automation process in order for ‘[t]his information [to] get[] passed on to the RPA bot’”; and “even assuming it was ‘associat[ed]’, whether it was ‘associated’ after the conversation was ‘defined’ and published.” *Id.*

at 39, 42 (formatting omitted) (alterations in original) (citing Ex. 2001 ¶ 326; Ex. 2003, 213:18–214:9).

Patent Owner further contends that Petitioner’s obviousness arguments based on the combination with Williams also fail. PO Resp. 43–46. First, Patent Owner argues, Petitioner incorrectly relies on Williams’s “Watson Policy Management Library,” which “allows for ‘rules and policies’ to be updated ‘outside of the RPA product’” but “does not relate to defining an automation process.” PO Resp. 44 (quoting Ex. 1011, 4; Ex. 2001 ¶ 206). According to Patent Owner, Petitioner’s alleged motivation and resulting combination of Symons and Williams do not make sense. *Id.* at 45 (citing Ex. 2001 ¶¶ 183–191).

c. Analysis

Having considered the parties’ respective arguments and the evidence of record, we conclude that Petitioner has not shown that the combination of Symons and Williams teaches or suggests the recited steps of “*defining* a conversation” (limitation 1[a]), “*associating* the conversation with the automation process” (limitation 1[b]), and “*publishing* the conversation” (limitation 1[d]). Petitioner cites Symons to teach limitations 1[a], 1[b], and 1[d].¹⁶ Pet. 15, 18, 20–21. For limitation 1[a], as set forth above, Petitioner argues that “[i]n order for Symons’ chatbot to be able to engage in a conversation with the user, the chatbot and its functionality (the conversation it engages in) must have been defined.” Pet. 18 (citing

¹⁶ Petitioner relies on Williams for “defining an automation process” as recited in the preamble, however, Petitioner does not argue that the preamble is limiting or expressly rely on Williams to teach any of limitations 1[a], 1[b], or 1[d]. See Pet. 13, 15, 18, 20–21.

Ex. 1003 ¶ 87¹⁷). Dr. Beigi testifies that “[w]ithout being defined, Symons’ chatbot would not exist and it would not be able to engage in conversation with the user.” Ex. 1003 ¶ 88. Petitioner further asserts that “[t]o the extent that Symons does not disclose defining a conversation, it would have been obvious because then a chatbot would interact better with the user when the conversation (e.g., which questions to ask) is defined.” Pet. 18 (citing Ex. 1003 ¶ 88¹⁸). Dr. Beigi testifies that

If the conversation were not defined, the chatbot may not be able to accurately respond to the user input. For example, if the chatbot did not know what questions to ask (e.g., which values it needs to obtain from the user), the automatically generated email signature may be incorrect. Further, the chatbot may not know what to do with the user inputs, e.g., it may not know to fill in the name input field of the email signature with “Vincent De Bie.”

Ex. 1003 ¶ 89.

For limitation 1[b], Petitioner asserts that “[t]he values obtained from the user during the conversation implemented by the natural language interface are used in the automation process, so Symons discloses associating the conversation with the automated process.” Pet. 18 (citing Ex. 1003 ¶ 89¹⁹). Dr. Beigi further testifies that “[t]he conversation is collecting information for the automation process, and is thus associated with the automation process.” Ex. 1003 ¶ 90.

¹⁷ Petitioner appears to have intended to cite to paragraph 88.

¹⁸ Petitioner appears to have intended to cite to paragraph 89.

¹⁹ Petitioner appears to have intended to cite to paragraph 90.

For limitation 1[d], Petitioner asserts that page 5 of the Symons Video “shows that it publishes the conversation, accessible to a user via the natural language interface.” Pet. 20–21 (citing Ex. 1003 ¶ 93²⁰).

In response, Patent Owner argues,

“Symons” does not disclose anything about **how** an automation process is defined or **how** the conversation in the Arinti chatbot was generated, including whether a user first **defined** a conversation, whether the user then **associated** that defined conversation with the Cronos email generating process, and whether the user then **published** the defined and associated conversation to a natural language interface.

PO Resp. 38–39 (citing Ex. 1004–1007; Ex. 1009; Ex. 1033). Thus, Patent Owner argues, Dr. Beigi (and therefore, Petitioner) “makes an informal inherency obviousness argument, without demonstrating how and why these features were necessarily present in Symons.” *Id.* at 39.

Petitioner does not respond to Patent Owner’s assertion that an inherency argument is being made. *See generally* Reply. With respect to these contentions from Patent Owner, Petitioner argues that “[w]ithout the ‘associat[ion],’ the chatbot would not be able to pass the information to the RPA bot or trigger it” and “the chatbot is responding to the user, thereby the conversation is accessible to the user and the chatbot.” Reply 12 (citing Ex. 1042 ¶¶ 60, 64). Petitioner further argues on Reply:

[T]he Symons and Baetens Articles provide the requisite details to show that Symons teaches the claims. As PO acknowledges, the claims broadly require “defining the conversation,” “associating the conversation with the automation process,” and “publishing the conversation.” (POR, 17-18.) The **type** of RPA and chatbot tools, **how** Symons built the automation, **how** the chatbot triggers the RPA bot, and **differences** between Symons’

²⁰ Petitioner appears to have intended to cite to paragraph 94.

RPA and a simple program are not details required by the claims, and are in fact, details missing from the '732 specification. (POR, 3, 33, 37.) (EX1042, ¶¶71-72.)

Reply 13–14.

Petitioner's argument that "how Symons built the automation . . . are not details required by the claims" misses the point. Claim 1 recites "[a] method comprising: defining a conversation . . . associating the conversation with [an] automation process . . . and publishing the conversation." Ex. 1001, 22:15–39. The claim does not require "how" the defining, associating with the automation process, and publishing steps are performed, beyond the limitations further recited in the claim, but it does require showing that those steps occur. Petitioner has not explained what is required to associate a conversation with an automation process and how Symons teaches that to one having ordinary skill in the art. To the extent that Petitioner relies on common sense (that an associated conversation must require a prior step of association), such reliance requires "reasoned analysis and evidentiary support," which Petitioner lacks here. *Arendi S.A.R.L. v. Apple, Inc.*, 832 F.3d 1355, 1362 (Fed. Cir. 2016). Further, Petitioner's argument that these "details [are] missing from the '732 patent" are not persuasive. For example, Figure 4A of the '732 patent depicts a bot editor GUI, Figure 4B depicts a Bot Details Editor, Figure 5A depicts a conversation editor GUI, Figure 5B depicts a Conversation Details Editor, Figure 5C depicts an editor of an action step, Figure 5D depicts an editor of a question step, Figure 5E depicts an editor of a condition step, and Figure 6 depicts an editor of an automation process. *See* Ex. 1001, 14:31–19:25. Immediately following the description of Figure 6, the '732 patent states that

“[a]dditional manners of defining and updating an automation process are described in [another patent].” *Id.* at 19:26–28 (emphasis added).

Fundamentally, we agree with Patent Owner that Petitioner misstates the proper scope of the claims in the ’732 patent in focusing on Figure 2A of the ’732 patent, which shows a flow chart involving the *defined* automation process, rather than Figure 3, which shows a flow chart involving creating a new conversation (310), defining a conversation flow (step 320), associating an automation process with the conversation (step 330), and publishing the conversation (step 230). *See* Pet. 4; PO Resp. 2; Ex. 1001, 13:65–14:30; *see* Ex. 2001 ¶¶ 62–64, 67, 69, 70, 219. As Mr. Zatkovich testifies, “[t]he conversation in the ’732 Patent is not the interaction between the user and the chatbot which ultimately takes place ‘in accordance with the conversation,’ but rather what ‘enables’ this interaction.” Ex. 2001 ¶ 219 (citing Ex. 1001, 22:33–35). As Mr. Zatkovich puts it, “[t]he claimed invention is directed to how the conversation is generated, not when it is implemented.” *Id.*²¹ Petitioner’s arguments as to these limitations focus on the latter, and this error perpetuates throughout Petitioner’s and Dr. Beigi’s analysis of the Symons/Williams grounds.

Neither Petitioner nor Dr. Beigi sufficiently explains how Symons teaches or suggests “*defining* a conversation” (limitation 1[a]), “*associating* the conversation with the automation process” (limitation 1[b]), or “*publishing* the conversation” (limitation 1[d]). As Mr. Zatkovich testifies, Dr. Beigi “offers no teaching in either reference to support that these three

²¹ The difference is apparent when comparing the claims here with the claims in related U.S. Patent 11,558,317, which is challenged in IPR2023-01368. *See* Ex. 2001 ¶¶ 201, 219.

separate processes were performed to generate the conversation shown in the Symons video, or that these steps are the only way in which such a conversation could be performed.” Ex. 2001 ¶ 212. To be sure, we do not disagree with Petitioner’s contentions that, for example, “Symons’ chatbot . . . and . . . the conversation it engages in[] must have been defined” (Pet. 18) or discredit Dr. Beigi’s testimony that “[w]ithout being defined, Symons’ chatbot would not exist and it would not be able to engage in conversation with the user” (Ex. 1003 ¶ 88) and that “[t]he conversation is collecting information for the automation process, and is thus associated with the automation process” (*id.* ¶ 90). Nor do we understand Patent Owner to dispute those arguments. But claim 1 is a method claim that requires the affirmative steps of “defining,” “associating,” and “publishing” a conversation, not merely the results of those steps. Essentially, Petitioner’s position is that because the conversation in Symons exists, Symons must teach these claim limitations. *See* PO Resp. 39; Ex. 1042 ¶ 66. But Petitioner does not adequately explain how one of ordinary skill would understand Symons to teach claim 1 in view of their differences, and therefore, does not meet its burden.

As noted above (*see supra* note 16), Petitioner expressly cites Williams only with respect to the preamble recitation of “defining an automation process.” Even if we were to consider Petitioner’s arguments concerning the preamble to extend impliedly to the body of claim 1, notwithstanding the absence of any further explicit reference to Williams, Petitioner contends with respect to the preamble only that “[t]he Symons-Williams combination results in a chatbot-RPA bot system capable of handling a user request for automated generation of an email signature,”

again focusing on the result rather than any the steps of defining, associating, and publishing recited in the claims. *See* Pet. 15.

We are similarly unpersuaded by Petitioner’s argument that “[t]o the extent that Symons does not disclose defining a conversation, it would have been obvious because then a chatbot would interact better with the user when the conversation (e.g., which questions to ask) is defined.” Pet. 18 (citing Ex. 1003 ¶ 89). Again, Petitioner’s argument and Dr. Beigi’s testimony cited in support both focus on whether a conversation would be defined, rather than whether Symons would have suggested including a step of defining a conversation.

Even accepting Petitioner’s argument (Reply 13) that the language in claim 1 is “broad[,],” we are not convinced that identifying the implementation of a conversation (i.e., Symons’ conversation and RPA bot) necessarily leads to performing the method as recited in independent claim 1. We agree with Dr. Zatkovich’s testimony that Symons “discloses an interaction a user has with a chatbot, without providing any information on how the chatbot was generated.” Ex. 2001 ¶ 216; *see also id.* ¶ 208 (stating that “Symons does not disclose a method for defining an automation process, nor does it disclose an application that would require anything more than processing fixed data entry fields”). Moreover, we find Petitioner and Dr. Beigi’s showing insufficient to meet the high standard of inherency. *See, e.g., Continental Can Co. v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991) (stating that “when a reference is silent about an asserted inherent characteristic, it must be clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill”); *see PAR Pharm.*, 773 F.3d at 1196; *Oelrich*, 666 F.2d at 581. For example, Mr. Zatkovich testifies that

“as is frequently the case with tech demos, the chat bot may simply have been ‘hard-coded’ to provide the responses it did, as was common at the time.” Ex. 2001 ¶ 220; *see also id.* ¶ 223. Mr. Zatkovich also testifies that “conversations can be generated without performing each of these steps.” Ex. 2001 ¶ 222. Mr. Zatkovich further testifies that “[i]t would make no sense to create an association process when there is only one automation process to associate.” Ex. 2001 ¶ 221; *see also id.* at ¶ 212 (stating that “such a conversation . . . does not need to be associated with any particular automation process, since the data is merely passed on from the chat bot in Symons to the Cronos bot that implemented the automation process”). Dr. Beigi responds that “Symons’ chatbot performs natural language processing, which means that Symons did not merely hardcode a single conversation.” Ex. 1042 ¶ 43. However, Symons does not state one way or the other whether it performs natural language processing, so we do not find Dr. Beigi’s conclusory testimony in this regard persuasive.

Accordingly, we determine that Petitioner has not shown by a preponderance of the evidence that claim 1 is unpatentable over the combination of Symons and Williams.

2. Independent Claims 11 and 18

Independent claim 11 recites “[a] computerized apparatus for defining an automation process, wherein the automation process is configured to be invoked in response to a conversation of a user with a natural language interface, wherein said computerized apparatus comprising [sic] a processor and coupled memory, the processor being adapted to perform” the same steps as recited in limitations 1[a]–1[e] of independent claim 1. Ex. 1001, 23:23–49; *compare id.* at 23:29–49 (limitations 11[a]–11[e]), *with id.* at 22:19–39 (limitations 1[a]–1[e]). Independent claim 18 recites “[a] non-

transitory computer readable medium for defining an automation process, wherein the automation process is configured to be invoked in response to a conversation of user with a natural language interface, the non-transitory computer readable medium retaining program instructions, which program instructions when read by a processor, cause the processor to perform” the same steps as recited in limitations 1[a]–1[e] of independent claim 1.

Ex. 1001, 24:23–50; *compare id.* at 24:30–50 (limitations 18[a]–18[e]), *with id.* at 22:19–39 (limitations 1[a]–1[e]).

For the reasons stated in the above discussion of claim 1, we likewise determine that Petitioner has not shown by a preponderance of the evidence that claims 11 and 18 are unpatentable over Symons. *See supra* Section III.E.1.

3. *Dependent Claims 2–4, 9, 10, 12–14, and 19*

Claims 2–4, 9, and 10 depend directly or indirectly from claim 1; claims 12–14 depend directly or indirectly from claim 11; and claim 19 depends from claim 18. For the reasons stated in the above discussion of claims 1, 11, and 18, we likewise determine that Petitioner has not shown by a preponderance of the evidence that any of claims 2–4, 9, 10, 12–14, and 19 are unpatentable over Symons. *See supra* Sections III.E.1, III.E.2.

F. Ground 2: Obviousness over Symons, Williams, and Ben-Itzhak

Claims 6, 16, and 21 depend from claims 1, 11, and 18, respectively, and each further recite “wherein the natural language interface is implemented by a third-party messaging service, wherein the natural language interface is configured to generate and provide the user with a link, wherein interaction with the link is configured to cause execution of the automation process.” Ex. 1001, 22:65–23:3, 24:9–14, 25:1–7. Petitioner challenges dependent claims 6, 16, and 21 as unpatentable over Symons,

Williams, and Ben-Itzhak. Pet. 33–35. In this combination, Petitioner relies on Ben-Itzhak for its teaching of a conversation agent providing a link for a user to access and consume content, where “[t]he ‘user may be associated with one or more third party application, platform, device, system, or network IDs.’” *Id.* at 33–34 (citing Ex. 1034, code (57), ¶¶ 16, 18, 19, 28, 31; Ex. 1003 ¶¶ 138–141). Petitioner does not contend that Ben-Itzhak remedies the deficiencies of Symons and Williams with respect to independent claims 1, 11 and 19 discussed in Section III.E. above, and we conclude for the same reasons as with respect to Ground 1 that Petitioner has not shown that claims 6, 16, and 21 would have been obvious over the combination of Symons, Williams, and Ben-Itzhak.

G. Ground 3: Obviousness over Allen

Petitioner alleges claims 1–5, 9–15, and 18–20 of the ’732 patent are unpatentable under 35 U.S.C. § 103 over Allen. Pet. 35–55; Reply 19–22. Patent Owner opposes. PO Resp. 6–8, 59, 64–68; Sur-reply 18–25. For the reasons explained below, we determine that Petitioner has not shown by a preponderance of the evidence that any of the challenged claims are unpatentable on this ground.

1. Petitioner’s Contentions

Petitioner argues that, “[t]o the extent that [the] preamble [of claim 1] is limiting (which Petitioner does not concede), Allen discloses the preamble.” Pet. 36. In support of its contention, Petitioner quotes disclosure in Allen that its system “allows a user to *teach a computation device* how to perform complex, repetitive tasks that the user usually would perform using the device’s graphical user interface (GUI)”; that “[a]fter a complete task has been taught, the system is able to *automatically execute the task* in new situations”; and that “[o]nce a task has been successfully taught to the

system, *a user can ask the system to perform that task*,” whereupon “[t]he system will then execute the steps it previously learned.” *Id.* at 36–37 (quoting Ex. 1014, code (57), 3:44–46 (emphases added)) (citing Ex. 1003 ¶ 148). Petitioner contends that “[t]he automation process is invoked in response to a conversation of a user,” as recited in claim 1, citing Allen’s disclosure, quoted in section III.D.4 above, that the learned book ordering process may be initiated by the user saying “I want to buy a book.” Pet. 37 (citing Ex. 1014, 12:64–66; Ex. 1003 ¶ 149). Further, Petitioner contends that user speech 24 and system speech 26, in speech interface display 20 depicted in Figure 3 of Allen, illustrate “conversation of a user with a natural language interface,” as recited in claim 1. *Id.* (citing Ex. 1014, Fig. 3; Ex. 1003 ¶ 150).

With respect to limitation 1[a], Petitioner argues that Allen’s “software includes a *natural dialog-based interface* whereby said *user can communicate with said software* using natural dialog-based language.” Pet. 38 (quoting Ex. 1014, 18:47–49 (claim 1) (emphases added)) (citing Ex. 1003 ¶ 151; Ex. 1014, Fig. 3). Petitioner further identifies speech interface display 20, user speech 24, and system speech 26 in Allen’s Figure 3, along with Allen’s book-ordering automation process, as teaching this limitation. *Id.* at 38–40 (citing Ex. 1014, Fig. 3, 5:63–67, 6:27–53, 12:64–13:5, 16:35–40; Ex. 1003 ¶¶ 151–155).

With regard to limitation 1[b], Petitioner argues that “[t]he values obtained from the user during the conversation implemented by the natural language interface are used in the automation process, so Allen discloses associating the conversation with the automation process.” Pet. 40 (citing *id.* at 38–40 (arguments regarding limitation 1[a]); Ex. 1003 ¶ 156).

With respect to limitation 1[c], Petitioner argues that “Allen discloses ‘[f]or each step a user teaches the system, the system attempts to recognize the user’s intent. The system then learns to automatically execute steps by observing the user’s actions and analyzing the verbal instructions the user provides.’” Pet. 40 (quoting Ex. 1014, 6:61–65). More particularly, Petitioner contends:

The system learns how to execute the steps in the automation process of buying a book 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. (EX1014, 12:11-61; EX1003, ¶¶157-158.) The steps execute a functionality of the computer program, such as visiting online websites. (*Id.*, ¶158.) Since the system learns how the user interacts with the displayed UI of the computer program, performing the steps it was previously taught means the automation process utilizes a displayed UI of a computer program to simulate sequence of interactions. (*Id.*, ¶159.)

Id. at 40–41. Further, Petitioner argues, “[a]fter the chatbot is provided with the value for the parameters, it utilizes the values in the automation process of buying a book.” *Id.* at 41 (citing *id.* at 38–40 (arguments regarding limitation 1[a]); Ex. 1003 ¶ 160). Accordingly, Petitioner contends, Allen’s automation process is “a parameterized automation process having a parameter.” *Id.*

Still further, Petitioner contends, “[t]o the extent that Allen does not disclose performing an automation of a sequence of interactions with a displayed UI of the computer program and simulating user interactions with the displayed UI, it would have been obvious,” citing disclosure in Allen

that a “graphical user interface (‘GUI’) is preferably provided so that the *user can easily monitor [the system’s] actions.*” Pet. 41 (quoting Ex. 1014, 4:66-5:1 (emphasis added)). According to Petitioner, “[i]t would have been obvious that in order for the user to easily monitor the system’s actions, the system’s actions have to be displayed,” and “[a]s a result, the system’s actions (simulated user interactions) are with a displayed UI.” *Id.* at 41–42 (citing Ex. 1003 ¶ 161).

With respect to limitation 1[d], Petitioner provides the annotated version of Allen’s Figure 1 reproduced below.

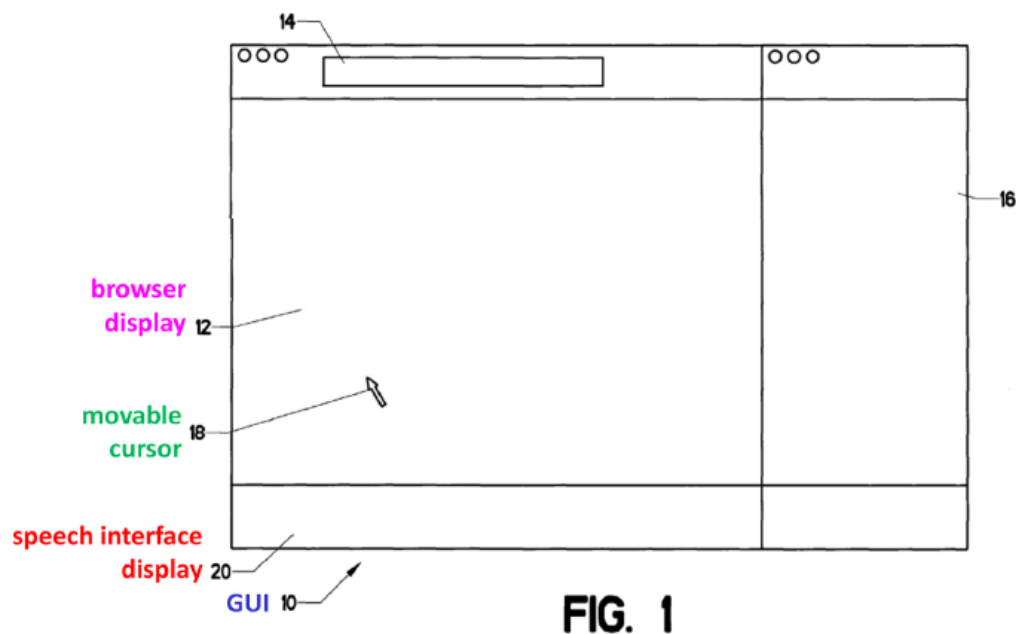


FIG. 1

Pet. 42. Petitioner’s annotated Figure 1, above, shows GUI 10 of Allen labeled in blue, with browser display 12 labeled in pink, movable cursor 18 labeled in green, and speech interface display labeled in red. URI entry box 14 and PLOWS display 16 are also shown in the figure but are not labeled. Petitioner contends that Figure 1 “shows Allen’s GUI 10, which publishes the conversation (user speech 24 and system speech 26) in the speech interface 20, accessible to a user via the natural interface.” *Id.* (citing

Ex. 1003 ¶¶ 162, 163; Ex. 1014, Fig. 1, 5:33–34, 5:47–48). Petitioner further contends, “[t]he conversation comprises the chatbot asking questions and the user responding,” such as in the previously cited example from Allen in which the user provides an answer in response to the system’s query “What is the title of the book?” and “[t]he system also ‘obtain[s] price and delivery date information, then provide[s] this information back to the user and ask[s] whether the user wishes to complete the transaction.’” *Id.* at 42–43 (quoting Ex. 1014, 12:65–66, 13:2–5) (citing Ex. 1003 ¶ 164).

For limitation 1[e], Petitioner contends that, “[i]n Allen, the automation process is invoked automatically by the natural user interface: ‘[o]nce a task has been successfully taught to the system, ***a user can ask the system to perform that task. The system will then execute the steps it previously learned.***’” Pet. 43 (quoting Ex. 1014, 3:44–46 (emphasis added)); Ex. 1003 ¶¶ 165, 166). Petitioner refers back to its argument regarding limitation 1[c] that Allen’s automation process is a parameterized automation process, and further contends that “[t]he automation process uses the values (‘The Glass Castle,’ a price such as \$10.99, a delivery date such as Jan. 7, 2007) provided by the user to the natural language interface for the parameters (title, price, delivery data).” *Id.* (citing *id.* at 38–42 (arguments regarding limitations 1[a] and 1[c])); Ex. 1003 ¶ 166).

2. Patent Owner’s Contentions

Patent Owner argues, *inter alia*, that Petitioner has not identified “a ‘conversation’ presented in a ‘natural language interface’” as recited in limitations 1[a] and 1[d]. PO Resp. 64. Specifically, Patent Owner argues that Allen offers no details or explanations as to how its conversation is generated and particularly whether “it is defined by the ‘user’ before being associated with the automated process” or if it is instead “generated

automatically on the fly based on the rules utilizing ontological properties.” *Id.* at 64–65. Quoting Mr. Zatkovich, Patent Owner argues that “Allen does not include any disclosure about how to formulate a natural language conversation that could be used to implement the ‘complex, relative tasks’ taught to PLOW,” but “merely discusses teaching these tasks,” and “[s]imply because the fact that the PLOW system is capable of being taught, and performing, different automations does not show that a conversation is defined’ as required in [limitation 1][a].” *Id.* at 60 (quoting Ex. 2001 ¶ 302), 65 (quoting Ex. 2001 ¶ 342). Patent Owner contends, “[t]he role of a user to perform the ‘defining’ of the conversation is central to the ’732 Patent’s disclosure.” *Id.* at 65–66 (citing Ex. 1001, 8:49–55, 11:27–38). With respect to limitation 1[d], Patent Owner argues that Petitioner and Dr. Beigi rely on “the wrong conversation,” focusing on “a training conversation, not a conversation used to invoke the process of buying a book.” *Id.* at 67 (citing Ex. 1003 ¶¶ 162–163). Further, according to Patent Owner, if Allen’s conversation is “generated on the fly by, e.g., using the ontological principles that underly [sic] Allen’s disclosure,” which Patent Owner contends cannot be ruled out, “it is never ‘published.’” *Id.* at 68 (citing Ex. 2001 ¶¶ 361–363); *see also id.* at 65 (“Not only is Allen silent on how the conversation is generated, but as Mr. Zatkovich confirms with support, ‘there is no indication in Allen that the user, as opposed to PLOW itself, defines the information needed to be acquired.’” (quoting Ex. 2001 ¶ 340)).

Patent Owner also argues, with respect to limitation 1[c], that Petitioner again relies “upon the wrong conversation,” as evidenced by its citation of Dr. Beigi’s testimony based on Figure 7 of Allen, “which is part of the training operation—not performing the action.” PO Resp. 66 (citing

Pet. 40–42; Ex. 1003 ¶¶ 157–159; Ex. 1001, 19:29–59; Ex. 2001 ¶ 353). Patent Owner further contends Petitioner’s alternative argument with respect to limitation 1[c] based on Allen’s GUI allowing the user to monitor the system’s actions also fails because “Allen explicitly describes that the display areas are presented in order to allow the user to monitor ‘whether PLOW has correctly understood the present objective,’” which, according to Patent Owner, is “irrelevant during execution. *Id.* at 67 (citing Ex. 1003 ¶ 161; 1014, 5:60–62; Ex. 2001 ¶¶ 355–356); *see* Pet. 41.

3. 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. Allen’s disclosure is primarily directed to explaining how PLOW is trained to perform an automated process using GUI 10 of Figure 1. For example, Figures 1–3 all relate to Allen’s training process.²² Allen describes that “[a]

²² 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 21; PO Resp. 7, 62, 64, 68. 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 21; *see* Sur-reply 21–23. 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

graphical user interface (‘GUI’) is preferably provided so that the user can 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.²³ 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. For example, for limitation 1[a], Petitioner relies on both Figure 3 of Allen, which describes the training process, and Allen’s performing process described at Ex. 1014, 12:66–13:1. Pet. 37–39. Compounding this issue, Petitioner’s only citation in support of its assertion that “Allen defines a conversation implemented by the natural language interface” is to paragraph 153 of Dr. Beigi’s testimony, which in turn provides only that the system would ask different questions if a user uttered a different request and does not identify which conversation is

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 21; PO Resp. 7, 62, 64, 68. 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.

²³ Allen refers to training, learning, and teaching sessions interchangeably.

referenced. For limitation 1[c], Petitioner also relies on both Allen’s training process and Allen’s performing process. *Id.* at 40–41. Petitioner likewise cites both Figure 1, illustrating the training process, and Allen’s performing process for limitation 1[d]. *Id.* at 42–43 (citing Ex. 1014, Fig. 1, 5:33–34, 5:47–48, 12:65–66, 13:2–5). Petitioner’s shifting back and forth between the training and performing process when addressing the same 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.

Petitioner asserts that Allen’s displays are used for both training and execution. Pet. 35 (citing Ex. 1014, code (57); Ex. 1003 ¶¶ 146–147); Reply 20–21 (citing Ex. 1014, code (57), 1:50–52, 15:24–40, 18:38–49 (claim 1); Ex. 1042 ¶¶ 111–115). 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[c] and 1[d]. *See* Sur-reply 23–24. 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 ¶¶ 111–114. 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 ¶ 112. 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 ¶ 112. Dr. Beigi also relies on Figures 9 and 10 (*id.* ¶ 114), 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”), 6:63–65 (“[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. *See* Pet. 37 (preamble), 38–39 (limitation 1[a]), 40–41 (limitation 1[c]), 42–43 (limitation 1[d]). But aside from this generic description, Allen does not provide any detail about the execution process, including whether it entails simulating a sequence of interactions with a displayed user interface.

As set forth above, Petitioner further argues with regard to limitation 1[c] that, “[t]o the extent that Allen does not disclose performing an automation of a sequence of interactions with a displayed UI of the computer program and simulating user interactions with the displayed UI, it would have been obvious,” citing Allen’s disclosure that a “graphical user interface (‘GUI’) is preferably provided so that the user can easily monitor [the system’s] actions” and arguing that “[i]t would have been obvious that in order for the user to easily monitor the system’s actions, the system’s actions have to be displayed.” Pet. 41 (citing Ex. 1014, 4:66-5:1; Ex. 1003 ¶ 161). Petitioner concludes that, “[a]s a result, the system’s actions (simulated user interactions) are with a displayed UI.” As Patent Owner points out, however, Allen explicitly describes that the display areas referenced by Petitioner and Dr. Beigi “are presented in order to allow the user to monitor ‘whether PLOW has correctly understood the present objective,’” and there’s no indication that they have any relevance to the

execution process. PO Resp. 67 (citing Ex. 1003 ¶ 161; Ex. 1014, 5:60–62; Ex. 2001 ¶¶ 355–356); *see* Pet. 41.

For example, while Petitioner cites Dr. Beigi’s testimony in support, Dr. Beigi relies only on description related to Figure 1 of Allen, 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. 1003 ¶ 161 (citing Ex. 1014, 5:15–20). In particular, the cited portion of Allen at 5:15–20 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 in a user interface *during learning* (e.g., Ex. 1001, 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 “utilize *a displayed user interface of a computer program* to simulate [a] sequence of interactions with *the displayed user interface of the computer program*” in the automation process, as recited in limitation 1[c].

Moreover, as explained in our Consolidated Trial Practice Guide²⁴ (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,

²⁴ Available at <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf>.

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 defining and publishing “a conversation to be implemented by a natural language interface” and to “utilize a displayed user interface of a computer program to simulate [a] sequence of interactions with the displayed user interface of the computer program and execute a functionality of the computer program,” 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 Mr. Zatkovich 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.” Ex. 2001 ¶¶ 322, 329 (citing Ex. 1014, 12:66–13:1). 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[a], 1[c], and 1[d].

Accordingly, we are not persuaded that Petitioner has shown by a preponderance of the evidence that claim 1 is obvious over Allen. For the same reasons, Petitioner has not established that independent claims 11 and 18, which include substantially the same limitations, or dependent claims 2–5, 9, 10, 12–15, 19, and 20, would have been obvious over Allen.

H. Ground 4: Obviousness over Allen and Ben-Itzhak

Petitioner challenges dependent claims 6, 16, and 21 as unpatentable over Allen and Ben-Itzhak. *See* Pet. 55–56. As in Ground 2 discussed above, Petitioner relies on Ben-Itzhak for its teaching of generating and providing a link for a user to access and consume content. *Id.* (citing Ex. 1034 ¶ 18). According to Petitioner, “[c]onsuming content in Allen corresponds to the computer interacting with the webpage (causing execution of the automation process),” and a person of ordinary skill in the art “would have been motivated with interaction of the link causing execution of the automation process because then the user can see whether the system understood the speech correctly and executes the task properly (consistent with Allen’s objectives).” *Id.* at 56 (citing Ex. 1003 ¶ 214). Nonetheless, Petitioner does not contend that Ben-Itzhak remedies the deficiencies of Allen with respect to independent claims 1, 11 and 19 discussed in Section III.G. above, and we conclude for the same reasons as with respect to Ground 3 that Petitioner has not shown that claims 6, 16, and 21 would have been obvious over the combination of Allen and Ben-Itzhak.

I. Ground 5: Obviousness over Krishnan and Radhakrishnan

Petitioner contends claims 1–5, 9–15, and 18–20 are unpatentable under 35 U.S.C. § 103 over Krishnan and Radhakrishnan. Pet. 56–84; Reply 24–28. Patent Owner opposes. PO Resp. 76–82; Sur-reply 27–29. For the reasons explained below, we determine that Petitioner has not shown by a preponderance of the evidence that any of the challenged claims are unpatentable on this ground.

For claim 1, Petitioner relies on the combination of Krishnan and Radhakrishnan to teach the preamble and limitations 1[a]–[c] and 1[e]; and

Krishnan to teach limitation 1[d]. Pet. 56–69. With respect to the preamble, for example, 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 60 (quoting Ex. 1016, 1:17–19) (citing Ex. 1003 ¶ 220). Petitioner cites disclosure in Krishnan that “[t]he chat bot may respond to customer input by retrieving and providing . . . requested information, requesting additional input or information from the user, or performing an action and providing the user with status updates about the progress of the action,” where “[t]his *back-and-forth interaction between a user and chat bot may be referred to as a conversation.*” *Id.* (quoting Ex. 1016, 2:40–46 (emphasis added)). Petitioner contends that Figure 1 of Krishnan “shows the conversation of a user with a natural language interface for an example automation process of booking a flight,” where “[t]he chatbot requests information ‘necessary to book the flight, such as locations, dates of travel, seat preferences, and credit card information, and then processes the request to book the flight.’” *Id.* at 60–61 (quoting Ex. 1016, 2:67–3:3) (citing Ex. 1003 ¶ 221; Ex. 1016, Fig. 1). Petitioner then cites Radhakrishnan as “disclosing ‘leverag[ing] the unique interactions of a robotic process automation module with a UI 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 record to a workstation,’” where “RPA modules or ‘bots’ are ‘trained to *mimic user activity directly with a UI* of the device.” *Id.* at 61–62 (quoting Ex. 1018, code (57), 5:49–50 (emphasis added)) (citing Ex. 1003 ¶ 222). Petitioner contends, “[i]n order for Radhakrishnan’s RPA bot to be able to simulate user operations with the user device, its automation process must have been defined.” *Id.* at 62 (citing Ex. 1003 ¶ 223; Ex. 1018, 5:59–61).

According to Petitioner, “[i]t 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. 62 (citing Ex. 1003 ¶ 224; Ex. 1016, 2:7–11; Ex. 1018, 6:21–34). Petitioner contends “Krishnan teaches achieving these objectives by using a chatbot as an interface between the user and, *e.g.*, a back-end system,” while “Radhakrishnan teaches using an RPA bot to automatically execute processes, such as a back-end process, at the presentation layer of the computing system (without an API).” *Id.* (citing Ex. 1003 ¶ 225; Ex. 1016, 2:33–35; Ex. 1018, 5:21–23, 5:49–51).

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. 62 (citing Ex. 1003 ¶ 224; Ex. 1016, 2:7–11; Ex. 1018, 6:21–34); *see also* Reply 26–27 (citing, *e.g.*, Ex. 1018, 6:21–29, 6:38–42; Ex. 1042 ¶¶ 171–175). 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. 62 (citing Ex. 1003 ¶ 225; Ex. 1016, 2:33–35; 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, ¶226.) 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, ¶226.) Diagnosing and rectifying computer software-related errors is a complicated task, requiring

a dedicated and specialized IT support staff. (EX1018, 1:9-18; EX1003, ¶226.) 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, ¶¶226-227.)

Id. at 63.

Regarding limitation 1[c], Petitioner relies on Radhakrishnan, asserting that “[t]he RPA modules or ‘bots’ are ‘trained to *mimic user activity directly with a UI*’ of the device” and that “[t]he 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 their user operations in their entirety.” Pet. 66 (quoting Ex. 1018, 5:49–50, 11:32–36 (emphasis added)) (citing Ex. 1003 ¶ 233). Petitioner further contends, “[a]fter the chatbot collects the values for the parameters, the values are utilized in the automation process of, e.g., booking a flight (Krishnan), generating an email message (Radhakrishnan), or reproducing computer software-related errors (Radhakrishnan),” and “Krishnan-Radhakrishnan renders obvious a parameterized automation process having a parameter.” *Id.* (citing Ex. 1003 ¶ 234).

Regarding limitation 1[e], Petitioner contends that “Krishnan discloses a natural language interface, and both Krishnan and Radhakrishnan disclose an automation process.” Pet. 69 (citing Ex. 1003 ¶ 237). According to Petitioner, “[i]t would have been obvious to combine Krishnan and Radhakrishnan, where the (parameterized) automation process is invoked automatically by the chatbot (natural language interface)” and where “[t]he values provided by the user to the natural language interface for parameters are used in the automation process.” *Id.* (citing Ex. 1003 ¶ 237).

Patent Owner argues, among other things,²⁵ 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. 78–81; Sur-reply 28–29. 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*, 773 F.3d at 1193)); *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], [1d], and 1[e] and relies on Radhakrishnan to teach the preamble and limitations 1[a], 1[b], 1[c], and 1[e]. That is, Krishnan is relied upon as defining a conversation configured to obtain values to one or more parameters from a user via a natural language interface, associating the conversation with an automation

²⁵ 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 publishing the conversation to be accessible to a user, and Radhakrishnan is relied upon as teaching utilization in an automation process of a displayed user interface of a computer program to simulate a sequence of user interactions with the displayed user interface and execute a functionality of the program. 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. 63; 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. 63 (citing Ex. 1003 ¶ 226).

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 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 27 (citing Ex. 1018, 6:21–29, 6:38–42, Ex. 1042 ¶¶ 171–175). 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 25. 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 (*see id.* at 26), 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 the preamble of claim 1 and limitations 1[c] and 1[e], 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. 62 (citing Ex. 1003 ¶ 224); Reply 27 (citing Ex. 1018, 6:21–29, 6:38–42, Ex. 1042 ¶¶ 171–175). 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] and 1[e].

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. 62 (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 ¶ 439. Further, Mr. Zatkovich testifies that “since the chatbot of Krishnan

has direct access to backend databases, it would make no sense for Krishnan to access such systems through a user interface . . . , as this would reduce the efficiency,” and “there would be no reason for Krishnan to execute scripts 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 ¶ 492. We find Mr. 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 ¶ 172); 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] and 1[e]. 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. For the same reasons, Petitioner has not established that claims 2–5, 9–15,

and 18–20 would have been obvious over the combination of Krishnan and Radhakrishnan.

IV. 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.” CTPG²⁶ 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

²⁶ PTAB Consolidated Trial Practice Guide, November 2019 (the “CTPG”), available at: <https://www.uspto.gov/sites/default/files/documents/tpgnov.pdf>.

to Petitioner by leaving these Exhibits in the record, as the information is 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.

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V. CONCLUSION

For the foregoing reasons, we conclude that Petitioner has *not* demonstrated by a preponderance of the evidence that any of claims 1–6, 9–16, and 18–21 of the '732 patent are unpatentable on the grounds presented.

In summary:

Claim(s)	35 U.S.C. §	Reference(s)/Basis	Claim(s) Shown Unpatentable	Claim(s) Not Shown Unpatentable
1–4, 9–14, 18, 19	103	Symons (Article and Video), Williams		1–4, 9–14, 18, 19
6, 16, 21	103	Symons (Article and Video), Williams, Ben-Itzhak		6, 16, 21
1–5, 9–15, 18–20	103	Allen		1–5, 9–15, 18–20
6, 16, 21	103	Allen, Ben-Itzhak		6, 16, 21
1–5, 9–15, 18–20	103	Krishnan, Radhakrishnan		1–5, 9–15, 18–20
Overall Outcome				1–6, 9–16, 18–21

VI. ORDER

It is hereby:

ORDERED that claims 1–6, 9–16, and 18–21 of the '732 patent have not been determined to be unpatentable;

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

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

IPR2023-01379
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